Psychology and self reported PMS: An evaluation of different research strategies.

Catherine Jane Swann

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II. Abstract.

This thesis considers the use of different psychological research strategies in generating and supporting a theoretical account of the process by which women come to diagnose themselves as suffering from premenstrual syndrome (PMS). Taking an epistemological standpoint informed by recent psychological research into PMS, and the premises of feminist standpoint theory, it is suggested that methodological pluralism may be advantageous in researching a phenomenon grounded both in individual (biological) experience and the social or cultural sphere.

Chapter one introduces this research with a reflexive consideration of the researcher and research process. Chapters two and three present a review of physiological and psychological aspects of the menstrual cycle, and traditional approaches to PMS. The rationale for a multi-factor, psychological approach to PMS is presented at the end of chapter three, and chapter four goes on to outline the rationale for methodological pluralism, including adoption of a feminist standpoint approach.

Chapter five draws parallels between cognitive approaches to certain emotional disorders (such as panic), and presents a study examining the relationship between attentional bias, attention to body cues, autonomic arousal, stress, and self-reported PMS. Chapter six presents a questionnaire based study of three populations of women, using the Women's Health Questionnaire to investigate the relationship between PMS status and perceived detriment to emotional and physical health. Chapter seven presents a discourse-analytic study of women's accounts of PMS. Semi-structured interviews were conducted with women attending their first appointment at a PMS clinic. The analysis explores ways in which these women discursively constitute their experiences of PMS.

This thesis concludes with a discussion of the implications of the results of these studies, in terms of the theoretical framework, in terms of the area of PMS research, and for women who experience premenstrual distress. Recommendations for future research are also given.
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IV: Dedication.

To the memory of my Father, Nick Swann
(1938 - 1994)

Who couldn't understand why I was so interested in periods, and for leaving me
the gift of his humour and affection. My world is too quiet without him.

This thesis is dedicated to him, with love.
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Chapter One: Introduction.

This thesis considers the utility of different psychological research strategies as applied to the self-report of premenstrual syndrome (PMS). I also argue the case for a particular epistemological standpoint, based on feminist standpoint theory¹, in order to generate a theoretical account of what other researchers have termed a 'gendered' illness, grounded more in the socio-political context of female experience than in biological dysfunction (Parlee, 1991). Throughout the course of my research, I have often been asked by participants and colleagues alike to reflect, either upon my experiences as a woman (do I get PMS, too?) or upon my position within the dynamics of the research process. Considering the epistemological standpoint that I have adopted, it seems appropriate to begin this thesis by addressing these issues, and with a brief review of the concept of reflexivity.

1.1 Reflexivity and Feminist Research.

Cooper (1993) argues that reflexivity cannot be defined or described as a singular entity, a statement that is in keeping with the post-modern strands of disciplines that tend to use it as a technique. He suggests instead that it has three dimensions: In the first place, that the term refers to those aspects of representation involving any degree of self-reference or implication; Secondly, the capacity for self reflection and awareness (which ties it, to some extent, to the first dimension); Thirdly, it refers to the inseparability of representation and the represented, implying the argument that represented phenomena cannot be separated or viewed out of context of the observer / desriber of the phenomena.

This argument is drawn from the field of philosophy of science, but has been used well to illustrate the problems that science itself has with the notion of objectivity. In a similar vein, one of the most profound feminist critiques of scientific ideology is that science itself has failed to fulfil its own criteria for objectivity (see Harding, 1991) by, for example, creating a body of knowledge that is gender-biased, rather than gender blind.

In presenting a convincing argument for feminist standpoint theory, Henwood

and Pigeon (1995) suggest that as part of the standing critique of positivism\(^2\), the writing of the personal into research serves as a tool by which to debunk the myth of total objectivity. This strategy, known as reflexivity, has been used by many researchers (see, for example Hollway, 1989) in order to place their research in the context of its social situation, which includes the subjectivity of the researcher. Subjectivity is defined as:

"We use 'subjectivity' to refer to individuality and self-awareness - the condition of being a subject - but to understand in this usage that subjects are dynamic and multiple, always positioned in relation to discourses and practices and produced by these - the condition of being a subject"  

(Henriques et al., 1984 Pp3).

In the introduction of this thesis, then, I wish to use the tool of reflexivity in order to place my own research in its particular social and personal context. My own context, my own subjectivities or subject positions, have undoubtedly affected not only my research questions and methods, but also my reading of statistical results and texts.

'Soft' reflexivity may be seen as consisting of parts of the discussion section that accompany nearly every research publication - possible biases and confounding factors in the method, different readings of the results. This is a point of contention within discourse analysis and theory, for as Parker (1993) argues it is similarly possible to use these points of reflection within a discourse in order to identify it as such. Further, within traditional psychological and scientific research, the researcher herself is rendered totally invisible by the practice of reporting, and considered largely irrelevant as a contributor to the construction of 'fact'. Again, this critique supports the argument against 'strong' objectivity within the social and natural sciences.

However, knowing quite how to write the personal into my thesis has proved problematic - I was uncomfortable with simply placing a two page summary of who I perceived myself to be (in terms of my research, that is) at some point in the thesis, but daunted by the possibility of using a 'new literary form'\(^3\) (Cooper, 2012). I review the feminist critiques of positivism in chapter four.\(^3\) The 'new literary form', briefly summarised, is as much of a philosophical movement (particularly within science) as any academic entity. Woolgar (1988) is usually credited as the originator of this movement. As a term, it refers to the
1993) in order to make use of what Cooper (1993) terms a 'textual technology'. The end result of this particular debate was to present myself, the researcher, from the beginning of the thesis, and to 'write myself', as best I could, into each piece of research as I progressed.

Reflexivity, or this acknowledgement of the personal within the context of the research process, has been similarly used in disciplines other than psychology. Martin's (1987) anthropological study of women, class and reproduction uses extended interviews with women from different social classes to present a study critical of the existing scientific 'knowledge' around the female reproductive process. She uses what we would term a reflexive technique in analysing the women's accounts of their experiences of menarche, menstruation, pregnancy, birth and menopause. It is arguable that by using this method, or 'textual technology' (Cooper, 1993), Martin arrives at a different conclusion, or theoretical perspective, than a piece of research that is presented as separate from the observer / researcher. Within psychology, Hollway's (1982; 1989) qualitative investigation of gender and subjectivity provides a relatively early example of the reflexive thesis. It is important to note, however, that reflexivity is often tacit, or implicit, to methods themselves, and not overtly acknowledged as part of, say, the research 'procedure'. This is in part due to attempts by feminist researchers to move completely away from more traditional forms of research and method, and from the governing scientific ideology.

Through discussions with other graduate students facing similar issues in my research group, I identified two levels at which it might be useful to do this - reflecting upon myself as a researcher placed within the research process, and myself, similarly, as a woman. At various points of my graduate study, my supervisor saw fit to remind me that each Ph.D. should 'tell a story' about the research it presents. At it's most basic, my use of reflexivity tells the story of the

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adoption of new and often innovative ways of presenting text or information, such as transcribed conversations, asymmetric lists, or even reflexive footnoting such as this (Cooper, 1993).

4 The term 'reproductive process' is used in place of 'reproductive experience', as one of Martin's central contentions is that scientific ideology effectively separates the woman from her body, disembodies her (Martin, 1987).

5 I use the term 'myself', in this context, to refer to my subjectivity, or my 'condition of being a subject' (Hollway, 1989).
1.1.2 Myself and my menstrual cycle: A researchers' standpoint.

Ussher (1992a), in attempting to reconstruct a psychological theory of PMS, states: "It is perhaps controversial to claim that any analysis of the current status or position of the scientific discourse in relation to menstrual cycle research, must examine the researchers, the scientists, the often overzealous investigators, who attempt to overcome the methodological pitfalls in order to uncover a kernel of 'knowledge' or 'truth'. These researchers...remain shadowy figures identified only by name and institution, their assumptions, their motivations, clear only to themselves". (Ussher, 1992a Pp 20)

Ussher (1992a) suggests, then, that any attempt to provide a theory of PMS should involve an analysis of the cultural context within which it exists, and a discussion of the appropriate method by which to do this. This point will be taken up again in chapters two, three, four and eight. She is further arguing a more general point which has been made by psychological theorists in response to the 'crisis' in social psychology and the move towards more qualitative methods (Parker, 1992), that the researcher cannot simply be positioned as a neutral interface between phenomena ('research' as a subject) and their representations ('research' as an object).

As I mentioned in the first section of this chapter, I have often been asked, as I have handed out questionnaires, interviewed women or talked to other students and researchers, whether or not I considered myself to suffer from PMS. Interestingly, it has simply been assumed by some that I do. And even more interestingly, if the word feminist is mentioned (and for half of my graduate study I attempted to limit my use of this term) it has been assumed that I don't 'believe in it', and am hostile to those women who consider themselves to suffer from premenstrual syndrome.

It is possible that the responses I have received over the last few years reflect different positions available to a young woman researcher in this field. In terms of my experience of my own menstrual cycle, I honestly think that my perception of menstrual cycle symptomology, and the way in which I position myself in
relation to my reproductive cycle, has changed and developed alongside my research. After all, reading about something for four years must surely affect one's attitudes and perceptions of it. So, do I think that I suffer from PMS? No, but.... perhaps the best way of explaining this is to explain the history of my research, and to place my experiences within that context, as many personal and political factors have influenced both of these aspects of my life.

1.1.3 Early stages of the research process.
I began the research for my Ph.D. towards the end of 1991, having just completed a degree (BSc) in experimental psychology at Sussex. I had found my first degree largely disappointing, and can echo Wendy Hollway's sentiments about her experience of learning psychology:

"I wanted to study psychology because I wanted to understand people (that phrase has come to sound trite and naive, but I think it needs to be reclaimed for serious psychology).... By the time I graduated my standard response to people who, on learning that I was studying psychology, said 'oh you must be able to read my mind' or some such comment, had become to deny that I knew any more about people than anyone else. I held to this position for a long time."

(Hollway, 1989 Pp 2 - 3)

My degree had been concerned with learning about the science of psychology, the experimental methods contained therein, and ways of utilising such methods to their best advantage. It was confusing at the time, for whilst the other students and myself were repeatedly told by members of staff that we were studying in one of the best departments in the country, that this was the best (most scientific) type of psychology to study, it seemed that much of the course was totally irrelevant to my somewhat naive contention that I wanted to be able to understand something about people. We studied animal psychology, behavioural ecology, brain and behaviour (animals and human), research methods, computer programming and artificial intelligence: it was not until my final year that an option I took (psychology of women, run by an academic from an arts-based psychology department) seemed to relate to any of my original ambitions. I began to read work critical of the scientific method and psychology, specifically as it pertained to women, and realised that my unease had been founded in a semi-awareness of the dissonance between science and the subject.
The option on the psychology of women was the first subject I studied that truly captured my interest - I was amazed that these critical, and often completely non-traditional (even non-scientific) approaches could be classed as 'legitimate' psychology. I was particularly struck by two aspects of the course: the critical exploration of women's 'madness', and more specifically the literature around the various female reproductive syndromes and their positioning of women. By attending this course, I felt as though I had at last found a legitimate framework through which to explore, and begin to understand, issues around femininity, experience and science, which had interested me for a long time. I was excited by the course material, even surprised that this was still considered 'legitimate' psychology.

It still seemed to me, however, that perhaps the way into such critical approaches as my final year course had covered was through designing the perfect experiment, one that would disprove the existence of, for example, 'true' PMS and point the way towards investigating further the oppression of women that underpinned these issues. Ussher (1992a) in her critical exploration of PMS researchers themselves, identifies this approach as the "Liberal feminist hero-innovator" (Pp 23). Despite my ambiguity towards the larger part of my degree study, I had performed well enough thus far, and was proficient enough in experimental methodology, to apply for a studentship in my then department. I was to be co-supervised by a female academic from my own department, whose interests lay in the area of abnormal and cognitive psychology, and by the course leader from my final year option (the psychology of women) who was based in a different department. My original research plan was to design a series of experiments to investigate the possible role of cognitive factors in the onset and maintenance of PMS, from within a framework critical of the bio-medical research that was predominant in the field.

1.1.4 The research questions.
At the beginning of my graduate study, my task, as I perceived it, was to read as much as possible around my area of interest, complete a literature review, and come up with a plan of my first study. The prospect was an exciting one, for at this stage I did think it possible to design the perfect experiment, one that would prove PMS to be a product of cognitive processes, themselves a product of cultural
processes. Ussher (1992a) was formulating an illustrative 'multi-factorial model' of the onset and maintenance of self-reported PMS, and my initial research outline in reflecting this approach represented an attempt to reconcile many of the tensions within the area to myself.

The department in which I was based had a particularly positivist outlook on the process of psychological research. This made for some tension, even at an early stage in my studentship: Having spent the final year of my degree reading critical and feminist literature, I was now, effectively, back to square one. And although both of my supervisors were women, my allies within the department were few, as the number of male staff and students by far outweighed the number of women.

From my review of the literature in the area of the menstrual cycle, and PMS, I noted a point also made by Anne Walker (1993), that the majority of research into PMS and the menstrual cycle had been carried out in an environment largely devoid of theoretical consideration or debate, and which failed to consider the accounts of women who experienced PMS (who, surely, should be central to the research process?). The research question that I decided upon, and which I take up at various points throughout this thesis, is simply 'what makes a woman self-report PMS'.

My initial research plans involved setting up a large scale survey of women followed by a series of between group (PMS and non-PMS women) experimental studies. However, my progress was somewhat hampered by my own early

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7 See chapter three.
8 Following on from Hamilton and Gallant (1990), it is interesting to note that use of any diagnostic criteria for PMS may result in a four-cell distribution of women: true positives (women who can be clinically diagnosed, who also believe that they suffer from PMS); true negatives (women who would not be clinically diagnosed as suffering from PMS, who similarly do not believe that they suffer from it); false positives (women whose symptom patterns correspond to a clinical diagnosis of PMS, but who do not consider themselves to suffer from it) and false negatives (women who could not be clinically diagnosed, but who would consider themselves to suffer significant premenstrual detriment to their mood and or behaviour, and who would categorise themselves as PMS sufferers). In my initial research plans, I intended to conduct a large scale collection of prospective information in order to obtain such a distribution, and then look at smaller groups of these populations using an approach that combined elements of the biopsychosocial model, attribution and cognitive theory. I was primarily interested
knowledge of the problems of conducting experimental research in the area of PMS, and having to reconcile this with a research plan that was acceptable to my department. As it transpired, a survey-based study was not considered appropriate (or sufficiently scientific) research in my then environment. I also found myself limiting my use of the term ‘feminist’, because of a very clear tension there between politics and research. It was apparent that, in some instances, the strong scientific bias of my department necessitated the issue of method to be placed before research question, and although I had embarked upon my course of study prepared to conduct positivist research, the fact that the focus of my research questions was partly dictated by a political standpoint seemed problematic. I entered into a process of drafting and re-drafting different research proposals, in order to meet certain tacit requirements, and experienced many conflicts.

1.1.5 The research process.
A compromise was eventually reached, and this research is detailed in chapter five. The struggle in which I had engaged in order to be permitted to continue my PhD was not without its consequences, however: Stanley & Wise (1993) suggest that women researchers are placed in a position of vulnerability, conspiring to place great pressure upon them to conform, with failure to conform to ideal standards more often than not being experienced as personal inadequacy. I completed my first year exhausted, and with a strong sense of being less ‘good’ at research than any of my fellow students, despite having passed the same statistical and programming requirements. I decided, however, that to give up at this stage would have been more damaging for me than to continue, and struggled on despite the estrangement from both my department and my supervisor, that I was constantly trying to redress. I began to look for support elsewhere, and at a psychology of women conference met two other postgraduate students who were conducting research into PMS and the menstrual cycle. We formed our own support group, sharing problems, research and papers, and this support was one in this in order to examine the influence of social, cultural and personality factors upon the 'false positive' and 'false negative' groups of women, rather than trying to refine the criteria for clinical diagnosis. I devised a research plan, including study outlines for the large survey and two smaller experimental studies, detailing this, and wished to follow on by including two single case studies in the thesis. I also included a critique of existing bio-medical research in this area which further examined issues around feminism and science.
of the reasons that I continued with my study.

After a year of research, and two studies into my plan, I began to read more around science and the 'crisis' in psychology (Parker, 1992). I was further disillusioned by the results of my studies, which had yielded only non-significant statistical results. Ussher (1992a) notes the prevalence of such results within PMS research, and to me they seemed to me to highlight the need for a socially situated approach. I was also angry that there was no place for reflection upon the scientific process, and exploration of critical perspectives, within an environment that was totally reliant upon the research framework of positivism. It seemed to me that if anything this process should be a vital part of working in the area of experimental psychology. Many of the political tensions surrounding my research had by now eased, as I was experimenting-away and presenting my results to departmental seminars.

Throughout all of this, I had been receiving support and some direction from my second supervisor, but her hands were largely tied because she was situated in a different (not to mention social psychology) department. At this point, she moved to a different University, and I was fortunate enough to be given the option to move my studentship and continue my study with her.

I had, as I say, continued my reading around critical psychological theory and feminist psychology, and had been a member of a critical reading group at Sussex. This subsequent move was instrumental in refocusing my research: From struggling with cognitive experimental paradigms, informed both by my own background in experimental psychology, by Ussher's (1992a) multi-factorial model of PMS and by my knowledge of constructionist approaches (which themselves could be applied to cognitive psychology), I was relatively free to reinterpret my original research question through the lens of different and complimentary approaches. I was also working in a totally different department, within an all-women research group that addressed issues of feminism and feminist practice in research. The dynamics of my own study changed drastically, as I entered a supportive network of other students and researchers, and I began to find my feet and to tentatively believe that perhaps there was some value to be found in what I was doing.
I had always maintained that I was attempting to conduct women-centred research, and this, coupled with a critique of diagnostic measures of PMS and an interest in PMS as a social rather than (or in addition to) a biological phenomenon, I had recruited women who believed that they suffered from PMS to a significant degree, rather than any clinical group. I had also begun to read about feminist standpoint epistemology and research, which, as Griffin and Phoenix (1994) point out, contradicts the notion that there is any one form or way of conducting feminist research. Rather, as they continue:

"Feminist standpoint research can be characterised (amongst other elements) as emphasising the importance of reflexivity; that research should be women-empowering and should take women's accounts seriously; and that it should focus around the notion that 'the personal is political'."

(Griffin & Phoenix, 1994 Pp289)

As I read around this, and also around the more traditional approach within the social sciences of triangulation of methodology (see, for example, Banister et al, 1994), I realised that it was possible to use diverse approaches, informed by the same epistemological standpoint, to attempt to move on from the now sterile debates around aetiology and effects of PMS, and their related critiques, and to try to reconstruct a new and emancipatory theoretical account. Such an approach would not only allow for the reinterpretation and contextualisation of my quantitative data, but would enable me to employ research strategies more appropriate to examining the social interplay and negotiation that women employed in coming to diagnose themselves as suffering from PMS.

1.1.6 Writing in the personal.
The transition from the use of experimental methods, to the use of more qualitative approaches, has not been an easy one. Despite my enthusiasm for this work, there exist no hard-and-fast rules for carrying out qualitative research. Coming from a framework within which one is required to know exact procedures and values, the transition towards research strategies that are unstructured and dynamic can be disorienting at best. At times, it has felt as though I am struggling to make sense of total chaos, and it was only when I let go of some of my assumptions about research that I had learned from experimental psychology that I was able to 'relax', and to begin to see some form of coherence in what I was doing. Nonetheless, this can also be quite frightening, especially when one's
academic success depends upon presenting a coherent research 'story'. Additionally, the transition from presenting research as an object, where the research remains anonymous and the textual style remains in the third person, to writing both in the personal, and writing the personal into research, has been difficult and often confusing. My background in experimental psychology is probably partly to blame for this, but I believe that such problems also reflect the cultural autocracy of Science and beliefs in and from scientific epistemology.

As I mentioned earlier, I believe that my experience of my own menstrual cycle and the way in which I position 'myself' in relation to this has been profoundly affected by my experiences of research. When I began my PhD, I certainly did not believe that I suffered from PMS to any degree. I had lived with other women students who did consider themselves to suffer from it, throughout my time as an undergraduate, and had wondered why they consistently used their reproductive cycles as a source of attribution for their experiences, and not the many other (and, in my view, possibly more appropriate) sources of stress or distress. This now strikes me as a rather naive attitude, and one valuable thing that I feel I have learnt during the last four years is to listen carefully to the pressures that women describe, and to try to understand the importance of these pressures from the woman's own standpoint as best as I can. Further, my early academic and home environments had the tacit effect of belittling not only female experience, but the whole issue of menstruation, as both irrelevant and at the same time as an explanation for the common practice of positioning women as labile, emotional - less 'good' than men (a parallel with some aspects of my academic experiences, perhaps?). I wholeheartedly resisted this practice, and this influenced my positioning of myself as a non-sufferer. The tension between my political standpoint and my early research illustrates in part the contradictions between science and femininity - the emotional pay-off that seems to happen when one is a woman, and practising 'science' at the same time.

That is not to say that I do not experience some premenstrual symptoms, and my position has changed. As my research progressed, and I interviewed a number of women who not only position themselves as suffering from PMS, but who experience chronic distress as a result of their problems, I have realised that part of the practice of conducting women-centred research is to acknowledge the reality of this problem for some women, if not myself. Perhaps my non-PMS status
has produced a very different reading of the texts produced by my interviews than a reading from a woman who does self-report - I still maintain that I myself do not suffer from it. But sometimes, (and perhaps this is a function of ageing, too), I seriously consider it...

Throughout this thesis, I have attempted to reflect upon not only the processes of science, and it's role in the creation of psychology, the subject and the menstrual cycle, but upon my own experiences and positions and how this may inform my interpretations of tests and results. My feminist politics, educational background, social background and relatively unproblematic experience of my menstrual cycle certainly cannot be ignored within some contexts, and these are discussed and reflected upon where appropriate.

Finally, I should like to suggest that as well as placing my research in context, I should like the preceding sections to stand as an example of the tensions and debates that currently exist within psychology as a discipline, which has similarly become a focus of my research and thesis. Keller (1985) suggests:

"Having divided the world into two parts - the knower (mind) and the knowable (nature)- scientific ideology goes on to prescribe a very specific relation between the two. It prescribes the interactions which can consummate this union, that is, which can lead to knowledge. Not only are mind and nature assigned gender, but in characterising scientific and objective thought as masculine, the very activity by which the knower can acquire knowledge is also genderized....Simply put, nature is objectified."

(Keller, 1985 Pp 79)

Hollway (1989) takes Keller's (1985) point to argue that in steeping itself in the trappings of objective science, psychology is similarly constructive in the production and reproduction of gender relations and the subject. Parlee (1991) suggests PMS to be a gendered illness, and it can thus be argued that in working within the parameters of science, psychological and bio-medical research into PMS is simply reflective of the standards of a gendered science. This thesis represents an attempt to move to the outside of more traditional psychological epistemology, in order to move forward from the perceived impasse (Ussher, 1992a) in PMS research.
Chapter Two: The menstrual cycle.
2.1.1 Introduction.
The human menstrual cycle, simply as a biological phenomenon, can be said to be an endocrinologically mediated infradian rhythm that affects nearly all women for a significant part of their lives (McNeill, 1992). Human females are unique in the fact that they menstruate, for most other female mammals have a brief period of sexual receptivity that usually coincides with the fertile point in their reproductive cycle (Golub, 1992). Human females, then, could also be said to be unique in that they may be sexually receptive for the larger part of their reproductive cycle, and humans as a species unique in terms of the vast array of cultural meanings, signs, and linguistic terms associated with the sexual and reproductive acts (Bem, 1992).

This chapter will describe the biology of the human female menstrual cycle, and the symptoms and effects associated with both 'normal' and 'abnormal' cycles. This literature is reviewed as a precursor to any discussion of premenstrual syndrome for two reasons.

In the first place, the menstrual cycle (and associated issues, such as PMS or endometriosis) are popularly and medically understood, for the larger part, from a position that is grounded in the biological and the scientific (Ussher, 1992a). In order to critique any notion of science, and specifically its uses with regards to construction of female experience, it is necessary first to lay out the scientific 'facts'. Throughout this chapter, I shall reflect on critical or alternative explanations to the more traditional interpretations of menstruation, although these will be set out in detail in chapter three. This chapter will be drawn upon throughout the remainder of this thesis as illustrative of a particular position within scientific discourse.

In the second place, this chapter represents a large part of the work originally laid out for my doctoral research, and as such has informed both my understanding and subsequent critique of the area. It may also be understood as informing the rationale for studies presented in chapter five, and, to a lesser extent, chapter six.

^ This is known as oestrus (Golub, 1992).

9 This is known as oestrus (Golub, 1992).
To summarise, this chapter is intended to provide an overview of the menstrual cycle, and of the research into the symptoms and effects associated with it.

2.1.2 Menarche: The onset of menstruation.

Menarche, the first menstrual bleed, is usually preceded by certain physical changes in the female body. Breasts and pubic hair will usually begun to have develop by the time that menarche occurs, body weight and height will have increased, with the hips becoming fuller. Put simply, the internal (hormonal) changes that occur with puberty are accompanied by obvious physical change. The first menstrual bleed will occur on average anywhere between the ages of nine and sixteen, on average at twelve years of age. (Golub, 1992).

In biological terms, the onset of menstruation marks the beginning of a young woman's reproductive potential. In more social terms, it signifies the transition from girlhood to womanhood in a way that is both externally obvious and personally significant. The menstrual cycle then, as Richardson (1992a) points out, is one of the very few human biological characteristics that illustrates complete sexual dimorphism; as such, it can be argued that the menstrual cycle contributes significantly to both male and female social and sexual identity, cultural beliefs and expectations of women, and the social as well as the biological construction of gender identity (Richardson, 1992a).

Martin (1987), in her anthropological study of the cultural, medical and personal meanings of menstruation, illustrates this last point well. From a qualitative analysis of interviews with 165 American women of mixed racial background and social class, she draws out the central themes that women spoke of, with regard to their experiences and understandings of menarche.

Martin (1987) observes that one of the most important parts of the meaning of menarche to her interviewees was often this transition from girlhood to...

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10 For a thorough review of the changes in the young female body both prior to and during menarche, I refer the reader again to Golub (1992; chapter 5, Pp24 - 51). Martin (1987) provides interesting coverage of the social and personal changes associated with the onset of menstruation.
womanhood: Her participants spoke of feeling like 'a woman now' (Martin, 1987 Pp 101). Another central meaning was the significance of the advent of reproductive potential, which in turn was referred to as a 'part of being a woman' (Martin, 1987 Pp 101). A further theme was that of menstruation being a common bond, or identity, between women. By beginning to menstruate, women often felt that they were joined together with other women, and as such, separate from men, who were excluded from and even ignorant of menstruation (Martin, 1987).

It can be argued, then, that the menstrual cycle has dimensions and meanings other than the biological understanding of the menstrual cycle as being a monthly fluctuation in hormone levels. Ussher (1989) makes an observation that summarises this position:

"When I talk of this reproductive cycle I am referring to the whole cycle from menarche to menopause., not merely the menstrual cycle which occurs every month.... For puberty will be seen to mark the beginning of the process which links female reproduction to weakness and debilitation, defining women through our position in the reproductive life cycle..... It is following menarche that the 'girl' becomes a woman, and following menopause that society deems women useless and redundant"

(Ussher, 1989 Pp 13)

Richardson (1992a) continues, to suggest that the menstrual cycle is positioned upon an interface between biology and culture. Being positioned thus, between the internal physical experiences of the menstruating body, and the cultural beliefs and practices associated with the menstrual cycle, it is possible to explore both in an attempt to understand the meaning of menstruation to the individual, and its role in the construction of the self.

2.1.3 Endocrinological Change Across the Menstrual Cycle.
The endocrinological changes that accompany the female reproductive cycle are controlled by interactive relationships between the ovaries, pituitary gland, hypothalamus and the central nervous system, operating within a complex feedback system (see figure 2.1). These endocrinological changes are accompanied by specific physiological changes. There is a great deal of research on the endocrinological changes associated with the menstrual cycle, and one of the possible reasons for this is the relative ease (compared with subjective
dimensions of the menstrual cycle) with which they are measured, through the use of blood or urine assay, or similar techniques (Richardson, 1992a). Although such measures have their limitations (McClintok, 1991) they are able to provide a reasonably accurate picture of steroid activity throughout the menstrual cycle.

The cycle itself consists of the maturation of an ovarian follicle, which culminates in the release of the ovum from the ovary and its subsequent journey down the fallopian tube, and the development of the corpus luteum (Golub, 1992). At the same time, the womb lining or endometrium is developing to prepare for the possible implantation of the fertilised ovum. If fertilisation fails to occur, then the corpus luteum regresses or shrinks and the endometrium breaks down, to be discharged from the body as menstrual flow (Golub, 1992).

During the first half of the menstrual cycle\textsuperscript{11}, the follicular phase, a hypothalamic releasing factor (gonadotrophin-hormone-releasing factor

\textsuperscript{11} The first half of the menstrual cycle is from approximately day 1 to day 14. Day one of the menstrual cycle is the first day of menstrual bleeding, and in a 28 day cycle, day 28 would be the last day of the menstrual cycle prior to the onset of bleeding and thus the beginning of the next complete cycle. The follicular phase or first half of the menstrual cycle is from approximately day 1 to day 14, with ovulation occurring midcycle (approximately 14 days before menstruation). The second half of the cycle, or the luteal phase, is thus from ovulation to menstruation. The length of these phases can only be approximate, as the length of the menstrual cycle varies greatly from woman to woman, with a ‘normal’ cycle being anything from 23 to 36 days in length (source: Matteo, S. (1987) The effect of job stress and job interdependency on menstrual cycle length regularity and synchrony. \textit{Psychoneuroendocrinology} 12 (6) 467 - 476).
Figure 2.1: The Hormonal Feedback System Associated with the Menstrual Cycle. (Source: Golub, S. (1992) Periods: From Menarche to Menopause London: Sage.)

or GnRH) stimulates the anterior pituitary gland to produce follicle stimulating hormone (FSH), which in turn stimulates one of the ovarian follicles to develop and secrete oestrogen (Asso, 1983). This increase in blood-oestrogen levels in turn stimulates the reconstruction and reproliferation of the endometrium. Through feedback, via the hypothalamus, it also stimulates the pituitary to produce luteinising hormone (LH). The blood concentration of LH peaks at mid-cycle, which causes the now mature ovarian follicle to rupture and release an ovum through the wall of the ovary, into the fallopian tube (Taymore, Berger, Thompson & Karam, 1972).
The ovum is propelled down the fallopian tube by the action of fimbriae, into the uterus. If sexual intercourse has taken place whilst the ovum has been travelling down the fallopian tube, and the ovum is fertilised, then it will at this point implant itself into the endometrium (Golub, 1992). During the second or luteal phase of the menstrual cycle, controlled by levels of LH the original site of ovulation (the point on the ovarian follicle from which the ovum was expelled) develops into the corpus luteum, literally, ‘yellow body’ (Golub, 1992). The CL secretes both progesterone and oestrogen, which are responsible for preparing the endometrium for implantation by the fertilised ovum should fertilisation occur. This also inhibits the anterior pituitary gland (via a negative feedback mechanism) from producing FSH and LH. If fertilisation does not occur, the CL ceases to produce oestrogen and progesterone, blood hormone levels gradually fall and the endometrium breaks down and is expelled from the body as menstrual flow. In the absence of the inhibiting presence of oestrogen and progesterone, the hypothalamus again stimulates the pituitary to produce FSH, and a new cycle begins (Golub, 1992).

2.1.4 Physiological Change Across the Menstrual Cycle.

The hormonal changes associated with the human menstrual cycle are usually accompanied by specific physiological changes (Golub, 1992). Body temperature (Hyde, 1979), cervical mucus (Golub, 1992), urinary excretion and electrolyte ratios (DeMarchi, 1976), alcohol metabolism (Asso, 1983), body weight (Voda, 1980) and food intake and metabolism (Asso & Braier, 1982) have all been found to vary across the cycle.

Basal body temperature tends to be lower through the follicular phase of the menstrual cycle, dipping slightly at ovulation and rising on the following day by 0.4 degrees Fahrenheit (Hyde, 1979). This variation in body temperature can be used to predict ovulation, either to avoid pregnancy or to enhance the possibilities of conception. Cervical mucus is thick and viscous in consistency in the days following menstruation. Just prior to ovulation, as oestrogen levels begin to rise, the mucus becomes slippery and more alkaline. The last day of slippery mucus, or peak day, is generally the day prior to ovulation, and fertilisation is possible up to four days after this. After ovulation, the mucus becomes much thicker and less slippery, under the influence of progesterone, and stays this way until menstruation begins (Golub, 1992).
Asso and Braer (1982) provide some evidence that vital signs (pulse and respiratory rate, blood pressure) do vary across the cycle, and possibly autonomic arousal, with slight increases in heart rate and blood pressure being seen in the second half and premenstrual phase of the cycle. The amount of urine excreted tends to increase at mid cycle, and at the onset of menstruation. This is probably related to variations in the levels of electrolytes in the body: DeMarchi (1976) found the sodium/potassium ratio to be highest during menstruation, when potassium is low and sodium high. At ovulation, it was further found that these positions reverse. Body water content has also been found to vary (Asso, 1983), and this may explain the differing levels of alcohol metabolism that have been found across the cycle: Jones and Jones (1976) found that women are less tolerant to alcohol premenstrually, and tolerate it best during menstruation when the sodium/potassium ratio is highest (DeMarchi, 1976).

Finally, weight gain of up to five pounds has been reported by women in the late luteal phase of the cycle, a finding which could perhaps be explained by the increased levels of oestrogen present after ovulation (Southam & Gonzaga, 1965) or by water retention and changes in electrolyte balance. It is possible that oestrogen may cause post-ovulatory increases in food intake, by making the body more tolerant to carbohydrates in the luteal phase of the cycle (Asso & Braier, 1982). This is a contentious point, however, and it may be that changes in perceived or actual body size and eating behaviour across the menstrual cycle are due to a cognitive, rather than biological, mechanism (Golub, 1992).

Frye, Crystal, Ward and Kanarek (1993) investigated food preferences across the menstrual cycle. In an attempt to examine the role of cognitive mechanisms in food preference, they included a measure of dietary restraint in a study that examined the relationship between the menstrual cycle, gender and preference for sweet or fatty foods. 25 female and 12 male college students rated the sweetness, fatness and pleasantness of 16 dairy products with varied sucrose and fat contents over a 4-week period. No difference in fatness or sweetness ratings was found in the sample of women across the menstrual cycle, or as a function of dietary restraint. The authors further report a general decline in pleasantness ratings in all participants over the 4-week period (a confounding factor in the design of the study). No difference was found in ratings of sweetness or fatness as
a function of gender. However, it is reported that differences in pleasantness (or preference ratings) were found: The male sample showed an increased preference for solutions with 10% and 20% sucrose compared to women, and women who scored highly on the restraint scale used showed a lower preference for solutions containing 0% or 5% glucose than the low-scoring women.

It is impossible, however, to take these results as indicative of a direct causal relationship between a particular cognitive set or style as regards food preference and diet, as the nature of cognition itself is open to debate. The study reported above certainly provides us with no evidence for a relationship between the menstrual cycle and food preference. Whilst this result could be explained in terms of small sample size and the short time focus of the study (female participants were only monitored for the course of one menstrual cycle), it is equally plausible to propose that any relationship that might exist between the menstrual cycle and food preference may be due as much to the interaction of social and interpersonal factors, as some causal hormonal aetiology. It might further be suggested that such laboratory situations, using solutions that may at worst be barely palatable, hardly reflects the action of the individual in their ecological setting.

2.1.5 Understanding physiological change across the menstrual cycle
The cyclical changes described above are experienced by women at a physiological level: many women will be completely unaware for their entire reproductive lives that, for example, their body electrolyte balance changes across their menstrual cycle. The symptoms generally associated with these changes, which are discussed in section 2.1.6, may be experienced more consciously than such minute fluctuations. Alcohol metabolism, food intake and carbohydrate metabolism, electrolyte ratios, cervical mucus consistency and basal body temperature changes are all understood through and exist within our considerable biological, and behaviourist frameworks.

Taking the example of cervical mucus, it is suggested (Golub, 1992) that the consistency of cervical mucus changes across the cycle as a direct result of changing levels of the reproductive hormones oestrogen and progesterone. The change from a sticky and slightly alkaline consistency, to being slippery and more alkaline for a brief period of time around ovulation, can then be understood
as a biological mechanism that optimises the chances of fertilisation occurring: at ovulation, vaginal conditions are positively welcoming to sperm cells. This in turn can be used to support sociobiological lines of reasoning around female sexual (reproductive) behaviour: that physiological and behavioural factors are geared towards optimising the chances of conception (Bem, 1992).

The point I should like to draw from this example is simply that although the menstrual cycle may be reduced to its smallest possible denominators: the biological mechanisms and fluctuations that constitute an almost universal physiological experience for women of reproductive age, biological 'facts' do not exist outside of social understanding. Basic evolutionary theory and an understanding of biology may be used to explain the evolution and existence of the menstrual cycle, but to step from these empirical measures to an understanding of female experience and behaviour incorporates more than scientific neutrality. The very act of interpreting data, or interpreting experience, incorporates the realm of the social (Woolgar, 1988), and, it will be argued, our constructions of gender as much determine as are determined by our biological knowledge. I shall use this line of argument to examine the nature of science and the use of gender in chapter 3.

2.1.6 Physiological symptoms across the menstrual cycle.

2.1.6.1 Dysmenorrhea

According to Richardson (1992a), nearly all women will experience a degree of physical sensation either just before or at the onset of menstruation. For some women, this sensation will be an extreme discomfort, which in the absence of pelvic abnormality is termed primary dysmenorrhea. In brief, primary dysmenorrhea is caused by ischemic hypoxia of the myometrium, or uterine muscle. This occurs when a tendency in the myometrium to be hyperexcitable is combined with uncoordinated or irregular contractions at the onset of or throughout menstrual bleeding (Dawood, 1981; Friedrich, 1983). It may also be the case that elevated levels of progestrogen in the second half of the menstrual cycle which stimulate production of endometrial prostaglandins cause primary

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12 I provide a more detailed explanation of primary dysmenorrhea in chapter three, where the use of questionnaires to assess the degree of menstrual pain is also reviewed.

13 Endometrial prostaglandins normally stimulate the myometrium to expel the
dysmenorrhea (Dawood, 1981; Lundström, 1985; Richardson, 1992a). Dysmenorrhea is experienced fairly universally across cultures, and can be effectively treated with prostaglandin synthetase inhibitors (Richardson, 1992a).

Secondary dysmenorrhea, or dysmenorrhea occurring with some kind of pelvic pathology, is divided into three categories (Laros, 1981): Spasmodic, congestive and obstructive dysmenorrhea. Whereas in primary dysmenorrhea, age of onset is typically restricted to up to six months post-menarche, secondary dysmenorrhea can begin at any point in the pre-menopausal woman’s reproductive life-cycle.

Spasmodic dysmenorrhea causes a similar type of pain to primary dysmenorrhea, characterised by uterine hyperexcitability leading to inadequate blood flow to the myometrium (Golub, 1992). This may be caused by a number of factors, such as benign tumours, intrauterine contraceptive devices such as the coil, polyps and narrowing of the cervix amongst them. Treatment varies according to the diagnosis, and surgery is often used to remove benign tumours (fibroids) or the uterus (hysterectomy) in extreme cases (Laros, 1981).

Obstructive dysmenorrhea is usually caused by some congenital abnormality in the uterus, where the uterus is partly developed and lined with endometrium but where there is no opening into the vagina and no outlet for the menstrual flow (Laros, 1981). Surgery is usually performed to correct this abnormality.

Finally, congestive dysmenorrhea tends to begin in the days prior to menstruation, and is characterised by a feeling of heaviness or aching in the lower abdomen. This may be caused by endometriosis, the existence of a benign growth in the myometrium, inflammation of a fallopian tube or pelvic inflammatory disease (PID). Treatment, again, varies according to the diagnosis (Laros, 1981).

2.1.6.2 Endometriosis

disintegrating endometrium and other menstrual debris. If progesterone levels were abnormally high, then an excess of these prostaglandins would be produced which, when combined with a secretory endometrium, might give rise to the acute discomfort associated with primary dysmenorrhea (Richardson, 1992).
Endometriosis affects an estimated 10% - 15% of pre-menopausal women, and is also a major cause of infertility (Golub, 1992). It is supposedly caused by the spread and growth of endometrial (womb-lining) tissue from the uterus to other organs. This tissue spreads most commonly to the ovaries and fallopian tubes, although patches have been found in other areas of the body such as the intestines. Because all endometrial cells respond to gonadotrophic hormones, this migrant tissue thickens, enlarges and bleeds to the same cycle as those lining the uterus, often causing chronic pain and scarring (Older, 1984).

Why this tissue spreads is not clear: a number of theories exist, including genetic or familial risk (Older, 1984). Endometriosis is an interesting problem: Whilst women who suffer from it often experience chronic pain, and extreme difficulty in getting an accurate diagnosis or effective treatment, there is remarkably little research in the area. It is not clear, for example, whether this action of the endometrial tissue is unique to women who experience endometriosis, or whether some endometrial ‘spreading’ happens in most women of a reproductive age, with only a particular subgroup experiencing the chronic symptoms that characterise endometriosis. There is almost no epidemiologic data for this condition, and given the distress that it causes, it is an area that certainly merits a great deal more research. Treatment is possible using either medical or surgical methods: The medical treatment involves the long term use of large doses of oestrogen and progesterone to suppress ovulation and menstruation, and in more extreme cases surgical treatment involving the excision or cauterising of endometrial lesions is used to remove the endometrial implants (Older, 1984). Whilst there are some negative side-effects associated with both forms of treatment, provided the disorder has been correctly diagnosed, symptoms may be adequately alleviated and rates of infertility reduced (Golub, 1992). Again, the incidence of endometriosis is fairly steady across cultures (Golub, 1992).

Throughout the menstrual cycle the uterus shows a changing pattern of contractile activity, governed by the levels of oestrogen, progesterone and prostaglandins (Dawood, 1981). Research monitoring uterine contractions of women using microtransducer measuring devices, has shown abnormally high levels of uterine activity in women with primary dysmenorrhoea (Friedrich, 1983). However, the normal uterus is active to some extent throughout the menstrual cycle, and some women report that they experience a distinct pain at
ovulation, although evidence for this is largely anecdotal (Golub, 1992).

2.1.7 Psychopathology, illness and the menstrual cycle

2.1.7.1 Psychopathology

The belief that menstruation makes women more vulnerable to both physical and mental illness can be traced back through history to ancient Greece (Ussher, 1991; 1992b). Maudsley (1873) suggested:

"The monthly activity of the ovaries...has a notable effect upon the mind and body; wherefore it may become an important cause of mental and physical derangement....It is a matter of common experience in asylums, that exacerbations of insanity often take place at menstrual periods"

(Maudsley, 1873 Pp. 88; cited by Ussher, 1992b).

More recently, there has been some research into the rates of admission to psychiatric hospitals and levels of suicide attempts in the premenstrual and menstrual phases of the cycle.

Glass (1971) surveyed emergency psychiatric admissions and rates of attempted suicide in a sample of 84 women. It was found that during the premenstrual phase of their cycles, twice as many women were seen in the emergency room as would be expected, and three times the 'normal' rates of suicide attempts occurred in the premenstrual phase.

Mandell and Mandell (1967) reviewed the number of women contacting an American suicide prevention centre, and found that of the women who could be classified as suicidal, the highest significant proportion called during the menstrual phase of the cycle (26%, compared to an expected 12.4%). However, the number of women contacting the centre in the premenstrual phase of their cycles was also significantly higher than expected, 19% compared to a predicted 12.4%.

Abramowitz, Baker and Fleischer (1982) retrospectively studied the psychiatric case records of women admitted to a Psychiatric centre. They found that depressed women showed elevated admission rates on two particular paramenstrual days: the day before and the first day of menstrual flow. 41% of the women had been admitted to the facility on one of these two days of their menstrual cycles. A comparison group of schizophrenic women did not show this pattern in admissions. They conclude that their findings support an hypothesis of a
relationship between periodic psychiatric crisis and the paramenstrum. However, the sample of depressed women in the survey was quite small (n = 39).

Stein, Hanukoglu, Blank and Elizur (1993) present a single case study of a 14-year-old girl who developed a late-luteal psychosis during two consecutive menstrual cycles. The psychotic symptoms resolved completely after the onset of menses. They argue that the patient’s response to a two-monthly progestrogen treatment, after which the psychotic symptoms did not reappear, provides some support for the existence of a discrete premenstrual psychosis, or sub-group of premenstrual symptoms. It is difficult however to draw many conclusions from a single-case study over such a brief period of time (the patient was monitored for five menstrual cycles), and in the absence of information about the girl’s previous history of psychiatric disturbance and immediate context.

There has been some research into the exacerbation of existing psychopathological conditions and the menstrual cycle. Taylor, Rush, Hetrick and Sandman (1993) examined self-injurious behaviour (associated with emotional disturbance) in a sample of 9 women with mental retardation (sic.). The women were aged 16-38, and had behavioural records of self-injury. Taylor et al (1993) examined the records of these women over a six month period, and divided the women’s menstrual cycles into four phases (menses / early follicular phase; late follicular phase; early luteal phase; late luteal or premenstrual phase). Using this phase delineation, analysis showed that the highest proportion of self-injurious behaviour occurred in phases one and two of the menstrual cycle (menses / early follicular phase, and late follicular phase); 43.5% in phase one, and 47.3% in phase two, respectively. The authors suggest that these results indicate a relationship between changing peripheral and central endorphin levels across the menstrual cycle and pain thresholds.

In a review of the evidence for a relationship between psychopathology and the menstrual cycle, Clare (1983) notes that there is some support for a relationship between the premenstrual phase of the menstrual cycle and psychotic and neurotic illnesses. However, he questions the notion of this relationship, suggesting that any simple causal model which attributes psychiatric ill-health to hormonal variation be turned over in favour of a more complex multi-factor model, to include personality and social problems, life events and stress (Clare, 26
A major problem with much of the research in this area is the interpretation by authors of the link between menstrual bleeding and psychiatric illness. Parlee (1975) suggests that the stress of illness or accidents may actually bring about menstruation - authors of research into psychiatric admission rates, or accidents and the menstrual cycle, usually posit the opposite relation (see, for example, Glass, 1971; Mandell & Mandell, 1967). The menstrual cycle is, after all, regulated by the action of the hypothalamus, which itself is vulnerable to the effects of external stress. As Golub (1992) points out, strong emotion may result in hormonal shifts, changes in the endometrium, and delayed or early menstruation. Thus, there may be a misleading or spurious correlation (rather than causal relationship) between menstruation and psychiatric illness.

2.1.7.2 Epilepsy
There is some evidence for a correlation between frequency of epileptic attacks and the menstrual cycle. Rosciszewska (1980), in a four year longitudinal study of female epileptics, found an increased incidence of attacks (55%) in the premenstrual phase of the cycle. However, Backstrom (1976) found that epileptic attacks were more likely to occur in the follicular (first half) phase of the cycle, with fewer occurring in the second half. Again, there are problems with interpretation of such data, as epileptic attacks place the body under extreme stress.

2.1.7.3 Illness and Allergy
In a review of systemic changes across the menstrual cycle, Southam and Gonzaga (1965) report evidence that pneumonia, influenza, scarlet fever, pancreatitis and typhoid fever occur more frequently in the premenstrual phase of the cycle. Retrospective reports of illness however are difficult to assess, for the reasons outlined previously. Certainly, there would seem to be cyclical changes to sensitivity to allergens. Smolensky, Reinberg, Lee and McGovern (1974) conducted a study of cutaneous reactions to histamine, and found that cutaneous sensitivity was highest on the first day of menstrual bleeding and lowest at midcycle.

Groer, Carr and Younger (1993) investigated the relationship between self-
reported symptoms of infection, menstrual cycle related distress, and cycle phase. Using a population of 65 non-pill using women with regular menstrual cycles, they administered a battery of instruments to measure perceived stress, menstrual distress, and an investigator-developed measure of common respiratory, skin, gastro-intestinal and genitourinary infections (Groer, Carr & Younger, 1993). A significant relationship between symptoms of infectious illness and the perimenstrual period was found, when compared with mid-cycle ratings of symptoms. However, this phasic influence was no longer significant when scores for menstrual distress were controlled, which the authors argue is indicative of a general relationship between distress and infectious illness during the menstrual cycle.

Two points are worth considering when regarding the conclusion of the above study, both of which concern the methodology of menstrual cycle research. In the first place, the problems associated with self-report are well documented (Ussher, 1992a). Whilst self-report measures are often presented as an accurate way of documenting symptom or pain experience, it is difficult to regard them outside of the immediate context of each individual as having any inherent 'truth'. Hollway (1989) argues that self-report and psychometric instruments reflect and reproduce cultural values, and this criticism could certainly be levelled at the study in question. Whilst the researchers certainly intended the participants to be blind to the object of the study, the women would still be conscious of their menstrual cycles. So although unaware of the menstrual cycle focus of the research, participants in such research are still exposed to the wealth of social knowledge around menstruation and the menstrual cycle. This leads to the second point: That whether the results of this study reflect a 'true' relationship between ovarian hormones and infection, or a relationship between women who are more likely to report menstrual distress and report of illness symptoms is not clear and cannot be surmised from these results, or using this research strategy.

Shibasaki, Takeda, Sumazaki, Nogami & Takita (1992) used a single case study design to examine the seasonal exacerbation of a 19 year old woman who experienced asthma premenstrually. The patient had experienced asthma, caused by an allergy to house dust mites, in the early (pre-pubescent) years of life, and had been effectively de-sensitised by use of an immunotherapy program.
Shibasaki et al (1992) report that the asthmatic symptoms reoccurred at menarche, and thereafter until her 19th year regularly occurred before menstruation, terminating when bleeding ceased. In addition, the patient only experienced these symptoms from April until October, implying an increased sensitivity to histamine at a particular point in each year, that did not mirror the concentration of house dust mites in her immediate environment. From this single case study, Shibasaki et al (1992) went on to examine the monthly admissions for asthma at a hospital in the same regional area, in a population aged from 3 to 15 years, with the purpose of comparing these figures with the month-by-month symptom experience of the patient. Shibasaki et al (1992) found that the patient’s symptoms correlated well with the monthly hospital admissions. They suggest that the seasonal variation in the patient’s experience of asthma was caused by environmental factors, but that these factors did not adequately explain why the patient only experienced asthma in the premenstrual and menstrual phase of the cycle. The researchers note that asthmatic sensitivity to allergens often follows the course of the menstrual cycle: One explanation for this might be infradian rhythm entrainment, or the entrainment of a minor body rhythm to a more significant one (McNeill, 1992).

2.1.7.4 Migraine
Migraine headaches would also appear to be related to shifting hormone levels and fluctuations in circulating prostaglandins (Edelson, 1985). Golub (1992) suggests that in more than 60% of cases, migraine is related to the premenstrual phase of the cycle. The exact mechanism of this relationship is not yet clear (Golub, 1992).

2.1.7.5 Visual and ocular variables
There is some research to suggest that the menstrual cycle has a significant effect on various ocular and visual variables. Soni (1980) found a cyclical variation in central corneal thickness (CCT) in 8 normally menstruating women, which was absent in a comparison group of 15 combined contraceptive-pill users. Cyclical variations have also been found in corneal curvature, and corneal sensitivity (Manchester, 1970; Riss et al, 1982).

In an investigation of visual acuity across the menstrual cycle, Scher, Purcell and Caputo (1985) administered a letter identification task to 4 18-30 year old women at
two points across the cycle. A small reduction in visual acuity was found in the ovulatory phase of the cycle, a finding which the authors suggest to be contradictory to other studies. Scher et al (1985) explain this result in terms of an interaction between the specific task demands and cycle phase, however it may equally well be explained in terms of the small number of participants tested, and the use of only two discrete menstrual cycle points in the study design.

Two flash fusion, critical flicker fusion, contrast sensitivity and other measures of visual sensitivity have also been studied in relation to the menstrual cycle, but Guttridge (1994) argues that any changes that may occur across the cycle are usually very small, and are of little (if any) clinical significance to women. It is interesting to note that this field of research is one that does yield some (very small) evidence of non-symptomatic significant change of a body system in response to levels of reproductive hormones.

2.1.7.6 Symptom improvement

Finally, Golub (1992) points out that some disorders actually improve during the premenstrual phase of the cycle. It has been suggested that oestrogen has certain anti-inflammatory properties (Magos & Studd, 1985), which might explain the improvement in certain rheumatoid arthritic conditions in the second half of the menstrual cycle, when circulating levels of reproductive hormones are high. In addition, whilst the negative experiences of the second half of the menstrual cycle are often emphasised (see chapter 3), many women report an improvement in mood and an increase in creativity and sexual responsiveness or feeling around the time of ovulation.

Krug, Stamm, Pietrowsky and Fehm (1994) examined the effect of the menstrual cycle upon creativity in a sample of 17 non-pill using women, aged 21 - 32. A sample of 17 age-matched women who were using the combined (progestin and oestrogen) pill were used as a control sample. The participants were given performance tests, measuring semantic and figural abilities of divergent thinking. A motor perseveration task was also included, and participants were tested at three points in the menstrual cycle: At menses, at a preovulatory point, and at a mid-luteal point. The authors argue that tests of divergent thinking ability can claim to measure different aspects of creativity. They report that at preovulatory testing, when blood concentrations of oestrogen and lutenising
hormone are highest, the experimental sample showed an increase in creativity, with a corresponding decrease in motor perseveration. In contrast, the control sample showed no pre-ovulatory change in either aspect. However, the sample size was again quite small, the participants were only tested for the duration of one menstrual cycle and at only three discrete points.

Bardwick (1971) studied a sample of 26 college students, aged between 19 and 22. The participants gave verbal recollections of life events and memorable life experiences at ovulation and premenstrually for two menstrual cycles. The samples were then analysed using a standardised anxiety scale, and it was found that anxiety and hostility levels were lower at ovulation, and that feelings of self satisfaction and contentedness were quite common at this point in the cycle. This study is by no means methodologically perfect (see Golub, 1992), but serves as an example of a possible positive effect of menstruation.

2.1.8 Conclusion: The physiological experience of the menstrual cycle.

The purpose of the proceeding section has been to lay out the biological profile of the menstrual cycle, and to review the certain physiological processes that may cause women to experience physical discomfort. I chose to review this aspect of the menstrual cycle as a precursor to any discussion of psychological symptoms and premenstrual syndrome, simply to illustrate the working of what is basically a biological universal for the vast majority of women. There is little cross cultural difference in the physical experience of menstruation, and what there is may often be interpreted in terms of different diet, exercise levels, and attitudes to pain and disclosure across cultures. For example, Zborowski (1965) found that Italian and Jewish patients showed more pain in response to the same stimulus than did Irish or American patients, a finding that serves to illustrate how cultural factors may affect the experience of bodily factors, such as pain (Golub, 1992).

It could be argued that by drawing this distinction, between the physiological and psychological aspects of the menstrual cycle at this stage in the thesis, I am simply reinforcing the Cartesian notion of a body / mind dualism that is inherent in Western attitudes to health and illness (Kirmayer, 1992). I should, however, like to argue that this is far from the case. What I wish to illustrate, through
reference to this section throughout the thesis, and through my use of critical approaches to understanding the experience of menstruation, is that even what might be termed the most basic biological processes of menstruation can hardly be separated from a social understanding of such (see section 2.1.5). In drawing later upon arguments around the social construction of science, from feminist standpoint theory and from discursive approaches to psychology, I will attempt to provide a theory of the experience of PMS that integrates both the body and the social.

The menstrual cycle is a universal physiological experience for women of reproductive age. Certain physiological symptoms may be indicative of various underlying pathologies, the incidence of which remains fairly universal across cultures. The seriousness, and ultimately the fatalities associated with disorders such as congestive dysmenorrhea may vary from culture to culture, depending upon the importance of women's health care within a particular context, and upon the levels of medical technology and care available. Similarly, the interpretation of menstruation, the importance with which it contributes to feminine identity, and the social understanding of various gynaecological problems will also vary across cultures. For example, Sayers (1982) cites cross-cultural differences in attitudes to menarche as an example of the social construction of menstruation. Some cultures, Sayers notes, believe menstrual blood to be dangerous. This leads to the exclusion of women, at menarche, from the day-to-day life of the society, and her placement in a 'menstrual hut' until bleeding ceases. Such arguments for the exclusion of women at menstruation will be reviewed in section 2.2.1, and it can certainly be suggested that within our own culture, beliefs about the detrimental effects of menstruation are used as justification for the exclusion of women from certain kinds of work, in the belief that either they are not physically suited to, say, fly aircraft when they are premenstrual or menstruating, as they will be liable to make more mistakes. It has also been argued (for a critical review, see Ussher, 1992b) that forcing women to undertake particular physical or intellectual work around the time of menstruation may prove damaging to their health, and ultimately impair their fertility.

Certainly, it could be argued that beliefs around the influence of menstruation upon ability and performance are not mediated by the social construction of
femininity and menstruation (Sayers, 1982), but rather that they reflect accurately the direct effect of menstruation upon behaviour. Dalton (1969) suggests that the menstrual cycle is directly responsible for devastating consequences: psychosis, crime, accidents and suicide, to name but four. But the evidence, as will be seen in the following section, is contradictory to say the least.

2.2 Behaviour and the menstrual cycle

Following on from the review of the physiological processes and symptoms associated with the menstrual cycle, I shall now move on to review the evidence for a relationship between the menstrual cycle and behaviour. I have divided 'behaviour' into four sections: performance, criminal behaviour, accidents and sexual behaviour. These separations reflect more the broad areas of research than discrete categories - there is, for example, some overlap between the literature around accidents and the menstrual cycle and performance.

Ussher (1992b) suggests that historically, female biology has been used by the culture to position women as less capable of performing certain types of work, less able to perform academically, and more liable to encounter accidents. Sayers (1982) has, through the use of cross-cultural comparisons, made a related point: That menstruation is sometimes used to exclude women from areas of power and the main cultural milieu. As was stated in the previous section, it could be argued that these truisms around performance, behaviour and the menstrual cycle reflect a true causal relationship, rather than any social construction of femininity. Research in these areas, and the underlying assumptions about femininity and menstruation, are considered in the following section.

2.2.1 Performance and the menstrual cycle

Social representations of women are infused with the notion of academic, athletic and work performance worsening premenstrually or menstrually. Popular cartoons often use the menstrual cycle as a source of humour for exactly this reason: the feminist cartoonist Jacky Fleming illustrates this point well, with a cartoon depicting a set of stickers for women to wear when premenstrual, in order to warn others of their state. The stickers have messages such as "Do yourself a favour and give me a wide berth" and "only ask questions that require a yes / no answer, and leave again promptly" with the letters "PMT" spelt out in a skull and crossbones format beneath (Jacky Fleming (1992) ‘Never Give Up’
Women's magazines similarly communicate this message to women, as the following excerpt illustrates:

"You know you're premenstrual when:
- You can't concentrate further than the first two words of any sentence
- You just want someone to take care of you.
- You spend twenty minutes wandering around your flat looking for the keys that were in your pocket all along.
People think you are premenstrual when:
- You demand to be taken seriously
- You say NO
- You ARE premenstrual

(Magazine's emphasis)

(Cosmopolitan magazine, February 1992, Pp37).

Studied that have examined the effects of the menstrual cycle on any measure of performance or behaviour tend to either compare women at pre- and post-ovulatory segments of the cycle, or choose discrete points throughout the menstrual cycle. Where a particular cycle phase is referred to, it is the term chosen by particular researchers with regard to their study design that is reported here. Methodological issues in relation to this are discussed in chapter three.

2.2.1.1 Task performance

The evidence for a causal relationship between the menstrual cycle and poor performance is far from clear, however. Sommer (1983) reviewed sixteen studies that used reaction time in laboratory based situations as a measure of performance across the menstrual cycle. Of the sixteen studies, Sommer reports that twelve failed to show any menstrual cycle effects upon performance (Sommer, 1983). Favereau (1973) tested six women using a simple reaction time experiment, and reported that reaction time was slower during menstruation.

In contrast, Slade and Jenner (1980), using a choice reaction time paradigm and a detection task, studied the effects of the menstrual cycle upon performance. It was found that there was only a small association between symptoms typically associated with the second half of the menstrual cycle and performance, and overall variation in performance did not reach significance.

Ussher and Wilding (1992) used a battery of performance measures and a computerised version of the Stroop task (Stroop, 1935) to investigate interactions between stress and performance across the menstrual cycle. The participants
were a group of self-reported PMS sufferers (n = 16) and a control group of women (n = 14) who reported no premenstrual or menstrual problems. The battery of performance measures included a digit span task, a tracking and dot detection task, a synonyms task and a visual search task. Data were collected at two points during the cycle, intermenstrually and premenstrually. No difference was found between the subject groups in performance or reaction to stress, or across the subject groups and between cycle phases. A previous study (Ussher & Wilding, 1991) which had used the same battery of tests at discrete points during the cycle had produced similar results, with no effect of cycle phase or PMS status reported.

Golub (1976) found no evidence of phase differences in the ability to select appropriate words, to produce words appropriate to a particular area of meaning, semantic flexibility and fluency. Similarly, Silverman and Zimmer (1976) found no evidence of phase differences in performance on a test of verbal fluency.

The Rod and Frame Test (RFT) is often used as a measure of perceptual disembedding (Sommer, 1992). Briefly, the RFT requires a participant, seated in a darkened room, to determine the degree of tilt of a rod within a frame, the rod alone or the frame alone. There are many variations of this task. Klaiber, Broverman, Vogel and Kobayashi (1974) found a less accurate perception of verticality in the second half of the menstrual cycle, when compared with the preovulatory phase.

Sommer (1992) reviewed five studies of immediate and short term memory, which used such tasks as digit span, letter elimination, recall and immediate learning as measures of performance. Sommer (1992) reports that none of the studies reviewed showed any significant phase effects. Similarly, no phase effects have been found in studies of visuospatial ability, using object assembly, localisation tasks and block designs as measures of performance (Sommer, 1992).

The evidence for any menstrual cycle phase effect on measures of motor coordination is contradictory. For example, Jensen (1982) found a premenstrual detriment to the ability to perform a pursuit rotor tracking task. Munchel (1979) found no phase effects with the same task.

Silverman and Phillips (1993) present the results of four sequential, interrelated
studies of the relationship between menstrual cycle phase and spatial performance. Using a three-dimensional mental-rotation paradigm, the studies employed both between- and within-subject designs. The authors report a menstrual phase improvement in spatial performance, when oestrogen levels are at their lowest point, in all four studies. Interestingly, Silverman and Phillips (1993) further report that this improvement in performance occurred only for the specific task of mental rotation, and was not shown for control tasks that were not of a spatial nature, or for a different spatial task. However, the authors present these results in the context of a discussion of the evolutionary origins of sex-specific differences in spatial behaviours, a leap which may be viewed as somewhat tenuous, considering the failure of similar research to produce such results and the short time-focus of the studies involved. The specificity of the difference, in that difference was only found on one specific mental rotation task, may also call into question the evolutionary significance of such a minute part of human cognitive function.

Gordon and Lee (1993) report no difference in cognitive performance on a broader range of tasks between different phases of the menstrual cycle. Using generally large samples of women, with oral contraceptive use and the menstrual cycle as independent variables, Gordon and Lee (1993) administered a battery of tasks to the participants, including verbosential and visuospatial tests, at discrete time points. No phase differences were found for the two regularly-menstruating groups (oral-contraceptive users and non-oral-contraceptive users), a finding which the authors state goes against theories of shifts in cognitive function as a direct result of fluctuating blood levels of oestrogen.

It is interesting to note that despite this contradictory evidence for any menstrual cycle effect upon performance, many women still feel that they perform less well menstrually or premenstrually. Sommer (1973) suggests that up to 16% of women feel that their ability to perform is significantly reduced in the premenstrual phase of their cycle.

Sommer (1992) in her comprehensive review of cognitive performance and the
menstrual cycle, suggests that there is little or no evidence for any real cyclical fluctuations. She states that whilst evidence exists for some alteration in brain metabolism across the course of the menstrual cycle, to translate such physiological events into presumed changes in observable behaviour represents more the misconceptions of the context within which research is conducted, than any concrete evidence for behavioural or performance changes.

2.2.1.2 Academic performance

Dalton (1969) has suggested that menstruation has significantly adverse effects upon examination and intellectual performance. Sommer (1972) presented a series of studies of the performance of 200 college women on two specific intellectual tasks, a critical thinking appraisal scale and class exams. Dividing her participant's cycles into four phases (menstrual, follicular, luteal and premenstrual), Sommer then compared scores on both tests for each woman across all four phases of the cycle. However, no significant phase effect upon performance was found, although it is worth noting that the women who were using oral contraceptives performed significantly better irrespective of cycle phase.

Walsh et al (1981) examined the scores of 244 female paramedic students in course tests over a period of one year. No significant effect of cycle phase upon examination score was found.

Richardson (1988; 1991) reviews the relationship between the menstrual cycle and student learning. Observing the common assumption that women students will experience variations in intellectual performance throughout the menstrual cycle, he concludes, through a review of research in the area, that despite the common reporting by women of impaired intellectual performance in the menstrual and premenstrual cycle phases, that the available research does not support this assumption.

Golub (1992) reports that of the vast number of studies that have been carried out on academic performance and the menstrual cycle, nearly all have failed to show any significant effect of cycle phase. Yet as Ussher (1992b) points out, the belief in premenstrual and menstrual related detriment to academic performance persists. Ussher (1992b) concludes that belief in such differences is reflective of
the social construction of femininity, rather than founded in the results of academic research.

2.2.3 Criminal behaviour and the menstrual cycle

Brahams (1981) reviews two cases in which premenstrual distress was used in defence of criminal behaviour. In the Crown v. Craddock, a 30 year old woman with a history of violent and disruptive behaviour stabbed another woman to death. It was noted that her violent behaviour followed a predictable monthly cycle. The woman was treated with progesterone by Dr Katharina Dalton, and the woman's behaviour was reported to significantly improve. Thereafter she was treated continuously with progesterone, and given a probation order with a verdict of manslaughter due to diminished responsibility.

Brahams (1981) goes on to report the case of a 37 year old woman convicted for the manslaughter of her lover in 1981. Dr Dalton again gave evidence for the defence, claiming that the woman's history of post-natal depression and PMS effectively created a circumstance of diminished responsibility at the time of the murder. To quote from the Lancet report:

"Dr Dalton gave evidence that PMS is a disease of the body and therefore a disease of the mind in that bodily metabolism is upset and that upsets the mental process...."

(Brahams, 1981 Pp1239).

Dalton (1960) reports that 49% of crimes (compared to an expected 29%) carried out by a population of 156 female prisoners were committed during the premenstrual or menstrual periods. Dalton provides the explanation that premenstrual and menstrual hormone changes, resulting in increased lethargy and decreased mental capacity, increased the chances of women being caught.

It is difficult to interpret data collected on the incidence of crime and violence in the premenstrual or menstrual phases of the cycle. In the first place, if one intuitively suggests the premenstrual and menstrual phases of the cycle to last for approximately one week each (in a so-called typical 28 day cycle), then the finding reported by Dalton (1960) above would illustrate exactly what one would expect if no relationship existed. Secondly, as has been discussed earlier, severe emotional strain or trauma may interfere with the menstrual cycle, bringing
menstruation on early (Golub, 1992). Smith (1991) found that the number of menstrual cycles in a 90 day period after illness, accidents or surgery often decreases from previous levels. In both of the case examples cited above, the acts of violence were carried out in contexts that were very stressful. Merely the act of killing, one would similarly imagine, must prove to be quite traumatic. This illustrates a further point: that any relationship between criminal behaviour and the menstrual cycle would probably be highly complex, and that to generalise from the studies above would be to ignore the context within which acts of violence are committed.

2.2.4 Accidents and the menstrual cycle
Ussher (1987) states that accident rates in relation to different cycle phases have been used as a measure of performance. Dalton (1964), in a review of research in this area, concludes that the evidence lies in favour of a relationship between particular types of accident (specifically, road accidents and accidents that occur in the home) in the premenstrual and menstrual phases of the cycle.

An earlier study by Dalton (1960b) that examined the rates of admission to a hospital accident and emergency department found that in a sample of 84 women, at least 50% of accidents had occurred in the premenstrual or menstrual phases of the cycle (see comments in section 2.2.3).

Cowie (1970) studied a population of female factory workers and machine operators and found some evidence for a premenstrual increase in minor accidents.

Again, it is difficult to interpret these studies, due to the confounding effects of stress and physical trauma upon menstruation, and to differences in the designated cycle-phases used by each study.

2.2.5 Sexual behaviour and the menstrual cycle.
Both prospective (day-to-day) and retrospective methods have been used to collect information on sexual behaviour and the menstrual cycle (Golub, 1992). Questionnaire studies have provided conflicting results, with some showing a premenstrual peak in sexual interest and enjoyment, others a mid-cycle peak (Kinsey et al, 1953; Williams & Williams, 1982).
Morris and Udry (1982) collected day-to-day reports of sexual activity in a sample of 40 women, and found evidence for a mid-cycle peak of intercourse and orgasm. Adams, Gold & Burt (1978) studied rates of female-initiated sexual activity across the cycle, and found evidence for an ovulatory increase in masturbation and intercourse in non pill-using women.

Matteo and Rissman (1984) recorded the daily sexual activity of 7 21 - 31 year old lesbian couples over a 14 week period. A significant peak was found in the number of sexual encounters and frequency of orgasm at midcycle, which the authors argue was independent of interactions with males, contraceptive use and fear of pregnancy. This study is useful, as the majority of studies of sexual behaviour focus on heterosexual women, and use frequency of intercourse as a total measure of sexual interest and behaviour. However, this study did not examine sexual feeling, masturbation, and sexual satisfaction, all of which would be useful measures of sexuality with regard to the menstrual cycle. There is relatively little research on non-heterosexual women and the menstrual cycle, but there is a distinct paucity of research on women not currently sexually active in either a heterosexual or lesbian relationship. Again, this is largely because frequency of sexual intercourse is most commonly used as a measure of sexual behaviour, in the absence of other information.

It should be considered, however, that expectations and attitudes towards sexual behaviour at different points of the cycle may influence the results of such studies (Golub, 1992). It may further be the case that the timing of sexual intercourse itself may have an effect on the length of the menstrual cycle: Cutler, Garcia & Krieger (1980), in a study comparing cycle lengths of sexually active and non sexually active college women, found that women who had regular (weekly) intercourse were less likely to have irregular periods. A further problem with the interpretation of research into sexual behaviour and the menstrual cycle is that sexual behaviour is most usually measured in terms of (heterosexual) intercourse, which (arguably) does not provide a full picture of women’s sexual feelings and activity.

2.3 Conclusion
It would seem to be the case that certain physiological variables and symptoms do
change with the menstrual cycle. Some conditions, such as asthma, may be exacerbated, and some physiological measures such as visual acuity may change, although these changes are likely to be very small indeed (Guttridge, 1994).

The precise mechanism of many of these relationships is unclear. Taking again the example of premenstrually exacerbated asthma, it may be that fluctuations in hormones directly affect the levels of response to allergens or the degree of bronchial congestion (Shibasaki et al, 1992). Alternatively, cyclical variations in symptoms otherwise unrelated to the menstrual cycle may be due to the oscillation of particular infradian rhythms, that may be 'entrained' or 'slave' rhythms to the menstrual cycle. The body experiences numerous cycles of periodic phenomena: circadian (or twenty four hour) cycles such as sleep / wake, and infradian (longer) cycles such as the menstrual cycle, or (arguably) various mood and state changes over time. It has been suggested that the menstrual cycle is a strong infradian rhythm (McNeill, 1992), and the entrainment of other infradian rhythms to the menstrual cycle might explain in part why certain characteristics or variables are seen to vary with the cycle over time. McNeill (1992) notes that biological rhythms are known to differ markedly across individuals, which might explain in part some contradiction in the various literatures.

There is some variation between studies of menstrual cycle phase designation (Ussher, 1987). This renders it difficult to draw many strong conclusions from the available research.

It is still more complicated to interpret the results of studies of behaviour or performance and the menstrual cycle. Often, the rationale for research on performance and the menstrual cycle is based on the assumption that behaviour is directly linked to the effects of hormone levels. But as Sommer (1992) points out, this relationship is by no means clear or simple. As we have seen, the physical effects of reproductive hormones on various physical capacities that might be associated with performance or behaviour, for example visual acuity, are so small as to be practically negligible. It would seem appropriate to reiterate a point made by Sommer (1992): That what researchers should be addressing is not how menstruation affects performance, but instead why the belief in this particular relationship persists. Ussher (1992b) argues that the answer to this
question lies in an examination of the discursive practices that construct women, and female biology.

This chapter has set out an hormonal profile of the menstrual cycle. Further, it has examined associated symptomology, and the literature around behaviour, performance and the menstrual cycle. It has been noted that little evidence exists for any detriment to the above measures associated with the normal functioning of the female reproductive system, yet the amount of research that is carried out in this sphere may be posited as evidence of a persistent belief in any such effects.

It would seem, then, that there lies a case for an examination of the social construction of menstruation (Sayers, 1982). Such an endeavour might then serve to refocus our interpretations of such research as has been presented above. This research further calls into question the credibility of scientific method in this area: As will be seen in chapter 3, the published face of menstrual cycle research is largely skewed and unrepresentative. Ussher (1992b) notes that studies that fail to achieve statistical significance from their data, more often than not fail to be published in academic journals. Ussher (1992b) suggests that the vast majority of research into behaviour, performance and the menstrual cycle achieves non-significant results.

Thus far, little mention of premenstrual syndrome (PMS) has been made. The existence of PMS in the medical and psychological research and clinical literature has provoked an enormous amount of debate in recent years. Specifically referring to increases in emotional, behavioural and physical symptoms in the premenstrual phase of the cycle, this debate refers specifically to the proposed relationship between female hormones and behaviour that I have begun to outline here.

Chapter Three: Premenstrual Syndrome.

3.1 Introduction
The term "Premenstrual Tension" was first used by R. T. Frank, who in 1931 described the following symptoms in his patients:
"Indescribable tension from ten to seven days preceding menstruation,.... These patients complain of unrest, irritability 'like jumping out of their skin' and a desire to find relief by foolish and ill-conceived actions. Their personal suffering is intense and manifests itself in many reckless and sometimes reprehensible actions."

(Frank, 1931 Pp 1054).

It may be concluded from the review presented in chapter two that measurable physiological changes, in terms of hormonal fluctuations and visible change to bodily secretions and physiological structures within the reproductive system, occur fairly universally (in the absence of any pathology) in women of a reproductive age. Parlee (1991) notes that essentially, there is no conclusive evidence to support a simple medical or psychological model of paramenstrual debilitation. From chapter two, it may also be concluded that, whilst a great deal of research has sought to establish a simple causal link between levels of reproductive hormones (generally, progestrogen and oestrogen), performance or behaviour, the evidence for such a link is at best contradictory and tenuous.

The previous chapter also attempted to review the literature on performance, behaviour and the menstrual cycle as separate and distinct from any discussion of Premenstrual Syndrome, or PMS. Of course, it can be argued that to separate the two bodies of literature entirely is impossible, as the two are inextricably linked in terms of the epistemological assumptions that they represent. The purpose in this instance is, however, to present a broader picture of the 'state of knowledge' regarding the menstrual cycle, to be narrowed in focus in the present chapter. Certainly, one question that may be asked of the literature represented in chapter two, is why so much of the research has focused (more often than not, unsuccessfully) upon a negative or detrimental relationship between reproductive hormones, performance and behaviour.

In a thorough review of cognition and the menstrual cycle, Richardson (1992a) notes that paramenstrual cognitive impairment is a relatively recent idea, which has its roots in far earlier notions of the detrimental effects of intellectual activity upon women's reproductive capacity and general health. Negative constructions of menstruation and the menstrual cycle, both in ancient and modern societies, have been noted by Sayers (1982) and Ussher (1989; 1991). The
quote with which this chapter is begun, taken from the writings of gynaecologist R. T. Frank in the earlier half of this century, arguably marks the beginnings of the transformation of the menstrual cycle, through the lens of modern science and medicine. Through this transformation, it may be argued that the disease category of PMS has been created (Ussher, 1989).

The purpose of the following chapter then is to provide a thorough examination and review of the concept of Premenstrual Syndrome, or PMS. The emergence of PMS as a disease category will initially be placed within its historical and scientific context, with reference to earlier beliefs around and research into menstruation. Modern definitions, criteria, and instruments for measuring PMS will then be reviewed, in order to examine the predominant medical and biological approaches to the field. This will, in effect, cover the literature contained within what Ussher (1992a) terms the biomedical model, and 'traditional' psychological research, of PMS.

Following on from this, significant critiques of PMS15 will be examined in detail. The social construction of PMS will be reviewed, which continues from section 2.2.1 where discussion of negative social constructions of menstruation is initiated. This will introduce an outline of possible psychological approaches to PMS, and a brief review of proposed psychological models16 of PMS. The chapter is concluded by a summary of these reviews and the introduction of critiques of positivist psychology.

3.1.1 Premenstrual Syndrome and science: An historical perspective

In chapter two, early beliefs around menstruation and the ability to work were discussed in brief. The quote at the introduction of this chapter, from the works of Frank (1931), is the earliest mention of "Premenstrual Tension" as an illness or disease category. However, early medical and popular beliefs about the

15 At this juncture, I mean to use "PMS" in a global sense, to cover the concept of PMS as a disease category, the epistemological assumptions that are contained within such a category, the nature of research that is carried out and the interests and agendas of the researchers in the area. This is commensurate with the work of Ussher (1992a), who reviews the major methodological and feminist critiques of the area, and provides an innovative critique of the origins of research carried out in the area of PMS.

16 These will be covered in greater detail in chapter four, where I set out my epistemological stance and theoretical framework.
relationship between performance, behaviour and menstruation precede this date considerably. This section will review historical constructions of menstruation and the emergence of PMS in the earlier half of this century. This literature will be placed within the context of the development and popularisation of science, in order to illustrate later how what will come to be termed scientific discourse creates a socially powerful construction of the female body.

3.1.2 Science, religion and the female body.
From the fifteenth century to the present time, science, as an epistemology and an ideology, has gained hold in the West. Perhaps the most accurate definition of science lies within a description of its method - what is broadly termed as positivism is essentially a belief that the positive benefit of science can be reduced to scientific method alone (Harding, 1991).

A basic premise of the hypothetico-deductive techniques of scientific research is to be found in the principle of falsification (Popper, 1963) and is generally used throughout the social and natural sciences. Falsification of an idea, or hypothesis, involves the setting of a null hypothesis (drawn from existing knowledge, in an attempt to predict future results) in order that it be proved incorrect, the supposition being that whilst one can never, with complete certainty, confirm an hypothesis that one believes to be true unless one has observed or tested all examples of the phenomenon under research, one can more easily prove a negative hypothesis to be false (Woolgar, 1988). This method assumes that all observers or observations are neutral (i.e. bias free), and has at its core a premise of essentialism, that is, that in the broad sense phenomena may be reduced to a single factor or cause and that by using scientific method this factor or cause may be objectively discovered (Woolgar, 1988).

Woolgar (1988) goes on to note that the social organisation, or development of science may be organised into three phases. The amateur phase (1600 - 1800),

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17 By science, I mean to use the term to refer to any discipline that seeks to research and to maintain academic rigour by adherence to the principle of science, and by the use of empiricist techniques in research. Thus, under this definition, both the 'natural' and 'social' sciences are included. Obviously, this definition is not absolute or without argument, and I use it here to facilitate a broad discussion. Critiques of social science, social science epistemology and methodology, and specifically psychology, will be reviewed in chapter four.
covers a period when science took place outside of academic and government institutions, when participants were nearly all financially independent professional men. The second, or academic phase (1800 - 1940), marked a period when more training and resources were required to accommodate the growing body of research and science practitioners, and science tended to be practised within the confines of Universities. The final phase, which Woolgar (1988) terms the professional phase, covers the period of time from the 1940’s to the present, where science is funded on the whole by central government, and where non-scientific sponsors therefore have an increased interest in the practice and outcomes of science. In addition, the work of science now tends to be judged in terms of it's economic and social value, which has led to a marked increase in the amount of scientific effort directly related to industry. Along with the growth of the mass media, so too has public awareness of scientific endeavours and their value grown (Woolgar, 1988).

However, it may be argued that science, and positivism, have implications and actions beyond the immediate activity of research. Whilst the notion of science as something special and distinct from other forms of cultural activity, and the assumption that science may bring into view objects of the world that are real, objective and independent in status persist, science itself is organised to reinforce the ideology of representation (Woolgar, 1988). That is to say, that science itself is not separable from the objects that it brings in to view, nor the context within which it is practised. This is an argument for science as a social system, or ideology, and as such, has important implications for research and theory pertaining to the female body.

Ussher (1991) presents a coherent argument for the medicalisation of the female body. In “Women’s Madness: Misogyny or mental illness” she charts the cultural shift from religion as the prevailing ideology to science. This is paralleled with the shift from the social control of women through the body by religious doctrine (for example, witch burning) to the social control of women through the body by medical doctrine (for example, psychiatric classification and the higher incidence of particular types of mental illness in women). This argument follows from the observations of Szasz (1971), who has compared the witch burnings and inquisitions of the 15th and 16th centuries to modern psychiatric classification systems and treatment, and questioned the existence of mental illness itself as
being at the control of those in power, namely, the (male) priest or physician (Szasz, 1971).

This shift in popular understanding and governing ideology can be, in brief, understood as a 'paradigm shift' from religion to science (Kuhn, 1962)\(^\text{18}\). Although positivism\(^\text{19}\) has its roots in ancient Greece and the work of early 'scientists' such as Aristotle, it may be argued that it became accepted (and then only by the intellectual elite, such as Galileo, and later Descartes) in the fifteenth and sixteenth centuries, a period in cultural history known as the enlightenment (Harding, 1991). Medical science, although stretching as far back as ancient Greece (Martin, 1987), as a discipline became popularly established as late as the nineteenth century (Jordanova, 1989; Ussher, 1992b).

From ancient Greece until the late 18th century, male and female bodies were seen as structurally similar (Martin, 1987). Both female and male reproductive organs were conceptualised as being structurally analogous, and this idea persisted even with increased knowledge of reproductive anatomy. However, from the end of the 18th century, and increasingly so this century as science became professionalised (Woolgar, 1988), metaphors of the female reproductive body as similar (if weaker) than the male body came under attack (Martin, 1987). Martin argues that this occurred in the light of new "discoverable biological distinctions" between the genders, and that this attempt to ground differences between genders in the biological and natural sciences grew from the disintegration of old ideas about the existing order of politics and society (Martin, 1987).

\(^{18}\) A paradigm shift, used in this context, marks a change in societal epistemological assumptions, where epistemology can be defined as that branch of philosophy that is concerned with the scope and nature of knowledge, and the general reliability of claims to knowledge (Harding, 1991). In brief, it can be described as a gradual change, filtered through significant social bodies (such as the media) in understanding about the nature of knowledge and how knowledge is produced (Kuhn, 1962). So, in this example, after the enlightenment period that ran through the 15th and 16th centuries, where science became accepted and promoted by the intellectual elite, science gradually replaced religion as the governing ideology.

\(^{19}\) Positivism may be defined in epistemological terms as the belief that the positive benefits of science may be reduced solely to its method (generally, the hypothetico-deductive method). This assumption renders it unnecessary for scientists themselves and the institution of science to be concerned with the economic, social or political origins, consequences or constituting values of science (Harding, 1991).
In other words, that with the gradual shift in social systems from religion to science, it may be argued that science took the place of religion in maintaining the social status quo, and the existing order of gender relations.

Returning briefly to the review of current medical understanding of the menstrual cycle in chapter two, it may then be argued that whilst our framework for understanding reproductive events such as menstruation has changed, the underlying beliefs or discourses that comprise the constructs of these events in actuality still share many common components. Science, for example, posits that the evolutionary goal of the female reproductive cycle is the implantation of a fertilised ovum (Martin, 1987). From this, it may similarly be suggested that pregnancy and childbirth are normal and desirable states (Martin, 1987). Ussher (1991) similarly notes that under religious doctrine, menstrual taboos and folk stories that constituted social knowledge about menstruation were effectively used to control those women who did not conform to social norms of child bearing. Implicit within these beliefs is the prevailing social order of the time, the ideal of which is set out at many points within theological and religious writing. For example:

"To the woman he said,
I will greatly multiply your pain in childbearing;
in pain you shall bring forth children,
yet your desire shall be for your husband,
and he shall rule over you"

(The Book of Genesis, Chapter 3 verse 16; The Holy Bible, revised Catholic Edition, 1966; London, Thomas Nelson & Sons Ltd.)

Within this quote from the book of Genesis, the order of gender relations is clearly set down, along with the female role within this order. As a punishment for disobeying explicit orders, Adam and Eve are banished from the garden of Eden. The quote above is a section from the text addressed to Eve, where God is explicitly setting out her punishment. The book of Genesis is fundamental in Christian teaching, as it sets out Christian beliefs in the origins of the world, the

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This text is included as illustrative of religious belief and doctrine, and is treated here as text, not with any inherent truth value.
objects and creatures that inhabit it, and the order of these objects and creatures. Thus parallels may be drawn between religion and science, as frameworks through which societal values are transmitted and understood.

Science, then, as a knowledge system, has evolved and become popularised into the social sphere over hundreds of years. The argument for positivism is that science may be distilled to its method, and that this method may be used to create and uncover new knowledge. Rigorous use of the scientific method supposedly allows for the collection of value-free, objective data, and the discovery of truths about phenomena. Contained within this philosophy is a principle of essentialism, whereby phenomena may be reduced to single causes or factors.

In a broader sense, science may similarly be seen as a social system, analogous (as such) to other social systems. As the predominant framework through which knowledge is gained and phenomena understood, it may be argued that use of scientific method has important implications both for the maintenance of the social order, and for that which it seeks to classify. Science itself tends to disavow this aspect of its endeavours, as there is an explicit contradiction between an objective method by which to discover truth, and a social system with the power to classify and create, and which may have consequences beyond the immediate creation of knowledge (Harding, 1991). The following section will examine these contradictions, in order that the emergence of PMS as an illness category may be discussed in the context of the development of science and the implications of research.

3.1.3 Critiques of science
A basic problem of science has been highlighted in the previous section: That is, that whilst science is generally positioned\(^2\) as a value free, objective medium to discover truths, it has consequences and actions above and beyond the immediate.

The critiques of science to be outlined in this section fall into two categories: The

\(^2\) And, arguably, is defined by philosophers and sociologists of science (Woolgar, 1988).
social critiques (see, for example, Foucault, 1973; 1986; Henriques et al. 1984), and
the feminist critiques (see, for example, Harding, 1987; 1991; Keller, 1985). This
division is not meant as definitive nor prescriptive, rather, I intend to deal with
some of the broader ‘macro’ critiques before progressing to the micro-
technologies of gender and science.

3.1.3.1 Science, society and Foucault.
The work of Michel Foucault on the subject of knowledge and power will be
reviewed, in as much as it stands as a critique of science and of the realist^ ^
position contained within positivism. Foucault’s work is important at this
juncture, for whilst his work relates more to the subjectification of the individual
than deconstructing the nature of science, contained within this work is an
intricate analysis of the means of production of power and knowledge, in which
science plays an integral part. Foucault’s work forms an early part of what is
now termed the post-structuralist movement (Ussher, 1992b).

Foucault (1980; 1982) envisioned science as a social system, implicated in the
maintenance of social order and the control of the individual. Foucault has stated
that the aims of his comprehensive work in philosophy and genealogy has been
to create a history of the different modes by which, within Western culture,
human beings are made into subjects (Rabinow, 1984). He posits three modes of
objectification through which this process of subjectification occurs.

The first mode of objectification Foucault terms dividing practices (Foucault,
1984a). Essentially, dividing practices may be seen as modes of social manipulation
that combine the mediation of science and the practice of exclusion. This may be
seen to be illustrated by Foucault’s earlier works, for example, The Birth of the
Clinic (Foucault, 1973). Within this mode, individuals are identified and drawn

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22 Parker (1992) outlines four features or aspects of the realist position. These are:
a belief in the nature of things as complex structures; the use of theories about
their tendencies under conditions of closure; the nature of rational knowledge as
presupposing a world that exists independently of experience; the relationship
between prediction and explanation (Parker, 1992 Pp 28). Thus, from within a
positivist perspective, a realist position about the nature of objects and knowledge
is taken up.

23 This classification of Foucault as a post-structuralist is arguable, however,
despite the use of deconstruction and analysis of language within his work there
is still debate over his epistemological status (Rabinow, 1984).
from a largely undifferentiated mass. The second mode is termed 'scientific classification'. Foucault states that this arises from:

"The modes of inquiry which try to give themselves the status of sciences; for example, the objectivizing of the speaking subject in grammairie générale, philology, and linguistics...[or] the objectivizing of the productive subject, the subject who labors, in the analysis of wealth and economics. Or... the objectivizing of the sheer fact of being alive in natural history or biology"

(Foucault, 1984a Pp 8 - 9).

Foucault (1984a) goes on to argue that it is through these modes of inquiry, and the sudden historical breaks that mark off discursive discontinuity, that power and knowledge are produced and re-produced. Thus, an example of this second mode of objectification might be psychiatric classification, in which the individual has been singled out from the undifferentiated mass, and marked as different by this system.

The final mode of objectification posited by Foucault is subjectification (Rabinow, 1984). This mode is concerned with the way in which a human being turns her or himself into a subject - of knowledge or power, those processes of self-formation in which a person is active. The resources upon which a person draws in order to create themselves as a subject will, of course, be culturally specific, and will be determined by an interplay between the first and second modes of subjectification - dividing practices and scientific classification (Foucault, 1984a).

So, inherent within the thesis of Foucault (1973; 1980; 1982; 1984a; 1984b) is the positioning of science as a social system, implicated in the production of knowledge and the maintenance of social power. Much of his work was devoted to analysing the structures of human sciences, treated as discursive systems.

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24 The term discourse, used in the Foucauldian sense, refers to a regulated system of statements with a particular cultural history, which Foucault terms a genealogy, and a set of rules which effectively distinguish it from other discourses by establishing both links and difference (Ussher, 1992b). A discourse therefore refers not only to language, but may equally apply to other forms of representation and interpretation. Discourses, within this perspective, are what organise our knowledge around a subject or phenomenon, and what organise the relation of the individual and society to that subject or phenomenon (Ussher, 1992b). Foucault's work largely originates post-structuralist analyses of language. Parker (1992) sets out a more comprehensive definition of discourse, and the movement of discourse analysis, which will be examined in chapter four.
(Foucault, 1980), and the operation of these disciplines. Henriques et al (1984) continue this analysis and apply it to deconstructing psychology as a human science. While Foucault posits that the social sciences are practices and discourses implicated in the construction of the various institutions that, when seen as a whole, constitute society or the social (Henriques et al, 1984), Henriques et al (1984) go on to suggest that the social sciences are actively involved in "the practices and relations between people that constitute social existence" (Henriques et al, 1984 Pp106).

It may be argued, then, that any discipline of which scientific method is a part takes a positivistic epistemological stance. Positivism makes assumptions about the world, the objects contained therein, the nature of knowledge, and the status of method. From a Foucauldian perspective, these assumptions may be seen as simplistic or even misleading, for science cannot be divorced from the context within which it is practised, the participants who practice it, and its consequences - all of which are brought to bear upon the individual.

3.1.3.2 Feminist Critiques.
In the light of this perspective on science, I shall now move on to review some of the relevant feminist critiques. These critiques, of the institution, practice and power of science are not divorced from the arguments set out above. Rather, I wish to enhance this argument with the use of feminist observations upon the nature of science. I shall then present a brief history of the emergence of PMS into the social and medical sphere, and conclude this section by drawing these strands of argument together.

From the 1970's to the present time, feminist researchers and theoreticians have been bringing to bear upon science the approaches being developed in the social sciences and within the women's movement as a whole (Harding, 1991). Harding (1991) notes a number of obstacles to women both as participants in science, and as objects25 of science.

Harding (1991) charts the obstacles to women who wish to succeed in science, in

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25 Woolgar (1988) notes that what are termed the objects of the 'natural' sciences (physical or chemical phenomena, for example) may equally be termed the subjects of social sciences (behaviours, individuals).
terms of lack of educational and employment opportunity. She further notes the uses to which the scientific method, and thus scientific knowledge, is put, arguing that science has often been used as a vessel for the promotion of sexist, racist, and classist values. Harding goes on to argue that, in the same way, science is steeped in sexist and androcentric bias, with the following consequences:

"Androcentric biases...enter in the concepts and hypotheses selected, in the design of the research, and in the collection and interpretation of data. The most radical implication of understanding how the structure of the institution of science structures the science produced there, however, may be the recognition that whoever gets to define what counts as a scientific problem also gets a powerful role in shaping the picture of the world that results from scientific research."

(Harding, 1991 Pp 40).

Hence, whilst science is posited as a neutral and value free medium through which truth may be discovered, it may be argued that the context within which scientific research is conducted, the practitioners who conduct the research, the sponsors who fund the research and thus drive the research questions will all affect the information that is observed (the 'raw data') and the results that are abstracted from this. They will also affect the use to which such results are put (Harding, 1991).

Keller (1985) argues that science itself is gendered, inasmuch as it not only excludes most women from its practice, but that it is 'hard', 'objective' and 'autonomous', characteristics commonly associated with masculinity. In addition to this, she argues that scientists hold to the assumption that "the universe they study is directly accessible, represented by concepts shaped, not by language, but only by the demands of logic and experiment" (1985 Pp 130). In effect, then, not only can science itself be seen to be gendered, but its assumptions about the world and the objects within it may be seen to be given privileged status over other interpretations of the world. Because scientific knowledge is privileged and seen as being distinct from other forms of knowledge, as a result of its 'objective' nature, Hollway (1989) suggests that what is needed is a challenge to the principle of objectivity, that incorporates a theory of meaning.

Keller (1985) further notes one of the most fundamental limitations of science and the scientific process as being the way in which novel findings are
discounted or actively ignored if they do not fit into existing theories or paradigms, as they are subversive to the existing order. An example of this might be the persisting belief in the negative effects of the menstrual cycle in spite of the lack of empirical evidence for this, as noted in chapter two. The academic system positively fosters this process within psychology, by placing great pressure upon its participants to publish only positive (i.e. statistically significant) results, which leads to published psychology often presenting a face that is unrepresentative of its research. Thus, the scientific value of objectivity is called into question.

Finally, Keller (1985) suggests that the persistence of science as a social system is bought about by an interaction between gender development, a belief system that equates objectivity with masculinity, and a set of cultural values that prioritise masculinity and science (Keller, 1985). She states:

"First is the failure to take serious notice not only of the fact that science has been produced by a particular subset of the human race - that is, almost entirely by white middle-class men - but also of the fact that it has evolved under the formative influence of a particular ideal of masculinity....Second, and related, is the fact that, in its attempts to identify extra-scientific determinants of the growth of scientific knowledge, the social studies of science have for the most part ignored the influences of these forces...that are at work in the individual human psyche."

(Keller, 1985 Pp 7).

So, to summarise, science as a system for acquiring knowledge has developed over hundreds of years. As such, it contains refined principles of method such as falsification, and principles of definition, such as objectivity. The social and feminist critiques outlined above illustrate the way in which science may be conceived as a social system, with implications and consequences beyond the immediate practice of research, and not immune to prejudice or bias. Furthermore, these critiques highlight the parallels between science and other social systems (such as religion), in the way that they serve to maintain the social order. This section has established an argument for science as a social system, and I shall now review the emergence of PMS into the medical and social sphere, to conclude with an examination of PMS, science, and the medicalisation of the female body.
3.1.4 A history of PMS

From chapter two, where the normal functioning of the female reproductive system was reviewed, and the previous section of this chapter, where the development of science as a social system has been reviewed, the history of a proposed abnormality associated with the menstrual cycle will now be examined.

It has been argued (Martin, 1987; Ussher, 1992a) that the dominant model for PMS is the medical, or bio-medical model. In broad terms, within this model PMS is proposed as a syndrome that manifests itself as a variety of emotional, physical and behavioural symptoms, generally occurring from seven days prior to menstruation to the onset of menstruation, with symptoms being relieved at or shortly after the onset of menstrual bleeding (Martin, 1987). As has already been noted, within Western culture, phenomena tend to be presented and understood predominantly through scientific discourse. Therefore, for the purpose of this section, the emergence of PMS into the medical and psychological sphere will be examined.

In order to review the origins of PMS, Martin (1987) suggests an examination of earlier medical literature. She notes that in the nineteenth century, menstruation began to be regarded as a pathological process, with the prevailing view being that the reproductive organs determined a woman's physical and psychological state during puberty and menopause, and similarly at menstruation (Martin, 1987). Women were advised to rest at these times, in order to divert as little energy as possible away from the uterus and ovaries (Martin, 1987). As Ussher (1992b) notes, in her deconstruction of research into sex differences in performance and the menstrual cycle:

"...it was in the nineteenth century that experts in the area of medicine, education and science became more prolific in the pronouncements about the weakness in the female sex, and women's consequent unsuitability for intellectual exertion....It was assumed that women had a finite amount of energy which could be used either for study or for reproduction...."  


Martin notes that beliefs in female weakness and unsuitability for intellectual

Medical definitions and criteria for PMS will be reviewed in a later section of this chapter.
activity as a result of their reproductive cycle persisted up until the earlier part of the twentieth century (Martin, 1987).

Martin (1987) states that it is generally acknowledged that R. T. Frank, in 1931, was the first person to name and describe the symptoms of PMS. However, in the same year, psychoanalyst Karen Horney published her paper ‘Premenstrual Tensions’. Horney trained as a therapist in Berlin in the early part of this century, and devoted the vast part of her career to the study of ‘Feminine Psychology’. Motivated by her discovery of discrepancies between theories of Freudian psychoanalysis and what she observed to be the therapeutic results of application of these theories, Horney’s work with women sought to redress what she perceived as an imbalance between Freudian accounts of sexuality and the self, and the experience of her women patients (Kelman, 1967). Horney’s observations of premenstrual symptoms were thus:

“...disturbances occur not only during menstruation but even more frequently...in the days before the onset of menstrual flow. These disturbances are generally known; they consist of varying degrees of tension, ranging from a feeling that everything is too much, a sense of listlessness or of being slowed down, and intensities of feelings of self-deprecation to the point of pronounced feelings of oppression and of being severely depressed. All of these feelings are frequently intermingled with feelings of irritability or anxiousness.”

(Horney, 1931 trans. 1967, Pp 99 - 100)

Horney suggested that these symptoms were directly caused by the ‘physiological process of preparation for pregnancy’ (ibid., Pp 106), and by some internal conflict about child-bearing.

Frank (1931) similarly identified a set of symptoms, typically occurring in the premenstrual phase, as the quote at the beginning of this chapter illustrates. Frank’s contention was that women’s behaviour and experience was determined by their ovaries, known by this point to produce sex hormones (Martin, 1987). More specifically, he believed that the symptoms of premenstrual tension were caused by an excess of these hormones, because of a renal dysfunction, and advocated either drug or x-ray therapy to rectify this imbalance. In his review of the history of PMS, Richardson (1993) cites Abraham (1980) who pointed out that renal dysfunction did not provide an adequate explanation for PMS, as any build
up of oestrogen that occurred would already have been metabolised by the liver and therefore rendered inactive.

Richardson (1993) notes that despite prevailing beliefs about menstrual symptoms (e.g. Janiger, Riffenburgh & Kersh, 1972) in popular culture, historical and medical documents prior to the 1930's, no mention had been made of premenstrual symptomology. And despite isolated references to some pre-menstrual symptoms in historical writings, it is only this century that clinicians have suggested them to be characteristic of the premenstrual phase of the cycle (Richardson, 1993).

Between 1930 and 1970, there was a moderate amount of research into PMS. For example, Benedek and Rubenstein (1939) analysed transcripts from psychotherapy sessions and monitored basal body temperature and vaginal smears in a sample of nineteen women, who were under psychiatric treatment. They claimed to be able to predict the time of ovulation and menstruation from psychoanalytic material, and suggested that their study illustrated the way in which human instinctual drives are controlled by gonadotrophic hormone levels (Martin, 1987).

Greene and Dalton (1953) published research carried out in the 1940's, investigating the role of water retention in premenstrual symptomology. This marked the beginning of Dalton's career in PMS research, and her endeavours to have PMS recognised as a medical, and treatable, problem. Greene and Dalton (1953) contended that water retention could be treated by synthetic progestrogens. Dalton continues to propose that progestrogen is implicated in the aetiology of PMS (see Dalton, 1982), but this is one of many proposed (and, as yet, not conclusively proven) aetiological theories. (Richardson, 1993).

It is also of note that, despite the identification of premenstrual tension or PMT in the early half of this century, there has been an explosion of research in the area from the 1970's to the present time (Martin, 1987). Rittenhouse (1991) observes that PMS only really became established in medical and public discourse in the 1980's. Richardson (1993) contends that PMS has only a 'brief history' (Pp 5). This section has charted the brief history of PMS, and its emergence into the medical and social sphere will now be charted in the context of the development of science, and gender relations.
3.1.5 Conclusion: PMS, science and the female body.

In section 3.1, reference was made to the literature on the menstrual cycle and performance. It was noted that little evidence existed for any menstrual cycle effects on behaviour and performance, yet that research in this area, and popular beliefs about the menstrual cycle, persisted.

The above reviews charted the development of science, and PMS as a medical category, in an attempt to address this issue, and in order to set the foundations for a review of the research into PMS. It is suggested that beliefs about the menstrual cycle and femininity are legitimated and promoted through science and scientific method.

Turning to PMS, it is further suggested that the emergence of this category may reflect social values and beliefs (discourses around femininity and reproduction) focused through the lens of science, as a social system. This may be paralleled with earlier social systems, such as religion.

For example, Ussher (1991) draws a parallel between twentieth century mental illness, nineteenth century hysteria and the witch hunts of the Middle ages. By placing these examples of women’s ‘madness’, or women positioned as ‘other’ in their historical context, she effectively illustrates how prevailing paradigms and ideology serve to frame female experience and behaviour. Ussher (1989) states:

"...the use of labels of illness, which are based on the positivistic philosophy of medical science, rather than the labels of badness or evil, based on a theological philosophy, still define women as separate....Many women are excluded from equal participation in society through a variety of labels and, as we have seen, many of these labels and classifications are related to the body, and specifically the reproductive cycle....Thus, psychiatric classification associated with the female body cannot be separated from it's social context, as it is used as a means of control to reinforce the power of those who determine the legitimacy of the 'diagnosis'".

(Ussher, 1989 Pp 135).

To further illustrate this point, we may examine other culture’s beliefs about menstruation. Sayers (1982) suggests that in certain societies, the exclusion of
women from undertaking agricultural duties is founded in the belief that menstruation is responsible for crop damage. Sayers further notes that within traditional Jewish culture, women were excluded from temple, economic and political life on the grounds that menstrual blood was seen as polluting (Sayers, 1982). Nicolson (1992) notes that even in twentieth century London, Orthodox Jewish women follow separation rules, ensuring the separation of husband and wife for the five days during and seven days following menstruation.

Ussher (1989) argues that such taboos exist in all cultures, with the form that they take dependent upon social and contextual conditions. It could, of course, be the case that such constructions of menstruation, as polluting or dangerous, are founded in some fact, illustrated by the relative universality of menstrual taboos. But as Sayers (1982) suggests, the existence and complexity of such taboos are possibly more reflective of social constructions and beliefs about menstruation and femininity than of any actual effect of menstruation.

It may similarly be asked that why, when PMS (or PMT) was introduced into the medical sphere in the 1930’s, research in the area (with a few notable exceptions, such as the work of Katharina Dalton) has only in the last twenty years become “a repository of widely shared cultural understandings that social actors use to make sense of (some) women’s words and actions” (Parlee, 1991). That is to say, that despite an introduction into medical discourse over sixty years ago, PMS has arguably only entered public and medical consciousness in the last twenty years.

Parlee (1991) suggests that the re-emergence of ‘PMS’ as a disease category in the last twenty years reflects social change: That it constitutes a backlash against the second surge of the women’s movement, beginning in the 1970’s. This may be paralleled with the social conditions under which PMT was proposed by Frank (1931). Martin (1987) notes the immediate interest in Frank’s work of the effects of premenstrual tension on women’s capacity to work, the supposition being that employers should make allowances for mild cases, and in severe cases allow women one or two days bed rest (Martin, 1987).

Martin (1987) places the emergence of PMS within the economic and social climate of the 1930’s, where America and the West were slowly moving out of the Depression after World War One. She observes that at this period in time, pressure
was being placed upon women to give up paid work, and allow men to take their jobs (Martin, 1987). She points out that the vast part of the research on PMS published between World Wars one and two stressed the debilitating effects of menstruation, with this emphasis subsiding for the duration of World War two (Martin, 1987). Similarly, Martin (1987) argues that the work of Katarina Dalton (1959; 1960a; 1960b; 1964; 1968) has stressed the effects of menstruation, and PMS, on examinations and women's ability to work.

The central tenet of Martin's (1987) thesis is that women are defined and controlled, not least in terms of their economic and social power, through the medicalisation of their bodies and reproductive cycles. We have seen, too, how Ussher (1989) argues a similar point. This section has placed PMS within the context of this argument, and illustrated how science plays a vital part in the production of knowledge about the female body, and it's legitimation. Medical criteria, definitions, and measurements of PMS will now be reviewed, along with relevant research in the area, in order to explore in detail the bio-medical model of PMS and it's implications for women.

3.2.1 Defining premenstrual syndrome.

As has already been noted, Frank (1931) was the first clinician to label a cluster of feelings, including irritability, unrest and hostility 'premenstrual tension', as he suggested that they occurred only in the days immediately preceding menstruation. In 1953, Greene and Dalton proposed that emotional tension was only one of many possible symptoms, and that the condition should therefore be re-named 'Premenstrual Syndrome'.

Definitions of PMS vary widely. Until very recently, they have tended to focus either upon symptom timing or type of symptom as definitive. One early definition stated that PMS constituted simply the recurrence of any symptoms, at the same time in each menstrual cycle, with a symptom free period of at least seven days (Dalton, 1964a, 1984). Dalton (1982) makes a discrimination between PMS and PMT, with PMS being defined as the "presence of symptoms which recur regularly at the same phase of each menstrual cycle, followed by a symptom free phase in each cycle", and PMT defined as the "Presence of psychological symptoms which recur regularly in the same phase of each menstrual cycle, followed by a symptom free phase in each cycle" (Pp 219). Thus whilst both
definitions are dependent primarily upon temporal factors, Dalton (1982) interestingly sets what might be termed a Cartesian dualism between the experiences of mind and body. The term for any premenstrual emotional or physical disturbance in most common medical and popular use is now PMS, but this distinction between the emotional and physical symptomatology remains tacit (rather than explicit) within the literature, with the associated emotional symptoms most commonly reported amongst self-diagnosed women (Warner & Bancroft, 1990).

Bancroft (1993) points out that definitions such as this provided by Dalton (1982) are reliant solely upon the timing of symptoms, and not the character of the symptoms themselves. Furthermore, he observes that any woman whose symptoms reached their peak five days before menstruation or during menstrual bleeding would not be included, despite their cyclical nature. Bancroft (1993) notes that the notion of a symptom free period of seven days may apply to symptoms such as headaches, which may be present or absent, but becomes inoperable when applied to symptoms such as irritability, which may not only be difficult to measure but is also dependent (he suggests) as much upon environmental conditions as hormonal ones. Moos (1969a) suggested a combination of any of a possible 150 symptoms, including changes in sexual desire, back pain, elation and depression.

Haskett et al (1980) propose a set of diagnostic criteria consisting of four major points, that include both temporal and symptom type information. From a study in which they collated the major symptoms experienced by a number of women presenting with perimenstrual complaints, they suggest the following four criteria without which diagnosis of what they term ‘primary recurrent premenstrual tension disorder’ should not be made: In the first place, that there should be present at least five of eight proposed sets of behavioural symptoms; that the overall disturbance is so severe that serious impairment is experienced socially, with the family or at work, that medical help has been sought or medication taken (or both of these); that dysphoric symptoms have been experienced premenstrually for at least six of the past nine cycles; and that symptoms are only present during the premenstrual period with relief at or soon after the onset of menses (Haskett et al, 1980). Bancroft (1993) notes that women with predominantly physiological symptoms (such as swollen or tender breasts,
with predominantly physiological symptoms (such as swollen or tender breasts, or a bloated abdomen, both of which are common premenstrual complaints) would be discounted from this diagnosis, that the criteria impose a very narrow scope upon the symptoms experienced by women, and that the six out of nine cycles window for symptom experience fails to take account of common inter-cycle variability.

Harrison, Sharpe and Endicott (1985) also provide a reasonably comprehensive and integrated description, defining PMS as a collection of physical and affective changes, occurring in the luteal phase of most menstrual cycles, with relief at the onset of menstruation. They also stipulate that there should be at least one symptom free week (Harrison et al, 1985). However, this definition fails to account for significant worsening of pre-existing symptoms in the premenstrual phase, a condition that may be just as distressing for women as the experience of novel symptoms.

Walker (1993) notes that early research suffered from the lack of a uniform set of diagnostic or inclusion criteria, and that considerable effort has been expended in recent years to produce a definition of PMS that effectively distinguishes women who 'need' medical intervention for their symptoms from those who do not. To this end, in 1987 the American Psychiatric Association proposed the category of Late Luteal Phase Dysphoric Disorder (LLPDD) in an appendix, as a category in need of further research, with the aim of creating a systematic set of diagnostic criteria for premenstrual mood disorder (Bancroft, 1993). The proposed diagnostic criteria for LLPDD are set out in figure two below.

A: In most menstrual cycles during the past year, symptoms in B occurred during the last week of the luteal phase and remitted within a few days after the onset of the follicular phase. In menstruating females, these phases correspond to the week before, and a few days after, the onset of menses. (In non-menstruating females who have had a hysterectomy, the timing of luteal and follicular phases may require a measurement of circulating reproductive hormones).
B: At least five of the following symptoms have been present for most of the time during each symptomatic late luteal phase, at least one of the symptoms being either (1), (2), (3) or (4):

1. Marked affective lability, e.g. feeling suddenly sad, tearful, irritable or angry.
2. Persistent and marked anger, or irritability.
3. Marked anxiety, tension, feelings of being 'keyed up' or on edge.
4. Markedly depressed mood, feelings of hopelessness, or self-depreciating thoughts.
5. Decreased interest in usual activities, e.g. work, friends, hobbies.
6. Easy fatiguability or marked lack of energy.
7. Subjective sense of difficulty in concentrating.
8. Marked change in appetite, overeating, or specific food cravings.
9. Hypersomnia or insomnia.
10. Other physical symptoms such as breast tenderness or swelling, headaches, joint or muscle pain, a sensation of 'bloating', weight gain.

C: The disturbance seriously interferes with work or with usual social activities or relationships with others.

D: The disturbance is not merely an exacerbation of the symptoms of another disorder, such as major depression, panic disorder, dysthymia, or a personality disorder (although it may be superimposed on any of these disorders).

E: Criteria A, B, C and D are confirmed by prospective daily self-ratings during at least two symptomatic cycles (the diagnosis may be made provisionally prior to this confirmation).

Figure 3.1 Diagnostic criteria for Late Luteal Phase Dysphoric Disorder. DSM-III-R, 1987, APA Pp 369.

These criteria have proven to be controversial, and have resulted in many petitions to the APA from researchers who either do not consider a premenstrual mood disorder appropriate for inclusion in the DSM, or who contest the notion of a premenstrual mood disorder itself. Furthermore, they are still at present only a proposed diagnostic set, and not uniformly adhered to by clinicians or researchers.

It is of note, however, that the APA proposed definition of PMS emphasises the assumed link between PMS and the corpus luteum. Bancroft (1993) suggests that this reflects the widely held belief that PMS occurs only during ovulatory

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27 See chapter two for an explanation of the role and action of the corpus luteum.
that this reflects the widely held belief that PMS occurs only during ovulatory cycles, a notion that has been contested within the literature. Additionally, the definition itself fails to specify any criteria of severity of symptoms or change, and the terms used within the definition have been criticised for being too vague (Bancroft, 1993).

In a study that attempted to utilise the DSM-III-R criteria for LLPDD, Gallant et al (1992) utilised five different change criteria to compare a group of women meeting criteria for LLPDD and a group of non-symptomatic women. It was found that none of the change criteria effectively differentiated the two groups, which renders LLPDD diagnosis problematic (Bancroft, 1993).

Hamilton & Gallant (1990) note that within the LLPDD definition lies the problem of over and under diagnosis of the problem. Use of the guidelines for diagnosing LLPDD, they suggest, may result in the over-inclusion of women ('false positives') who, under the APA criteria may fit an LLPDD diagnosis but who do not consider themselves to suffer from any premenstrual disturbance (Hamilton & Gallant, 1990). Similarly, use of these criteria may lead to the under-inclusion ('false negatives') of women who, whilst considering themselves to suffer from severe premenstrual distress, do not fit the precise LLPDD criteria.

One of the major problems of the LLPDD diagnostic criteria is that there is no method of assessing symptom severity or degree of change contained within its definition (Bancroft, 1993). Hurt et al (1992), in an attempt to establish the incidence of LLPDD, collected data from 670 women attending 5 clinics in the US. Four different criteria were applied to these women: A percent change criteria (where symptoms are assessed by percentage change from base line in the premenstrual phase); an 'absolute severity' method; and 'effect size' method, and a 'trend analysis' method to assess symptom severity and the degree to which women fitted the LLPDD criteria. It was found that the number of women meeting the criteria for LLPDD varied from 14% (using an 'absolute severity' method) to 45% (using the 'trend analysis' method). Hurt et al (1992) note the need for a uniform method of assessment in this field, but do not indicate whether such a high method should produce a high or low incidence of LLPDD (Bancroft, 1993). Bancroft (1993) notes that in light of the fact that all the participants were attending PMS clinics, it would be of interest to know how many of the
participants not meeting the criteria through any of the methods of assessment still showed symptoms of a cyclical nature.

There have been other attempts at defining some premenstrual mood disorder. The National Institute of Mental Health in America (NIMH) suggest a 30% change from baseline in mood during the week before menstruation, compared with the week following menstruation, for two out of three cycles. Walker (1992) notes that in order to achieve academic respectability, most PMS studies are generally expected to diagnose the syndrome on the basis of a 30% difference in symptom levels between the premenstrual and post menstrual phases, based on at least two cycles of prospective symptom reporting. Walker (1992) further observes, however, that at least the majority of hormonal studies do not observe these guidelines.

It is of note that the vast array of symptom experiences (see figure three) and combinations have led some researchers to posit the existence of several heterogeneous premenstrual syndromes (Gise et al, 1990; Halbriech et al, 1985), with each syndrome having a distinct aetiology and treatment requirements. Walker (1992) observes that this assumption is implicit in some studies, with researchers concentrating only on particular symptom groups (see, for example, Halbriech & Endicott, 1985). Certainly, the number of possible symptom combinations is vast, Laws (1985), in a survey of the literature, collected over 150 possible symptoms reported in association with PMS. Figure three (below) illustrates only some of the most commonly reported symptoms.

Boyle (1985) investigated menstrual cycle effects upon induced depressed mood in 154 normal women. Using the Differential Emotions Scale, it was found that women in the paramenstrum were more sensitive to depressive stimuli than women at other points in the menstrual cycle. However, the design of the study was between-subjects rather than within-subjects, and the Differential Emotions Scale used measured twelve dimensions of mood, nine of which were negative, and as such might be said to have a negative bias.
Bancroft (1993) observes that one of the most frequently cited reasons for the contradictions in PMS research is the lack of any hard and fast diagnostic or definitive criteria. However, it may equally be the case that this lack of definition reflects more the difficulties in imposing a single diagnostic category to cover a very wide range of phenomena. Bancroft (1993) states:

"From this viewpoint, the problem has not been a lack of agreed definition but a failure to identify satisfactorily what it is that requires to be defined. In the fullness of time the history of PMS may well serve as an example of how the need for a discrete medical diagnosis can obscure clinical reality"

(Bancroft, 1993 Pp3).

An accurate and appropriate diagnosis should, ideally, clarify treatment (Bancroft, 1993). It should further aid epidemiologic study, to enable a greater understanding of the illness, and afford detailed research into aetiology and treatment. However, Bancroft (1993) argues that none of the proposed definitions of PMS have served these purposes: the approach to treatment remains confused, and more importantly, as the quote above illustrates, the particular definitions proposed confounded as they may be by social beliefs about menstruation may actually have hindered this operation. Bancroft (1993) suggests that for both
clinical and research purposes, no attempt to define PMS should be made. Rather, he argues that it would be more useful to identify any cyclical patterns of specific symptoms or changes with no preconception about their relationship with the ovarian cycle (Bancroft, 1993). This would allow for a clearer picture of the relationship between particular symptoms and the menstrual cycle to be put together, in the absence of any assumptions about the general effects of ovarian hormones (Bancroft, 1993).

It may be concluded, then, that there is no hard-and-fast definition of or diagnostic criteria for PMS. It is of note that different studies have tended to utilise different definitions or diagnostic criteria, and that this may be responsible for some of the confusion in the literature. However, at this point it should be stressed that despite that lack of any uniform definition or consensus, there still remains a sizeable number of women in the general population who believe themselves to suffer from PMS (Golub, 1992).

3.2.2 Questionnaire measurement of PMS.

The tendency in recent research is to use prospective assessment of premenstrual symptoms to confirm the presence of 'true' PMS (Walker, 1993). However, over the course of the last century, since the 1930's, a number of different questionnaire instruments have been designed to assess PMS or premenstrual symptoms retrospectively, and many studies still rely on these measures either as retrospective stand-alone measures, or in parallel with prospective assessment measures. This section will introduce the rationale behind the use of questionnaire measures within psychology, with a brief consideration of critical accounts of questionnaire use, and review the most commonly used instruments.

3.2.2.1 Science, culture and questionnaires.

The relationship between science and culture, and it's relevance to the PMS debate, will be returned to in chapter eight. It is useful to consider the relationship at this point, however, when viewing the construction of scientific and psychological knowledge, and the means by which such knowledge is acquired. Wendy Hollway (1984) in her analysis of psychological assessments in organisations attempts to explain how applications of psychology are:

"...Themselves productive of psychological knowledge.... The latter are
therefore not simply governed by considerations internal to scientific discovery..... Psychology's approach assumes that the knowledges that make up psychology are scientific. Contained in that assumption are ideas about objective progress towards absolute truth. It also assumes that there are such things as individuals and that it is just a matter of developing methods to assess them. Finally it sees applications as flowing from pure science, but only affecting scientific knowledge insofar as they provide a testing ground for 'truth'".

(Hollway, 1984 Pp27)

In a critique of the 16PF (Cattell, Eber & Matsouka, 1970), a psychometric instrument widely used in occupational assessment that claims to measure general personality attributes, Hollway argues that the psychometric measure invariably, unintentionally taps into social factors rather than any truth about the individual. This, she suggests, happens because of the reflexive relationship between science and culture, or the cultural grounding of scientific knowledge.

In psychology's attempt to objectify the individual, and to steep it's assessment in scientific credibility, it reflects and creates social situations and discourses. So, it could be argued, has evolved the phenomenon of PMS, and the existence of the questionnaires designed to measure and assess premenstrual disturbance could similarly be argued to be reflexive of, as well as to shape and create, the social or cultural sphere, in which exists the scientific. The positivistic science of psychology, which is concerned with testing hypotheses of similarity and looking for significant differences (Squire, 1989) by which to falsify these hypotheses in the best scientific tradition, utilises its own tools towards the goal of objective knowledge. These tools, as we have already noted, are at their most fundamental those that allow us to define difference or categories of individuals - tools that allow us, as psychologists to investigate phenomenon in a more rigorous and systematic manner (Richardson, 1990).

From a scientific perspective, such tools (at least within psychology) have been developed through rigorous research in the human sciences. From a critical perspective (e.g. Hollway, 1984) we could argue that the tools and methods of psychology - the experiment, the questionnaire, the checklist - are inextricably bound to the social, to discourse around the individual that exists in the cultural field. Thus the use of questionnaires in PMS research stems from the scientific
tradition, and the need to gain knowledge through the use of objective measures. The purpose of this section, then, has been to take issue with the notion of objectivity in PMS research, and also to place questionnaire research in the area of PMS within its cultural context.

3.2.3.2 Questionnaire measures in PMS research: Early measures.
Over the last fifty years, a number of questionnaires and checklists claiming to measure degree of premenstrual disturbance have evolved with the aim of investigating the various premenstrual changes experienced by women in a more rigorous and systematic manner (Richardson, 1990). The questionnaires devised and used tend to differ slightly, depending upon whether they are intended for diagnostic purposes (identifying ‘true’ PMS), survey purposes or day-to-day monitoring of symptoms. Chapter three of this thesis notes the various premenstrual changes experienced by women.

Although PMT was first described in the earlier half of this century by Frank (1931) and Horney (1931), it is difficult to find evidence of psychometric measurement of premenstrual symptomology much before the 1960’s. This may be due in part to two factors: The relationship between psychology and the biomedical sciences in this field - that psychometric measures would only have evolved as psychology became concerned with the emotional (rather than physical) changes predicted by a biomedical model or understanding of the menstrual cycle, which in turn is related to the fact that psychology as a human science has itself only become recognised in the twentieth century, becoming dissociated from psychiatry and medicine and developing as a discipline in its own right in the last fifty years.

In one of the earliest questionnaire studies, Brush (1938) devised a checklist of emotional and physical symptoms that were supposedly related to menstruation, which he administered to one hundred women in the US. This checklist contained items such as increased fatigue and irritability - symptoms which were reported by more than half of the respondents. Whilst this is probably the earliest attempt to investigate menstrual-cycle related changes in a more ‘systematic and rigorous way’ (Richardson, 1990), two points are of interest. In the first place, this early example was published in the American Journal of Orthopsychiatry - and so very much concerned with emotional and physical symptoms as a direct result of
physical change (along the lines of Frank’s original proposition, rather than Horney’s). The second, and related, point is that as Richardson (1990) notes, this measure made no attempt to discriminate between premenstrual and menstrual symptoms. Thus it could be argued that it was an investigation more of the notion of menstruation / the menstrual cycle as a general pathology - a notion that has its origins in theories associated with female reproduction which were dominant in the later half of the nineteenth century (Martin, 1987), and which still perhaps have echoes today in the existence of various menstrual taboos and folk beliefs (Sayers, 1982). So in terms of the evolutionary history of PMS measures, it might be said that this early example reflects more the development of psychological nosological practices rather than any discursive or paradigmatical shift in the cultural understanding of the female body alone.

Another example of a very early attempt to measure and predict premenstrual symptomology is the study conducted by Benedek and Rubenstein (1939), where psychoanalytic material from therapy sessions and dreams were compared with basal body temperature and vaginal smears, from nineteen patients being treated for various neurotic disturbances. Benedek and Rubenstein (1939) discovered that they were able to predict when patients ovulated and menstruated from the psychoanalytic as well as the physiological records. Specifically, they noted that fears about mutilation and death, sexual fantasies, and anxiety and depression were more common in the premenstrual phase.

However, as Martin (1987) notes, without any evidence of a causal link in one direction or the other, Benedek and Rubenstein drew the conclusion from their results that human (female) instinctual drives were controlled by gonadotrophin production and levels. Despite the absence of any evidence other than the correlational appearance of certain psychiatric traits at different points of the menstrual cycle, this study proved important in shaping modern understanding of the menstrual cycle and was still being quoted in the late 60’s (Ivey & Bardwick, 1968). This study, although not using any standardised measure of PMS, is interesting as Benedek and Rubenstein were a psychoanalyst and an endocrinologist collaborating together on the project, working within a scientific / medical model of menstruation, which was possibly one of the first to use such a method in investigating paramenstrual symptomology. It could be suggested that this study was the ideological fore-runner of later attempts to understand and
measure PMS.

The 1960’s provided a series of attempts to measure premenstrual distress. Paulson (1961), who postulated that various life stresses or psychosomatic factors might be responsible for the experience of PMS, put together a thirty seven item inventory concerned with physiological and psychological aspects of the premenstrual phase and administered it to 255 five women aged 18 - 50, from different socio-economic groups. The analysis of the data focused on the correlations of scores on each of the items with total score on the checklist, and it was found that the six items correlating most highly with total score were increased tension, feelings of depression, lowered morale, periods of emotionality and crying, feelings of resentment and feelings of hostility towards others. The next five symptoms to correlate highly with total score were according to Paulson all physiological in nature, namely bloating, faintness, fatigue, pelvic pain and stomach cramps. The checklist was used to investigate premenstrual symptomology rather than to diagnose any pathology, and it is unclear where the original checklist items were derived from.

Coppen and Kessel (1963) surveyed a random sample of 500 general practice patients. The survey contained questions about their experience of various emotional and physical symptoms in the premenstrual phase, including swelling or bloating, headaches, anxiety, irritability and depression, and most of the respondents reported experiencing at least one symptom. Inter-correlations, whilst statistically significant, proved to be only moderately so (Coppen & Kessel, 1963; Richardson, 1990). Emotional symptoms such as depression, irritability and tension were generally reported as worsening in the premenstrual phase, and unrelated to age or number of children (Coppen & Kessel, 1963). This survey is of interest as it distinguishes between dysmenorrhea or pain on menstruation, and premenstrual symptomology, drawing the conclusion that the tendency to report pain on the first day of menstruation, and the tendency for women to report emotional symptoms as worsening prior to menstruation, provides proof of dysmenorrhea and PMS as two separate (though common) phenomena.

In cultural terms, examining Coppen & Kessel’s (1963) study within the cultural context of the emergence of PMS as a distinct category from the nineteenth century notion of menstrual pathology, this study can be viewed as important,
one of the original scientific findings of a distinct (emotionally experienced) premenstrual entity. It could also be suggested that this division, between the emotional and physical experiences of the menstrual cycle, reflects also the notion of a Cartesian dualism, or mind / body separation, that other researchers have argued to be central to Western ideology (Kirmayer, 1992). Within the area of PMS research, this dualism is of special interest as the effect of the body (in this case, the effects of female hormones) upon the mind (in this case, emotional state) can be argued to be culturally very distinct from any understanding of the masculine mind / body relationship, traditionally positioned as being less problematic. Ussher (1991), in a feminist critique of female emotional disorders, argues:

"As the middle class woman in the nineteenth century was incarcerated in the prison of femininity, so are her twentieth century descendants. Women are categorised as labile, unstable, at the mercy of a biology which, whilst it prepares us for woman's greatest fulfilment, motherhood, leaves us open to all manner of ailments and adversities."

(Ussher, 1991 Pp 249)

By drawing analogies between the evolution of psychiatric nosology in the nineteenth century and the way in which twentieth century science locates the cause of female emotional instability firmly in the female body (by, for example, attributing discontent and distress to reproductive syndromes such as post-natal depression or PMS), she illustrates well the gendered nature and historical roots of modern psychological models of 'madness'.

King (1989) suggests that both neurasthenia (supposedly a nineteenth century female nervous disorder, characterised by listlessness and fatigue) and PMS gained the status of medical disease because of the historical recognition of menstruation as pathological. King argues that both 19th and 20th century beliefs about femininity were important in shaping modern understanding of menstruation, and again it could be further argued that as medical expertise has evolved, so the diagnoses have changed, but not the underlying assumptions about femininity. King (1989) concludes that a recognition of the cultural basis of female emotional disorders might lead to a better understanding of women and 'normal' physiological and psychological experience.
Thus it can be suggested that the study by Coppen and Kessel (1963) marked an important point in the development of PMS 'technology' - whilst PMT was first suggested as a possible disease category as early as 1931 (Frank, 1931; Horney, 1931), it was only as medical and psychological expertise developed that the transition was made from a proposed model of menstrual cycle pathology to a highly developed disease model. It can be argued that the early questionnaire studies reviewed above represent this process of transition from nineteenth to twentieth century technology and understanding, as well as the development of psychology as a discipline. It may also be that they represent what Woollett and Phoenix (1991) have observed in a critique of psychological constructs of motherhood, that is, the 'professionalisation' of an aspect of women's lives by, on the whole, male experts.

The purpose of this section has been to illustrate the way in which modern psychological research into the menstrual cycle and premenstrual debilitation began, slowly, in the first half of this century, and operated largely within what Ussher has termed a 'bio-medical' framework (Ussher, 1992). The following section will review the questionnaire measures of PMS that have developed from earlier research, and which are still in current use.

3.2.4 Questionnaire measures in PMS research: Measures in current use.

3.2.4.1 The Menstrual Distress Questionnaire.

Richardson (1990) states that the most commonly used instrument to assess degree of premenstrual symptomology is the Moos Menstrual Distress Questionnaire (MDQ, Moos, 1968). The MDQ was developed to measure self-reported mood and performance change over the menstrual cycle. In its earliest form, the MDQ required respondents to rate themselves from one to six on 47 items according to the severity of symptoms experienced. The original study surveyed a sample of 839 women, who provided ratings for their menstrual, intermenstrual and premenstrual cycle-phases retrospectively. This was done for the most recent menstrual cycle, and for their 'worst' menstrual cycle (Moos, 1968). Factor analysis of the questionnaire data revealed eight clusters of symptoms, of which six showed large cycle-phase differences: Autonomic Reactions, Pain, Concentration and Behavioural Change produced higher menstrual phase mean scores, and Water Retention and Negative Affect produced higher premenstrual
mean scores (Moos, 1968). Moos also concluded that 30% - 50% of normal young women experienced some negative changes across the menstrual cycle. Arousal and Control, the two final clusters, showed no change across the cycle phases, and Moos further noted that report of symptoms was unaffected by whatever phase of her cycle (inter-menstrual, premenstrual or menstruating) a woman happened to be in on questionnaire completion (Moos, 1968). The retrospective form of the questionnaire is known as form A, and is still sometimes used to assess change over the menstrual, intermenstrual and premenstrual phases of the most recent menstrual cycle (e.g. Ussher, 1987: used the retrospective form of the MDQ as well as the prospective version).

More recently a prospective form of the questionnaire has been developed, form T, which assesses day to day change and symptom experience (Moos, 1985). The MDQ may be the most popular method of assessing premenstrual change because it has been standardised on large groups of women, and because it allows comparison with other studies that have used it as a measure (Ussher, 1987).

There have been, however, a number of criticisms associated with the structure and use of the MDQ. In the first place, when Moos (1968) originally devised the instrument, a principal components factor analysis was used to extract factors, resulting in the final eight subscales. As Richardson (1990), in an excellent review and critique of the MDQ and associated measures, points out, this method of factor analysis treats a set of variables as though no variance were unique to any single item, and as though each variance were completely reliable. Use of this method, Richardson argues, which may lead to an overestimation of the number of underlying factors as a result of sampling effects, might well ultimately extract too many symptom clusters from the data set. Richardson (1990) further suggests that the use of an orthogonal rotation on the resulting factor matrix may also produce a misleading picture, as orthogonal rotation does not produce any indication of the degree to which factors may overlap (in this case, perhaps the relationship between certain psychological and physiological processes). He suggests instead that an oblique solution might be advantageously used in this situation, which would provide the researcher with information about any second-order or underlying factor, as well as the first order factors: This point is particularly pertinent to the consideration of multi-factor or multi-component approaches, and perhaps illustrates how positivist and statistical procedures may
be used advantageously in the area.

Boyle (1991) examined the interrelationships between the MDQ and the 8-State Questionnaire, to investigate the possibility of overlap between the psychophysiological and emotional/mood states measured by the two instruments. Some interset commonalities were found, with 6 out of 8 subscales of the MDQ serving as predictors for scores on the 8SQ, but 7 of the 8SQ subscales serving as predictors for scores on the MDQ.

This might be particularly appropriate bearing in mind the debate around whether PMS is a single syndrome, or several syndromes characterised by different symptom sets but linked temporally by the menstrual cycle (Richardson, 1990). A related criticism is directed to the use of raw scores in calculating total scores on the MDQ. Richardson (1990) points out that this method assumes each variable contributes equally to the symptom cluster, independently of any other, and suggests that it may be more appropriate to use derived factor scores to increase the overall reliability of the MDQ (Richardson, 1990).

However, Boyle (1992) conducted exploratory, congeneric and confirmatory factor analyses of the MDQ intercorrelations, with a sample of 369 Australian college students, and found that whilst the congeneric analysis suggested that a number of the MDQ subscale items were not necessarily appropriate to the measure, and might be removed from subsequent versions, the investigation generally supported the 8-factor structure of the MDQ.

The fact that the MDQ in its original form requires women to rate themselves retrospectively for three points in their menstrual cycle, as well as their worst ever menstrual cycle, may introduce a degree of confusion into the data obtained. Richardson (1990) suggests that rating the different phases together may result in some contamination of responses in some of the conditions, and furthermore, that no condition variation (such as, for example, the randomisation of the order in which phases are rated) has been introduced to avoid any possible order effect that might result from responding to the four conditions in the same order.

There is also some debate about the use of the 'worst' menstrual cycle and the 'most recent' menstrual cycle as representative by the instrument, as not only do
symptoms tend to vary in severity from month to month (Goudsmit, 1983), but the very act of comparing different women’s subjective ratings of severity may not itself be an appropriate measure (Sampson, 1988; Richardson, 1990). Although the technique advocated by McFarlane & MacBeth-Williams (1994), discussed in chapter five, translates this principle of ‘relativity’ into statistical terms and compares deviations from the ‘norm’ of reported symptom experience and behaviour, it utilises this strategy prospectively. As a final point, there also exists some debate around the inclusion of different symptoms in the MDQ, with suggestions of a negative bias in the instrument (Parlee, 1974), confusing or unintelligible items (Clare, 1977; Richardson, 1990) and omission of some items argued to be appropriate to a measure of menstrual distress (Dalton, 1982; Halbreich & Endicott, 1982; Richardson, 1990).

3.2.4.2 The Menstrual Symptom Questionnaire.

The Menstrual Symptom Questionnaire (MSQ) was devised by Chesney and Tasto (1975) to investigate the proposition put forward by Dalton (1964; 1969) that two types of primary dysmenorrhoea (congestive and spasmodic) could be distinguished, depending on the precise symptoms experienced by a woman and their temporal location in her menstrual cycle. Chesney and Tasto (1975) devised an instrument consisting of 51 items, including what were considered by the researchers to be common menstrual symptoms. Factor analysis revealed three factors accounting for 43% of the variance in responses, with the first two factors conforming closely to Dalton’s original characterisation of congestive and spasmodic dysmenorrhoea (Stephenson et al, 1983). The MSQ was subsequently constructed from twenty five items, twelve having the strongest loading on the

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28 The clinical characteristics of congestive dysmenorrhoea are late onset (i.e. years after menarche), variable symptom severity of 3 - 4 days several days before menstrual flow begins, with symptoms consisting of a constant, heavy sensation in the lower abdomen. Spasmodic dysmenorrhoea varies in onset time, lasts for 1 - 5 days, and is characterised by severe cramping in the lower abdominal area. It too has a relatively late onset time (Golub, 1992).

29 The different types of dysmenorrhoea referred to here (spasmodic and congestive) are actually referred to as types of secondary dysmenorrhoea by the medical profession (Richardson, 1990), and not primary. The term secondary implies some pelvic abnormality resulting in painful menstruation, whereas the primary disorder refers to pain (usually starting with or in the years after menarche) in the absence of pelvic abnormality (Golub, 1992). This is confusing, as psychological texts (e.g. Stephenson et al, 1983) refer to the MSQ as an attempt to differentiate primary forms of the disorder.
congestive factor and twelve on the spasmodic factor, with a final item requiring respondents to identify with a description of one form of the disorder or the other (Chesney & Tasto, 1975). A cross validation study repeated the factor analysis on the twenty five items, and again found three factors, which accounted for 55% of the variance (Chesney & Tasto, 1975). The first two factors were ultimately identified as spasmodic and congestive dysmenorrhoea, and accounted for 26 and 21% of the variance respectively (Stephenson et al, 1983).

This instrument is of interest, whilst not being explicitly designed to measure PMS, as congestive dysmenorrhoea is taken by some experts (e.g. Dalton, 1984) to be strongly associated with at least one aspect of PMS, and the MSQ itself contains items such as 'I feel irritable, easily agitated, and am impatient a few days before my period' (Chesney & Tasto, 1975), symptoms often associated with PMS. The MSQ has subsequently been criticised, Webster (1978) argued that an insufficient number of women were included in the original study to make the subsequent factor analysis meaningful. In her own study, Webster administered the MSQ to an unselected sample of 275 women, repeating the analytical process that Chesney and Tasto had used. The factor analysis yielded seven factors accounting for 62% of the variance, and having failed to identify two factors corresponding to congestive and spasmodic dysmenorrhoea, Webster (1978) questioned Dalton's original proposition (Dalton, 1964, 1969) and the validity of the MSQ (Chesney & Tasto, 1975).

Presuming that the two types of dysmenorrhoea were caused by imbalances in the levels of two different hormonal substrates, Chesney and Tasto (1975) had assigned opposite weights to items corresponding with the two forms of the disorder. This was in order to produce either a high or a low score on the instrument, depending upon the symptoms experienced. Gannon (1981) observed that this would not account for women who experienced both types of symptoms, or women who experienced neither. This might account for Webster's results on a larger sample of women, who had not (unlike the women in Chesney & Tasto's study) been preselected for experiencing menstrual pain. A later study by Stephenson, Denney and Aberger (1983) used a modified version of the MSQ on a sample of 423 American college students yielded very similar results to Webster's original paper (Webster, 1978), with factors representing menstrual pain, premenstrual negative affect, premenstrual water retention, premenstrual pain,
menstrual backache and menstrual gastrointestinal symptoms.

3.2.4.3 The Premenstrual Assessment Form.

Finally, the Premenstrual Assessment Form (PAF, Halbreich & Endicott, 1982; Halbreich et al, 1982) is an instrument intended specifically for clinical assessment of premenstrual disturbance. The PAF is a ninety five item inventory, which contains items relating to the physical, emotional and behavioural aspects of PMS. Thus the 95 items break down into three sections: identification data and general information with regard to menstrual history, 95 items that describe premenstrual changes (each rated on a 6-point scale), and a brief narrative description of the premenstrual state and how it differs from the 'normal' state. In its original form, the PAF is a retrospective instrument, which asks the individual to assess the changes she has experienced premenstrually from her normal non-premenstrual state during her last three menstrual cycles. Halbreich and Endicott surveyed 154 women, and constructed the instrument from the sample's responses - the most frequent premenstrual changes experienced were breast pain and some gain in weight, although over half of the sample reported some premenstrual psychological symptoms (Richardson, 1990). Based more on clinical judgement than detailed statistical analysis (Richardson, 1990), criteria for eighteen syndromal categories were developed for use with women presenting with premenstrual difficulties. The internal consistency coefficients (alpha) of the 18 syndromes are on the whole quite high, though they range from .61 to .92. A prospective form of the instrument has also been developed, the PAF-Time Chart, which records daily ratings on 21 items from the full prospective version of the questionnaire (Endicott & Halbreich, 1982).

Yuk, Jugdutt, Cumming and Fox (1990) used the PAF to survey a sample of 133 volunteers who were not at that time seeking help or using treatment for premenstrual symptoms. It was found that incidence of the more common syndromes was minor, with depression, physical discomfort, and fluid retention the most commonly reported factors. From these results, Yuk et al argue that the PAF's diagnostic criteria are too lax for the purpose of clinical investigation.

Windle (1988), in a general critique of measures of affect and temperament, argues that the use of alpha coefficients as the sole criteria for determining unidimensionality of items in measures is not sufficient, and argues for the use of
more stringent tests of constructs, and cross-validation studies in multivariate temperament research. However, the PAF is at present the only widely used scale that can claim to discriminate between different premenstrual syndrome subtypes, although this point is arguable (Gerstein et al, 1989). It should also be pointed out that Halbreich and Endicott originally used the PAF on a normative sample of women who had not actively sought treatment for any premenstrual complaint (Halbreich & Endicott, 1982), which is in contrast to the formulation of the MSQ (Chesney & Tasto, 1975). The subsequent failure to replicate the results of Chesney & Tasto's original study (see Webster, 1978) when using the MSQ on a normative (un-preselected) sample, and Gannon's (1981) argument that the bipolar weightings used on the MSQ render the instrument meaningless to women who may experience symptoms from both the spasmodic and congestive categories of symptoms may indicate a very broad range of premenstrual symptom experience, in both normal and help-seeking samples, that may not necessarily indicate any abnormality.

3.2.4.4 Summary.

There are various methodological problems associated with the use of questionnaires to define and measure premenstrual disturbance, and these will be reviewed later in this chapter. It is important to note, however, critiques concerning the place of psychological measures in the construction of the subject. Hollway (1984) suggests that psychological assessments, such as questionnaires, are themselves productive of psychological knowledge, and applying this critique to PMS research, it may be argued that the questionnaires reviewed thus far in this chapter form part of such a circular, productive process. By drawing their assumptions about symptoms experienced from existing cultural and scientific resources, by using techniques such as factor analysis to produce higher-order components, and then using these components together to measure the extent of a 'problem', it can be suggested that what these questionnaires measure and describe is limited by their essentially social origins. In other words, PMS questionnaires could be said to represent a social phenomenon, therefore that is perhaps what they measure and, as Rodin (1992) might argue, this is also what they reproduce.

This, however, does not address the issue of women who do experience premenstrual distress (Ussher, 1992a, 1992b). By merit of their high incidence,
the status of premenstrual symptoms or disturbance as abnormal may be questioned: one estimation is that approximately 50% of women experience premenstrual symptoms in all or most of their menstrual cycles (Gath et al, 1987), with around 8% experiencing serious disruption to their lives because of PMS (Wood et al, 1992). The incidence of PMS will be discussed in the following section. The ability of current measures of premenstrual symptoms and PMS to adequately describe premenstrual distress, or to distinguish between women suffering from 'true' PMS, and those suffering from some other disturbance, is further questionable.

3.3 The incidence of PMS.
Estimates of the incidence of PMS within the general population of women of a reproductive age vary, depending upon the diagnostic criteria used (Ussher, 1987). It further varies depending upon the mean age of the population under study, their gynaecological history, psychological and genetic factors (Golub, 1992).

It has been estimated that between 5% and 95% of women of a reproductive age experience PMS (Harrison et al, 1985; Clare, 1983). A more recent estimate suggests that between 10% and 40% of women experience severe distress or disruption to their lives as a result of PMS (Mortola, 1992).

Lloyd (1963) referred to the symptoms of irritability and depression as the 'mid-thirties' syndrome, a comment which illustrates the modal age of incidence (Golub, 1992). Dalton (1964a), using her definition of PMS (outlined in section 3.2.1) argues that the incidence of PMS increases with age. In her own research, Dalton (1964a) reports an incidence of 30% - 44% in women in their mid-thirties, when, she suggests, incidence of PMS peaks.

Moos (1968) compared a group of women under the age of 21 with a group of women over 31, and reported that the older group of women were significantly more likely to experience premenstrual symptoms than the younger group. More recently, Golub and Harrington (1981) compared the physical and psychological symptom scores of a group of 15 - 16 year-old students with a group of adult women (mean age = 37). They reported that the group of younger women were more likely to experience symptoms in the menstrual phase of their cycles,
whereas the group of older women were more likely to experience premenstrual symptoms.

Corney & Stanton (1991) collected survey data from 658 women who reported some premenstrual symptoms, recruited through the media. The sample were self-selected, and it is interesting to note the characteristics of this population who, whilst they are determined by the readership of the publications in which the study was advertised (Good Housekeeping magazine, and the Sunday Mirror), and although this study relies on self-report or self-diagnosis, may give an indication of the groups of women in which PMS is most commonly reported. The majority of the women (n = 381, 57.9%) were in their thirties, married (76.4%), with 1 - 2 children (57.4%). 30.5% of the sample had suffered from PMS for 5 - 10 years, and 48.2% could identify no apparent reason for the onset of PMS. Participants were asked to report which of their symptoms they found most distressing, and of the 13 most commonly reported (more than 60% of the sample) symptoms, 9 could be classified as emotional or behavioural. 91.9% of the sample reported irritability as a premenstrual symptom, and 84.5% reported tension. 55% of the sample reported that PMS had a significant effect upon their relationship with their partner, and 48% had visited their GP for PMS symptoms in the past year. The authors conclude that to this sample of women, PMS represented a major disability to their emotional, professional and familial functioning.

There is not a great deal of research upon the cross cultural incidence of PMS. Chandra and Chaturvedi (1989) report the results of a study of forty eight female nursing students of Indian background, evaluated retrospectively for cognitive, affective and somatic changes in the premenstrual phase. Whilst premenstrual symptoms of some description were common, more of the symptoms reported related to somatic changes. Additionally, only 6% of the sample met the criteria for LLPDD, a figure that is lower than most Western studies (Chandra & Chaturvedi, 1989). The sample used in this study is quite small for such a survey, and the use of retrospective reporting methods will be discussed later in this chapter.

In a further study, Chaturvedi & Chandra (1991) examined menstrual attitudes and premenstrual experiences in a sample of 48 women of Indian background. Menstruation, within this sample, was more likely to be viewed as a natural rather
than a debilitating event, with naturalness attitudes being highly correlated with well-being.

Hasin, Dennerstein & Gotts (1988) conducted a cross cultural study of menstrual cycle related complaints across different ethnic groups in Australia, collecting data from a total of 130 women. 50.8% of the total sample reported some menstrual symptoms, which were predominantly somatic in nature. 69% of the sample reported some premenstrual symptoms. Of the different ethnic groups surveyed, Vietnamese, Turkish and Greek women tended to report mostly somatic premenstrual symptoms, which compares with 60% of Australian and 53% of Italian women reporting mostly psychological and behavioural premenstrual symptoms.

Returning to Bancroft's (1993) point, made in section 3.2.1, that LLPDD diagnosis is based upon the assumption that PMS will only occur in ovulatory cycles, Metcalf and MacKenzie (1980) note that 91% of women aged 30 - 39 ovulate regularly, whereas only 62% of women aged 20 - 24 will do so. This could explain the reported difference in incidence of PMS for different age groups, as anovulatory cycles do not exhibit the pre- and post-ovulatory fluctuations in progesterone and oestrogen typical of ovulatory cycles (Golub, 1992).

3.4 Aetiology of PMS.
Despite such large estimates of prevalence, and despite (or perhaps as a result of) the research effort expended upon providing a definition of PMS, a wide variety of different aetiological profiles for PMS have been proposed, and little, if any, consensus exists. Many of the aetiological models that exist of PMS are treatment driven rather than theory driven, which perhaps reflects the attempts of clinicians to treat women presenting with severe premenstrual symptoms (Tucker & Whalen, 1991), and the fact that much of this research is funded by drugs companies must, to some extent, influence this.

Ussher (1992a) proposes that the predominant model through which PMS is understood, researched and treated is a bio-medical one. Within this model, the menstrual cycle is treated as an independent variable which may effect behaviour, mood or performance (MacFarlane & MacBeth-Williams, 1990). It has already been noted that whilst many women will experience some physiological
change or symptoms along with the course of their menstrual cycle (Richardson, 1992a), not all women will experience changes in mood or behaviour, and those that do may find that the extent of this change may vary from cycle to cycle (Bancroft, 1993). The assumption beneath the adoption of a bio-medical model within PMS research is that the symptoms and timing are related to a pathological state, and that this state is related to ovarian hormones (Walker, 1992). Precise aetiological accounts vary, and the following section will briefly review aetiological theories of PMS that can be said to fall within this bio-medical model.

3.4.1 Ovarian Hormones.
The occurrence of PMS in the luteal phase of the menstrual cycle might well lead to the supposition that PMS is related to ovarian hormones and therefore to luteal function (Walker, 1992). Backstrom et al (1983) found that premenstrual symptoms tend to begin after the LH surge and increase until progesterone and oestrogen levels have fallen. Walker (1988) has found that symptoms are not related to levels of ovarian hormones on a day-to-day basis. There is little support for, or research into, an oestrogen-only hypothesis for PMS (Tucker & Whalen, 1991), and the majority of hormonal models of PMS centre on the role of progesterone as causal of premenstrual symptoms.

A crucial issue here is that whilst the symptoms of PMS may be linked temporally to changes in the levels of circulating ovarian hormones, for these hormones to be implicated in the aetiology of PMS then a difference between women with and without PMS should be established. Many studies have attempted to do this: Some have found differences in specific points of the luteal phase (e.g. Watts et al, 1985), others have failed to find any differences between groups of women (e.g. Taylor, 1979; Backstrom et al, 1983; Rubinow et al, 1988). In a review of ovarian hormones and PMS, Walker (1992) concludes that there is little evidence to support a consistent hormonal dysfunction or deficiency in PMS, but that the use of different definitions of PMS and varying ways of measuring hormone levels makes comparison between studies difficult.

Dalton (1964a, 1982) proposes that PMS is caused by an imbalance in the ratio of oestrogen to progesterone in the luteal, or post-ovulatory phase. Progesterone is presumed to be deficient, causing the symptoms of anxiety, water retention and breast tenderness (Dalton, 1964a). Progesterone is believed to have calming
effects, whereas oestrogen is thought to increase anxiety. Therefore, a lowering of the progesterone-oestrogen ratio is believed to lead to an increase in tension and irritability premenstrually (Day & Taylor, 1981). It has also been suggested that dysphoric emotional symptoms are related to decreasing progesterone levels (Rausch & Janowsky, 1982).

Progesterone treatment for PMS has, in the past, been credited with great success. Greene & Dalton (1953) suggested that treatment for PMS with progesterone was almost invariably successful, and other sources have suggested that this treatment can remove the symptoms of up to 77% of patients (Norris, 1983). Dennerstein et al. (1985) conducted a double blind placebo controlled trial of oral progesterone as a treatment for PMS, and report a beneficial effect upon water retention and mood symptoms. Progesterone is still, at present, the treatment of choice for PMS of the majority of practitioners (O'Brien, 1993). However, it has been noted that there is a dearth of double blind placebo controlled research supporting a progesterone hypothesis (Ussher, 1992a), and of the controlled research that has been carried out, progesterone has often proved to be no more effective in alleviating symptoms than placebo (Andersch & Hahn, 1985; Maddocks et al, 1986; Maxson, 1987; Freeman et al, 1990). Indeed, progesterone deficiencies have been found in a minority women, but Dalton (1982) proposes that the success of progestrogen therapy stands as convincing evidence for this aetiological model. As has been noted, many studies have failed to replicate this finding, and progesterone therapy often fails to perform better than placebo in treatment trials (Maxson, 1987). Furthermore, it is of note that whilst many aetiological theories of PMS cite the success of hormone treatment in evidence, a large placebo response is typical of such studies (Andersen et al, 1977; Day, 1979; Day & Taylor, 1981; Metcalf & Hudson, 1985). Magos, Brincat & Studd (1986) found that 94% of participants in a control condition reported and overall improvement in their symptoms when given a placebo treatment, and 84% considered the placebo to be more effective than other forms of treatment that they had tried.

3.4.2 Prostaglandins.

Prostaglandins, locally acting and swiftly metabolised fatty acid derivatives found throughout the body, are similar to neurotransmitters and act upon specific cell
membrane receptors (Tucker & Whalen, 1991). Uterine prostaglandins are regulated by the action of ovarian hormones, implicated in a number of effects such as uterine contractions. It is possible that under the right circumstances, prostaglandin levels may influence certain neurotransmitters that affect mood, whilst being directly involved in the production of certain physical symptoms such as pain and nausea (Budoff, 1980).

3.4.3 Water retention.
Water or fluid retention is often cited as a cause of some premenstrual symptoms, such as weight gain and breast tenderness. Breast volume gradually increases after ovulation and reaches a maximum level on the first day of menstruation, and breast tenderness is thought to be caused by the effects of oestrogen upon the breast tissue (Golub, 1992).

Janowsky et al (1973) conducted a carefully controlled study examining mood, weight, and urinary potassium and sodium levels. A gradual increase in negative affect, weight and the sodium / potassium ratio was found in the luteal, late luteal and early menstrual phases of the cycle. It is suggested that this increase in the sodium / potassium ratio may explain some of the water-retention symptoms experienced by women. Aldosterone, a renal regulator, has also been implicated in this, but the evidence is contradictory. Reid and Yen (1981) suggest that water-retention type symptoms may simply be the cause of localised processes at the affected sites and many recent reviews (Backstrom, 1983; O'Brien, 1987; Strickler, 1987; Tucker & Whalen, 1991) can find no strong support for any water retention hypothesis.

3.4.4 Prolactin.
Prolactin, a substrate associated with the control of ovarian hormones and also fluid regulation, has been implicated in the aetiology of PMS (Rausch & Janowsky, 1982). However, the evidence for this is extremely limited (Tucker & Whalen, 1991; Golub, 1992), and Steiner et al (1984a; 1984b) have failed to find evidence of any atypical menstrual or circadian cyclic secretion of Prolactin in a group of women with severe PMS.

3.4.5 Cycle entrainment.
McNeil (1992) suggests that PMS is the result of the synchronisation of the
menstrual cycle (a major infradian rhythm) with an independent mood cycle. Certainly, there is some evidence that both men and women experience a mood cycle (Parlee, 1991), and McNeil (1992) proposes that a naturally occurring mood 'dip' coincides with the premenstrual phase, exacerbating the mood change. Oestrogen and progesterone also affect the body's circadian (24 hour) rhythm, and it has been found that women with PMS respond favourably to phototherapy (Parry et al, 1990).

3.4.6 Dietary factors.
Finally, dietary factors, such as vitamin B6, vitamin E, magnesium and zinc have been implicated in PMS (Williams et al, 1985; London et al, 1983). In a survey of treatment practices, Lyon & Lyon (1984) found that vitamin therapy was advocated by 60% of practitioners surveyed. However a recent review of an intervention using vitamin B6 (Kleijen et al, 1991) failed to find any effect above that of placebo response, and Tucker and Whalen (1991) conclude that dietary inadequacy is unlikely to be the cause of PMS.

3.4.7 Genetic factors.
There is some evidence for a genetic factor in the aetiology of PMS. Kendler et al (1992) retrospectively assessed self-reported symptoms in the premenstrual and menstrual phase in more than 800 female twin pairs. They report that a phenotypic factor analysis showed that premenstrual and menstrual symptoms occurred independently of one another, and further that familial resemblance for menstrual and premenstrual symptoms was due solely to genetic factors. From this analysis, they posit heritability estimates for menstrual and premenstrual symptoms of 39.2% and 35.1% respectively.

Lewis & Horn (1991) assessed a possible genetic component for premenstrual symptoms, and further investigated the association of neuroticism with premenstrual changes. In a well-controlled study, 24 monozygotic (identical) twin pairs, 24 dizygotic (non-identical) twin pairs and 24 age matched unrelated pairs of women aged 18 - 35 were administered the PAF and a personality inventory. It was found that monozygotic twins were more similar in their retrospective reporting of premenstrual symptoms, particularly mood changes, and further that high neuroticism scores correlated with report of premenstrual changes.
Van den Akker et al (1987) surveyed 462 British female twin pairs collected from two different registers, in order to assess genetic and environmental influences on menstruation and experience of symptoms. Menstrual cycle histories were collected retrospectively from all participants, along with prospective information for PMS symptoms. Environmental influences were found to account for menstrual cycle length, and genetic factors were found to account for age at menarche. Genetic factors were also found to account for experience of PMS symptoms.

The studies reported above would appear to provide some evidence for a genetic factor in PMS. However, it is difficult to ascertain whether, for example, the twin pairs studied were raised together or apart, and in what socio-economic background each was raised, from the reports themselves. Factors such as this may influence the way in which members of twin pairs report symptoms, and what symptoms they report, if we consider the role of socio-cultural influences on the self-report of PMS.

3.4.8 Summary.

To conclude, a wide range of aetiological theories have been proposed for PMS, and this section has attempted to present only a brief summary of the main models proposed. Such models are often supported by evidence from treatment trials. Progesterone has been a preferred medical treatment for many years, yet natural progesterone has proven to be no more effective than placebo in double blind trials (Sampson, 1979; Andersch & Hahn, 1983; Maddocks et al, 1986). As two recent reviews note, there is no single biological marker for PMS, and no simple relationship between hormones and PMS symptoms (Bancroft, 1993; O'Brien, 1993). Additionally, no one treatment has been shown to be consistently more effective than placebo (Bancroft, 1993). Walker (1992) suggests that the lack of methodological comparability between trials, and the problems in defining PMS, make a firm conclusion as to the aetiology of PMS impossible. Walker (1992) continues:

"Further basic research is clearly needed to identify the precise nature and prevalence of PMS before aetiological hypotheses can be made. The important conclusion to be drawn from the available evidence is that the symptom severity which distinguishes the PMS sufferer may have little or nothing to do with PMS itself"
3.5 Treatments for PMS.

As Tucker & Whalen (1991) point out, a great deal of the aetiological accounts of PMS are inseparable from the research on PMS treatments. This section will briefly review a small number of treatments for PMS, and treatment outcomes.

Hormonal treatments for PMS have been examined in the context of ovarian hormone aetiological models. As has already been noted, there is a large placebo effect for all treatments for PMS, and in adequately controlled double blind trials progesterone treatments have more often than not failed to be more effective than placebo in the alleviation of premenstrual treatments. Oral contraceptives are sometimes prescribed as a treatment for PMS (Price, 1990), and despite earlier studies showing some promising results (e.g. Hezberg, 1971), subsequent double blind placebo controlled trials have failed to replicate these findings (e.g. Morris, 1972).

Vitamin therapy, dependent upon a predominantly dietary model for PMS, has proven to produce equally conflicting results. Some studies have found pyridoxine (vitamin B6) to be beneficial in alleviating some of the core symptoms (e.g. Taylor, 1979), and others have not (e.g. Stokes, 1972). Added to which, B6, when taken in large doses, can have some distressing side effects (Price, 1990).

Bromocriptine, a dopamine agonist used also in the treatment of amenorrhea, infertility and Parkinson's disease, has been used to treat PMS (Price, 1990). Dopamine is the primary prolactin inhibitory factor in the central nervous system, therefore bromocriptine has an inhibitory effect on prolactin levels. Some studies have shown bromocriptine to be useful in alleviating water retention and irritability (Anderson, 1979; Elsner, 1980), however it does not appear to effect other symptoms (Steiner, 1979). Diuretics have also been used to treat the symptoms of water retention, but have little effect on other symptoms (Price, 1990).

Prostaglandin inhibitors such as oil of evening primrose have been used to treat the physical and emotional symptoms of PMS (Wood, 1980; Jakubowitz, 1982), as have prostaglandin precursors (Abraham, 1983), in both cases with conflicting
results. Other treatments include lithium carbonate (Steiner, 1980); Clonidine (Price, 1984) and GnRH (Muse, 1984).

Freeman et al (1992) carried out a double blind, placebo controlled study of progesterone suppositories in the treatment of PMS, with a view to determine post-study PMS symptom levels and use of medication. At one year post-study, of 124 participants 27% were taking medication for premenstrual symptoms, with symptom severity being less at follow up than at initial enrolment but still greater than at the start of the original study.

Menkes et al (1993) examined the efficacy of fluoxetine (an anti-depressant, sometimes marketed as Prozac) in the treatment of PMS symptoms. In a double blind, placebo controlled trial, the authors report that fluoxetine produced marked improvement in 15 of 16 women to complete the trial, with eight women showing almost complete remission of symptoms. They also report that the action of the medication extended over affective, physical and behaviour components of PMS. The sample size of this study is extremely small, however, and bearing in mind the possible adverse reactions that have been reported in conjunction with fluoxetine (see Menkes, 1993), more research is needed.

There is no one reliable treatment for PMS, and recent reviews have highlighted the lack of adequately controlled double blind treatment trials (e.g. Robinson & Garfinkel, 1990). Similarly, the recommendations for treatment that have come out of treatment reviews have tended to conclude that treatment is best managed on an individual basis, with different treatments tried (Harrison, Sharpe & Endicott, 1985; Price, 1990; Robinson & Garfinkel, 1990).

3.5.1 Summary.
Definitions, aetiology of and treatment for PMS have been reviewed. It is concluded that whilst there has been effort to produce a definitive diagnosis for PMS, no consensus has yet been reached, and similarly that whilst there are many aetiological theories and proposed treatments, the evidence for the proposed models of PMS is often contradictory and no one treatment for premenstrual symptoms has proved to be uniformly effective.

3.6 Critical accounts of PMS.
Mention has been made thus far of certain methodological and epistemological problems central to the debate around PMS, and it’s associated measures. The following sections will review what may be termed the methodological and feminist critiques (Ussher, 1992a) in the area, before reconstructed theories of the menstrual cycle and PMS are examined.

3.6.1 Methodological problems.
It has already been noted that the lack of uniform definition of what constitutes PMS (and how to measure it) renders interpretation of the vast array of studies in the area problematic, and comparisons often impossible. Many of the methodological problems in PMS research have been dealt with in this chapter as the literature has been reviewed, and this section will succinctly cover the main points.

Ussher (1992a) notes that different definitions of menstrual cycle phases have been used by different studies, and the majority of hormonal studies fail to use any proposed standardised definition of PMS (Walker, 1992).

Studies within what might be termed the bio-medical model of PMS have tended to treat the menstrual cycle as an independent variable, that may influence a woman’s mood, performance or behaviour. However, as described in chapter 2, the menstrual cycle is controlled by a series of complex interactions between the central nervous system (CNS) and the ovaries, and the precise nature of these relationships is not yet fully understood (Walker, 1992). Almost every body system (such as body temperature, blood pressure, pulse rate) may be affected by menstrual cycle changes, and the menstrual cycle itself may be affected by emotional or physical stress (Golub, 1992). Stress promotes increased utilisation of the neurotransmitter norepinephrine, and chronic stress over time gradually depletes the body’s norepinephrine stores. Norepinephrine is implicated as an agonist of GnRH, and if norepinephrine levels are low as a result of stress at mid-cycle, then the LH surge required for ovulation may not occur (Golub, 1992). Additionally, stress may affect hypothalamic response (Golub, 1992).

Furthermore, studies that have examined changes across the menstrual cycle take measurements at different points. Some studies take measurements at only two discrete points in the cycle, and when this is confounded by the different cycle
phase definitions utilised by different studies, comparisons and evaluations based on the literature become extremely difficult to make (Ussher, 1992a; Bancroft, 1993).

It is of note that many studies illustrate a discrepancy between cyclical symptom changes evaluated by retrospective and prospective report, with retrospective reports often obtaining variations not found when prospective methods are employed (e.g. Abplanalp et al, 1979; May, 1976; Moos et al, 1969; Vila & Beech, 1980). This has led some researchers (e.g. Rodin, 1992) to posit that such variations are due to the influence of socio-cultural factors upon symptom recall, and it has been suggested that responses given in retrospective reports reflect cultural stereotypes about menstruation and the menstrual cycle (McFarlane & MacBeth-Williams, 1994).

Parlee (1980) observes that researchers have often failed to ensure that their participants have remained blind to the purpose of menstrual cycle research. If women are aware of the menstrual cycle focus of a study, it is argued that they are more likely to report negative mood fluctuations (Parlee, 1974) or that they will misattribute genuine symptoms to the menstrual cycle (Koeske, 1977). Golub & Harrington (1981) found cyclical changes in mood when participants were administered an instrument labelled ‘menstrual distress questionnaire’ (Moos, 1977), but failed to find such an effect for an unlabelled instrument. Furthermore, instruments such as the MDQ have been criticised for a negative bias in response items, which may lead to a biased representation of premenstrual experiences (McFarlane & MacBeth-Williams, 1984). Studies may also fail to place menstrual cycle related mood changes in context, by comparison with other samples (such as men) or other cycles (such as week-day) (McFarlane & MacBeth-Williams, 1990).

A final issue of note in the problems around interpretation and comparison of PMS studies is the possible publication bias noted by Ussher (1992a), who observes that whilst many studies looking at the effects of the menstrual cycle upon performance, mood and behaviour will not achieve statistically significant results, it generally only those studies that do achieve this that are published. This leads to a published face of PMS and menstrual cycle research that may be unrepresentative of the vast majority of endeavours to find a menstrual cycle effect on measures of mood and performance.
3.6.2 Methodological issues associated with questionnaire use.

The MDQ (Moos, 1968), MSQ (Chesney & Tasto, 1975) and PAF (Halbreich & Endicott, 1982) are all widely used instruments in the field of PMS research. There are, however, a number of problems with both prospective and retrospective questionnaire use, and more specific criticisms aimed at the instruments themselves. It is useful to review these methodological problems prior to an examination of further questionnaire studies in order to place questionnaire use in the area of PMS within its scientific context.

As has already been noted, a number of symptoms are associated with the premenstrual phase. Attempts by researchers to assess these by the use of questionnaires have often proved confusing: for example, some studies investigating mood change in the premenstrual phase have found an increase in negative affect, irritability and anxiety (e.g. Moos, Kopell, Melges, Yalom, Lunde, Clayton & Hamburg, 1969; Golub, 1976; Voda, 1980) whilst others have found no change (e.g. Silbergeld et al., 1971). Brockway (1976) found no change in scores on the Pain and Negative Affect sub-scales of the MDQ for intermenstrual and premenstrual reports, although Brockway’s participant’s low completion rate could have affected this result (Richardson, 1990). Given the methodological discrepancies in this particular literature, it is very difficult to assess the impact of cycle phase upon retrospective questionnaire reports.

Groer, Carr & Younger (1993) investigated the relationship between cycle phase, illness and menstrual cycle related distress. Sixty five non-pill using women were administered the MDQ, a stress measurement scale and a checklist of infection symptoms. It was found that whilst infection symptoms tended to cluster around perimenstrual phase, there was no phase specific effects upon MDQ scores.

Studies investigating mood change across the cycle, using measures of state or mood with cycle phase as an independent variable provide similarly conflicting results. Asso (1983) suggests that this may be due to the inappropriateness of clinical measures of depression, which may not be sensitive enough to the levels of change occurring. However, these findings may also reflect the fact that different studies have used different definitions (and provided different instructions for participants) of cycle phase, specifically what period of time
constitutes the premenstrual phase, and some studies have only taken measurements at two points of the menstrual cycle (Ussher, 1992).

Richardson (1990) states that a general problem with instruments such as the MDQ is that they rely heavily on women's recollections and the accuracy of self reporting.

Parlee (1991) has noted the relationship between culture and PMS, and the cultural embrace of the notion of the 'diseased' female reproductive cycle. In an earlier study, Parlee (1974) showed that women's reports of their own paramenstrual experiences were very similar to those given by women when asked to describe premenstrual experiences in general, and those given by men in response to the same. Brooks-Gunn and Ruble (1980) argue that women's reports of menstrual symptoms reflect cultural beliefs and expectations about the menstrual cycle, and it could be argued that the same point may apply to beliefs and expectations about premenstrual experiences. Christensen and Oci (1990) used the PAF to investigate men's perception of women's premenstrual changes. A sample of 95 male University students aged 17 - 55 were administered the PAF, and it was found that men believed women to suffer dysphoric changes such as hostility, mood changes and low self esteem, as well as physical discomfort and behavioural changes. Ruble (1977) demonstrated the enduring effects of cultural beliefs about PMS in a study where women were given false feedback about their cycle phase. False information about cycle phase led to different symptom ratings among women who were actually at the same phase of their menstrual cycles.

Finally, Olasav and Jackson (1987) found that showing women videotapes designed to either increase or decrease their expectations about mood changes across the menstrual cycle had far reaching effects on women's subsequent mood reports: at a 40 day follow-up session women still showed altered symptom reports, and the videos seemed to also effect their day-to-day mood reports throughout the menstrual cycle.

If it is the case that symptom ratings on retrospective measures can be manipulated by false information about cycle phase (Ruble, 1977), or that similar scores can be achieved when people's beliefs (e.g. Brooks, Ruble & Clark, 1977;
Olasav & Jackson, 1987; Christensen & Oei, 1990) rather than experiences are
assessed, then such measures should be used and interpreted with caution. The
effects of cultural stereotypes and expectations may be further confounded by
memory constraints when women's experiences are assessed by self report or
retrospectively - Richardson (1990) suggests that retrospective reports should be
contrasted with day-to-day symptom reporting. Finally, it could be argued that
actually labelling an instrument as a 'Menstrual Distress Questionnaire' may
contaminate subsequent responses (Ussher, 1987).

The use of retrospective self-report instruments, such as the original form of the
MDQ has been much debated (e.g. Koeske, 1983; Richardson, 1990; Ussher, 1992).
This is because many studies have failed to find any correlation between
retrospective symptom reports and day-to-day, or prospective, ratings (e.g. Moos
et al, 1969; Parlee, 1974; Brockway, 1976; Rouse, 1978; Abplanalp, Donnelly & Rose,
1979; Vila & Beech, 1980). Brockway (1976), for example, found significant
differences between prospective and retrospective ratings of Pain and Negative
Affect on the MDQ. These findings would suggest that retrospective questionnaire
assessments are of questionable validity. It has been argued that the cause of this
discrepancy might be the effect of cultural stereotypes on retrospective reports
(Koeske, 1983; Richardson, 1990), although Olasav and Jackson's (1987) study
manipulating women's expectations of their menstrual cycle related symptoms
showed effects on both retrospective and concurrent reports (Richardson, 1990).

Boyle and Grant (1992) used the MDQ and the Differential Emotions Scale to
quantify physical and emotional premenstrual change both retrospectively and
prospectively in a sample of 103 women (oral contraceptive users and non-users).
They found that prospective reports showed less discernible symptoms than did
retrospective reports.

There is some evidence that prospective reports tend to produce lower symptom
ratings than retrospective ones. Endicott and Halbreich (1982) found that
retrospective administration of the PAF produced higher symptom severity
ratings than did subsequent prospective reports. This may be because of
differences in premenstrual phase experienced by women - many studies will use
an average of total symptom ratings over the days when premenstrual symptoms
are expected, which may prove to be misleadingly low (Moos, 1985). Differences in
procedures used to collect the two types of data may also affect the levels of symptoms that women report (Richardson, 1990). It has been argued (Logue & Moos, 1986) that in order to address this problem, both prospective and retrospective data should be collected. These issues have ultimately led to the use of prospective ratings in the diagnosis and research of PMS, in order for a study to gain academic credibility (Walker, 1993).

However, it should be noted again that women’s premenstrual symptom experiences often do vary from cycle to cycle (Richardson, 1990; Golub, 1992). From the results of a study that directly compared scores on modified forms of the prospective and retrospective MDQ, Hart, Coleman and Russell (1987) concluded that much of the discrepancy between retrospective and prospective findings are due to this variation, and further suggest that as retrospective reports may reflect a woman’s expectations or general-to-average experience of her menstrual cycle, as such they are distinct in quality from prospective assessments and of great interest to research (Hart et al, 1987). Thus it can be argued that prospective and retrospective questionnaires are not necessarily measuring the same aspect of women’s experience, which makes comparisons between the two types of measures misleading.

There is considerable evidence to support the use of blind rather than informed designs in PMS research. It has been suggested (England-Golden et al, 1978) that the use of retrospective measures of paramenstrual symptomology necessitates an informed design, to ensure that the data collected may be compared with particular cycle phases. This of course is not the case if a general mood assessment instrument is used (as opposed to one that is designed specifically to assess paramenstrual symptomology) to investigate the effect of the menstrual cycle on mood or emotional states.

Golub and Harrington (1981) found cyclical changes in mood when using the MDQ with a population of normal women, but found no similar change when mood scales that were not menstrually labelled were used. Vila and Beech (1980) found in their study of 24 phobic patients that use of menstrually related questionnaires produced reported mood changes, whereas use of concurrent mood reports in a blind condition produced no such effects.
Gallant, Hamilton, Popiel and Morokoff (1991) used daily ratings of moods and symptoms to examine the relationship between symptom experience, awareness of study focus, gender, menstrual cycle phase and day-of-week. From the results of 30 normally cycling women and 23 men from whom ratings had been collected for two cycles or two months (respectively), and by randomly assigning the women to an aware or unaware group regarding the menstrual cycle focus of the study, six factors (dysphoric moods, well-being, physical symptoms, personal space, food cravings and depression) were found to account for 70% of the variance in responses. Women who were unaware of the study focus reported less well-being than men during the premenstrual phase, but did not differ on any other measure, and it was further found that aware women did not significantly differ from men on any of the measures taken at any point.

If there is a case for the use of blind or uninformed designs in questionnaire studies, then it would seem fair to say that this would depend on the particular research questions of any one study. In logical terms, to use an informed design would necessitate the acknowledgement of the possible effects of sociocultural factors in any subsequent analysis. Certainly, if one take the possible role of cognitive factors into account (see chapter five) then explicit use of the terms 'menstrual', 'premenstrual' or 'menstrual distress' in information given to study participants may serve to 'cue them in' to a particular set of menstrual-cycle related cognitions, or, in broader terms, beliefs.

3.6.3 Feminist & socio-cultural critiques.

This section will review feminist critiques of PMS research, as a precursor to outlining a feminist standpoint on PMS in chapter four.

From the critical accounts of science outlined at the beginning of this chapter, it may be suggested that PMS represents social values and representations of femininity legitimised through the lens of science. This is a crucial point: Returning now to the beginning of this chapter, it is possible that we may view the concept of PMS and the female reproductive cycle in a new light, and this critique is central to my thesis. Certainly, it has been suggested elsewhere (Parlee, 1991) that the concept of PMS represents a gendered illness category, furthering the interests of specific institutions and negating what might be seen as legitimate female protest and response to social conditions. Parlee (1991)
observes that initially, feminist researchers adopted three strategies in order to counteract the biological reductionist focus of most PMS research.

In the first place, Parlee (1991) notes that scientific evidence was gathered by researchers to show that menstruation has no impact upon women’s work related performance (e.g. Sommer, 1973; 1992). Martin (1987) notes that if it were the case that menstruation, and specifically PMS, emerged as an illness category as women were subjected to the increased pressures of work in the industrialised West, then incidence of PMS would increase alongside greater work discipline. This, she argues, is not illustrated by the literature (Martin, 1987). Secondly, evidence was collected to illustrate that women are not uniquely affected by cyclical changes (e.g. Parlee, 1978). Finally, Parlee (1991) observes that the significance of premenstrual effects upon mood, behaviour and performance was placed in context alongside the effects of other cycles, such as day of the week (e.g. Golub, 1976). Ussher (1992a) terms such research strategies 'liberal feminist', in as much as they seek to provide a methodologically better, rather than different, account of PMS.

The concept of PMS as a syndrome has also been called into question (e.g. Laws, 1985; Golub, 1992), the contention being that such a diverse array of symptoms hardly merits the label of 'syndrome'. Allen (1990) suggests that one may as well posit the category of pre-breakfast syndrome, under which umbrella term to place all the possible symptom experiences associated with waking up in the morning such as smoker's cough, habitual fatigue or hangover, morning sickness and so on. This comment upon the use of the term syndrome in describing premenstrual experience highlights again the diversity of symptoms reported by women, and others (Golub, 1992; Richardson, 1993) have noted that PMS does not meet the dictionary requirements of a syndrome at all. It is worth remembering, too, that homogeneity of symptom timing does not necessarily imply homogeneity of aetiology.

Koeske (1983) has argued that whilst socio-cultural research provides us with evidence that biological factors cannot account for the entirety of women’s premenstrual experience, at the same time they fail to provide an alternative to the predominant biological reductionist models of PMS. This, Koeske (1983) argues, is because basic assumptions about gender, personality, and the
'individual differences' model employed by such research are not questioned. Koeske (1983) calls for methodological safeguards against bias in socio-cultural research, but also for a more adequate cultural analysis of PMS. It may be suggested that this can only be provided by placing PMS firmly within its cultural and scientific context, as this chapter has attempted to.

Rodin (1992) reviews the inconclusiveness around PMS research from a feminist position, and concludes that it is symptomatic of persistent cultural and medical constructions of femininity. Supporting Martin's (1987) contention, that PMS may be seen as a mode for the expression of women's anger as a result of her oppressed status in capitalist society, Rodin (1992) argues that the category of PMS is produced and reproduced by medical (scientific) discourse, and that it cannot be separated from a cultural context that seeks to define and contain women.

3.6.4 Summary.
Fundamental problems with the concept of, and research into, PMS have been revealed in the preceding sections of this chapter. We have noted that no one aetiological model, definition or treatment exists, and have further noted the methodological deconstructions of the literature and the feminist and socio-cultural critiques that have developed over the last twenty years.

There are, however, two important points to consider before the category of PMS is dismissed altogether. The first is that some women do experience a significant degree of premenstrual distress, in spite of the problems observed herein, and will benefit from a diagnosis of PMS (Parlee, 1991; Ussher, 1992a). The second point is that the bio-medical model, feminist and socio-cultural critiques have all failed to reach a solution to this distress in the form of an effective treatment for PMS (Koeske, 1983; Ussher, 1992a). The vast amount of research into the aetiology has either been treatment, rather than theory driven (Tucker & Whalen, 1991), or correlational rather than hypothesis testing in nature and therefore resting upon assumptions that have been deconstructed here. Predominant models of PMS have thus failed to generate an adequate theoretical account of the syndrome, and therefore have not addressed the issue of what distinguishes a woman who does self-report PMS from a woman who does not. Nor can the bio-medical approach account for the problems of 'false positives' and 'false negatives' (Hamilton & Gallant, 1990). Therefore, practitioners who are being asked to treat
women presenting with premenstrual symptoms can provide no long-term solution that is more effective than placebo, and an opening exists for a reconstructed feminist and psychological theoretical account of PMS. The final section of this chapter will review the development of psychological and multifactorial approaches to PMS.

3.7 Reconstructed approaches: Towards a psychological theory of PMS.

Use of a psychological approach to understanding women's experience of PMS implies a belief in the assumption that factors other than hormonal ones have a significant role in causation. The term 'psychological' is rather a broad one, and could indicate a variety of approaches from the psychophysiological to the social psychological. Use of a psychological-type model or approach in PMS research is not new, and there are many examples of studies on social cognition, stress, arousal and attribution that have until recently been considered alone, or as part of a general socio-cultural critique of predominantly bio-hormonal approaches to PMS. New developments are reviewed in this section, however, in the form of multi-factorial or bio-psycho-social approaches to PMS.

Horney (1931) makes the first link between PMS and a psychological mechanism, by suggesting that premenstrual tension may be caused by repressed conflict and desires relating to child-birth. Walker (1993) terms this a psycho-therapeutic model of PMS, where normal hormonal variation added to some psychological conflict result in the abnormal symptoms of PMS.

More recent psychological theories of PMS may be broadly termed social-psychological models (Walker, 1993), and tend to be uni- or bi-variate in structure. For example, some research suggests that situational factors and subsequent attributions may play a part in determining and subsequently labelling mood changes (e.g. Koeske & Koeske, 1975; Parlee, 1982; Bains & Slade, 1988). Koeske & Koeske (1975) found, using a vignette paradigm, that both men and women attributed the negative moods of a female character to menstrual cycle factors, but positive moods to external events. Based on this study design, Bains & Slade (1988) investigated sixty women's attributions of a character's emotional responses and actions in set vignettes. It was found that women were more likely to attribute negative moods occurring premenstrually to health
factors, whereas negative moods occurring intermenstrually were more likely to be attributed to work or personality factors. Positive moods tended to be attributed to background factors, day events and personality.

Koeske (1977) suggests that premenstrual symptoms may at least in part be accounted for by premenstrual increases in autonomic arousal, with situational cues determining the subsequent interpretation of arousal as positive or negative. Koeske's (1977) proposal is based on Schacter & Singer's (1962) arousal theory of emotion, which posits that emotionality results when an aroused person interacts with the emotion labels provided by the context of a situation. Thus, the premenstrual phase may provide a negative situation label. Koeske (1977) measured physiological and psychological variables in a blind study, and found some evidence of a general increase in arousal in the premenstrual phase of the cycle. However, Koeske (1977) also reports a high level of individual difference in the results, which suggests two modifications that might be made to further studies along this line. In the first place, this study illustrates that use of within-subject rather than between-subject study designs may be more appropriate. Secondly, use of analytical techniques that employ the analysis of standard deviations rather than mean scores may give a better indication of premenstrual changes within subject groups (e.g. McFarlane & MacBeth-Williams, 1994).

Klebanov & Jemmott (1992) investigated the effects of expectations upon self reports of premenstrual symptoms, by giving false information to participants about cycle-phase. It was found that women who were told (falsely) that they were premenstrual reported more pre-menstrual symptoms in a subsequent ratings task. However, the authors conclude that whilst expectations appear to have an effect upon premenstrual symptom reporting, the results of their study also indicate that some women genuinely do experience more premenstrual symptoms than others.

Coughlin (1990) found poor marital satisfaction to be the best predictor of PMS, when other life events had been controlled for. Some studies have found that menstrual and premenstrual distress are related to undesirable life events (Wilcoxon et al, 1976; Siegal, Johnson & Sarason, 1979), and others that increases in life stress are related to increases in the report of menstrual cycle related symptoms (Koeske, 1977; Ussher, 1987). Beck et al (1990) investigated the
predictive role of psychosocial stress upon symptom severity in twenty five women with prospectively confirmed PMS. Using a battery of instruments to measure daily stress, mood and physical symptoms, Beck et al (1990) found no association between cumulative daily stress and the severity of premenstrual symptoms.

Such theories implicate coping skills, social support and expression of symptomology in the onset and maintenance of PMS. Rubinow & Schmidt (1989) further propose that the state model of psychological functioning be used as a framework through which to understand premenstrual symptom incidence and experience. This model generally presumes that alterations in perceptions and behaviour occur within the context of differentiated and organised experiential states, each of which is characterised by a particular set of beliefs, perceptions, memory accesses, communication styles, self and object relations and so on (Rubinow & Schmidt, 1989). Applied to PMS, the existence of a premenstrual state implies a particular set of these characteristics, triggered premenstrually, and mediating interactions between self and world, and the possibility of particular cognitive sets or styles associated with PMS is raised. This model represents one of the earliest attempts to integrate information from the social psychological models within a more multi-factor framework.

Research is beginning to move towards a conceptualisation of the menstrual cycle as a multi-faceted experience (Ussher, 1992a). One of the reasons for this is the need for an integrated research framework, through which to transgress the theoretical impasse reached by the feminist, socio-cultural and methodological critiques addressed earlier, and integrate these factors into a model that may embrace many aspects of women’s experience of their menstrual cycles. Such a multi-factorial approach need not exclude ovarian hormones in the aetiology of PMS, but nor need it afford them a predominance in our conceptual framework that is not borne out by the literature.

Ussher (1992a), in a call for such a reconstructed approach to the menstrual cycle, sets out her rationale thus: In other areas of psychology and medicine, simple biological theories are gradually being turned over as inadequate, and replaced by models that illustrate the complex relationship between life events, social support, and personality variables. Ussher points out that this shift has
already occurred in the field of depression (Ussher, 1992a).

Figure 3.3: A Multivariate model of PMS; Ussher, 1992a Pp 161.

The figure above illustrates how such a model may be applied to PMS, with trait variables and broader social factors accounted for (Ussher, 1992a). There are other similar approaches (see, for example, Walker, 1992, 1995; O’Brien, 1993). Ussher (1992a) argues that this model effectively reconciles the results of research studies reviewed earlier in this chapter, with perhaps some explanation of the conflicting results of different research studies contained therein.
For example, within this framework, a woman who experiences normal monthly hormonal fluctuations might be subject to specific vulnerability factors (such as personality factors) or, alternatively, specific life events which, in the context of a set of cultural stereotypes about menstruation and femininity, lead her eventually to self-diagnose PMS. One can see here how many different combinations of factors may emerge, a possibility which again may serve to explain previous conflicting research. Ussher (1992a) states:

"In short, the experience of symptoms as being part of a premenstrual syndrome can be seen to be the result of an interaction between perceived changes in arousal, life events, underlying personality factors, and the amount of social support, constructed within the cultural expectation that menstruation is debilitating....One can appreciate that the experiences of any individual woman might be interpreted very differently, given a change in any one (or more) of the different factors within this model"

(Ussher, 1992a Pp 163).

Some preliminary evidence in support of integrated psychological approaches to PMS may be seen in the results of two treatment studies. Morse, Bernard & Dennerstein (1989) used rational emotive therapy and relaxation training alongside more traditional progesterone treatment in a sample of six women. At the end of the ten week therapy program, significant improvements were found in a number of psychological and physical symptoms. Improvements in psychological functioning were still seen at one year follow up: However, this study has an extremely small sample size and further research on the use of RET and relaxation training in the treatment of PMS is needed.

Kirkby (1994) notes that there have been nine studies of psychological interventions for PMS to date, which have consistently claimed positive outcomes. He notes a number of methodological problems with these studies, and presents the results of his own research, investigating the efficacy of a cognitive-behavioural coping skills treatment for PMS symptoms. Kirkby (1994) reports that his study shows such interventions can reduce the negative effects of premenstrual symptoms, and that this beneficial effect may be maintained over time.

Morse, Dennerstein, Farrel and Varnavides (1990) combined hormone therapy,
coping skills training and relaxation in the treatment programs of 54 women with prospectively confirmed PMS. Using a battery of instruments to assess changes in menstrual cycle symptoms, anxiety, anger, depression, cognitive functioning and daily symptom experience at pre- and post-treatment, Morse et al (1990) report that coping skills training (cognitive behavioural therapy) provided substantial relief to affective and cognitive PMS symptoms, at a significantly higher level than hormonal therapy alone, and that this improvement persisted at three months follow up.

3.8 Conclusion.
In this chapter, the development of PMS as an illness category has been charted, in the context of a critique of general scientific epistemology. This was done in order to examine the relationship between science, society and the female body, and it is suggested that social order may be seen to be supported and regulated through the use of science, and that PMS may be argued to be a part of that regulation.

The literature on the definition, aetiology and treatment of PMS has also been reviewed, so that the predominant model, a bio-hormonal approach, may be examined. It is concluded that such approaches fail to discriminate between women who do and women who do not self-report PMS. I should further like to suggest that, taken in the light of my earlier critique of science, the persistence of this model despite the contradictions and problems inherent in the research literature reflects the persistence of the social values, or more accurately discourses around femininity reviewed previously (Rodin, 1992), in research practices.

Psychological approaches to PMS have also been reviewed, concluding with an examination of a proposed multi-factor model (Ussher, 1992a). It is concluded that such an approach may reconcile some of the tension between bio-hormonal approaches on the one hand, and socio-cultural, social-psychological and feminist approaches on the other. It is further suggested that such a model may account for previous discrepancies in research results, and that this integrated framework may be utilised in order to move theoretical accounts of PMS forward and investigate new avenues for treatment.
Multi factor models similarly open different research avenues, and a model that may not only acknowledge the interplay of different factors in the process that leads a woman to self diagnose PMS, but that also accounts for the cultural context in which the category of PMS exists, may open many exciting and new research strategies in order to investigate different facets of premenstrual experience. Specifically within psychology, it allows us to employ some of the strategies and theoretical approaches developed from feminism, and the crisis in social psychology (Parker, 1989), to investigate the role of the social in women's experience of PMS. The following chapter will set out my precise theoretical framework through which these issues are addressed.
Chapter Four: Epistemology, methodology and research strategies.
4.1 Introduction.
Chapters two and three of this thesis have outlined and reviewed research on the menstrual cycle and PMS, the vast majority of which has been conducted from within a scientific or bio-medical perspective (Ussher, 1992a). The central principles of science and scientific method have further been reviewed, in order to place in context the emergence of PMS as an illness category within Western culture. It has been concluded that the univariate accounts of the menstrual cycle, and premenstrual syndrome, provided by research within this perspective have failed to give an adequate definition of PMS, or further to account for the difference between those women who do experience some significant premenstrual distress, and those who do not. This is well illustrated by, for example, the problem of 'false positives' and 'false negatives' noted by Hamilton & Gallant (1990) (see chapter three).

It is suggested that this lack of consensus regarding the definition of PMS may be due more to the assumptions made about knowledge, gender and behaviour, than a failure to as yet identify an appropriate hormonal substrate. Furthermore, it may be concluded that there is a paucity of theoretical accounts of the menstrual cycle, and specifically PMS, through which to examine these issues.

The development of multi-factor, or bio-psycho-social approaches to understanding women's experience of PMS, has been noted. In a paper reviewing the current state of research in the area of PMS, Walker (1993) concludes that in order to progress from the impasse reached between bio-medical and feminist researchers (Ussher, 1992a), three strategies should be adopted. In the first place, Walker (1993) proposes that the assumptions made about the nature of PMS should be acknowledged, both at a disciplinary and an individual level. Secondly, she suggests that more consideration should be given to the use of different research strategies in the area. Walkerdine (1993) has noted that any research strategy may only access one 'story' about or facet of a phenomenon. Finally, Walker (1993) argues for the formulation of integrated theoretical accounts of PMS, in other words, the adoption of a multi-factor or bio-psycho-social approach.
The purpose of the following chapter is to set out the position adopted on each of these points. The utility of a multi-factor approach will be restated, and the assumptions that may be drawn about the illness category of PMS will be set out. Little attempt has been made thus far to distinguish between the psychological and specifically bio-medical research in the area of PMS: This is for good reason. Psychology, as a scientific discipline, will be examined, in order to reveal the assumptions made about PMS by a positivist psychological approach. The alternatives to this approach will be explored, with a view to presenting the theoretical advances to come out of the 'crisis' in social psychology (Parker, 1989). I will then go on to state the rationale for the use of a feminist, and women-centred, approach within a multi-factor framework, and the possibilities for use of different research strategies that such a framework affords. I will conclude by bringing these two strands of argument together, in order to introduce the research presented in chapters five, six and seven of this thesis.

In light of the recent advance towards multi-factor approaches to PMS, it may be suggested that not only do such approaches afford the utilisation of different research strategies, but that use of such diverse strategies, and careful consideration of the epistemological assumptions from which they stem, is vital in order to develop a theoretical account of the process by which women come to self-diagnose or self-report PMS.

In a critique of the naturalist tradition, Hollway (1989) argues against the distinction between theory and method inherent within the social sciences. This distinction, she suggests, is borne out of a long-standing predominance of the hypothetico-deductive method within the social sciences, a principle which entails the formulation of an hypothesis on the basis of a theory, and the

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30 Giddens (1976) notes that the social sciences were shaped by proximity to the advances in the natural sciences, in the late eighteenth and nineteenth centuries. Chapter three of this thesis sets out the development of scientific theory and method. Giddens (1976) notes that this influence of the natural sciences resulted in the translation of scientific method to the study of the social, where Hollway (1989) has suggested that traditional psychology is obsessed with scientific method. Bhaskar (1979) defines naturalism to be the position in which "There is an essential unity of method between the natural and social sciences. It's tenets are two: reductionism refers to the position that there is an actual identity of subject matter; scientism refers to the position which denies any significant difference in the methods appropriate to studying social and natural objects" (1979 Pp 1; Cited by Hollway, 1989).
independent collection of data by which to test this hypothesis (Hollway, 1989; see also chapter three). This process by which hypotheses are set by theory, and data collected by method results, Hollway (1989) suggests, in the separation of theory and method. The hypothetico-deductive method fails to stipulate how theory is to be generated, and thus divorces itself from reflection upon the appropriateness of method to particular epistemological assumptions. Within this chapter, I hope to argue for a particular epistemological position which may allow both theory and method to be reflexive: By the use of a multi-factor approach to PMS, I hope to advocate the utilisation of different research strategies through which to investigate this; by the use of different research strategies, I hope to enhance and shape the theoretical account of PMS.

This chapter, then, will set out the theoretical framework through which my research is conducted and interpreted, and the research strategies employed within this research. As such a rationale will involve an examination of epistemological and methodological assumptions, and a distinction between different research methods or strategies, it would seem appropriate to begin by defining my own interpretation of these terms.

4.1.2 Defining the terms of research.
The debate around use of different methodologies through which to conduct research and generate theoretical accounts of phenomena will run through the course of this chapter. For the purpose of this section, it is necessary to note that this issue has been crucial to the development of feminist theory, specifically within psychology, as feminists have sought to develop different or more appropriate 'ways of knowing' or methodologies distinct from traditional psychology.

The critique of positivism has been outlined in chapter three. To recap, within a positivist approach, the subject of knowledge (the scientist or knower) is an individual. The knower cannot be a group, such as a class or gender, and further is abstract, in other words 'they' cannot have any specific historical or social identity (Harding, 1991). Authors of the results of scientific research are therefore presumed to be socially and historically anonymous, and the particular race or gender of a researcher should not make any difference to the 'goodness' of the research conducted or the ensuing results (Harding, 1991).
Furthermore, the scientific or positivist method is presumed to be powerful enough to eliminate any social biases that could possibly find their way from the social context or situation of the researcher into concepts, hypotheses, research designs or interpretations of data. Therefore, the scientific method rests upon the assumption that it has 'strong objectivity' (Harding, 1991).

The critical review of the literature that is provided by chapters two and three has outlined positivistic approaches to the menstrual cycle and PMS, and in so doing highlighted the cultural assumptions around femininity that, it is argued, have directed and focused this research. Thus, a critique has also been provided of the premise of 'strong' objectivity within this field. This is in line with the argument of Harding (1991), who summarises five feminist critiques and responses to traditional science: The lack of opportunity for women in science education and employment; the sexist misuse and abuse of scientific research; the sexist and androcentric bias in research conducted and interpretations made; the gendered nature of science itself; and the androcentrism of scientific epistemologies. Further, a point made by Walker (1993) is illustrated: That PMS is an issue of science, as well as an issue of gender.

In setting out her thesis on feminism and methodology, Harding (1987) provides us with definitions of epistemology, methodology and research method. These definitions will be taken up and utilised by the remainder of this chapter, and examined as a precursor to the construction of my own theoretical framework.

Harding (1987) defines epistemology as, broadly, a theory of knowledge, which sets out who may legitimately be termed a 'knower', what requirements beliefs must meet in order to be legitimated as knowledge, and what kinds of things may be known. Thus, within the body of bio-medical research upon PMS that has been reviewed, we may argue that scientists (medics, psychologists) are legitimated as knowers, and of these the majority may be seen to be male. It has already been suggested (Parlee, 1991) that PMS may be seen as a gendered illness, and it is further arguable that behaviour and experiences that are different from the (male) norm (Nicolson, 1992) count as beliefs about the menstrual cycle and

31 For a more detailed examination of this argument, I refer the reader to chapter three, and to the work of Sandra Harding (1987; 1991).
femininity. These beliefs then are tested by the methods of science and thereby legitimated as knowledge, and the objective measurement of hormonal, behavioural and emotional (subjective) variables may be known about through this process.

Methodology may be defined as a 'theory and analysis of how research does or should proceed' (Harding, 1987 Pp 3). Thus a methodology, as a body of knowledge, will include an account of how the structure of any particular theory finds its application within specific scientific disciplines (Harding, 1987). The assumptions made about PMS and the menstrual cycle within bio-medical research, the debate around definition, classification and measurement, and the translation of this debate into research practice, may be viewed as an example of this.

Finally, research method, or research strategy (the term employed by the title of this thesis) may simply be defined as a technique for gathering evidence or information, governed by methodological and epistemological rules (Harding, 1987). Thus we may see that within the predominant bio-medical model of PMS, specific epistemological assumptions have determined both the research questions (derived from methodological and epistemological issues) and the research strategies used to test these.

It would appear to be the case, then, that disciplinary knowledge about a phenomenon is governed by an hierarchical relationship between epistemology, methodology and research strategy. It may also be argued, in light of the critiques of science outlined in chapter three, that the relationship between scientific knowledge and cultural belief is a circular one. The state of research, or impasse (Ussher, 1992a; Walker, 1993) in the arena of PMS may be seen to be reflective of this circularity. It is through careful examination of these issues that the notion of 'strong objectivity' within positivist research may be questioned, and further through careful consideration of these issues that feminists have attempted to counteract the androcentric biases within positivism and put forward alternative epistemologies and 'ways of knowing'.

4.1.3 A multi-factor approach to PMS.

32 See chapter three.
It is suggested, then, that the lack of consensus over the definition of PMS reflects the contradictions and problems in the area outlined in chapter three. As a result of these problems, multi-factor approaches are gradually being formulated and adopted for use in the assessment and treatment of PMS (see Rubinow & Schmidt, 1989; Parlee, 1991; Ussher, 1992a; Bancroft, 1993; Walker, 1993). Such approaches have been suggested to counter the methodological and epistemological problems experienced by researchers in this field (e.g. Ussher, 1992a; Walker, 1993), and it is suggested that in theorising and researching women's experience of PMS from this standpoint, the many factors that may contribute to a self-diagnosis are acknowledged, including the possible effects of social and cultural factors.

Taking again Ussher's (1992a) model (see chapter three), different facets of both internal and external experience may be seen to be contributory to the outcome measure of self-diagnosis of PMS. It has already been noted that Richardson (1992) proposes the menstrual cycle, like cognition, be conceptualised as positioned upon an interface between the internal, or biological, realm of experience, and the social, or external. Such a conception of PMS need not fall into traditionally dichotomous, or dualist, ways of thinking about the relationship between mind and body. Rather, we may begin to conceptualise subjectivity33 as a dynamic and multi-faceted process (Hollway, 1989), a position which may be seen to integrate the traditional boundaries of the 'individual' and the 'social'. Thus, it may be the case that different research strategies may be appropriate for different facets of the multi-factorial approach, that each strategy may access only one possible 'story' (Walkerdine, 1993) about PMS, and that taken together, within the context of a particular epistemological standpoint, new theoretical accounts of the experience of PMS may emerge.

4.1.4 Assumptions about PMS.
As previously noted, Walker (1993) suggests that in order to provide new

33 Henriques et al (1984) use the term subjectivity to refer to "individuality and self-awareness - the condition of being a subject - but understand in this usage that subjects are dynamic and multiple, always positioned in relation to discourses and practices and produced by these - the condition of being a subject" (Pp 3). Hollway (1989) further uses the term subjectivity to move away from the problem of individual / society dualism, thus displacing objective rationality from the centre of the human subject. This, Hollway (1989) argues, opens up radical new possibilities for the use of subjective knowledge, and it is in this sense that I wish to use the term.
theoretical accounts of the experience of PMS, we must acknowledge the assumptions that we make both at a disciplinary and an individual level. Thus far, I have examined the assumptions made about PMS by traditional bio-medical approaches, and introduced the assumptions made by multi-factor, or bio-psycho-social approaches. I should like to take this point a step further, and suggest that the adoption of a multi-factorial approach within the discipline of psychology, we not only acknowledge the experience of PMS to be a multi-faceted one, but may move away from hard and fast category boundaries altogether.

In light of the methodological and diagnostic problems outlined previously, I should like to argue that use of any hard-and-fast diagnostic strategy to determine women's inclusion or exclusion as participants of study are not always the most appropriate framework through which to research PMS. Such assumptions about the nature of PMS, and suggestions that the medical or self-diagnostic process can be reduced to a checklist or brief criteria (see chapters three and six), prematurely assume a concreteness of the phenomenon that is in no way reflected in the research literature (see, for example, Parlee 1991).

These assumptions are also steeped in the positivist epistemology, that a "thing" is real and exists outside and independently of cultural acknowledgement to be measured (Woolgar, 1988). The importance of subjective factors within scientific method is, as we have seen, rarely reflected upon by researchers in the bio-medical field, where the vast majority of PMS research is conducted. To proceed from the present "impasse" that some psychological researchers suggest PMS research has come up against (Ussher, 1992a), the recent emergence of PMS as a 'social problem' and medical category (Rittenhouse, 1991) must be acknowledged within the context of such critiques and the gendered nature of science (Keller, 1985).

Thus, focus of this research is self-diagnosis of PMS, a move which represents an attempt to progress from any society / individual dichotomy, and towards an inclusive theory of subjectivity, premenstrual experience and cultural premise. The contradictory nature and lack of consensus apparent in the literature reviewed in chapters two and three, regarding the aetiology and effects of PMS and the menstrual cycle in all spheres of performance, physical experience and emotion, may reflect a fragmentary or multi-faceted state, grounded in
experience of gender and biology, rather than failure by science to locate a single cause for premenstrual distress. Additionally, there is a growing belief that women's beliefs and concerns are as valid as more traditional or 'objective' data, and that these can be evaluated and studied in their own right (Nicolson, 1986).

4.1.5 Psychology, science and epistemology.
As has already been noted, Walker (1993) suggests that in order for new theoretical accounts of women's experience to be developed, the assumptions made about PMS both at a disciplinary level and at an individual level must be acknowledged.

The purpose of this section then is to set out the assumptions that psychology, as a social science, has traditionally made about the nature of PMS, and to propose a psychological approach that may progress from the limitations of traditional univariate accounts. This will be done by a brief examination of the discipline of psychology (for a broader discussion of philosophies of science, see chapter three), and of the utility of new paradigm approaches.

Venn (1984) suggests that a 'science of the individual' (Pp 126) has at least two historical strands. In the first place, the sixteenth and seventeenth centuries marked a heightened medical and clinical interest in the study of psychopathology (see Foucault, 1973); secondly, the early discipline of behaviourism which developed in the second half of the nineteenth century, itself stemming from the development of Darwinian approaches to natural history. Venn (1984) places these developments within the context of the enlightenment and the emergence of capitalism, to illustrate how a science of the individual may be implicated in social regulation. Certainly, this is commensurate with the place of science in the creation of the social, as outlined in chapter three. Venn (1984) suggests that the adoption of epistemological assumptions and methods drawn from the natural sciences to measure the individual set up a situation in which the individual became represented, regulated and measured against these assumptions.

For the purpose of this thesis, I should like to concentrate upon the alliance of behaviourism with the epistemological assumptions of the natural sciences, and the implications that this had for the developing discipline of psychology.
Hollway (1989) notes the predominance of naturalism within the social sciences, its empiricist epistemology, positivist methodology, and hypothetico-deductive methods. Positivism (see chapter three) assumes an objective and knowable reality, where objective knowledge is acquired through scientific experimentation and observation, to falsify or verify hypotheses (Harre & Secord, 1972). Certainly, the hypothetico-deductive method has been presented as the dominant paradigm within modern psychology since the 1930's (Kitzinger, 1987; Henwood & Pidgeon, 1992). As has been noted in chapter three, this paradigm promotes experimental methods, manipulation of variables, quantification and statistical analysis within its procedures (Henwood & Pidgeon, 1992).

It has already been suggested (see chapter three) that positivism presumes a reality that is objective and knowable, and further measurable by its own instruments (Venn, 1984). Therefore, it may be suggested that the methods and assumptions about phenomena employed by the natural sciences (biology, chemistry and so on) are applied, in general terms, by the discipline of psychology. Venn (1984) suggests that psychology occupies a situation between the biological and the social, when we come to conceptualise the causal relations of phenomena. Thus, within the arena of menstrual cycle research, it is possible to see how the menstrual cycle is viewed as an independent (biological) variable, and its subsequent place in the (social) construction of the female subject.

There have been many critiques of positivism from both within and outside psychology (see, for example, chapter three; Harre, 1979; Shotter, 1975, 1984; Parker, 1989). Most notably, critical accounts of positivism in psychology emerging in the 1970's (e.g. Harre & Secord, 1972; Shotter, 1975; Harre, 1979) led to what has been termed the 'crisis in social psychology' (Parker, 1989). To summarise, the epistemological premises of positivism were questioned: the notion of the rational, individual, measurable subject; the objectivity of positivist methods; the place of psychology in social regulation (Parker, 1989). This resulted in a 'turn to language' and the emergence of the post-structuralist tradition, influenced by, amongst others, the works of Lacan, the 'new French feminists' (Irigaray, Cixous, Kristeva), Foucault, Derrida and post-Saussurian linguistics (Gavey, 1989).
In brief, post-structuralist approaches mark a turn away from, and a
deconstruction of, 'realist' accounts of the individual, provided by traditional
psychology, and towards language and discourse as constructive of subjective
experience. Weedon (1987) summarises a post-structuralist approach thus:

"All forms of post-structuralism assume that meaning is constituted within
language, and is not guaranteed by the subject which speaks it. In this
sense, all post-structuralism is post-Saussurian....deconstruction looks to
the relationship between different texts; and Foucauldian theory, which is
arguably of most interest to feminists, looks to historically specific
discursive relations and social practices"


Thus, post-structuralism deconstructs the notion of the unitary individual, which
we have already seen to be a premise of traditional psychology, and looks towards
the action of language and discourse in the construction of meaning. It further
provides a critique of the assumptions of traditional accounts of the individual, as
is illustrated by the Foucauldian critique of science laid out in chapter three. The
implications of this approach for psychology will be further discussed in chapter
seven, where a qualitative approach to PMS is outlined. However, for the time
being it is sufficient to note that the critical account of positivism provided by the
post-structuralist tradition, and the ensuing new-paradigm research strategies
(such as ethnethodology, speech-act theory) in an attempt to provide person
centred and context oriented psychological accounts, opened up many new
avenues of research within the discipline. Previous accounts of the individual
were laid open to new interpretation (see, for example, Hollway, 1984), and
subjective experience began to be conceptualised not only as grounded in the
social (or discursive), but as plural and contradictory.

Many of the 'new paradigm' approaches, such as discourse analysis (see, for
example, Hollway, 1989) and ethnomethodology (e.g. Garfinkel, 1967) were
adopted and adapted from other disciplines, such as anthropology and sociology.
The possibilities that such approaches afforded for research and interpretation
were many: One of the main critiques of positivist psychology was it’s abstraction
of experience and it’s failure to provide an account of subjectivity that was
grounded in the social context (Henriques et al, 1984). Research strategies that
focused on the discursive realm therefore provided an opportunity to not only
'add in' the social, but to provide theoretical accounts of experience that
deconstructed traditional explanations and examined the role of language and discourse in the construction of subjectivity (Hollway, 1989). With regards to the arena of PMS and menstrual cycle research, it is possible to see the advantages of contextualising the experience of PMS, in light of the inadequacies of traditional theoretical accounts. Therefore, we may move away from the assumption that the experience of premenstrual distress is grounded purely in the biological, and begin to acknowledge the role of the cultural in the construction of the premenstrual experience.

4.1.6 Feminism, science and feminist standpoint theory.
Feminist critiques of positivism have previously been reviewed (see chapter three; Harding, 1991). The purpose of this section is to set out a particular feminist epistemological response to positivism, and to examine the utility of conducting women-centred research in the arena of PMS.

One of the strands of feminist theory to develop from critiques of positivism is feminist standpoint theory (see Harding 1987, 1991, 1993). Harding (1993) argues that feminist standpoint theory represents the development of a particular feminist epistemological response to positivism. Doherty (1994) suggests that the defining features of feminist standpoint theory may be organised into the categories of epistemological orientation, reflexivity and political agency.

In terms of epistemological orientation, it may be suggested that feminist standpoint theory assumes knowledge to be grounded in social reality (Harding, 1993). This represents a move away from other realist psychological accounts of subjective experience, where knowledge is presumed to be acquired through objective experimentation (see section 4.1.5). It further suggests that the distinctive features of women's social situation, in a gender-stratified society, may be directly utilised as theoretical and research resources (Harding, 1991; 1993). Therefore, if it is the case that traditional scientific and psychological accounts of women have provided a distorted account of femininity and female experience, a less distorted theory may emerge by attempting to view the world through our participant's eyes (Harding, 1991; 1993). Doherty (1994) suggests that the unproblematic status which women's accounts are afforded by this epistemological position marks it as a critical realist approach: However, this point is arguable, as some researchers (see Henwood & Pidgeon, 1994; see section
4.3) posit a feminist standpoint to be commensurate with a post-structuralist approach.

Feminist standpoint research further emphasises reflexive practice, both in terms of the action of research itself, and the role of the researcher in that research (Doherty, 1994). By providing a critique of positivism, and an ongoing critical reflection upon research practice in general, feminist standpoint theory allows us to reinterpret existing accounts of women's experience (as viewed through the lens of a gendered science) (Harding, 1991; Keller, 1985). Similarly, in bringing the researcher herself into the theoretical frame, we may begin to acknowledge the role that the researcher's own identity, interests and values play in the interpretation of data and research (Doherty, 1994).

Finally, feminist standpoint epistemology emphasises the role of research as an impetus for social change (Doherty, 1994). Because this standpoint presumes the individual to be agentic (see, for example, Henriques et al, 1984), women are positioned as instrumental in the process of political and personal change, and the very act of 'seeing through our participants eyes', and therefore using the research process as empowering, may provide us not only with new accounts of the status quo, but with the material through which to bring about change (Harding, 1993). To summarise, feminist standpoint theory is concerned with the emphasis upon research for rather than on women, moving away from traditional (science-based) accounts of women's experience, and generating new theoretical accounts through which to bring about social change (Harding, 1993).

Therefore, the research presented in this thesis is an attempt to use psychological strategies to provide research for women rather than conduct research upon them. It has been noted (Ussher, 1992a) that often the women who do suffer from severe premenstrual distress have, at present, few choices offered them by physicians or psychologists, as heated aetiological arguments are reviewed and refuted. Parlee (1991) in her analysis of the cultural and scientific construction of PMS, argues that:

"The players in research on PMS during the 70's and 80's are scientists in the social science and biomedical research communities. The contest is over what will count as the authoritative scientific account of how women
experience their menstruating bodies. The context is a political struggle initiated and represented by feminism...”

(Parlee, 1991 Pp3)

It is difficult to see exactly where the women who do experience problems or distressing premenstrual symptomology fit into this picture - indeed, the metaphor of PMS research and treatment as a game or battleground is not uncommon in the research literature (see Ussher, 1992a). The epistemological standpoint taken by this thesis not only attempts to overcome the practical, methodological and diagnostic problems outlined previously, it concurrently adopts a women-centred approach in order to, as Jane Ussher (1992a) suggests:

"...work toward a more integrated research framework, recognising the perspectives of the different research camps and reconciling both the ideological corners of the feminist and the reality of the phenomena that are experienced by many women .... They report it as being a reality for them, and so denying it’s existence on the basis of a myriad of research findings makes little sense in those terms"

(Ussher, 1992a Pp44)

Such an epistemological shift involves not only the formulation of research questions with a different emphasis to more traditional research, but the adoption of varying research strategies to this end. As Henwood & Pidgeon (1994b) argue:

"More recently writers have tended to conclude that feminist social science is a pluralistic endeavour, which therefore necessarily proceeds on the basis of diversity of methods (without privileging any one in particular)".

(Henwood & Pidgeon, 1994b p2)

The ultimate aim of such research, conducted with a multi-factor approach to PMS, within a feminist standpoint, is to provide researchers and clinicians, as well as the women themselves, a theoretical account of PMS that recognises the diversity of experience and cultural factors that may lead a woman to self diagnosis. Invariably, it will raise more questions about the social nature of menstruation and the practices that surround cultural prescriptions of gender, femininity and behaviour. However, in the light of Walker's (1993) argument for the acknowledgement of assumptions both within disciplines and researchers, such a position would appear to be a strategic way forward.
4.2.1 Multi-factor approaches and Research Strategies.

At this stage it is necessary to set out the justification for a plurality of research strategies in the arena of PMS research. This can be done in two ways - by examining in closer detail the implications of a multi-factorial model of PMS, focusing on the efficacy of different strategies in investigating each facet, and by examining the relationship between feminist approaches and methodology in greater detail. This section will focus upon the implications of a multi-factor approach for the adoption of different research strategies.

Richardson (1992a), argues that menstruation is not only one of the few truly dimorphic human sexual characteristics, but that it is also therefore implicated in the formation and development of women's identity. At the same time, Richardson argues, cultural beliefs about the menstrual cycle influence both men and women's own beliefs and expectations about the social role and position of women - that "The menstrual cycle as a biological process is implicated in the social construction of gender" (1992, Pp1). He suggests that like cognition, the menstrual cycle is positioned on an interface between culture / the social realm and biology, between internal and external experience. Thus claims for a univariate aetiology of PMS can no longer be considered as feasible, if such a position is taken up. Rather, it would be more appropriate, and more illuminating, to consider and research into PMS from within a broader epistemological base. Taking again the move towards a multi-factor research position (e.g. Ussher, 1992a; Walker, 1993, 1995; O'Brien, 1993) which can account for recent deconstructive and critical work within psychology and menstrual cycle research (Ussher 1992a), such an epistemological shift need not bias us towards any one particular factor. As Henriques et al (1984) set out in their work on subjectivity and experience:

"The point that we are making is that whilst we should avoid founding a theory of subjectivity on a taken-for-granted biological origin, we cannot construct a position which altogether denies biology any effects. The only way to do this without granting either term of the biology-society couple the status of pregiven categories is to reconceptualise them in such a way that the implicit dualism is dissolved in favour of stressing the relational character of their mutual effects....Thus we have a striking case where the question of determinism is shown to be a matter of complex interrelation of
conditions and effects, with no category appearing as determinant.”
(Henriques et al, 1984 Pp 21-22.)

Investigation into the experience of PMS is undeniably an investigation of women’s subjectivity - their experience of their own selves as menstruating women. In considering an example of the effects of early menstruation on Puerto Rican girls, Henriques et al (1984) illustrate that the meaning ascribed to menstruation is not simply a question of biological determinism. They continue:

"First, the biological process itself is not a prior given, on which the social has later effects. Rather it is shown to be open to dramatic changes resulting from socio-economic factors. Second, categories such as 'child' or 'woman' are shown to be neither biological givens nor simply social constructs. Third, it becomes impossible to think of the relationship in terms of the logic of cause and effect. In short, we have the demonstration that it is only because certain norms have become so much part of our common-sense view of reality that we are able to forget that they are the result of a production: that they have become naturalised as indisputably biological or social”

(Henriques et al, 1984 Pp22).

Whilst such a critical stance is vital in interpreting or ‘reading’ the results of previous research, and in formulating new research ideas, it need not be adopted to the exclusion of more traditional research strategies and interpretations. Rather, the shift is evident in the theoretical concerns that guide research. Taking Richardson’s (1992) and Ussher’s (1992a) arguments into account, it would appear imperative that future psychological research into PMS does not bias itself towards any form of determinism, be it social or biological. Instead, researchers should take advantage of the wealth of psychological techniques open to them in investigating each facet of the experience of PMS.

Thus, a model for the self diagnosis or expression of PMS that seeks to encompass possible socio-cultural, psycho-physical and endocrinological factors into its framework must, by definition, consider the utility of different research methods as appropriate to investigate each. Both Ussher (1992a) and Rubinow & Schmidt (1989) suggest a possible role of social factors in women’s experience of their menstrual cycles. Ussher (1992a) and others (Walker, 1993, 1995; O’Brien, 1993)
posit both social cognitive and socio-cultural factors as contributory to women's self diagnosis. She presents this model within the context of a thorough review of existing PMS research, and calls for use of such a multi-factorial approach to reconcile feminist and psychological research positions (see section one). Rubinow & Schmidt (1989) suggest that the state model of psychological functioning may be considered to successfully integrate the diversity of premenstrual symptoms reported, the temporal sequence of symptom events, and the lack of consensus in research upon aetiology and treatment:

"According to this model, alterations in perceptions and behaviour can be viewed as occurring in the context of well-differentiated and highly organised experiential or behavioural states, each of which is characterised by a particular set of beliefs, affects, memory accesses, perceptions, communication styles, self and object relations, neurobiologic characteristics, and rules for interpreting and interacting with the environment"


Whilst this model does not explicitly take into account the feminist and socio-cultural critiques of PMS research outlined in section one, it is clear that the authors allow for the effect of environment and beliefs upon the experience of psychological and physical state.

Concerns such as these are echoed by Golub (1992) who documents the possible aetiologies of PMS. She examines research into the role of ovarian hormones, water and electrolyte balance, neurotransmitter systems, prostaglandins, nutrition and psychological factors as causal in the onset and maintenance of PMS, and turns to treatment efficacy as a possible source of information. She states that a combination of dietary change, exercise, and supportive psychological treatment (unspecified) are often helpful to women in ameliorating distressing symptoms - which in itself concedes a possible multiplicity of causal factors (Golub, 1992). In concluding her research, she provides a comprehensive list of directions for future work on menstruation, PMS and the menstrual cycle which emphasises the interdisciplinary and multiple nature of such endeavours. These research ideas she categorises as heath related, psychology and education, and basic research. Within this list, under the category of future psychological and educational research, Golub calls for the use
of qualitative methodology to examine the menstrual experience across women's lifetimes (Golub, 1992).

In recent years, researchers in other areas of psychology have adopted similar multi-factorial approaches in order to encompass contradictory research findings, that may be indicative of equally complex relationships between social, biological and cognitive factors.

Research into depression (e.g. Beck, 1987; Robins & Block, 1989) has begun to move towards explanatory models that allow for individual variation in aetiological theories and treatment techniques (Ussher, 1992a). Brewin (1989) proposes a model of cognitive change in psychotherapy for depression that suggests researchers should take into account patient's social environment (context) such as the presence of social support or stressors, as well as the presence of specific cognitive mechanisms.

Within the field of health psychology, there have been calls for multivariate biopsychosocial approaches that embrace both qualitative and quantitative concerns (Yardley & Yardley, 1993; Yardley, 1995). It can be argued that such a shift in emphasis need not result in poorer conceptual clarity and loss of "intellectual rigour", rather that it may serve to expand the frame of reference within which the researcher operates (Yardley & Yardley, 1993). This, in turn, would lead to positive benefits in areas where it is important to present convincing research to many different audiences (the public, general practitioners, policy makers) - to clarify this point, it is worth recognising the different power that various research methods may wield. For example, a multivariate statistical analysis of a highly controlled longitudinal study may be important to convince GP's and psychologists of the influence of various different factors as contributory to self-diagnosis of PMS, contained within a detailed explanation of epistemological concerns (see section one). On the other hand, in addressing the question "what makes a woman self-report PMS", a qualitative or discourse analytic study may be useful to examine the social construction of the menstrual cycle within the context of the socio-cultural and feminist concerns, an approach that could have important implications for clinical practice. Secondly, in an area where clearly more research is needed, and where statistical significance appears to be difficult to achieve (see, for example,
much consideration must be given to the type of research questions set and the research method used in relation to the anticipated audience.

So it is clear that whilst multi-factor approaches recognise the complex nature of psychological states or disorders, they can also adopt different research strategies to investigate the experience or effects of different factors. In the area of vertigo research, Yardley & Yardley (1993) argue that both quantitative and qualitative methods can be used to provide a fuller picture of the effects and experience of recurrent vertigo. They document the utility of a variety of strategies in assessing the impact and experience of vertigo, including both qualitative and quantitative investigations. They conclude:

"...By combining the particular insights and virtues of a range of methodologies it was possible not only to reach an understanding of vertigo as a dynamic process, but also to interest and engage a wider audience."

(Yardley & Yardley, 1993 Pp 21).

This point may be embraced by PMS research, where political, methodological and practical concerns could be assuaged by strategic pluralism and attention to research questions.

4.2.1 Triangulation and multi-factor approaches.

Further support for the adoption of different research methods or strategies can be drawn from theoretical developments in other areas of social science, as well as psychology. Denzin (1970) advocates the pluralistic use of methods - or triangulation - in order to add breadth and depth to analyses. He notes the long history of the use of multiple measures and methods to overcome the inherent weakness of single measurement in the physical sciences, and describes the triangulated method within sociology as a commitment to "sophisticated rigour" (1970, Pp234). In this context, Denzin maps both the meaningful combination of methods to generate theoretically grounded observations, and the use of triangulation as a research approach. To illustrate the benefits of such a strategy to psychological research, it is necessary to set out the arguments drawn upon to advocate their use within sociology, where critical and methodological shifts
preempted those occurring in psychology in the 70’s and 80’s (Parker, 1992).

Adoption of a triangulated approach within sociology does not necessarily imply that this is done towards pursuing ‘objective truth’, as it is argued that different methods each imply a different line of action towards reality (Denzin, 1970). Denzin argues that the researcher creates the world of observation - that the observed phenomena do not exist outside of the actions taken towards them. Thus, while adoption of different methods may not result in scientific consensus about a phenomenon, it is argued that such a consensus would be illogical, as observations are dependent upon the world or context of the observer and are constantly subject to change or different interpretation. This point foreshadows a more recent psychological argument - that any one method will only access a story or a truth about a phenomenon (Walkerdine, 1993), and applying this point to PMS research, this may also reflect the complex relations that initially create the experience of such a “condition”.

Triangulation, defined as the use of multiple methods (both qualitative and quantitative), types of data, investigators and theory in research, is argued to raise the sociologist above the personal biases stemming from single methods (Denzin, 1970). In summary, triangulation of data would involve the use of different sources of information, taken at different times or in different contexts. Triangulation of investigators simply involves the use of multiple observers to avoid problems of bias and non-reliability. Theory triangulation can be achieved by taking the typically small set of research questions or hypotheses that guide research studies, and approaching them with multiple perspectives and interpretations in mind. The rationale for this is not only that all possible approaches to a subject are considered before a study is carried out, but also that the broader theoretical significance of a piece of work is allowed. Finally, two types of method triangulation are proposed - “within method” and “between method”. “Within method” triangulation, as the name implies, involves the employment of different techniques within one method to examine data. “Between method” triangulation is defined as the combination of two or more research strategies in the study of the same phenomenon. In discussing the advantages and shortfalls of multiple techniques of research, Denzin states:

“The shifting, conflictual, emergent, constructed nature of the social world, coupled with the unique problems that arise from theories, methods
and observers, make the doing of sociology fundamentally difficult...The resolutions to this difficulty are twofold. First, sociologists must recognise these basic features of the research act. Second, multiple strategies of triangulation must become the preferred line of action when theory-work, research and interpretation are undertaken. By combining multiple observers, theories, methods, and empirical materials, sociologists can hope to overcome the intrinsic bias and problems that come from single-method, single-observer, single-theory studies"


It is stressed that researchers must be aware of the subjective nature of reality, and the problems with inconsistency that such approaches may yield.

Banister et al (1994) define triangulation as the use of different 'vantage points' (Pp 145) in research, allowing for illumination of a subject from many different standpoints. Again, they break this definition down into three basic forms of triangulation: of data, of investigation, and of method. In this instance, it is triangulation of method and of data that are of relevance, and these are respectively defined as the use of different methods to collect information, and the collection of accounts or data from different sources (Banister et al, 1994). Further, Banister et al (1994) suggest that triangulation of theory, or the embrace of different theoretical accounts, affords the researcher to break through the parameters and limitations that are inherent in uni-theoretical accounts and to acknowledge the existence of different 'realities' and the complexity of social existence. In this sense, this thesis represents an attempt to use a broad selection of participants (triangulation of data), of research strategies (triangulation of method), and a multi-factor approach to PMS (triangulation of theory), in order to consider the processes by which women come to self-report PMS.

Bryman (1984) documents the debate about the use of qualitative and quantitative research methods within sociology, and notes the problems encountered by researchers in distinguishing between technical and epistemological issues. Bryman argues that no hard and fast relations between epistemological positions and any one methodology exist - rather he illustrates the lack of relation between researcher's particular epistemological concerns and their research methods. Far better, it would seem, to take a strategically integrated stance and utilise the
benefits of different research methods by design, whilst acknowledging and
reflecting upon one's own epistemological standpoint.

4.2.3 Critiques of cognitive psychology.

Finally, in the area of cognitive psychology, recent theories that again seek to
encompass the many facets of internal and external experience that constitute
subjectivity have pointed the way towards the use of different research strategies,
and a subsequent shift in epistemological concern by researchers. Richardson's
(1992a), consideration of the commonality between the menstrual cycle and
cognition notes that whilst intellectual capacities such as knowing, reasoning and
conceiving, and ultimately social existence, are dependent upon the "biological
integrity" (1992a Pp1) or optimal physiological organisation of the brain, the
contents or structure of cognition itself (understood in a wide sense to infer all
modes of knowing) are concurrently organised by a network of knowledge
structures that are understood and communicated through socio-cultural practice.

Potter & Edwards (1990), in a critique of attribution theory present an alternative
approach to the study of social cognition. They argue that attribution theory, the
social psychological study of the process of causal attribution and reasoning (see
Kelly, 1967), is subject to three major shortcomings as an explanatory tool for
human belief formation: that it fails to question the context or meanings of the
stimuli and measures that it uses, that it takes a naïve realist approach to the
language with which people describe their beliefs and actions and the actions of
others, and that its subsequent accounts of people's actions are constrained by
this lack of context or situatedness of the linguistic terms through which beliefs
are expressed and acted upon. They present instead a discourse analytic account of
the social construction of "fact", taking political journalism as an example. By
taking this approach, the authors propose that inference and given reality may
be examined as constructive work simultaneously carried out by participants as
part of the "rhetoric of ordinary discourse" (1990 Pp421). They conclude:

"...Our suggestion is that the best research strategy will be one that does not
attempt artificially to split them [inference and given reality] apart and
which studies these processes in natural contexts."


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This is an excellent example of the type of research that may be carried out into a social process that contextualises its interpretation of a particular social reality. In assessing the extent of cognitive impairment across the menstrual cycle, Sommer (1992) proposes that the lack of evidence for menstrual cycle related cognitive impairment countered against the persistence of cultural beliefs in the reality of such changes may lead us to alternative avenues of exploration. Such contradiction, Sommer suggests, calls for an analysis going beyond the level of biological mechanisms, that examines the relationship between cognition and the menstrual cycle within its cultural context, and which questions the social and psychological functions that beliefs about female debilitation and lability serve (Sommer, 1992). Drawing these theoretical strands together, it can be argued that research into PMS may not only question the relationship between the social and the physical, but that it may draw upon different strategies in order to highlight the shifting nature of this relationship.

4.2.4 Summary.
It seems then that such an approach may be beneficially adopted by research into PMS, which has to date concentrated mainly on the use of single methods within biomedical paradigms, approaches advocated by the traditional reductionist perspective of female biology. From this examination of the relationship between theoretical framework (in this case, a multi-factorial approach to self-diagnosis of PMS) and research strategy, I will conclude by stating the position adopted by this thesis - that plurality (or triangulation) of research methods is a function of a specific epistemological shift, and that use of different research strategies may utilise the benefits of each in providing a fuller picture of women's experiences. So long as that epistemological base is grounded in strong theory, then the possible shortfalls of such diversification may be avoided. This shift is also suggested by the use of a feminist approach where the social (gender) meets the biological (the menstrual cycle). I will now examine the relationship between a feminist approach to PMS research, and research method, and conclude by drawing together the rationale for different research strategies in multi-factorial and feminist approaches, as specific to research into women's experience of PMS.

4.3.1 Feminism and Research Strategies.
PMS, being a relatively recent phenomenon in our cultural and medical history
(Rittenhouse, 1991), has been suggested to be a cultural response to feminist challenges to the existing social order (Parlee, 1991). Despite the origination of PMT in the works of Frank (1931) and Horney (1931), it can be argued that PMS has only became a “social problem” in the early 1980’s (Rittenhouse, 1991). Parlee (1991) suggests that this emergence into the popular consciousness was a function of the challenge created by the feminist movement in the 1970’s, the Women’s Health Movement that began at that time, the increasing interest by the lay and scientific media in women’s menstrual experiences and the embrace by many women of the label of PMS as meaningful to their experience. She further notes:

"PMS is a gendered concept of illness which came into being in our culture in the early 70’s when social relations of gender were under challenge by feminists. It furthers interests reflected in the routine activities of specific and powerful social institutions.... 'PMS' serves to contain potential social protest by women by channelling interpretations of their suffering and actions into medical rather than political forms. These multiple cultural meanings and functions of 'PMS' are ... unrelated to the question of whether or not a pathophysiological mechanism for a premenstrual disease is identified in the future."


Within this quote, the crucial interests of feminism in PMS theory and research are set out. Socio-economic factors are active in its construction, in the form of medical and institutional investment in treatment and practice (Dwyer, 1993). PMS is also an issue of gender, as Richardson (1992) has argued. Finally, within the current social climate, the label or category of PMS, it could be argued, serves the same function that eighteenth and nineteenth century discourses about reproduction, intellect and lability served (Ussher, 1992b) in directing female protest and resistance (in the form of anger, irritability, violence) into the medical sphere rather than into active change or political forms.

Richardson’s (1992) suggestion that the menstrual cycle poses a challenge for contemporary feminism, which he states to maintain the position that gender behaviour is linked by society to each sex in a “wholly arbitrary fashion” (Pp1), assumes a coherence in feminist approaches that is not reflected by current theory (Phoenix, 1990). By examining this suggestion in detail through
elaboration of the particular feminist standpoint of this thesis, and reviewing the link between feminism and method, I hope to be able to draw together the arguments between feminism, a multi-factorial approach to PMS, and the use of different research strategies.

It has already been noted that feminists have traditionally attempted to provide alternative accounts of the subject to those provided by mainstream psychology. Westkott (1979) suggest that feminist critiques of the social sciences form two overlapping traditions. The first of these, she suggests, focuses on the invisibility and/or distortion of women as both "objects of knowledge" (Pp 423) and researchers - under this broad heading might fall researchers that Ussher (1991) might label the "liberal" feminist researchers, and Squire's "egalitarian" feminists. This is related to critiques of science as reinforcing gender-bias, and the solution is located in the need to promote and legitimise women as researched and researchers. The second tradition focuses on the methods used to establish social knowledge, and actively questions the epistemological assumptions of positivist science. Stemming forth from these traditions are a variety of feminist perspectives, tending to move radically away from existing research paradigms towards providing an account that is specific to women, both in method and theory. Within this tradition fall the "radical" and "socialist" approaches identified by Ussher (1991), and those feminist post-structuralist approaches drawing upon psychoanalytic theory in their re-evaluation of gender states.

For example, Malson (1992), in examining the discursive construction of anorexia nervosa through the lens of psychoanalytic theory and a post-structuralist discourse analytic stance, states:

"There is then no identity outside of the language; subjectivity is only possible in an alienated identification of oneself as "I", a pre-existing linguistic position in which each subject is positioned as either masculine or feminine"

(Malson, 1992 Pp 10).

So within feminist post-structuralist approaches then, subjectivity is seen as being constructed through and produced by discourse. This allows for detailed examination of the often fragmentary and contradictory nature of subject positions. Because one of the tenets of post-structuralist theory is a critique of positivism and a rejection of essentialism, the methods used by researchers in this
field to examine the construction of the self and identity are radically different from more traditional empiricist stances.

Many feminists, however, consider it appropriate to conduct research using quantitative methods (see Henwood & Pidgeon, 1995). The argument for this strategy is that the epistemological concerns of feminist enquiry are somewhat different to those of mainstream work, in other words it can be argued that feminist research can adopt quantitative methods, but uses them to address questions aimed at correcting the "partial and distorted accounts in the traditional analyses" about women (Harding, 1987 Pp1). This is what Squire (1989) would term "egalitarian" feminism within psychology. The arguments against such a position would include the critiques of positivism outlined in section one, and the possibility that any quantitative research is subject to biases and oppressive practices inherent in positivism.

As a result of the tension between positivism and feminism (see chapter three) some feminists (e.g. Griffin, 1986) have moved away from quantitative techniques altogether in favour of what they consider to be more sensitive and politically appropriate qualitative methods. Again, such movement can be seen to be indicative of an epistemological shift, away from the value structures of traditional psychology and towards creating a new psychological account of, and for, women. But choice of method, as Bryman (1984) notes, is all too rarely linked specifically to particular epistemological concerns. The standpoint of this thesis is that a degree of reflexivity, and consideration of ethical and interpretive issues, can be maintained within a pluralistic perspective - that theory does not imply any one specific practice. Harding (1987) similarly acknowledges the need for careful consideration of method, methodology and epistemology, concluding with the statement that there is "no one feminist method" (Pp9).

4.3.2 Feminist epistemology and research strategy.
The issue remains, however, as to at which level one distinguishes between epistemology and method. To complement a feminist and multi-factorial standpoint, I would argue that method is not simply a question of epistemology, but that method choice entails assessment of the appropriate way by which to investigate different facets of experience. I shall now outline two related approaches used by feminist psychologists in order to address issues of gender -
the social constructionist approach (e.g. Potter & Wetherell, 1987) and poststructuralist theory (e.g. Hollway, 1989).

These approaches, as Potter (1994) points out, overlap to a degree - both tend to take discourse as their focus, and employ a variety of qualitative methods in order to generate and explore theory (Potter & Wetherell, 1987). Both approaches imply a particular epistemological concern with the social construction of subjectivity, and the action of discourse, and both take a critical stance towards positivism. But I should like to argue for the adoption of social constructionist and poststructuralist concerns at the methodological level, to interact with a broader epistemological standpoint that must, by definition, account to some extent for the actual experience of the body as well as the actions of the social world.

In the social construction perspective, both sex and gender are taken to be socially developed statuses. The social construction of gender is further taken to be in part the social construction of sexuality, including sexual feelings, preferences, and so on (Lorber & Farrell, 1991). Lorber & Farrell use the example of the social construction of masculinity in the USA to illustrate this where, they argue, masculinity is equated to heterosexuality to such an extent as to produce homophobia and related behaviours (1991). Subjectivity is created by the interplay of discourse and context, so that individual experience is produced and reproduced through social mechanism.

Sayers (1982) examines the social construction of menstruation, and argues that women's biological approaches are generally construed as placing them closer to nature than men. She cites the existence of menstrual avoidance taboos as evidence for this constructive process, as a means of controlling and excluding women. This cultural construction of menstruation as dirty or shameful could be argued to be indicative of a particular (tacit) set of assumptions about femininity (Ussher, 1989). Similarly, the lack of evidence for, but consistent belief in, poorer academic or work performance by women premenstrually (Ussher, 1992b) could imply the presence of a powerful and influential set of beliefs about acceptable female behaviour and educational achievement.

A feminist post-structuralism is defined by Weedon (1987) as:
"A mode of knowledge production which uses post-structuralist theories of language, subjectivity, social processes and institutions to understand existing power relations and to identify areas and strategies for change"

Feminist poststructuralist approaches within psychology can be said to differ from other feminist approaches (such as feminist empiricism, for example), which place a great deal of emphasis on women's experiences as though these were universal and trans-historical (Gavey, 1989). Additionally, they can be said to be contained within the social construction perspective, in as much as they focus upon the discursive construction of experience (Potter & Wetherell, 1994). Through analysis of the discourses surrounding gender a picture evolves defying the notion of the inherent, essential meaning of experience (Weedon, 1987) and rejecting any assumed, fixed qualities of gender categories. Through the acknowledgement of the relationship between language and subjectivity, feminist poststructuralist approaches seek instead to investigate the often contradictory and fragmentary nature of subjectivity. Gavey (1989) presents a discourse analytic account of sexual coercion within heterosexual relationships, and concludes:

"Feminist post-structuralism and other post-modern initiatives open up new ways of working for feminist psychologists. These include analysis of the socially constructed nature of human behaviour, deconstruction of the assumptions within language and the processes of producing subjectivities, and discourse analysis of existing discursive fields and related subject positions."
(Gavey, 1989 Pp 472).

It is perhaps worth reiterating at this point that many of the critical accounts of PMS research (Koeske, 1983; Parlee, 1991; Ussher, 1992a) are reflective of and stem from earlier critical accounts of social psychology (e.g. Parker, 1989; Parker & Burman, 1992), which themselves followed critical advances in the philosophy and sociology of science (see Kuhn, 1962; Woolgar, 1988). These critical accounts were taken up by feminist psychologists as evidence of the bias inherent in empirical psychological methods, that treated gender as an independent variable and conducted it's research in an ahistorical, decontextualised method (Sherif, 1987). Similarly, it was this deconstructive approach to scientific method that led
many feminist researchers to adopt post-structuralist or social-constructionist positions, which rejected outright the assumptions of positivism.

The relationship between feminism, theory and method is not a straightforward one. Certainly, some feminist poststructuralist approaches take the perspective that gender attributes, and those factors associated with them, are ascribed in a totally arbitrary fashion by the movement and action of discourse (Butler, 1990). “Socialisation” accounts of gender characteristics tend to focus on the multiple social and cultural factors which may affect development, but tend to rely on the notion of social influences as “qualifying and controlling a biologically given potential” (Squire, 1989 pp64). Social constructionist accounts of gender characteristics, such as Sayers (1982) have been criticised for remaining caught in the opposition between the body understood as a biological category and gender as a social one (McNay, 1992). Yet the arguments asserted for each approach must surely reflect the multiple and complex nature of subjectivity, the study of which both feminism and psychology are concerned with (Squire, 1989), and the methods that each approach chooses by which to investigate the subjective state. Additionally, within the realm of menstrual cycle research, the issue of biology, or rather the notion of some ‘biological given’, must be reconciled in response to Richardson’s (1992) suggestion, that it is problematic for feminist theory.

4.2.4 Feminism and qualitative approaches.
The critiques of positivism outlined previously (see section one) led a number of feminist researchers to explore qualitative research methods, in an attempt to escape the bias associated with positivism (Henwood & Pidgeon, 1995). Qualitative approaches, it can be argued, potentially allow for more involvement between researcher and participants, and often “emphasise the importance of creating new ways of seeing rather than the testing of prior theory” (Henwood & Pidgeon, 1994). This, it is suggested, can allow research to proceed in a progressive and innovative fashion, and also allows for greater sensitivity to the rights and personal realities of the participants involved.

A concept central to many qualitative approaches is the open acknowledgement of the interplay between researchers' and participants' own subjectivities. Henwood (1993) argues that these facets of qualitative research have great
emancipatory potential, in contributing to the goal of doing research for rather than on women. But the meeting point between theoretical base, and research approach, is often blurred. Some feminist psychologists argue that qualitative approaches can be used effectively to challenge gender biased claims within the social sciences (Henwood & Pidgeon, 1995). For the reasons outlined above, many feminist approaches eschew quantitative techniques altogether, favouring instead the greater flexibility, and freedom from a particular set of political constraints, that qualitative approaches bring (Duelli Klein, 1983). According to Henwood & Pidgeon (1995), this was an effort to provide a psychology for women that valued women's experience in their own terms, a point echoed by Squire (1989) as she documents the "Women-Centred" feminist approach.

However persuasive the argument for an exclusive or special relationship between qualitative and feminist approaches is, Henwood & Pidgeon (1995) argue that there remain a number of unresolved dilemmas. In the first place, and this is an argument that extends to other realms of psychology aside from feminist research, the links between positivism and quantification on the one hand, and feminist, new paradigm approaches and qualitative methods on the other, are often taken to be mutually exclusive (Henwood & Pidgeon, 1995). Although the point that choice of method can often be made for practical rather than theoretical reasons, and the observation that qualitative research merely involves imposing a different interpretive framework upon raw data both provide modest support for quantification, neither is especially convincing (Henwood & Pidgeon, 1995).

Qualitative research also raises different ethical issues to those encountered by researchers working within more traditional boundaries. Finch (1984) acknowledges that her status as a sympathetic female listener when conducting qualitative interviews gave her access to her participants lives that she might not otherwise have had. Finally, the practice of reflexive qualitative research, expounded by many feminist researchers, does not automatically add weight to any subsequent interpretation of raw data. As Henwood & Pidgeon (1995) observe:

"By being prepared to explain and justify the basis for her interpretations to all concerned... the qualitative researcher becomes accountable for her interpretations and their social and political consequences to herself, her
participants and her community.... reflecting the hand of the researcher will not automatically strengthen the credibility of an account.... the outcomes of the research are also to be evaluated within a still generally unreflexive discipline.”


Henwood & Pidgeon add that the problems associated with the notion of reflexivity, or acknowledging one's own existence as researcher in the process of interpreting and collecting data, is inextricably bound up with the “multiple forms of subjectivity” (Henwood & Pidgeon, 1994b) and subject positions working within the research setting. These, they suggest, include the suppositions and beliefs held previously by the researcher, and the broader and often implicit cultural frameworks for understanding and interpretation (Henwood & Pidgeon, 1994b). Finally, they return to a point made previously in this section, that the practice of reflexivity and qualitative research should be considered carefully with regard to the desired “audience” of a piece of research (Henwood & Pidgeon, 1995; Yardley & Yardley, 1993). In other words, concerns other than the epistemological may determine the relevance of a particular research strategy (Bryman, 1984).

4.3.4 Summary: Feminist standpoint theory and methodological pluralism.

The argument for methodological pluralism within feminist approaches has been made eloquently by Henwood & Pidgeon (1995), who echo Harding’s (1987) assertion that feminist research is more an epistemological than technical practice. As stated by Lorber & Farrell (1991), a feminist “would not necessarily reject quantitative research, but would design the research differently” (Pp 213). Henwood & Pidgeon (1995) suggest that not only is such pluralism a strategic response to the above dilemmas, but reiterate Nielson's (1990) point, that feminist inquiry itself can be termed a research paradigm, because of the parallel practices of asking new research questions, seeking the appropriate means by which to investigate them, and seeking new explanations and theories for existing research (Henwood & Pidgeon, 1995). Hollway (1989) argues that theory and practice within feminist psychological research should remain independent, to avoid the obscuration of research questions by inappropriate method.

Whilst they question the coexistence of post-structuralism and empiricism within

It can be argued (Henwood & Pidgeon, 1995) that feminist epistemologies fall into three categories: feminist empiricism, feminist standpoint and feminist post-modernism. Henwood & Pidgeon (1995) further argue that aspects of feminist empiricism and feminist post-modernism can be bound together within the feminist standpoint, an epistemology that attempts to develop a more complex understanding of the intricate relationship between women's experience and the scientific process. They state:

"Standpoint theorists argue that science is not isolated from the social order but should be placed in the same causal plane and investigated in the same terms as the phenomena it seeks to explain..... The feminist analysis is that dominant conceptual schemes are partial accounts, since they are based only in the social activities of the powerful in society who are typically (though not necessarily) men." (Henwood & Pidgeon, 1995 Pp18).

So whilst consideration of the scientific process is encouraged, it is recognised as being merely a partial account, which may be 'fleshed out' not only by considering science from the standpoint or perspectives of women's lives, but by adopting different methods of inquiry. Standpoint theory may encompass the post-structuralist concern of multiple subjectivities or realities, so long as women are not taken to be an homogenous category who "speak with one unified voice" (Pp20). It is here that the issue of reflexivity, and the necessary avoidance of any absolutist stance, may be reintroduced: It may be argued that by using different research methods, and reflecting upon each as productive processes in themselves, so a less distorted picture of the experience of particular groups of women may emerge, where as Gorelick suggests, the "visions of each sub-group of women must refocus or re-vision the knowledge of all" (Gorelick, 1991 Pp473).

Thus, by taking a feminist standpoint, containing a multi-factorial model of PMS through which to understand and research women's experience, and using self-report of PMS rather than forcing a diagnostic category that is bound up in the methodological (and misogynistic) pitfalls of traditional PMS research, it is
possible to reconcile the interests of feminist deconstructive practices and to address the need for practical solutions to women's experience of PMS. Further, in order to do this, the researcher may utilise different research methods not only as appropriate to each facet of the experience of PMS, but to reflect upon and acknowledge these methods role in it's construction. It remains to address Richardson's (1992) suggestion that the menstrual cycle poses a problem for feminism, as it is one of the few sexual dimorphic human characteristics, and to set out finally the epistemological standpoint taken by this thesis.

4.4 Conclusion.

As has already been stated, some feminist post-structuralist approaches consider all gendered or sexual experiences and characteristics to be arbitrarily assigned through discourse (see Gavey, 1989). However, the position argued here is in line with that of Henriques et al (1984): that whilst a theory of subjectivity founded in some biologically given component cannot be assumed, nor can we deny biology any role in the formation of experience.

The position that is commensurate with use of a multi-factor model within a feminist standpoint is that all factors contributing to subjective experience may be acknowledged, with no facet being predominant over another. Rather, the relational nature of the production of "PMS" is stressed, a position which I would argue is suggested by the current state of "knowledge" and various methodological and theoretical impasses currently experienced by researchers in this field (see Ussher, 1992a). Furthermore, a feminist standpoint that embraced purely the realm of the social and denied biological or internal experience would not only be naive, it would be guilty of the same essentialism that traditional psychology has so often been accused of. McNay (1992) notes that, taken to it's logical limit, not only is the body neutralised and denied any salience whatsoever, but the boundaries of our polarised notion of gender may become blurred and confused.

Braidotti (1989) provides an eloquent summary of a feminist approach to the body that understands it as lying at the threshold of subjectivity, but not in terms of a fixed biological essence, nor as a result of social conditioning (McNay, 1992):

"The 'body' is rather to be thought of as the point of intersection, as the
interface between the biological and the social, that is to say between the socio-political field of the microphysics of power and the subjective dimension... This vision implies that the subject is subjected to her / his subconscious; the driving notion of 'desire' is precisely that which relays the self to the many 'others' that constitute her / his social reality" (Braidotti, 1989 Pp97).

With regard to the use of qualitative methods to investigate women's experience, and the discursive construction of such a gendered illness, the realm of biology is not denied. Instead, the way in which biological experience is translated into illness experience, through the lenses of gender and discourse, is examined. As Kirmayer (1992) suggests, the pervasive Western dualism in which the activity of the mind is valued over and against the life of the body is a misleading and false one - despite the inadequacies of a language that is itself partly grounded in bodily experience, our "aching bodies" (Pp 323), wherever the ache is situated, seek linguistic expression. However, the examination of methodological pluralism set out within this chapter should also point towards the benefit of employing different methods through which to investigate a research question, grounded in a particular epistemological account of women's experience and their place in the social order, and their utility in enhancing our theoretical account of the experience of PMS.

What remains to be seen, in addressing women's experience of PMS, is how that "ache" is linguistically and socially produced, and how these constructions relate to the "gendered illness" of PMS (Parlee, 1991). To link this with the plurality of methods appropriate to a multi-factor model of PMS, Walker (1993) suggests that PMS is an issue both of science and gender. She claims that the "scientific" or positivist approach to PMS research relies upon four assumptions, many of which go back to the original paper on premenstrual tension by Frank (1931) and which have remained, for the greater part, largely unquestioned. These assumptions, she suggests, are firstly that menstruating women are variable, that it is normal to experience some change across the menstrual cycle, that some women experience severe tension premenstrually, and finally that severe premenstrual change is dysfunctional (Walker, 1993).

These assumptions have not been questioned as science, because of its own
gendered nature and bias, has failed to accurately describe the phenomenon of menstrual cycle change. Furthermore, these assumptions have not been challenged within a reflexive framework, that questions the nature of scientific method itself. PMS is further an issue of gender, as researchers have failed to consider their own subjectivity (background, culture, beliefs) as affecting their interpretation of data, and the cultural assumptions about femininity that are often implicit in the methods that we use. Walker goes on to propose three strategies for redressing the balance in PMS research: that these tacit cultural assumptions must be acknowledged within the context of research, leading to the second strategy which is the concern that research should develop with different ways of knowing - in other words, not simply acknowledging our own subjectivity but also seeking the use of techniques that achieve this aim. Finally, Walker calls for the use of an integrated theory (what she terms a “bio-psycho-social” model of PMS) in order to move on from current theoretical quagmire and generate new theory (Walker, 1993). This approach enables the researcher not only to use quantitative techniques to investigate the experience of PMS, but to draw strands from post-structuralist theory at the epistemological level, and to consider the use and productive nature of both qualitative and quantitative research methods. I would argue that adoption of a feminist standpoint, within which is contained an integrated theoretical model of the self-diagnostic and experiential process of PMS, is the best way to reconcile these strategies, and will now go on to summarise the different research strategies to be employed from this epistemological stance.

4.5 Summary of theoretical framework and outline of thesis.
This thesis, then, takes a multi-factor approach to PMS, within a feminist standpoint epistemology. The critique of positivism contained within feminist standpoint theory allows us to employ the observation that traditional psychological, and bio-medical approaches have failed to provide an adequate theoretical account of the process by which women come to define themselves as experiencing PMS.

The adoption of a multi-factor approach, and a feminist standpoint epistemology, therefore allows us to set the research question 'what makes a woman self-report PMS', and to address it in a number of different ways. In this sense, I have attempted to draw upon the premises of triangulation (of data, method, and
theory), in presenting and interpreting my research. As I stated in the first chapter of this thesis, the process of writing and representation of what I have done, of 'making sense' of my research, has often involved a struggle to impose order on what has often felt like 'chaos'. However, in using feminist standpoint theory, and triangulation, as 'lenses' through which to view my research, I hope to present my research as both a personal and academic progression in my understanding of the self-report of PMS, and to conclude this thesis with a consideration of ways in which theoretical understandings of PMS may be moved forward.

The research presented in section two (chapters five, six and seven) of this thesis documents three ways in which psychological methods have been utilised to address this question. Chapter five describes two psychological experiments, examining the possible role of cognitive factors in the self-reporting of PMS. Chapter six describes a questionnaire based study of three different populations, examining both the utility of questionnaire measures of health and distress in this arena, and the measurement of PMS within different populations. Finally, chapter seven reports a qualitative discourse-analytic approach to PMS, where the texts of interviews with women attending their first appointment at a PMS clinic are analysed in order to examine the social and discursive construction of PMS.

The research presented in chapter five is the research that I conducted at the beginning of my time of study, when I was working in a strong positivist environment. Chapters six and seven are both later work, as I began to examine different research strategies and draw further upon feminist and critical perspectives in my research. In all instances, the research is presented in a 'self-contained' style, that is, within each chapter I restrict myself to presenting data and interpreting results in a way which is traditionally appropriate to each research strategy. It is in the conclusion that I re-visit each study, and draw out the implications of the studies as they pertain to broader theoretical points.

Thus, commensurate with a feminist standpoint epistemology, the utility of these different strategies is discussed in chapter eight. Critiques of each strategy, and their limitations in addressing the research question 'what makes a woman self-report PMS' are provided in this concluding chapter. This thesis, therefore,
concludes with a further discussion of the results of these studies, placed in the context of the epistemological assumptions set out within this chapter.
4.6 Details of theoretical framework.

It is of use to provide at this point a summary of the different theoretical frameworks and assumptions behind the research strategies used in the course of this thesis, and how these relate to a multi-factor approach to women's experience of PMS, from a feminist standpoint. For clarity, I will also discuss the positions adopted with regard to the literature reviewed in chapters two, three and four.

Chapter two reviews the literature around biological processes associated with the menstrual cycle, and literature pertaining to variations in performance, behaviour and symptomatology across the menstrual cycle. In this sense, I review the biological 'realist' position, regarding the actions and possible effects of reproductive hormones and events. I also begin to question the positioning of biological events as 'real' in section 2.1.5, in drawing upon constructivist accounts of language, as they pertain to the menstrual cycle.

Chapter three begins with a review of the history of premenstrual syndrome. At this point I introduce constructivist accounts of science and the development of scientific ideology, and combine this with a feminist critique of science, to illustrate the way in which science traditionally positions the menstrual cycle. I also draw upon a Foucauldian critique of scientific discourse (e.g. Foucault, 1980) to strengthen this position. In this sense, I begin to introduce a feminist standpoint that is critical of positivism, and constructivist in its questioning of the assumptions behind scientific ideology. A multi-factor approach to women's experience of PMS (e.g. Ussher, 1992a) is reviewed, as a way of breaching the 'impasse' reached between the mutually exclusive bio-hormonal and critical-social accounts of PMS. It is from this point that I begin to examine the contributions and tensions between a multi-factor approach, and a feminist standpoint.

Chapter four reviews the relationships between epistemology, research methodology and a feminist standpoint. Methodological pluralism, and triangulation of data, theory and method, are recommended as being commensurate with both a feminist and a multi-factor approach to women's experience of PMS. I also examine the tensions between science and scientific method, and the discipline of psychology.
Chapters two and three noted that the menstrual cycle, and PMS, are traditionally and popularly positioned as events that are biological alone, with no social or inter-personal factors contributing to women's experience of them. The critique of science presented in chapter three, particularly the Foucauldian position on scientific ideology, illustrates how the positioning of the menstrual cycle (and PMS) as biological alone, and discoverable, measurable and predictable by scientific methodology, serves to reinforce and legitimise this positioning. This discourse of science and the female body, I would argue, provides an interpretive framework for aspects of women's behaviour and experience.

At this level, in reviewing the literature, I am drawing upon constructionist accounts of science and the menstrual cycle as a counter-position to traditional positivist or biomedical accounts. In chapter four, however, I note the tensions between some constructionist and post-structuralist positions, and notions of any realm of 'material' experience. I present a theoretical framework for this thesis, drawing upon feminist standpoint theory, and a multi-factor approach, where experience (or subjectivity) is positioned not as having a taken-for-granted biological or social origin, but rather a position that stresses the 'relational character of their mutual effects' (Henriques et al, 1984 Pp 22), with no category or realm taking precedence over another. Braidotti (1989) similarly notes that the 'body' may be considered as a point of intersection, and from this I suggest that experience and subjectivity, in this case women's experience of PMS, may be examined.

In other words, I am suggesting that there are many different levels or stratas at which the menstrual cycle is experienced by women, all of which contribute to their subjective experience of the menstrual cycle, and their positioning of their PMS status. I am also arguing that when women's experience of PMS is being investigated, one 'level' or factor that contributes to this experience must be placed or considered within the context of other factors.

The research question 'what makes a woman self-report PMS' is then investigated using three different research strategies. These three strategies contain very different epistemological assumptions about the nature of experience, which I summarise below. My justification for
presenting these three studies as different ways of addressing the research question rests on the premise that as well as different levels of experience within the subjective experience of the menstrual cycle, there are different research standpoints from which to investigate this experience. Drawing again on the multi-factor approach to the experience of PMS, I suggest that asking the research question from different research standpoints will provide very different answers, highlighting the argument that different methodologies access very different 'truths' (Walkerdine, 1993) about phenomena.

The research presented in chapter five utilises experimental methodology, in investigating attentional bias, arousal, stress and reactivity across the menstrual cycle. The assumptions behind this research strategy are those of logical positivism - that phenomena exist as 'real' and may be measured. Within this chapter, I consider the findings of this study from within this particular experimental paradigm, as it has been applied to measure attentional bias, physiological and psychological variables across the menstrual cycle. In chapter eight I re-visit study one, and critically reflect upon this position, questioning the implications, and appropriateness, of using experimental methodology in this area. I also note the relevant critiques of science as they apply to this study, and the practice of abstraction of phenomena that has been suggested to characterise cognitive approaches within psychology (Potter & Edwards, 1990).

Chapter six uses a questionnaire-based empirical methodology in examining the relationship between women's experience of PMS and perceived detriment to emotional and physical health. Again, within this chapter, results are discussed from a 'realist' perspective, but in chapter eight I re-visit this study and examine the implications of the research strategy used in light of critiques of questionnaire-based research and realist assumptions about PMS.

Chapter seven moves radically away from realist assumptions about women's experiences of PMS, and uses a discourse-analytic framework to analyse women's accounts of PMS. This approach draws upon constructionist and post-structuralist strands of argument, in its deconstructive techniques and positioning of discourse. However, I also argue that there are
degrees of 'critical distance' to be taken up in the reading of texts, and that again, in considering women's experience of PMS, use of a discourse-analytic research strategy does not negate the role of material experience, rather that material experience may be framed and interpreted by discourse.

In chapter eight, I consider the tensions between notions of the body and the critical stance of discourse analysis, and the implications of this for the interpretation of my research. The three studies in this thesis are presented in temporal order - as such they illustrate the progression of my thinking about women's experience of PMS, and also the opportunities available to me to conduct research. I conclude that the different positions adopted by these studies may, to an extent, be reconciled through the acknowledgement that the menstrual cycle is experienced at a number of parallel levels, and that examining women's experience from a number of research standpoints may present a way of breaching the fragmentation and stagnation between divergent research camps. Such a progression, I would argue, is possible only from a framework that takes a critical distance from the material and the socio-linguistic realms of experience, such as the feminist standpoint and constructivist position considered here.
5.1.1 Introduction.

The use of experimental paradigms within psychology has a history that is almost as long as the discipline itself. It has already been noted that logical positivism, and use of the hypothetico-deductive method, predominate within the mainstream. This is certainly true of cognitive psychology, a disciplinary strand exploring and describing the structures and processes that underpin mental activity, which tends to use information processing and other representational models through which to understand the functioning of the mind (see Williams et al., 1988; Edelmann, 1992). Use of the hypothetico-deductive method invariably entails the setting of a specific null hypothesis (drawn from existing knowledge), and the testing of this hypothesis by means of a controlled experiment.

Some psychological research in the area of PMS has focused upon cognitive factors and variations across the menstrual cycle, using paradigms and experimental techniques drawn from cognitive psychology. However, any fluctuations found tend not to be accounted for in any cognitive framework of premenstrual experience, rather, any differences tend to be accounted for in terms of the traditional hormonal model of PMS (see, for example, Anderson & Ellens, 1989). Further, as noted previously (see chapter two; see chapter three), notions of premenstrual cognitive impairment persist, despite the lack of empirical evidence for this, and the lack of any evidence for cognitive performance differences between women with and without PMS. This renders hormonal or biomedical theoretical accounts of PMS and premenstrual detriment to performance weak. Recent theoretical developments (see, for example, Bancroft, 1993; Ussher, 1992a) have tended to move away from this univariate standpoint, and emphasise the possible role of cognition and cognitive mechanisms in the experience of PMS.

Within Ussher's (1992a) multi-factor model of PMS, cognitive factors contribute to outcome behaviour at the enduring vulnerability level, and at the transient intermediate state. Factors proposed to influence women's experiences of their...
menstrual cycle include enduring vulnerability components (trait factors, monthly fluctuation in arousal and hormones), environmental stimuli (social stressors, life events, social support) and socio-cultural factors (e.g. cultural beliefs about menstruation), leading to a transient intermediate state where attribution of symptoms, labelling and perception of arousal, and perception of control / self-efficacy determine the outcome event as either coping with premenstrual symptoms (possibly entailing some compensatory effort), or self-diagnosis for PMS and possibly help-seeking behaviour (Ussher, 1992a).

Choi & Salmon (1995) investigated the strategies employed by a sample of 342 women to cope with menstrual cycle changes and premenstrual symptoms. Using an extensive checklist of coping items, they found that the most successful strategies employed by women were active-behavioural (e.g. steady exercise, kept busy) and active-cognitive (e.g. tried to see the positive side of things, relaxation exercise).

Klebanov & Jemott (1992) investigated the effects of bodily sensations and expectation on self-reports of premenstrual symptoms. In the first of two experiments, 48 women were assessed during their premenstrual phase, and in the second experiment, 82 women were studied during their intermenstrual or premenstrual phase. All participants took a fictitious test that indicated (falsely) that they were premenstrual or intermenstrual, and premenstrual distress was assessed prior to the studies, and the results showed a correlation between level of premenstrual distress, and reported premenstrual symptoms. Additionally, women who were falsely told that they were premenstrual reported greater symptom experience than those who were told that they were intermenstrual.

There is further evidence for the role of cognitive factors in PMS from treatment trials for cognitive-type interventions. For example, Morse & Dennerstein (1991) conducted a controlled treatment trial for PMS symptoms, comparing hormone therapy, a cognitive-behavioural intervention, and a waiting list control group. It was found that the cognitive-behavioural intervention was the most effective at alleviating premenstrual symptoms, both immediately after treatment and at follow up36. Kirkby. (1994) found that women reporting severe premenstrual

36 See chapter four.
symptoms showed significant improvements in symptom levels when allocated to a cognitive-behavioural coping skills treatment, even at a 9-month follow up. In all, there are nine published reports of cognitive-behavioural interventions used in the treatment of PMS, and positive outcomes are consistently reported (Kirkby, 1994).

If we are researching PMS from within a multi-factor approach, such as that proposed by Ussher (1992a), then it is feasible that we may use the state model of psychological functioning (Rubinow & Schmidt, 1989) as a framework through which to understand the mechanism of change, from 'normal' experiential state to 'premenstrual' experiential state. From this approach, we could hypothesise that some physical or emotional cue, at the onset of the late luteal or premenstrual phase, may mark the change for an individual woman from her non-premenstrual state into a state characterised by a specific set of affective responses, beliefs, memory accesses, communicational styles, self/object relation rules and so forth (Rubinow & Schmidt, 1989), leading the individual woman to categorise herself as being premenstrual.

Returning to the literature reviewed in chapters two and three, we may summarise that most women experience some physiological change across their menstrual cycle (Richardson, 1992). Further, we may note that whilst a great deal of research has focused upon the detrimental effects of menstruation and the late luteal phase upon performance and behaviour, there is little evidence to support such theories, and little research into the role of cognition as a mediating factor in the experience of PMS and the menstrual cycle. The research that does exist (e.g. Bains & Slade, 1988) has often been correlational, or conducted from a social-cognitive standpoint, rather than investigating the feasibility of an information processing type cognitive approach.

Stein et al (1989) prospectively evaluated 20 normally menstruating women with panic disorder across a minimum of two drug-free menstrual cycles. Some cognitive approaches to panic disorder (e.g. Clark, 1988) focus on the way in which panic patients are more preoccupied with bodily sensations than the non-panicker, monitor themselves more closely, and interpret particular bodily

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37 See chapter three, see this chapter.
sensations in a catastrophic manner. If this were the case, then women with panic disorder may be more likely to notice the physiological changes associated with the menstrual cycle, and interpret these in a catastrophic manner, with a corresponding increase in panic attacks in the menstrual or premenstrual phase of the cycle. Participants provided daily self-report ratings of anxiety and panic attacks. However, no effect of cycle phase was found on anxiety ratings in the panic patients or in a matched normal control group, which contrasted with a robust increase in a further group of participants with PMS. The authors suggest that symptoms of panic disorder are not commonly exacerbated by the premenstrual phase of the menstrual cycle.

A different interpretation of the above results is possible. It may well be that panic disorder is not exacerbated by either premenstrual or menstrual symptoms, and this could be explained by the fact that the symptoms and sensations associated with the menstrual cycle are not typically those focused on by panic patients. So whilst the panicker may attend more to her internal environment, returning to the premise of cognitive specificity discussed earlier, it may be that she selectively attends only to those symptoms associated with her panic attacks (such as breathlessness, increase in heart rate), possibly even at the expense of other sensations. Further, the study takes no account of either individual pathology (in terms of panic disorder) or type of premenstrual symptoms experienced. The study is important, however, in as much as it provides a theoretical 'stepping stone' to a more detailed examination of cognitive factors involved in the experience of PMS. If we start to conceptualise PMS as an 'emotional disorder', rather than a hormonal one, then we may not only utilise the research strategies in the area, but we may begin to provide a theoretical account of the process that leads a woman to self-diagnose PMS.

Does the PMS sufferer, for example, attend more to physical cues associated with arousal (as the increase in anxiety in the PMS group above might suggest)? Might there be a specific cognitive set, or schemata, associated with PMS, including expectations about symptom experience, performance, attributional style? Does she find such cues more salient than neutral stimuli? And is this subject to cycle phase effects? Returning to the state model of psychological function, does the PMS sufferer attend to physical cues salient to her menstrual cycle, resulting in a changed emotional state premenstrually, or does an increase in autonomic arousal
premenstrually lead her to attribute this to PMS (as Schacter & Singer (1962) might propose)?

This chapter will argue that because of parallels that may be drawn with research into emotional disorders, and some research studies, there is some support for the role of cognitive processes in the experience and interpretation of menstrual symptomology, that may lead some women to self-diagnose PMS. Furthermore, these cognitive processes may be focused around the interpretation, or misinterpretation, of some underlying arousal change.

By drawing on some of the research reviewed in the preceding chapters, this chapter will present the results of a pilot study and an experimental study, using a particular cognitive paradigm, which examine variations in attentional bias, physiological and psychological factors across the menstrual cycle in two groups of women. There are, it will be suggested, significant comparisons to be drawn between existing research in some cognitive approaches to emotional disorders, and the area of PMS research: By a review of cognitive approaches to three particular emotional disorders (depression, anxiety and panic disorder), and examination of their assumptions, these parallels will be used to introduce the two studies. Results of the studies will be discussed both at the level of a cognitive approach, and in terms of the implications that they have for multi-factor models of PMS.

5.1.2 Introduction to a cognitive approach.

Chapter four noted the development of multi-factor approaches to PMS (e.g. Ussher, 1992a; Walker, 1993; O'Brien, 1993) and drew a parallel between such approaches to PMS research, and other areas of psychology such as depression and vertigo. Cognitive approaches to emotional disorders tend to take what might be termed a diathesis stress, or multi-factor approach, although they vary in their respective foci (Williams et al, 1988):

"Cognitive models...characterise man (sic.) as a complex information processing system, and attempt to describe human experience and activity in terms of the integrated operation of fundamental processing mechanisms which act upon, and are themselves acted upon, by the flow of information through the system"

A cognitive approach, therefore, can be said to conceptualise the self and experience as positioned upon an internal / external (social) interface.

Cognitive psychology then, addresses the 'normal' functioning of the human mind, proposing a variety of representational models and structures (see Magaro, 1991; Edelmann, 1992), in order to explain the processing and interpretation of incoming information, the representation of stored information, and the subsequent interaction between the individual and the environment. However, cognitive approaches have also proved useful in the study of emotional disorders, the research therein further informing cognitive models of 'normal' functioning.

Cognitive approaches to emotional disorders tend to focus either on the effects of emotion on cognitive processes or upon the role of cognitive processes in the creation of emotional states (Williams et al, 1988). Research into the effects of emotion upon cognitive processes tend to take one of three forms: Emotional material may be used in contrast to neutral material to investigate variations in attention and memory (e.g. Kleinsmith & Kaplan, 1963); State (temporary emotional arousal) or trait (chronic emotional arousal or preoccupations) in participants may be employed to investigate cognitive processing; or an interaction between emotional content of test materials and state or trait of participants may be explored (Williams et al, 1988).

The effects of cognitive processes on emotional states have also been studied, for example Scherer (1984) emphasises the role of interpretation and attribution in the relationship between events and emotional response. Williams et al (1988) reiterate the clinical emphasis on the reciprocal relationship between cognition and mood, whereby mood is affected by cognition, and vice versa. The authors continue:

"The emotional states of anxiety and depression ... are multi-faceted. In patients with anxiety states there are likely to be acute and intense emotional reactions with a strong autonomic component, but also long-term cognitive elaboration around themes of danger. Depression is perhaps less likely to include acute reactions to specific stimuli, but is more

38 See also Richardson (1992).
pervasive in its effects. This pervasiveness seems to be partly what is meant by calling depression a disorder of 'mood'... The general picture that is emerging is that long-term disorders create cognitive 'structures' which are 'activated' at times of acute emotional arousal".

(Williams et al, 1988 Pp 5).

5.1.3 Schema theory and cognitive specificity.
Cognitive psychology addresses the way in which incoming information is received, organised and represented. Schema theory (Minsky, 1977; Schank & Abelson, 1977) suggests that we possess large well-integrated bodies of knowledge, which facilitate the understanding of our internal and external worlds. These, it is proposed, are organised structures of stereotypical knowledge which exist as a result of extracting common elements from a range of situations (Eysenck, 1984). Schemata are proposed to link related concepts into complex structures which allow expectations to be set up in response to certain situations (Diamantis, 1992). Activation of one part of the schema concerned with a particular activity would therefore activate a series of linked concepts through which new information is interpreted and expectations are set up. For example, the act of doing one's weekly shopping entails the activation of a particular set of schema related to what one needs to buy, where it is to be found in a particular supermarket, placing the items in one's trolley, queuing to pay, the behaviour of checkout people and so on. One would be extremely surprised if, for example, the checkout person tried to give money instead of take it, as this would not usually be encapsulated by one's internal 'script' for the activity of supermarket shopping.

The term schema refers therefore to particular cognitive structures, although it is important to note, as the example above illustrates, that schemata are 'regularly conceptualised in terms of the specific content contained within the schema' (Ingrams & Wisnicki, 1991 Pp197). Further examples of this are the 'self' schema (Markus, 1977) or the 'depressive' schema (Beck, 1967).

An important aspect of cognitive approaches to emotional disorders is the concept of cognitive specificity, which refers to those features specific to each different emotional disorder, as opposed to those common across disorders (Williams et al, 1988; Ingrams & Wisnicki, 1991). Again, the nature of specific features, and whether they may vary from individual to individual, is arguable.
(see Kendall & Watson, 1989), but the assumption is that each emotional disorder has particular cognitive features, sets or schema that are particular to it, for example the 'depressive' schema (Beck, 1976).

5.1.4 Cognitive approaches to emotional disorders: Depression, anxiety and panic disorder.

Cognitive approaches to emotional disorders are a relatively recent development in the field (Edelmann, 1992). Emotion has been conceptualised through a variety of models, from early body reaction theories, where an emotion-evoking stimulus was believed to produce autonomic activity and changes to skeletal muscles (James, 1884; Lange, 1885); Central neural theories, where subcortical structures (specifically the hypothalamus) were proposed to regulate emotion, and Darwinian-type evolutionary approaches (where emotions are proposed to be adaptive developments to aid survival) (Edelmann, 1992).

More recently, cognitive-arousal theories of emotion and emotional response have developed from the cognitive movement. Schachter & Singer (1962) studied the effects on participants of different types of cognition, in response to an injection of epinephrine. Some subjects were informed of the effects to the autonomic system that the drug would produce, some were misinformed (i.e. told they would experience numbness, a slight headache, and itching, instead of shaking hands, heart rate increase and so on), and a third group were not told of any effects of the drug. A confederate participant was then used in order to manipulate the attributions that the real participants gave for their behaviour and symptoms. Where the confederate had acted in a happy or playful manner, the real uninformed group of participants were found to become more happy; where the confederates behaved in an angry way, the same group of participants were observed to become more angry. From these results, Schachter & Singer proposed that if a person is in a state of unexplained physiological arousal, they will look for cues in the environment for an explanation. Whilst this approach may be termed simplistic, in as much as it presupposes uniform or comparable physiological arousal across emotions, it suggests that cognitive appraisal may interact with physiological state to produce emotional state (Edelmann, 1992). Certainly, since the 60's, research has begun to focus on multi-component models of emotion, which account for peripheral, cognitive and central elements in the
creation and maintenance of emotion.

Until the 1960's, emotional disorders such as depression, anxiety or panic disorder tended to be pragmatically conceptualised from within bio-medical models (see Edelmann, 1992) and corrected with drug therapy accordingly. From a number of diverse theoretical approaches, research in these areas is also now moving towards multicomponent cognitive models of emotion and emotional disorders (see, for example, Leventhal & Mosbach, 1983; Scherer, 1984) which emphasise the relationship between environment, experience and internal state.

At this point a parallel between PMS and cognitive approaches to emotional disorders may be drawn (I shall further illustrate this with examples to follow in this section) in as much as the failure of drug therapies to completely alleviate particular emotional disorders (see later in this section), critical accounts of reductionist bio-medical models (e.g. Henriques et al, 1987; Hollway, 1989), the lack of explanatory (as opposed to correlative) evidence for bio-neurological aetiologies for emotional disorders, and advances in theoretical accounts of the self and emotional disorders have all contributed to the development of alternative frameworks through which to conceptualise the self and its processes. This section will review some of the cognitive approaches to three emotional disorders, depression, anxiety and panic disorder, in order to illustrate these parallels that exist with the field of PMS research.

In a review of cognitive approaches to depression, Ingram & Wisnicki (1991) summarise the three predominant models in the field. The information processing model, derived from experimental cognitive psychology, is perhaps best exemplified by Beck (1967; 1976; 1983) whose approach proposes the depressed individual to be characterised by the presence of a negative self-schema, leading to negative automatic thoughts and a 'cognitive triad' of negative view of world, self and future. Beck's (1967; 1976; 1983) model can be termed a diathesis stress approach. (Ingram & Wisnicki, 1991).

A related approach, but with a different focus, is that of Abramson, Seligman & Teasdale's (1978) learned helplessness model, which is the fore-runner for later social-cognitive approaches to depression (e.g. Peterson & Seligman, 1984; Johnson & Magaro, 1987). Drawing on attribution theory, they proposed that an
individual's explanations of negative events determines various aspects of ensuing depressive reactions (Ingram & Wisnicki, 1991).

Finally, the third genre of cognitive models of depression are those evolved from the behaviourist tradition, or behavioural-cognitive models. An example of such a model is that proposed by Lewinsohn et al. (1985), which proposes that depressed individuals selectively monitor negative events and immediate versus delayed consequences of behaviour, make inaccurate causal attributions, and have unrealistically harsh self-evaluative criteria. Thus within this approach, cognition mediates between event and depressive reaction.

The term 'anxiety disorder' may be used to refer to social phobias, panic disorder, social anxiety, obsessions and compulsions, amongst others (Edelmann, 1992). Anxiety itself is a multi-faceted phenomenon, with what would appear to be cognitive, central and physiological components. Cognitive approaches to anxiety focus on the specific role of cognitive components (e.g. schemata, self-evaluation, self-statements) in mediating between environmental cues and anxiety response. This may be illustrated by the example of social anxiety: research has evaluated the roles of negative self evaluations (see Clark & Arkowitz, 1975; Curran et al., 1980), negative self-statements (see Glass et al., 1982; Dodge et al., 1988), irrational beliefs (see Glass & Furlong, 1990), and selective memory (see Hope et al., 1990). Edelmann (1992) notes that socially anxious individuals may be particularly sensitive to some bodily sensations (such as blushing) and the evaluations of others, leading to a set of anticipatory expectations about the potentially negative outcome of social encounters or events.

Another emotional disorder often approached within a cognitive framework is panic (Williams et al., 1988). Several cognitive theories of panic exist which share as their central assumption the notion that those people who experience panic disorder have an enduring tendency to interpret bodily sensations (for example, a rapid heart beat) in a catastrophic fashion (for example, as a heart attack) (Edelmann, 1992). This catastrophic misinterpretation therefore results in further, anxiety related bodily sensations which further feed into the interpretation, in a vicious cycle resulting in a panic attack (Clark, 1988; Edelmann, 1992).
One of the multicomponent cognitive psychological models of panic disorder (Margraf, Ehlers & Roth, 1987; Clark, 1988; Ehlers et al, 1988a; Ehlers et al, 1988b) incorporates a complex interaction between coping resources, internal and external panic cues, threat appraisals and perceived control. This has been examined in a number of experimental studies, using a variety of paradigms. For example, Ehlers, Margraf, Davies & Roth (1988) used a modified Stroop colour naming task (Stroop, 1935) to assess attentional bias for salient material in patients with panic disorder. In the first of two studies, 24 panic disorder patients and 24 normal controls were presented with three cards containing threat words related to physical harm, social embarrassment or separation. Colour naming times (an indication of cognitive bias) were compared for the two groups for these word sets, and a set of neutral (non-threatening) control words. It was found that patients tended to be slower at naming threat related words, and controls faster. The second study compared a group of 18 non-clinical ‘panickers’ with a group of normal controls for colour naming of a set of threatening words, a set of neutral words and a set of colour words. The panic group showed a greater cognitive bias (i.e. were slower to colour name) for threat related stimuli. The authors suggest that these results are consistent with the theory of an attentional bias for threat related material in panic patients, one of the components of the proposed cognitive models of panic disorder.

Ehlers et al (1988b) tested the assumption that the appraisal of bodily change (i.e. whether it is perceived as catastrophic or not) in panic patients by providing a group of 25 panic disorder patients, and 25 normal controls, with false heart rate feedback of an abrupt heart rate increase. Previous research (see Margraf, Ehlers & Roth, 1987) had suggested that panic disorder patients tended to attend more to bodily sensations than non-panic patients. Ehlers et al (1988b) took self-ratings of anxiety and excitement, heart rate, skin conductance and diastolic and systolic blood pressure. On all measures, the authors report that patients who believed the heart rate feedback to be accurate (N = 19) responded differently to the false feedback than controls (N = 16), showing increases in anxiety and physiological arousal.

Clark et al (1988) note that two further consequences result from the catastrophic interpretation of bodily symptoms. These are the tendency to be hypervigilant to bodily changes and symptoms (noticing sensations that other, non-‘panic’
individuals may be unaware of); and use of particular subtle avoidance strategies to maintain negative beliefs about themselves and their health (for example: Avoiding exercise as a response to palpitations, ostensibly in the belief that exercise will exacerbate these and worsen health, but with the result that general health is less good than it might be, and other symptoms, such as breathlessness on occasional strenuous activities, become more pronounced and further catastrophically interpreted, thus completing the ‘vicious cycle’).

Cognitive models of panic are able to account for panic attacks that occur as a result of anxiety, and 'spontaneous' panic attacks (Edelmann, 1992), and there is considerable evidence that not everyone is likely to interpret bodily sensations in a catastrophic fashion. Kushner & Beitman (1990) report cases of individuals who meet DSM-III criteria for panic attacks, even though their attacks do not contain any cognitive panic symptoms. This may be accounted for by individual differences in sensitivity to anxiety (see Edelmann, 1992).

Edelmann (1992) summarises much of the research in this area, by setting out three further assumptions necessary to cognitive models of panic disorder. Firstly, bodily sensations should be identifiable as occurring before the onset of the panic attack, i.e., that a direct link between the perception of the symptoms, and the panic response, should be established. Secondly, Panic patients should be shown to be more likely to interpret bodily sensations as dangerous or threatening (such as the interpretation of palpitations as a heart attack). Finally, that treatments should be directed towards modifying the particular cognitive schema about bodily sensations, and the act of interpreting them negatively. There is a vast body of research to support these assumptions, as well as some that does not (for a review, see Edelmann, 1992).

Support for cognitive approaches to emotional disorders such as anxiety, depression and panic disorder may be seen in the success of cognitive, or cognitive-behavioural therapy, which has been shown to be more effective than either drug therapy or control conditions in many clinical trials (see Williams et al., 1988). Klosko et al (1990) conducted a treatment trial of alprazolam (a benzodiazepine) with a cognitive-behavioural intervention, a medication placebo and a waiting list control. 87% of patients in the cognitive-behavioural group were found to be free of panic attacks following treatment, compared to 50% for
the alprazolam and 36% and 33% for the placebo and waiting list groups respectively. As this study illustrates, research into treatment for panic disorder is somewhat confounded by spontaneous remission rates and high placebo effects\(^39\), and Ballenger et al (1988) report that 33% of their participants on placebo medication were panic free following eight weeks of treatment, compared to 55% of those taking alprazolam.

The studies reviewed here, whilst seemingly quite diverse, have in common the theoretical assumption of specific cognitive structural constructs, propositional constructs and operational constructs that mark out, for example, the depressed individual from the normal individual (Ingram & Wisnicki, 1991)\(^40\). These concepts are not always presumed to be concrete, however. There is, for example, debate around whether specific cognitive variables are causal in their action, whether they are adaptive to environments or events, or whether they represent vulnerability factors (Ingram & Wisnicki, 1991). Further, the specific nature of particular schema or cognitive sets has been called to question, for example the ability of cognitive approaches to discriminate between anxiety and depression (see Williams et al, 1988).\(^41\)

5.1.5 Schema theory and emotional disorders

Returning to the example of depression, one of the most widely used variants of schema theory in research into emotional disorders is that of Beck (e.g. 1976), who proposed that schema are interconnected cognitive elements which are further organised into constellations of schemata (Diamantis, 1992). Thus, when activated, a specific schema directly influences perception, encoding and retrieval by aiding the selection of relevant environmental elements or memory traces. Beck proposed that emotional disorders are characterised by the presence of over-active idiosyncratic (specific) schemata, concerned with emotionally salient material. As has already been noted, Beck's (e.g. 1976) theory of depression stipulates that the schema of the depressed individual is characterised by schema concerned with negative aspects about the self, the world and the future. Thus,

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\(^39\) Again, another parallel to PMS research.
\(^40\) This discussion will be expanded in section 5.3.
\(^41\) In panic disorder, part of the 'vicious cycle' is hyperventilation, leading to a panic attack (Edelmann, 1992).
schema influence how the world is perceived and interpreted, and external stimuli and personal thoughts will be directed by negative self schema such that the world and the self will be conceptualised in a negative way (Diamantis, 1992). Depression will be maintained by these negative schema, despite positive changes or occurrences in the patient's life, because these cognitive structures are stable and thus ensure that only salient (i.e. negative) information is selected, coded and interpreted.

Williams, Watts, MacLeod & Matthews (1988) proposed a model of dysfunctional schemata in emotional disorders which distinguishes between the locus of processing bias in anxiety and depression. An overactive schema concerned with personal vulnerability and danger is proposed to characterise anxiety disorders (such as panic disorder), and through this schema the individual interprets the world as threatening which, in turn, induces the physiological symptoms of anxiety. Thus the 'danger' schema is effective at the early level of information processing. Anxiety is thought to be characterised by a trait bias to allocate emotional and attentional resources to potentially threatening stimuli in the environment, just as the panic patient directs the attention and emotional resources internally to their physiological sensations. Information is selected and assessed pre-attentively for affective valence (Diamantis, 1992). Such a system therefore would facilitate the early perception of threat-related information and greater distractibility from a task by incidental threat related stimuli.

Williams et al (1988) propose that depression is characterised by a stable tendency to allocate increased resources for elaborating negative information during encoding. Again, incoming information is assessed pre-attentively for emotional salience, with a greater number of associations and mnemonic cues being formed during encoding allowing for easier retrieval from memory.

Thus, attentional and emotional resources are central in the study of cognitive function. The allocation of attention to salient stimuli has been studied in relation to anxiety, depression and panic disorder.

5.1.6 Emotional disorders and attention.
Recent work in the areas of depression, anxiety and panic disorder suggest that they are accompanied by the selective processing of emotionally salient
information, for example either by greater elaboration (and therefore greater recall) of negative material (in the case of depression), by greater vigilance to bodily sensations and the activity of related negative schema (in the case of panic disorder), or by greater allocation of attentional resources to threat related information (in the case of anxiety). The Stroop task is believed to demonstrate these activities, and to provide evidence for the existence of schematic biases in emotional disorders.

The original Stroop task (Stroop, 1935) involves the rapid ('as fast as you can') naming of the ink colours in which a series of words are printed. Stroop (1935) reported that if a printed words was the name of a colour, but not the colour in which the word was printed (e.g. the word 'red' written in blue ink) then interference in the colour naming task occurred producing longer response latencies.

The actual meaning of the word to be colour-named is incidental to the primary task of colour naming, but it is automatically processed by the participant, and more recent research suggests that it is not only incongruent colour-words which produce an interference effect. For example, Ray (1979) presented a colour-naming task to students about to take exams, containing stimuli (words) associated with the negative aspects of examinations. She found that the exam-stress related words took longer to colour name than neutral words (body part names), and that the most anxious students produced the greatest response latencies.

McKenna (1986) used the same experimental paradigm with a group of people training to become air pilots and bus drivers. The stimuli presented for colour-naming were, McKenna argued, relevant to the fears associated with these professions, e.g. 'crash', 'grief', 'death' and so on. It was found that emotionally salient stimuli took longer to colour name than matched control words for both groups, although the pilots showed a greater interference effect even compared with their scores on the colour Stroop task.

Watts et al (1986) developed a version of the Stroop task requiring the colour naming of spider related words, and administered it to a group of spider-phobic patients. It was found that in comparison with non-phobic controls, spider
phobics were severely impaired on this task. Further, desensitisation of the phobic patients produced improved colour naming latencies.

Matthews & MacLeod (1985) tested the proposal that generalised anxiety states are associated with selective processing of threat cues, as a result of the activity of cognitive structures concerned with the processing of information related to personal danger. Using a modified version of the Stroop task, where stimuli pertaining to physical or social threat were matched with neutral (non-threatening) words, anxious participants were found to be generally slower than controls in colour naming all words, and particularly slow with the threat-related words. The authors argue that, taken together with correlational findings that degree of interference was related to present mood state, the results may be interpreted as evidence that the content of danger schemata determine the type of material that is selectively processed, while the extent of interference depends upon current levels of anxiety.

Dawkins & Furnham (1989) used a modified Stroop task in order to distinguish individuals with a 'repressive' coping style from a low and high anxious persons. The stimuli were words associated with negative emotions, and the three groups of participants were identified by the use of a social desirability scale and a trait anxiety scale. The task appeared to clearly distinguish between repressors and low-anxious participants, with repressors being severely retarded on this task. The distinction between repressors and high anxious was less clear.

McNally et al (1990) investigated cognitive processing of emotional information in panic disorder, using 24 panic patients, 24 obsessive-compulsive patients and 24 normal controls. Participants were exposed to either a high or low arousal manipulation, before completing a computerised version of the Stroop task including non-lexical neutral stimuli, positive words and threat words. Having completed the Stroop task, participants were asked to rate the emotional significance of the words. It was found that panic disorder patients had a greater Stroop interference, or response latency, for words associated with catastrophe than for positive but more emotional stimuli. However, the positive emotional stimuli were found to produce as much interference as stimuli associated with fear and bodily associations, leading the authors to suggest that it is difficult to identify threat words specific to panic disorder that are irrelevant to other
There is, therefore, considerable evidence to suggest that anxiety is characterised by attentional processing biases for threat related information. The overactive schema concerned with personal vulnerability and danger, thought to characterise anxiety, are proposed to affect the allocation of attentional resources. But whilst the Stroop task has traditionally been used as a measure of attention and attentional bias, it has also revealed extended latencies in the colour-naming of negative words by depressives (see Gotlib & McCann, 1984; Williams & Nulty, 1986). However, neither of these studies took a control measure of anxiety in their depressed participants, and the role of concurrent anxiety in the production of extended colour naming latencies cannot be ruled out in this case.

5.1.7 Summary.
The first part of this chapter has been concerned with reviewing cognitive approaches to emotional disorders, and setting out the possible utility of a cognitive approach in addressing women's experience of PMS. The second part of this chapter will review and research in areas pertaining to cognition and the menstrual cycle.

5.2 Psychological and physiological variables across the menstrual cycle.
The process of the menstrual cycle results in a number of physiological changes to women, as noted in chapter two. In light of the lack of evidence for a bio-hormonal aetiology of premenstrual pathology, and proposed multi-factor approaches to take account of the variety of physiological and psychological variables involved in the experience of the menstrual cycle (see Ussher, 1992a), the utility of a cognitive psychological approach to PMS is under consideration. The focus of this particular approach is the interaction of physiological and psychological variables, specifically the role of schema pertaining to physical symptoms, and their interpretation. The literature reviewed in the following sections will focus upon research into stress, arousal and heart rate and the menstrual cycle, in order to assess the utility of such measures in distinguishing PMS sufferers from non-sufferers, and their relevance to a cognitive approach.
5.2.1 Stress

The concept of stress, or the general response of the body to demands made upon it (Selye, 1956), is a complex one. It is possible that the environment may effect the experience of the menstrual cycle in a variety of ways: For example, Golub (1992) observes that stressful events, by eliciting a change in hypothalamic functioning, can disrupt the course of the menstrual cycle. Ussher (1987) points out that the precise relationship between stress and menstruation, whether menstruation acts as a stressor or whether women are more vulnerable to stress at particular points in their menstrual cycle, is far from clear. Sommer (1978) suggests that stress may be conceptualised as both a response and a stimulus in menstrual cycle research, menstrual cycle related symptoms proving to be internal sources of stress, and environmental stresses (stimuli) and phasic response external.

The cognitive appraisal of the stressor is, as noted previously, important in determining the response given. Koeske’s (1977) research on attitudes and expectations towards the menstrual cycle suggests that women with PMS have more negative attitudes toward menstruation, and may evaluate their premenstrual experience differently from non-sufferers.

Beck et al (1990) recruited a sample of 25 women seeking help for PMS, to investigate the predictive role of psychosocial stress on symptom severity. All participants had prospectively confirmed PMS, and were from a self-selected (volunteer) sample. Participants were studied prospectively for three consecutive menstrual cycles. Information was collected on daily stress, mood (using the Bond-Lader mood scale: Bond & Lader, 1974), and physical symptoms. Stress was found to account for only 6% and 10% of the unique variance in mood and physical symptoms across the menstrual cycle. Furthermore, no association was found between the severity of symptoms and daily stress. The authors conclude that for this sample of women, psychosocial stress could not be used as a predictor for PMS symptom severity.

The relationship between stress and PMS is not, then, clear. Koeske (1977) reported an increase in negative moods and premenstrual symptoms with increased stress. Woods (1985) found that exposure to a stressful environment helped to explain cyclical symptoms of negative affect, but had no effect on
physiological premenstrual symptoms.

If we conceptualise menstruation as a stressor (Jensen, 1982), then coping and coping strategies become a central concern. Coping strategies may be defined as any cognitive response that reduces arousal (Lazarus, 1978), and obviously social factors such as learned behaviour and expectations may play a significant part in a woman's coping ability. Choi & Salmon's (1995) study of how women cope with menstrual cycle changes suggests that not only do most women employ an active cognitive style of coping, but that this is most effective. It would be interesting to follow up this study by examining differences in coping skills employed by PMS sufferers compared to a group of non-PMS women, using the same checklist.

Certainly, there is evidence that women's responses to the menstrual cycle, and the menstrual cycle itself, may be affected by changes in environmental stress (see Ussher, 1987 for a review). For example, Marinari et al (1976) found elevated levels of plasma cortisol in women who were exposed to a stressor premenstrually, compared to mid-cycle readings, and these differences were not observed in contraceptive pill users, suggesting an hormonal cause. However, Abplanalp et al (1977) failed to replicate these findings.

It is possible that women's vulnerability, or responsivity, to stress varies across the menstrual cycle. Strauss et al (1983), however, found no menstrual cycle effect on stress reactivity measured by electrodermal responses and self report. Hastrup & Light (1984) reported that subjects tested in the follicular phase of the cycle showed less of a stress response, measured by heart rate and blood pressure, than subjects tested in the luteal phase.

Ussher (1992a) suggests that one explanation for the relationship between stress and the menstrual cycle to be that some additive effect exists, where external stressors (such as negative life events) lead to negative affect when combined with an underlying increased sensitivity. In other words, that physiological arousal may change across the menstrual cycle, and that this may mediate stress response and premenstrual experience.

Ussher & Wilding (1992) employed a battery of measures to assess and manipulate stress levels, arousal and activation, personality and performance in a group of
self-reported PMS sufferers, and a group of non-PMS controls, at discrete points in the menstrual cycle. No differences were found between the PMS and non-PMS participants in reactions to stress, however all participants reported increased levels of stress and arousal premenstrually, with this increase being significantly greater in the PMS group. The PMS group did, however, have a significantly higher score on the neuroticism scale of the EPI than the control, suggesting that perhaps trait factors may be significant in determining a woman's experience of her menstrual cycle, as well as external events, and subsequent coping skills.

Jensen (1982) and Ussher & Wilding (1991) have suggested that the menstrual cycle be investigated from within a stress-research framework, which would predict that any variations in performance over the menstrual cycle would be task and metric specific, because of the non-uniform relationship between state and performance (Ussher and Wilding, 1991, 1992). Some research has found differences in response to stress across the menstrual cycle (see Marinari et al, 1976; Hastrup & Light, 1984), and it has been suggested that some women may be more vulnerable to particular stressors premenstrually (Asso, 1987; Ussher & Wilding, 1992). Therefore baseline measures of stress and arousal are of interest, as well as a stress-research type paradigm, looking for differences in stress and arousal after completion of a stressful task.

It is feasible then that measures of stress, and reaction to stressors, may be used to attempt to distinguish between PMS and non-PMS women. It is also possible that the finding of a relationship between stress and PMS may depend upon the sample under investigation, and the measures used. The relationship between stress and arousal needs further investigation within this context.

5.2.2 Arousal

Section 5.1.4 examined Schacter & Singer's (1962) approach to the role of autonomic arousal in the creation of emotion. This approach, and later cognitive approaches, emphasise the role of attribution and interpretation of arousal or physiological sensation (the example of panic disorder again) in determining subsequent emotional response.

Koeske (1977) suggests a similar model for PMS, in that the perception and attribution of physiological change may play an important part in how that
change is experienced and interpreted. This is commensurate with the examination of panic disorder as a parallel to PMS earlier in this chapter. In panic disorder, specific physiological changes are monitored more closely, and responded to in a more catastrophic manner, than in non-panic patients.

The parallel does not end there. One notable non-cognitive aspect of panic disorder is that a panic attack may be induced by a sodium lactate infusion, suggesting some direct neurological or physiological aetiologic component (see Endelmann, 1992). Facchinetti et al (1992) performed a sodium lactate test on 35 women with prospectively confirmed PMS, and 16 normal controls. This was done in order to determine whether women with PMS were sensitive to this test, and whether this sensitivity was accounted for by the existence of a concurrent panic disorder. The PMS sample were also administered a structured clinical interview to assess comorbid anxiety and / or mood disorders. It was found that only 31% of the PMS sample were free from any affective disorder of this nature (unfortunately, the control sample were not given the same interview, so there is no comparison data). Nine of these women met the criteria for panic disorder, and it was found that a sodium lactate infusion induced a panic attack in 22 (62.9%) of the PMS sample, and two controls (12.5%). The authors conclude that in this study, the PMS sample display a heightened sensitivity to lactate, which is not accounted for by the presence of co-morbid panic disorder.

Harrison et al (1989) compared the anxiogenic (anxiety producing) effects of double breath inhalation of carbon dioxide mixture in 14 women seeking treatment for PMS (with no co-morbid panic disorder) and 14 normal controls. The authors report that 9 of the PMS sample experienced panic attack symptoms (severe subjective anxiety, with autonomic symptoms) after CO2 exposure, compared to mild non-panic anxiety symptoms experienced by the control group. It is concluded that this study provides evidence for an abnormal sensitivity of the locus coeruleus to this particular type of CO2 exposure, a physiologic characteristic shared by patients with panic disorder.

Many authors suggest drawing a distinction between central and autonomic nervous system arousal (Asso, 1983). Some studies have found lower levels of CNS activity premenstrually, compared to intermenstrually, and higher levels of ANS activity at the same discrete points (see Asso & Brier, 1982; Asso & Beech, 1975).
Combined with specific cognitive traits, changes in underlying physiological systems may be seen to produce abnormal emotional responses (e.g. panic disorder, PMS).

There are a number of measures taken as indicators of ANS activity. Heart rate, temperature, skin conductance, blood pressure and self report have all been used as indices, often with ambiguous results. There is some evidence for a premenstrual increase in ANS activity, compared to intermenstrual measures (Asso & Beech, 1975; Asso & Brier, 1980; Vila & Beech, 1977; Williams et al, 1980). These studies have predominantly used combined measures of autonomic activity. Studies using single measures of ANS activity have tended to find no difference in activation levels (e.g. Doty et al, 1981; Slade & Jenner, 1979; Parlee, 1980), although Ussher & Wilding's (1992) study showed a general increase in arousal premenstrually in PMS and non-PMS women, using a single measure. Dissociation between measures used as indices of ANS activity may also be partly accountable for this discrepancy (Asso, 1978).

Kuczmierczyk et al (1986) conducted a cycle-phase specific study of 11 women with PMS and 10 normal controls, to investigate differences in autonomic arousal. Measures of heart rate and skin conductance were taken premenstrually and intermenstrually, as indices of ANS activity. Measures were monitored during baseline and after completion of a stressful laboratory task. Heart rate was found to be generally lower in the PMS group than in the control group intermenstrually, but higher in the premenstrual phase. Pain intensity ratings were found to be higher overall in the PMS sample. This study provides some support for cognitive factors in the acquisition and maintenance of PMS, in the role of underlying physiological activity and in the cognitive appraisal of symptoms.

Palmero & Choliz (1991) took measures of resting heart rate in a group of women with prospectively confirmed PMS, and a non-PMS control group. Measures were taken throughout premenstrual, menstrual, post menstrual and ovulatory cycle phases. PMS participants showed higher rating heart rate levels in the premenstrual phase than controls.

Van den Akker & Steptoe (1989) to heart rate, skin conductance and neck
electromyogram measures in 16 women attending a PMS clinic and 8 controls. Measures were taken at rest, relaxation, an emotionally upsetting film, and performance of stressful tasks. Generally, skin conductance was shown to decrease to a greater extent in the premenstrual than the post menstrual phase, whilst the neck electromyogram showed the reverse pattern. Heart rate reaction to stressful tasks were larger in the premenstrual than in the post menstrual phase for the PMS group, but not in the controls or the clinic attendees who showed only modest premenstrual symptoms.

Kirsch & Geer (1988) investigated the effect of cycle phase on aspects of ANS arousal and performance. Measures of heart rate and skin conductance were taken pre and post menstrually from 16 retrospectively assessed PMS sufferers, and 16 controls, whilst hearing 10 audio tones and completing 2 stressful tasks. The PMS group were found to experience more stress premenstrually, and to show higher spontaneous skin conductance rate during a task, and higher SCR whilst hearing tones, prior to menses.

Girdler et al (1993) tested 15 women with prospectively confirmed PMS and 15 controls at two points in the menstrual cycle (follicular and luteal) for cardiovascular stress reactivity and behavioural performance. Blood pressure and heart rate responses to stress were not found to differ across the menstrual cycle in either group of women, but differences in haemodynamic response was observed in the non-PMS group across the two cycle phases. Interestingly, the PMS group showed significantly attenuated blood pressure and heart rate responses compared with non-PMS women, irrespective of cycle phase.

The attribution of perceived state change can have a significant effect on menstrual distress. Koeske (1977) reports that negative moods, behaviours and symptoms occurring premenstrually are likely to be attributed to biological factors, whereas positive moods, behaviours and symptoms are likely to be attributed to external or personality factors. Koeske goes on to suggest that women experience an increase in general arousability premenstrually, which will be attributed as either positive or negative, depending upon environmental cues. This fits in with the notion of a premenstrual ‘state change’, and the role of cognition in determining premenstrual experience.
Rodin (1976) manipulated the attributions of aroused participants, and found that those women who had a 'pill' attribution (i.e. who attributed their arousal to the fact that they took a contraceptive pill), or who were warned of the effects of their arousal, performed better than subjects with no attribution provided. Parlee (1981) suggested that positive moods reported premenstrually are the result of the interpretation of non-specific arousal, due to satisfactory or favourable environmental circumstances. She proposed that women who have had a more problematic or stressful life may have learned to label premenstrual feelings as depression.

5.2.3 Conclusion.
The literature reviewed in the preceding sections of this chapter is intended to provide support for a cognitive approach to PMS. Some cognitive psychological approaches to certain emotional disorders have been introduced and reviewed, with the intention of providing support for a cognitive approach to PMS, in understanding self-diagnosis of premenstrual problems.

Little evidence exists for cognitive performance differences (see this chapter; see chapter two; see chapter three) between women with and without PMS, however it is diagnosed, and theoretical accounts of PMS are, on the whole, weak. However, because of parallels that may be drawn with research into emotional disorders, and some research studies, this section concludes that there is some support for the role of cognitive processes in the experience and interpretation of menstrual symptomology, that may lead some women to self-diagnose PMS. Furthermore, these cognitive processes may be focused around the interpretation, or misinterpretation, of some underlying arousal change. The remainder of this chapter presents a pilot study, designed as a preliminary investigation of attentional bias and self-reported PMS, and an experimental study to investigate changes in attentional bias, stress, arousal and heart rate activity across the menstrual cycle.

5.3 The pilot study
5.3.1.1 Introduction
Traditional menstrual cycle and PMS research has been much criticised in recent years (see, for example, McFarlane & MacBeth-Williams, 1991; Ussher, 1992a; Richardson, 1992a) for positioning the menstrual cycle as an independent
variable that may influence a woman's mood and / or behaviour, for inconsistencies in methodology and definition, and for failing to address the social or psychological context within which the menstrual cycle is experienced (Sommer, 1992).

Multi-factor, or diathesis stress, models of the onset and maintenance of PMS have been suggested (see Ussher, 1992a; Walker, 1993, 1995; O'Brien, 1993) in order to address these issues, and to move on from the impasse that they present between the biological or bio-medical research on the one hand, and the critical and socio-cultural research on the other (Ussher, 1992a). These models, embracing as they do many aspects of individual experience that may contribute to the experience of self-diagnosed PMS, afford both the use of different research strategies in the investigation of different facets, and the evaluation of different aspects of experience.

Surveys of premenstrual symptoms (see, for example, Corney & Stanton, 1991; Golub, 1992) and of factors contributing to the self report of PMS (White & Wildman, 1986; Warner & Bancroft, 1990) illustrate not only the broad range of symptoms reported in relation to the premenstrual phase, but also the marked experiential categories into which they fall (emotional, physical and behavioural). Warner & Bancroft (1990) note that as over 150 possible symptoms of PMS have been recorded, with each woman having her own particular diagnostic justification, it is feasible that any one aetiological mechanism may express itself in different ways, depending upon interactions with the environment, personality and general health. Conversely, McFarlane & MacBeth-Williams (1991) suggest that homogeneity of symptoms (in terms of particular groups of symptoms typically associated with PMS) does not necessarily imply homogeneity of aetiology.

Rubinow & Schmidt (1989) have suggested that a state model of psychological functioning may be an appropriate framework through which to research PMS. According to such a state model, variations in perceptions and behaviours occur within the context of organised and well-differentiated behavioural or experiential states, each one distinguishable by a particular set of memory accesses, beliefs, affects, neurobiological characteristics, perceptions, self / object relations and so on (Rubinow & Schmidt, 1989). This framework could be
usefully employed in relation to attributional style, attention to body cues, learning and cultural beliefs, and employment of coping skills in women self-reporting PMS. Taken in conjunction with a multi-factor approach, such as the model proposed by Ussher (1992a: See chapter three), the role of psychology, and psychological research strategies, in understanding this seemingly complex relationship between the physiological events of the premenstrual period and the subjective experience, becomes more apparent.

Further, it is arguable that a parallel may be drawn between these approaches to PMS, and cognitive approaches to particular emotional disorders. Not only do preliminary results of cognitive-type interventions for PMS seem promising (see Morse, Bernard & Dennerstein, 1989; Morse et al, 1991), but certain homologies between, for example, PMS and panic disorder, may be seen in the research into physiological arousal, sensitivity to environmental cues, and stress (see this chapter). Returning to the state model of psychological function (Rubinow & Schmidt, 1989), it is feasible to suggest that some phenomena ‘cues’ women into the fact that they are premenstrual, and thus triggers a premenstrual ‘state’. Such a cue may be physiological, as in panic disorder, where the panicker monitors her internal environment closely, cueing into particular internal events (breathlessness, increased heart rate) which are then catastrophically interpreted, culminating in a panic attack (Endelmann, 1992).

Typically, such a cognitive model of panic, and of other emotional disorders are supported by results from particular research paradigms, such as the Stroop task. Taking into account the experiential categories into which premenstrual symptoms typically fall, as behavioural, emotional and physical, with the majority of women experiencing some physiological change or sensation premenstrually and menstrually (see Golub, 1992; Richardson, 1992a), we may consider the possibility that the self-diagnosed PMS sufferer monitors her internal environment more closely than the non-sufferer, with the onset of particular (perhaps unnoticeable to the non-PMS sufferer) symptoms or sensations cueing the woman into a ‘premenstrual state’. At the same time, if we position PMS as an emotional disorder (as opposed to a physiological one) we may consider the possibility of particular cognitive mechanisms, such as schema, associated with menstruation, PMS, and related bodily and emotional experiences, that distinguish the PMS sufferer from the non-sufferer. This, then, would presuppose that a
woman with self-diagnosed PMS would possibly exhibit an attentional bias for particular material, related to physical aspects of PMS, throughout the cycle, with an attentional bias for PMS related emotional material exhibited premenstrually.

5.3.1.2 Design.
The following pilot study investigated attentional bias for emotional and physical stimuli in a sample of thirty seven women, eighteen of whom self-reported PMS. In the first instance, a number of stimuli pertaining to the physical and emotional aspects of PMS were selected by the experimenter for later use in the Stroop task (Stroop, 1935), and their relevance to PMS tested by validation with a sample of female undergraduate and graduate students.

Following the selection of appropriate stimuli, a modified version of the Stroop colour naming task (Stroop, 1935) was used, with stimuli carefully chosen to be pertinent to PMS-related symptoms. The Stroop task consisted of participants colour-naming sets of words, and their control sets, matched for frequency and word length. Attentional bias, or the Stroop effect, was measured as the difference in colour naming time for the experimental versus the control set of words. A measure of cycle phase, and of PMS status, was taken from each participant after testing.

In the first instance, the appropriateness of the stimuli used was tested, by examining whether each experimental group of words produced a greater colour-naming time than their matched controls. The reaction times of SR (self-reporting PMS) and NSR (non-self-reporting PMS) women were then compared for the different stimuli sets used, to investigate whether SR women exhibited a greater response latency, or attentional bias, for stimuli salient to the physical or emotional aspects of PMS. A measure of cycle phase was taken to enable a phase-specific analysis of reaction time (response latency) for the different stimuli sets, by PMS status.

The study was double blind, as participants were not aware of the menstrual cycle focus of the experiment, and the experimenter was not aware of each participant’s PMS-status (self-reporting or non-self-reporting) until after testing was complete.
5.3.1.3 Research questions.
The research questions of this pilot study focused around further validation of the selected stimuli (for use in later research) and around attentional bias in women self reporting PMS for these stimuli. The questions were:
(1) Do the PMS-related stimuli sets used in this study (physical and emotional words, and their matched controls) produce a Stroop effect?
(2) Do women who self report PMS show a significant attentional bias, or response latency, for PMS-related stimuli, compared to non-PMS women?
(3) Do women show a significant effect of cycle phase in their reaction times, or a response latency, for the colour word (i.e. a cycle phase effect for performance)?
(4) Is there a relationship between PMS status, cycle phase and reaction time for PMS related stimuli (i.e. a PMS status x cycle phase x word type interaction)?

5.3.1.4 Analyses.
The study was of a between subject design, testing the sample once only, with cycle phase therefore being between rather than within subjects. Cycle phase and PMS status were independent variables, with colour naming latency the dependent variable.
In addressing research question one, related t-tests were used to ascertain the effectiveness of the hand-held Stroop task and stimuli.
In addressing research question two, unrelated t-tests were used to examine differences in colour-naming latency between the two groups (with PMS status as an independent variable, and reaction time as a dependent variable). One way analysis of variance (with cycle phase an independent variable, and reaction time as a dependent variable) was carried out to address research question three.
The distribution of participant's cycle phases, which could only be ascertained post-task, was not even. Only one NSR participant was in phase four of her menstrual cycle (premenstrual) at time of testing. Therefore, no analysis could be carried out in response to research question four, and summary data is presented.

5.3.2 Participants
A group of thirty seven undergraduate women were recruited by a poster advertisement, to take part in a reaction time experiment. Participants were not told of the menstrual cycle focus of the study, but were screened prior to their
participation for use of contraceptive pill, current medical or psychiatric treatment, or gynaecological problems. After completing the study, menstrual cycle length, cycle phase and PMS status was determined by means of a brief questionnaire (see appendix I), and those participants whose menstrual cycle did not regularly occur every 25 - 35 days were excluded from the final analysis. As a result of this, the study was effectively double blind, as participants were not aware of the menstrual cycle focus of the study, and the experimenter did not know until after testing was complete whether each woman considered herself as a PMS sufferer or not.

These screening procedures resulted in two women being excluded from the final analysis, and the remaining sample numbered 35, aged 19 - 35 (mean age = 24). Eighteen participants considered themselves to suffer from PMS, and seventeen did not. All participants were paid for completing the study.

5.3.3 Stimuli
The stimuli used were carefully selected. It has already been noted in chapter three that common premenstrual symptoms may, generally, be broken down into three categories: emotional, physical and behavioural. The results of a recent survey (Corney & Stanton, 1991) of common premenstrual symptoms was used to provide a list of physical and emotional aspects of PMS commonly experienced by women. From cognitive approaches to emotional disorders such as panic disorder and anxiety, and the suggestion by Rubinow & Schmidt (1989), that a state model be used in understanding the onset and maintenance of PMS symptomology, it was decided that stimuli be divided into two sets: emotional and physical.

Forty female undergraduate and post-graduate students were asked to consider and classify a series of forty symptom-related words into either 'physical', 'emotional' or 'other' sets. These had already been rated by the experimenter, as either physical or emotional, although participants were blind to the experimenter's classifications. The purpose of this exercise was to select appropriate stimuli for experimental use. In a by-subject analysis, the number of emotional words rated as such were compared with the number of those which were not. The analysis yielded a main effect of experimenter - participant concordance of categorisation (F (1, 38) = 34.93, p<.00001). The equivalent analysis was carried out on the physical words, with a significant concordance effect (F (1,
38 = 16667.65, p<.00001).
Participant ratings of PMS symptom words.

<table>
<thead>
<tr>
<th>Response Categories</th>
<th>Emotional symptom names</th>
<th>Physical symptom names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional</td>
<td>32.66 (5.34)</td>
<td>0.2 (0.48)</td>
</tr>
<tr>
<td>Physical</td>
<td>2.43 (2.58)</td>
<td>37.4 (3.62)</td>
</tr>
<tr>
<td>Other</td>
<td>4.76 (3.61)</td>
<td>2.4 (3.33)</td>
</tr>
</tbody>
</table>

Table 5.1: Participants ratings of PMS symptom words: Mean by-item number of participants classifying experimenter-rated ‘physical’ and ‘emotional’ words as ‘physical’, ‘emotional’ and ‘other’ (standard deviations in brackets)

The words finally selected as stimuli can therefore be said, from within this sample, to be those commonly associated with PMS symptoms, and upheld by the participants in this study. Control sets of words consist of neutral words, matched for frequency and length (Francis, Kucera & Mackie, 1982). A simple colour Stroop and control card was included. Additionally, a set of non-PMS related emotional words were included as a control in this study, to see whether the emotional Stroop reported by McKenna (1986) is replicable with this sample, implying a general tendency to emotionality in women who self report PMS. McKenna (1986) reported that both air pilots and bus drivers took longer to colour name emotive words, compared to matched control words.

The stimuli used were:

<table>
<thead>
<tr>
<th>McKenna emotional set</th>
<th>McKenna Control set</th>
<th>PMS physical set</th>
<th>PMS physical control set</th>
<th>PMS emotional set</th>
<th>PMS emotional control set</th>
</tr>
</thead>
<tbody>
<tr>
<td>crash</td>
<td>gate</td>
<td>ache</td>
<td>loaf</td>
<td>tense</td>
<td>cease</td>
</tr>
<tr>
<td>fail</td>
<td>note</td>
<td>bloated</td>
<td>focused</td>
<td>crying</td>
<td>landed</td>
</tr>
<tr>
<td>fear</td>
<td>clock</td>
<td>painful</td>
<td>slanted</td>
<td>moody</td>
<td>dingy</td>
</tr>
<tr>
<td>death</td>
<td>thumb</td>
<td>swollen</td>
<td>bearing</td>
<td>worthless</td>
<td>sweetness</td>
</tr>
<tr>
<td>grief</td>
<td>field</td>
<td>sore</td>
<td>fake</td>
<td>angry</td>
<td>taxes</td>
</tr>
</tbody>
</table>

Table 5.2: Stimuli used in the pilot study. The McKenna emotional word set are shown next to their controls (McKenna, 1986), and the PMS emotional and physical set are shown next to their frequency & word length matched controls (Francis, Kucera & Mackie, 1982)

5.3.4 Materials

A card version of the Stroop task was used. Stimuli (words) were transcribed onto white cards measuring 39cm x 39cm, with each consisting of 10 rows of 10 items. Each item therefore appeared twenty times on each card. Words were printed in coloured pen, and were 0.5cm high. Colours for each word were ascribed using a
POP 11 randomisation program, from a selection of red, blue, green, yellow and brown. The colour Stroop test consisted of an experimental and control card, with the experimental card containing conflicting colour words (e.g. the word 'red' written in blue ink), and the control card containing a series of five 'O's printed in the different ink colours. Each card was subject to the constraint that each word was used twice on each line, and no word-colour pair appeared twice in succession on any line.

5.3.5 Procedure
Women responding to poster advertisements around the University campus were met for an initial screening session, and asked to fill in a brief questionnaire (see appendix I). Participants were assessed against the criteria in 5.4.2, and if included in the study, given an appointment time within the following seven days to be tested.

The testing procedure followed Watts et al (1986). Participants were seated in a quiet laboratory cubicle, and told that they were about to be shown a series of cards, each containing rows of items written in different colours. They were familiarised with the colours used, and informed that their task was to read out loud the colour of each item on each card as fast as they could, reading left - right, top - bottom. Testing was then commenced, and a stop watch used to time the duration of colour-naming of each card individually. Timing started as the first colour on the card was named, and stopped when the last colour had been named. Errors were not recorded, since in other studies they have been shown to be infrequent and usually corrected (see Watts et al, 1986; Diamantis, 1992). Card pairs were always presented with the control card first, so that any within-session practice effect would tend to go against the research hypothesis. The ordering of presentation of card pairs was rotated from participant to participant to ensure against order effects. There was a break of approximately 30 seconds between the presentation of each card.

When the colour naming task was completed, participants were informed that they were going to be asked questions about their menstrual cycle and health. None declined to do so. This procedure was carried out in order to assess PMS status, and cycle phase. Those participants who did not menstruate every 25 - 35 days were excluded. The menstrual cycle lengths of the remaining participants were
then standardised, on a percentile basis, following the procedure of Reynolds (1952), to 28-day cycles. From this, cycles were divided into four seven day phases: Menstrual (days 1 - 6); post-menstrual (days 7 - 13); ovulatory or mid-cycle (days 14 - 20); and premenstrual (days 21 - 28).

5.3.6 Results.
5.3.6.1 Appropriateness of stimuli and task.
In addressing research question one, related t-tests were used to ascertain the effectiveness of the hand-held Stroop task and stimuli selected, irrespective of PMS status and cycle phase. Conflicting colour words usually produce a reliable Stroop interference effect (see, for example, Watts et al, 1986; Diamantis, 1992), and should this not be apparent in the current study, the appropriateness of a hand-held Stroop paradigm would be questionable. Furthermore, although the stimuli used were carefully selected, it is possible that these stimuli do not translate to the specific experimental task, in which case the reaction time indexes (calculated by subtracting the response time for the control card from the response time for the experimental card) would reflect non-differentiated response latencies. Therefore, related t-tests were carried out on raw reaction times. It was predicted that the most marked Stroop interference effect would be observed for the colour set (see Diamantis, 1992), with other card sets showing a significant, although smaller, Stroop interference effect. These results are shown in table 5.3, below.

<table>
<thead>
<tr>
<th></th>
<th>Mean difference</th>
<th>DF</th>
<th>T-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour card, control card</td>
<td>36.86</td>
<td>34</td>
<td>13.96</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>McKenna card, control card</td>
<td>4.73</td>
<td>34</td>
<td>2.75</td>
<td>0.009</td>
</tr>
<tr>
<td>PMS physical words, control card</td>
<td>4.18</td>
<td>34</td>
<td>3.16</td>
<td>0.003</td>
</tr>
<tr>
<td>PMS emotional words, control card</td>
<td>7.61</td>
<td>34</td>
<td>4.5</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Table 5.3: Differences between control and experimental sets of words.

A Stroop interference effect was found for all of the card sets, but was less marked for the McKenna emotional set (McKenna, 1986). The most significant effect was
found for the colour set \( t = 13.96, p < .0001 \), with all other card pairs producing a significant Stroop effect. The McKenna set, containing generally emotive words, was found to produce a reliable Stroop interference effect in a sample of bus drivers and pilots. The interference observed in the present study \( t = 2.75, p < .009 \) was less marked than for the other sets, possibly because McKenna's (1986) word set does not, in effect, translate to the population in general.

For all subsequent analyses, in order to reduce the effect that differences in individual reading time may have had on the data, scores for each of the pairs of cards were converted to reaction time indexes, by subtracting each participant's score on the control card from their score on the experimental card. These reaction time indexes were then used in the analysis.

5.3.6.2 Response latency and self-reported PMS.

Research question two concerns the interaction between PMS status (SR or NSR) and reaction time for word-type, irrespective of cycle phase. As discussed in the introduction, one of the issues under question is whether women who self report PMS exhibit a response bias, or latency, for stimuli associated with the physical aspects of premenstrual symptomology throughout the cycle. Whether or not the SR group show a response bias for PMS-related emotional stimuli is also of interest, as a significant difference between the two groups on either measure would provide preliminary information about the particular cognitive preoccupations of women who self-report PMS. The summary data for group and reaction time index is reported in table 5.4. Unrelated t-tests were used to examine the relationship between PMS status (SR and NSR) and reaction time, for the two PMS-related stimuli sets. Results are presented for both the PMS-related emotional and physical stimuli, in table 5.5.
Card Set Index:

<table>
<thead>
<tr>
<th>Card Set</th>
<th>Group</th>
<th>Count (N / partic)</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>SR</td>
<td>18</td>
<td>34.80</td>
<td>13.58</td>
<td>3.20</td>
</tr>
<tr>
<td></td>
<td>NSR</td>
<td>17</td>
<td>39.03</td>
<td>17.69</td>
<td>4.29</td>
</tr>
<tr>
<td>McKenna</td>
<td>SR</td>
<td>18</td>
<td>4.59</td>
<td>13.50</td>
<td>3.18</td>
</tr>
<tr>
<td></td>
<td>NSR</td>
<td>17</td>
<td>6.54</td>
<td>12.23</td>
<td>2.97</td>
</tr>
<tr>
<td>PMS/Phys</td>
<td>SR</td>
<td>18</td>
<td>3.63</td>
<td>9.00</td>
<td>2.12</td>
</tr>
<tr>
<td></td>
<td>NSR</td>
<td>17</td>
<td>4.92</td>
<td>6.68</td>
<td>1.62</td>
</tr>
<tr>
<td>PMS/Emot</td>
<td>SR</td>
<td>18</td>
<td>9.04</td>
<td>8.12</td>
<td>1.91</td>
</tr>
<tr>
<td></td>
<td>NSR</td>
<td>17</td>
<td>7.13</td>
<td>12.00</td>
<td>2.91</td>
</tr>
</tbody>
</table>

Table 5.4: Summary information of Group (SR / NSR) mean response latencies (reaction time indices). SR: Self-reported PMS group. NSR: Non-self-reported PMS group. PMS / Phys set: PMS / Physical stimuli. PMS / Emot set: PMS / Emotional stimuli.

Card Pair DF T P-value

<table>
<thead>
<tr>
<th>Physical</th>
<th>32</th>
<th>0.70</th>
<th>.491</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional</td>
<td>32</td>
<td>-0.635</td>
<td>.530</td>
</tr>
</tbody>
</table>

Table 5.5: Anova table for PMS status effect.

No significant relationship between PMS status and response latency was found.

5.3.6.3 Cycle phase and performance.

Research question three addresses cycle phase effects upon reaction time performance. Performance on the colour Stroop was therefore used as a measure of cycle phase and reaction time performance. Although previous studies on the menstrual cycle and performance on cognitive tasks have tended to produce conflicting results (see chapters two and three), little research has been done on self-reporting populations (as opposed to populations meeting specific criteria). Furthermore, a significant cycle phase effect (irrespective of PMS status) for response latency could confound the interpretation of PMS status effects. One way analysis of variance (with cycle phase as an independent variable) was carried out on the reaction time indices (the difference between time taken to colour name control and experimental sets of words) for the colour Stroop set, to investigate the relationship between reaction time and cycle phase. Response latency for the colour set was, therefore, a measure of performance.
Standardised cycle phase at time of testing, and summary data for the colour Stroop task, is illustrated in table 5.6.

<table>
<thead>
<tr>
<th>Cycle phase</th>
<th>Count</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>37.42</td>
<td>16.494</td>
<td>5.216</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>36.732</td>
<td>14.913</td>
<td>4.496</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>43.803</td>
<td>18.051</td>
<td>6.823</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>29.297</td>
<td>12.427</td>
<td>4.697</td>
</tr>
</tbody>
</table>

Table 5.6: Cycle phase and performance on the colour Stroop task: Summary data.

This analysis (see table 5.7) did not reach significance ($F(3, 32) = 1.014, p<.34$), and although the trend is for response latency to be smaller in the premenstrual phase (see figure 5.1), this is only slight, therefore it is concluded that for this sample of women, no effect of menstrual cycle phase on reaction time was apparent, irrespective of PMS status.

<table>
<thead>
<tr>
<th>Cycle phase</th>
<th>DF</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle phase</td>
<td>3</td>
<td>741.117</td>
<td>247.039</td>
<td>1.014</td>
<td>0.3998</td>
</tr>
</tbody>
</table>

Table 5.7: Anova table for cycle phase and performance.
Figure 5.1: Cycle phase and response latency for the Stroop colour naming task.

This result is in line with much previous research on cognitive performance and the menstrual cycle (see chapter two; See Sommer, 1992).

5.3.6.4 Cycle phase and response latency by PMS status.
Standardisation of menstrual cycle length resulted in the following distribution of participants, between SR and NSR groups:

<table>
<thead>
<tr>
<th>Participant Group:</th>
<th>Phase 1 (menstrual)</th>
<th>Phase 2 (post-menstrual)</th>
<th>Phase 3 (mid-cycle)</th>
<th>Phase 4 (premenstrual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR (N)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>NSR (N)</td>
<td>6</td>
<td>7</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5.8: Distribution (N) of participants: Cycle phase by PMS status.

The size of the NSR phase four sample was too small to be used in any analysis. Cycle phase could not be ascertained prior to testing, as this may have biased responses. This distribution of participants renders any phase specific analysis difficult. Therefore, because of the distribution of cycle phase, analysis of variance to determine any effect of cycle phase by PMS status was not considered appropriate, as only one NSR participant was in phase four of her cycle at the time of testing. Table 5.9 simply presents summary information (summary information of PMS status x phase summary information) for each of the card set.
reaction time indices.

Figures 5.2 and 5.3 illustrate the mean reaction time indices for the different groups (SR and NSR) across the four phases of participant's standardised cycles, for the physical and emotional card sets. It is impossible to draw conclusions from summary data alone, but it is possible to comment upon trends observed. A significant Stroop effect had previously been observed for each card pair, therefore it may be concluded that each experimental set of words produces a greater response latency (in other words, a greater reaction time index) than its neutral control set. From figures 5.2 and 5.3 respectively, no immediate trend for cycle phase is apparent, although response patterns across the cycle for each set of words do appear to be different, with reaction time indices for both groups following a similar pattern for the physical stimuli, that reaches its lowest point in the premenstrual phase, and reaction time indices for the SR group following a similar trend for the emotional stimuli. The NSR group however peak mensturally, reaching the lowest point post-menstrually and then rising up to the premenstrual phase.
Figure 5.2: RT index means by standardised cycle phase and group, PMS physical stimuli.

Figure 5.3: RT index means by standardised cycle phase and group, PMS emotional stimuli.
<table>
<thead>
<tr>
<th>Card set Index</th>
<th>Group</th>
<th>Phase</th>
<th>Count</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SR</td>
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<td>4</td>
<td>33.60</td>
<td>9.12</td>
<td>4.56</td>
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<td>4</td>
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<td>39.97</td>
<td>20.50</td>
<td>8.37</td>
</tr>
<tr>
<td></td>
<td>NSR</td>
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<td>7</td>
<td>39.57</td>
<td>17.89</td>
<td>6.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>3</td>
<td>40.52</td>
<td>19.70</td>
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<td></td>
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<td>**</td>
</tr>
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<td>4</td>
<td>15.12</td>
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<td>12.02</td>
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<td></td>
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<td>6</td>
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<td>3.57</td>
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<td></td>
<td></td>
<td>1</td>
<td>6</td>
<td>14.78</td>
<td>14.24</td>
<td>5.81</td>
</tr>
<tr>
<td></td>
<td>NSR</td>
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<td>7</td>
<td>0.57</td>
<td>9.78</td>
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</tr>
<tr>
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<td>7.65</td>
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<td>5.23</td>
<td>4.69</td>
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<tr>
<td></td>
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<td>2</td>
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<td>4.81</td>
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</tr>
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<td>5.71</td>
<td>6.25</td>
<td>3.61</td>
</tr>
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<td></td>
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<td>4</td>
<td>9.68</td>
<td>3.42</td>
<td>1.70</td>
</tr>
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<td></td>
<td></td>
<td>2</td>
<td>4</td>
<td>10.93</td>
<td>7.05</td>
<td>3.52</td>
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<td></td>
<td></td>
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<td>4</td>
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<td>14.48</td>
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<td></td>
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<td>11.10</td>
<td>15.54</td>
<td>6.34</td>
</tr>
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<td>NSR</td>
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<td>10.18</td>
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</tr>
<tr>
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<td>4</td>
<td>1</td>
<td>9.34</td>
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<td>**</td>
</tr>
</tbody>
</table>
Table 5.9: Summary information. Group x Phase, Reaction time (response latency) indices. SR: Self-reported PMS group, NSR: Non-self-reported PMS group. PMS / Phy set: PMS / Physical stimuli. PMS / Emo set: PMS / Emotional stimuli.

5.3.7 Discussion.
The analysis of stimuli, from research question one, illustrated that all participants took significantly longer to colour name experimental that control word sets. This was the case for both sets of PMS-related stimuli. It may be concluded then that use of a hand-held Stroop task, and the experimental stimuli used in this study, were sufficient to produce a Stroop effect.

However, the Stroop effect for the general emotional set of words was the least robust. McKenna (1986) reported that bus drivers and pilots showed an attentional bias for this word set, containing material such as ‘crash’ and grief. Whilst it may be suggested that the original study illustrates the way in which stimuli salient to a particular group produce a Stroop effect, it is equally the case that these stimuli were not of relevance to the present participants. The McKenna set’s relevance as a marker for emotionality, as originally suggested by the author, is also questionable. Ray (1979) for example, found an emotional Stroop effect in students approaching final examinations, but her stimuli were modified to be examination-related.

All participants, then, showed a response bias for the PMS related experimental word sets compared with neutral controls. Whilst it could be that emotive words, or those associated with pain, are generally more salient to participants than non-emotive words, this does beg the question of why this should be so. It may be that for this sample of women, that fact that words associated with pain or emotion are more salient than control words reflects some social aspect of gender. Femininity is popularly constructed as labile and emotional (Ussher, 1989), and often explained in terms of the female body. All of the stimuli selected for use in this study had already been found, with another student sample, to be relevant to PMS and the menstrual cycle, so this cannot be discounted from discussion. It could therefore be the case that this pilot study is measuring a social aspect of the menstrual cycle and PMS. Even though participants were blind to the purpose of the study, the stimuli were PMS-related, it may be the strength of social beliefs and cultural values about menstruation that are reflected here rather than any individual emotional pathology. This is related to Hollway’s (1989) critique of
cognitive psychology, that it ignores the function and constructive agency of the language often used as a neutral measurement of cognitive structure.

Of the remaining three research questions, no significant effect for PMS status was found for PMS-related stimuli, and no effect for cycle phase on reaction times for the colour Stroop task was found, although this may be partly accounted for by the relatively small number of participants in each sub-group when cycle phase is used in the analysis. An investigation of the relationship between cycle phase, PMS status and response latency was not possible at any more detailed level than summary statistics, because of the distribution of participant's menstrual cycle phases. This may partly reflect problems with standardisation of the menstrual cycle, or it may be a function of the necessity for keeping participants blind to the purpose of the study. Modifying a future study to avoid this latter problem may prove difficult, if the study were to be between-subject in design.

It has been convincingly argued (see Ussher, 1992a; Sommer, 1992; McFarlane & MacBeth-Williams, 1991, 1994) that a cycle phase analysis using a between sample design such as this is not appropriate, given the reported variance on levels of performance both between women, and between individual menstrual cycles. It has been suggested that between-subject analyses are partly responsible for the inconclusiveness of menstrual cycle research in particular areas (see chapter two).

The standard deviation of reaction time indices are high. This could be due to the use of a hand held experimenter timed Stroop task, introducing a high degree of variance into women's individual reading time. It is of interest that standard deviation peaks at mid-cycle (phase three), and reaches it's lowest point premenstrually, as a recent study (McFarlane & MacBeth-Williams, 1994) used participant's individual mean scores and standard deviation as phasic measures of variance, as opposed to absolute scores. This, it is argued, provides a more reliable measure of the 'unusualness' of scores, as women's baseline measures may vary greatly from individual to individual, confounding the interpretation of group absolute means.

Thus, use of absolute scores in a between-subject design may further confound interpretation of the data. Variance both between women and between menstrual
cycles on measures of performance has previously been reported (see chapter two; see Sommer, 1992), and compacting the data to provide homogenous group scores may create an analysis that is insensitive to any cycle phase pattern. There are two strategies with which this problem may be addressed: In the first place, use of a within-subjects phase specific design may be more appropriate, and more sensitive to any cycle phase effect on performance or response bias. The second strategy would be to formulate an analytic technique that did not use absolute scores, such as that used by McFarlane & MacBeth-Williams (1994).

Definition of self-reported PMS is complex within a ‘normal’ population: SR women were counted as those who either reported that they believed themselves to suffer from PMS every menstrual cycle, or some menstrual cycles, as variance between menstrual cycles has been reported in the literature (see McFarlane & MacBeth-Williams, 1994), and it may be that levels of some physiological symptoms vary from cycle to cycle, with cognitive factors responsible for a PMS ‘response’ in SR women when these symptoms pass a particular point. Those women who reported that they never felt themselves to suffer from PMS were considered to be NSR. Of course, these criteria could be said to be simplistic, as they do not include women who considered that they used to suffer from PMS but no longer do. Use of such a sample of women would (arguably) constitute another study and another set of research questions. This sample contained roughly equal distributions of SR and NSR women, a finding that is again in line with other studies (see McFarlane & MacBeth-Williams, 1994) but obviously women’s PMS status cannot be easily ascertained pre-study if participants are to be kept blind.

To conclude, in this pilot study, the selection of a hand-held version of the Stroop task appeared to be appropriate, as the colour Stroop task was found to produce a reliable and significant Stroop effect. Levels of variance between women were high, and this was reflected by the standard deviations for each card pair. Further, the selection of stimuli, discussed earlier in this chapter, was found to be appropriate, in as much as each set of experimental stimuli (PMS-related emotional and physical stimuli) were found to produce a greater response bias than their neutral control set. This effect was not, however, differentiated either by group or by cycle phase, although an in depth cycle phase analysis was not possible in this pilot study.
It is possible that no significant relationship between PMS status and attentional bias for PMS-related stimuli was observed, because no relationship exists. However the hand-held Stroop task may not be sufficiently sensitive to measure this, using a 'weak' (i.e. non-'clinical) sample of participants. Although this task produced a reliable colour Stroop effect, standard deviations for mean reaction time indices were high, which may have been due to either participant or experimenter factors.

5.4 Study one: Self reported PMS and psychological and physiological variables.

5.4.1 Introduction
The literature reviewed earlier in this chapter described research into emotional disorders, and arousal, stress and mood in PMS. For example, there is growing evidence to suggest that physiological sensitivity, or autonomic arousal, varies across the menstrual cycle (see Asso, 1978, 1988, 1992; Asso & Braier, 1982; Ussher & Wilding, 1992; Dye, 1992). This literature also illustrates the many psychological factors that may contribute to the experience of PMS.

Ussher & Wilding (1992) report that autonomic arousal (measured by self report, using the Cruikshank Activation-Deactivation Adjective Checklist; Cruikshank, 1984) increased premenstrually in a sample of self-reported PMS sufferers and an NSR group, with a significantly greater increase in the SR women. If women's physiological state is subject to change across the cycle, then it may be that their psychological state alters accordingly, depending upon how that physiological change is perceived or interpreted. Further, the physiological symptoms of PMS themselves may not be the stimuli to which women who self-diagnose PMS attend. An example drawn from the field of anxiety research illustrates differential monitoring of symptoms pertaining to arousal by patients - Tyler, Lee & Alexander (1980) found that patients with anxiety disorder were significantly better at estimating their own heart rate than normal controls. This, the authors suggest, provides support for patients with anxiety disorders internally monitoring, and being more aware of, their physiological state. There are many possible physiological indices and indicators of autonomic arousal, of which heart rate is one.

Whether SR women experience higher levels of arousal premenstrually, or
whether both SR and non-SR women experience the same fluctuations in arousal across the menstrual cycle, may be investigated using an experiment-based paradigm. Whether SR women attend to symptoms specifically associated with PMS, or to symptoms associated with a general increase in arousal, could be tested using the Stroop paradigm from the previous study, in parallel with independent measures of arousal and activation. Drawing again on the earlier discussion of emotional disorders, it is possible that the evaluatory and experiential process that leads a woman to self-diagnose PMS involves the appraisal of physiological or autonomic change, either because the change is greater than in non-SR women, or because the change is interpreted or perceived differently, as a result of particular cognitive mechanisms, providing support for Rubinow & Schmidt's (1989) state model of PMS.

To summarise, I have previously argued that women who self-report PMS may find PMS-related stimuli more salient than NSR women. This was not supported by the pilot study, although this attentional bias may be cycle phase specific, and the hand held Stroop task may not be sensitive enough to measure this. There is some evidence, though, to suggest that levels of autonomic arousal increase premenstrually in all women, irrespective of their PMS status, but that this increase is greater in women who self-report PMS. There is also some evidence that SR women are more vulnerable to stress premenstrually, although this is by no means conclusive.

Drawing upon the earlier rationale for a cognitive approach to PMS, and parallels drawn between PMS and emotional disorders such as panic, this evidence may suggest that SR women report PMS because they do experience higher levels of autonomic reactivity than NSR women, which is perceived and interpreted through a specific cognitive framework, leading to a premenstrual 'state', rather than simply attending more to specific PMS-related physiological and emotional symptoms. Therefore, this may be investigated using a modified cycle-phase specific (repeated measures) version of the Stroop colour naming task, and taking measures of autonomic arousal and stress both at discrete points in the menstrual cycle, and in relation to laboratory induced stress.

Three questions are suggested by the literature previously reviewed, and the preceding pilot study: Do women who self-report PMS have a cycle-phase specific
attentional bias for PMS-related stimuli? Or do they experience greater increases in arousal premenstrually than NSR women? Alternatively, are they simply attending more to symptoms associated with autonomic arousal than NSR women? The present study set out to investigate these three issues, across the menstrual cycle.

5.4.2 Overview.
The present study examined differences between SR and NSR women on measures of arousal, stress, mood, heart rate, heart rate estimation and attentional bias (measured as colour naming reaction time, the interference effect being termed a response latency) for a PMS related computerised Stroop task across the menstrual cycle. Measures of arousal, stress and heart rate were also taken within-session, to examine differences in reaction to induced stress (completion of the computerised Stroop task) between SR and non-SR women. These measures were taken to investigate differences in physiological measures and cognitive responses over the course of one menstrual cycle.

5.4.3 Design.
Twenty seven women (14 SR and 13 NSR) were recruited to take part in the study, and told that it was a longitudinal investigation of gender and performance. Participants were tested on measures of arousal, stress, heart rate, heart rate estimation, and a Stroop colour naming task containing a colour stimuli set, a PMS-emotional set, a PMS-physical set, and a control set of gender related words. Women were tested weekly, for a period of five weeks, using a within-subject design.

Measures were taken both across menstrual cycle and within session. The within session measures were as follows:
(2) Resting (baseline) heart rate (HR) versus post-task heart rate (converted to index).
(3) Stroop task: Used as within session stressor (see Ussher & Wilding, 1992).

The measures taken across the menstrual cycle were as follows:
(1) CADACL.
(2) Resting HR.
(3) Estimated heart rate (converted to index, representing the difference between actual and estimated heart rate), as a measure of awareness of body cues.
(4) Colour naming times for the computerised Stroop task, with four word sets.

The pre and post task measures were taken to examine differences in heart rate, arousal and stress, in response to the completion of a stressful laboratory task (the Stroop task), across the menstrual cycle.

Measures of baseline levels of stress, arousal, heart rate, of heart rate estimation, and of attentional bias for PMS-related stimuli (measured as colour naming latency for the Stroop task), were taken to investigate differences between SR and NSR women on these measures, across one menstrual cycle.

Participants were kept blind to the menstrual cycle focus of the study, and PMS status (SR or NSR) was ascertained at the end of the study. Of the 28 women who completed the study, 14 met the criteria for SR status (i.e. that they considered themselves to suffer from PMS sometimes, or at every menstrual cycle) and 13 for NSR status (i.e. that they never considered themselves to suffer from PMS). Participant’s menstrual cycles were monitored throughout the study by means of the weekly questionnaire (see appendix III), which asked them each week if their period had started in the past seven days, and if so, which day. Participants menstrual cycles were standardised into four quartiles, and all data re-aligned (on the basis of most recent menstrual bleed) into week one (menstruation), week two (post-menstrual), week three (mid-cycle) and week four (premenstrual). This allowed cycle phase comparisons in a repeated measures design to be made.

5.4.4 Research questions.
(1) Is there a relationship between PMS-status (SR or NSR), cycle phase, and attentional bias for PMS-related stimuli?
(2) Is there a relationship between baseline (pre-task) levels of arousal, cycle phase and PMS status?
(3) Is there a relationship between baseline (pre-task) levels of stress, cycle phase and PMS-status?
(4) Is there a relationship between baseline (pre-task) heart rate, cycle phase and PMS status?
(5) Is there a relationship between reactivity to a stressful laboratory task (the Stroop task), measured by pre- and post-task indices of stress, arousal and heart rate, PMS-status, and cycle phase?
(6) Is there a relationship between the ability to estimate resting heart rate, PMS-status and cycle phase?

5.4.5 Analyses.
Baseline measures of arousal, stress and heart rate were treated as absolute scores, as was colour naming times for the Stroop task.
Pre- and post-task comparisons were calculated by converting the two sets of scores into indices, by subtracting baseline scores from the post-task scores.
Heart rate estimation was also examined by converting actual versus estimated heart rate into index form, by subtracting actual heart rate from estimated heart rate.
In order to address the six research questions, repeated measures analysis of variance was used in each instance, with the appropriate indices or scores, to investigate differences between the SR and NSR groups within the sample. PMS status and cycle phase were independent variables, and scores or indices were dependent variables.

5.4.6 Participants
Forty two women were recruited from across the University campus, for a study investigating gender differences in arousal and performance. The participants were aged 19 - 35, with a mean age of 22.4 years. Women were screened using the pilot study criteria, and only those volunteers meeting these criteria, who had regular (for the purposes of this study, every 25 - 33 days) menstrual cycles, to ensure that women were tested weekly, over the five weeks, with the first week being a practice session (to eliminate any practice effects on the tasks and familiarise participants with procedures), and at four points in their cycle. Cycle length was standardised as before. Of the 42 volunteers, 15 either did not meet study criteria or dropped out of the project before it was completed.

5.4.7 Materials
5.4.7.1 The Stroop task.
A computerised version of the Stroop task (Stroop, 1935) was used, programmed onto a BBC master computer by the experimenter. The program contained four
pairs of word sets, as before. The two PMS-related sets were used (PMS-emotional and PMS-physical) along with the corresponding frequency and length matched control sets. The McKenna (1986) set used in the previous study was not used here, as it was previously argued that the stimuli were not relevant to participants as a measure of emotionality. Instead, as a positive control, a set of words associated with gender (and their frequency and length matched controls) was used, because participants believed themselves to be participating in a longitudinal study of gender and performance. Finally, a colour naming set was used, as before.

5.4.7.2 Heart rate measurement.
A Boso-Card II digital heart rate monitor was used to measure resting heart rate, and heart rate after completion of a stressful task. An adjustable digital beat playback machine with a series of pre-recorded 'heart rate' rhythms was used to allow comparison between participant's estimated heart rate (which they arrived at by adjusting the rate of the program until it reached a level that they believed approximated their current heart rate) and actual heart rate. The estimated heart rate scores were converted to a heart rate 'index' by taking the estimated rate from the actual rate. Pre-and post task actual heart rates were similarly converted (post-task minus pre-task rate) to index form.

5.4.7.3 Stress and arousal.
The Cruickshank Activation - Deactivation Adjective Checklist (CADACL - Cruickshank, 1984) has been used previously in menstrual cycle research (see Ussher, 1987; Ussher & Wilding, 1991, 1992) as a reliable measure of autonomic arousal and stress. The CADACL is a self-report checklist, containing nine high stress items, nine low stress items, four high arousal items and four low arousal items. It is a reworking of MacKay et al (1978), removing a previous response bias by containing an equal number of positive and negative items, and adapted to be accessible to a wider range of vocabularies. Scores on the high and low stress items are combined to give a total score for stress, and high and low arousal items are combined in the same way (see appendix II).

5.4.7.4 Other materials.
As participants believed that they were taking part in a study on gender and performance over time, at each testing session they were asked to complete (prior
to testing) a brief health questionnaire (see appendix III). This asked them questions about their alcohol and caffeine consumption, amount of exercise, amount of sleep and general stress levels - supposedly factors that may have affected their performance on the various tasks - in the preceding seven days. It also contained a 'women only' item, asking whether the participant's period had started in the previous seven days, and if so, when. At the end of the study, participants completed the same questionnaire that was used in the pilot study, to ascertain whether each participant considered herself to suffer from PMS or not, and to confirm the date of their most recent menstrual bleed (see appendix I). Women's menstrual cycles were standardised into four phases on a quartile basis (see Reynolds, 1952; Rossi & Rossi, 1987).

5.4.5 Procedure
The study employed a within-subject design, testing a group of 27 women over a period of five weeks. The first week was treated as a practice session, in order to eliminate any practice effects and to familiarise participants to the procedures and tasks required of them.

Participants attended a session once a week, at the same time, for the duration of the study. On arrival, each woman was asked to complete a general health questionnaire. They then completed the heart rate estimation task, by listening to a pre-recorded rhythm and adjusting it to the speed that they thought best approximated their own heart rate. Actual resting heart rate was then measured for each participant, and the pre-test CADACL was completed.

In the second part of the test session, participants completed the computerised Stroop task. Participants were seated in a sound attenuated booth, about half a metre away from a BBC master computer screen. They were told that a series of words was going to appear on the screen in front of them, and that their task was to name the colour in which each word was presented, as quickly as they could, paying no attention to the word itself. The time taken for the participant to colour name each word, from stimulus onset time to initiation of verbal response (reaction time) was registered by an automatic voice activated timer at the bottom right hand corner of the screen (voice key) and registered by the computer. Each response was confirmed by the experimenter, seated about half a metre behind the participant, as correct or in correct, by using a relay switch. This was done in order to increase the amount of performance stress experienced by the
participant, and to examine the percentage of errors for each word group. Further, any response that was incorrect activated the timer prematurely or was not loud enough to be detected, was scored as incorrect and discounted.

Stimuli were presented in red, blue, green, yellow or white, in upper case, in the centre of the screen. Stimuli remained in position until the automatic timer (voice key) was activated. Each stimulus word was presented twice in each of five colours, making a total of three hundred individual trials, and presentation order was randomised for each participant.

When the Stroop task had been completed, participants heart rate was taken immediately. The CADACL was completed as soon after this as possible. At the fifth and final session, a PMS self-evaluatory questionnaire was completed (see appendix I).

5.4.6. Results.
5.4.6.1 The Stroop task.
The first research question of this study focused on the possible relationship between attentional bias for PMS related stimuli, PMS status, and cycle phase. In addressing this question, the ability of the word sets to produce a Stroop effect was first tested, using paired t-tests. Repeated measures analysis of variance was then used to examine the relationship between attentional bias, PMS status and cycle phase.

Four different sets of word pairs were used in the Stroop task. These were: a colour set, a PMS emotional set, a PMS physical set, and a gender-related set. The error data (percentage of errors due to incorrect colour-naming or inappropriate activation of the automatic timer) were 2.2%, 2.7%, 2.1%, 2.5%, 3.0%, 2.6%, 5.7% and 2.4% for the gender words and their controls, PMS / emotional words and their controls, PMS / physical words and their controls, and the colour words and their controls respectively. The higher error rate for the colour words was to be expected, as conflicting colour naming is generally more difficult than colour-naming other words (Stroop, 1935).

The mean colour naming latency, compacted across cycle phase and irrespective of PMS status, is shown in table 5.10. This shows the difference in colour naming
latency for each word group (colour, gender, emotional, physical) and each word type (control, experimental). One tailed paired t-tests comparing the colour naming latencies for experimental words with their controls, compacting data across cycle phases and across PMS status, demonstrated a reliable colour Stroop effect ($t (107) = 11.488, p < .0001$), and a reliable Stroop effect for the gender word set ($t (107) = 1.416, p < .0029$). However, neither the PMS / emotional set nor the PMS / physical set demonstrated a Stroop effect ($t (107) = -1.326, p < .91, t (107) = 1.416, p < .07$ respectively), although the result for the physical set of words was approaching significance.

The stimuli under investigation (the PMS-related emotional and physical words) did not demonstrate a greater colour-naming response time than their control words, when PMS status and cycle phase were not taken into account. The gender set of words, included as a 'positive' control, demonstrated a reliable Stroop effect - as participants believed that they were taking part in a study on gender and performance, perhaps this was to be expected. The results of the pilot study indicated that the PMS / emotional and PMS / physical set of words did produce a Stroop effect. It may be that within a repeated measures design (as opposed to a between-subjects design, such as the pilot study) this effect is negated when data is compacted across the cycle phases and across the SR and NSR participant groups.

<table>
<thead>
<tr>
<th>Word group &amp; type</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour, expt</td>
<td>687.51</td>
<td>127.43</td>
<td>17.03</td>
</tr>
<tr>
<td>Colour, control</td>
<td>628.57</td>
<td>91.14</td>
<td>12.18</td>
</tr>
<tr>
<td>Gender, expt</td>
<td>643.44</td>
<td>124.64</td>
<td>16.66</td>
</tr>
<tr>
<td>Gender, control</td>
<td>626.34</td>
<td>96.52</td>
<td>12.90</td>
</tr>
<tr>
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<td>633.13</td>
<td>98.86</td>
<td>13.21</td>
</tr>
<tr>
<td>Emotional, cont</td>
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<td>101.32</td>
<td>13.54</td>
</tr>
<tr>
<td>Physical, expt</td>
<td>628.41</td>
<td>96.24</td>
<td>12.86</td>
</tr>
<tr>
<td>Physical, cont</td>
<td>619.99</td>
<td>91.15</td>
<td>12.18</td>
</tr>
</tbody>
</table>

Table 5.10: Mean colour naming response time for word group and word type, irrespective of PMS status and cycle phase. Data in milliseconds.

The mean time (milliseconds) taken to name the colour of each experimental word set, by cycle phase and PMS status, is shown in table 5.11, figures 5.4 and 5.5 show
the mean colour naming response time for the experimental word types by cycle phase and PMS status.

The practice session in the first week of the study was included in order to eliminate any possible order effect, in the Stroop task and in the other measures taken. No separate analysis of order effects was carried. This could be modified in future research, however, other studies using similar paradigms (see, for example, Ussher, 1987) found no evidence of any order effects.
<table>
<thead>
<tr>
<th>Word set</th>
<th>Group</th>
<th>Phase</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
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</table>
A repeated measures analysis of variance was performed on the data, with cycle phase, word group (colour, emotional, physical or gender) and word type (experimental or control) as within subject factors, and PMS status (SR or NSR) as a between subject factor. PMS and cycle phase were independent variables, and colour naming latency was a dependent variable. The analysis investigated the effects of cycle phase, PMS status, word group and word type on the dependent variable (colour naming latency), and also the interaction of these factors. This allowed for a closer examination of the colour naming response time of the PMS emotional and physical words and their controls. Table 5.11 shows the results of this analysis of variance.

<table>
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<td>.085</td>
</tr>
<tr>
<td>Word group x PMS status</td>
<td>3</td>
<td>2421.144</td>
<td>807.05</td>
<td>.58</td>
<td>.64</td>
</tr>
<tr>
<td>Word type x PMS status</td>
<td>1</td>
<td>6942.693</td>
<td>6942.693</td>
<td>5.46</td>
<td>.04</td>
</tr>
<tr>
<td>Cycle phase x PMS status</td>
<td>3</td>
<td>31149.66</td>
<td>10383.22</td>
<td>0.45</td>
<td>.72</td>
</tr>
<tr>
<td>Word group x word type</td>
<td>3</td>
<td>45768.62</td>
<td>15256.21</td>
<td>9.58</td>
<td>.0001</td>
</tr>
<tr>
<td>Word group x cycle phase</td>
<td>9</td>
<td>7403.36</td>
<td>822.60</td>
<td>0.55</td>
<td>.84</td>
</tr>
<tr>
<td>Word type x cycle phase</td>
<td>3</td>
<td>3394.798</td>
<td>1131.599</td>
<td>1.04</td>
<td>.39</td>
</tr>
<tr>
<td>Word group x word type x PMS status</td>
<td>3</td>
<td>8797.844</td>
<td>2932.62</td>
<td>1.84</td>
<td>.16</td>
</tr>
<tr>
<td>Word group x cycle phase x PMS status</td>
<td>9</td>
<td>12319.76</td>
<td>1368.86</td>
<td>0.92</td>
<td>.52</td>
</tr>
<tr>
<td>Word type x cycle phase x PMS status</td>
<td>3</td>
<td>1317.61</td>
<td>439.20</td>
<td>0.40</td>
<td>.75</td>
</tr>
<tr>
<td>Word group x word type x cycle phase</td>
<td>9</td>
<td>6805.55</td>
<td>756.17</td>
<td>0.49</td>
<td>.88</td>
</tr>
<tr>
<td>Word type x word group x cycle phase x PMS status</td>
<td>9</td>
<td>11080.45</td>
<td>1231.16</td>
<td>0.79</td>
<td>.62</td>
</tr>
</tbody>
</table>

Table 5.11: Mean colour naming response time by word type, cycle phase and PMS status (milliseconds). All figures correct to two decimal places.

Table 5.12: Anova table for Cycle phase x PMS x word group x word type. The dependent variable is word colour naming response time. Word group = experimental or control set, word type = colour, gender, PMS emotional and PMS physical.
Figure 5.4: Colour naming response time across the cycle for control word groups, experimental word types colour and gender.

Figure 5.5: Colour naming latencies across the cycle for experimental word groups, experimental word types PMS/emotional and PMS/physical.

Table 5.12 illustrates that no significant effect for word group (gender, colour, PMS-emotional or PMS-physical) x PMS-status x cycle phase was found. Figure 5.4
shows that although there is a trend for the SR group to exhibit greater response latency, reaction time actually decreases slightly premenstrually for both groups. A similar pattern is exhibited for the two control groups of words (colour and gender). The analysis for word group x word type (experimental or control) x PMS status also failed to reach significance, indicating no relationship between reaction time for the experimental word sets versus their corresponding controls, PMS status and cycle phase. This study therefore found no relationship between PMS status, attentional bias and cycle phase. The individual effects of cycle phase and PMS status on overall reaction time scores were approaching significance (p < .085, p < .0815 respectively), and had a one-tailed test been used, these relationships would have been statistically significant. Additionally, the relationship between word group and word type was significant (p < .0001), although this would simply indicate a relationship between the different word groups and their experimental / control sets (independent of PMS status or cycle phase) and as such is perhaps indicative that some experimental stimuli sets were more appropriate (or salient) than others.

5.4.6.2 Autonomic arousal and cycle phase.

Research question two addressed the issue of differences in arousal between SR and NSR women, across the menstrual cycle. To this end, arousal scores were calculated for each participant, from scores on the CAD-ACL, and aligned with cycle phase. Table 5.13 shows mean arousal scores by PMS status and cycle phase.

<table>
<thead>
<tr>
<th>Group</th>
<th>Cycle phase</th>
<th>Count</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>1</td>
<td>14</td>
<td>2.71</td>
<td>2.87</td>
<td>.77</td>
</tr>
<tr>
<td>SR</td>
<td>2</td>
<td>14</td>
<td>2.43</td>
<td>2.56</td>
<td>.69</td>
</tr>
<tr>
<td>SR</td>
<td>3</td>
<td>14</td>
<td>4.29</td>
<td>3.36</td>
<td>.90</td>
</tr>
<tr>
<td>SR</td>
<td>4</td>
<td>14</td>
<td>4.14</td>
<td>3.18</td>
<td>.85</td>
</tr>
<tr>
<td>NSR</td>
<td>1</td>
<td>13</td>
<td>4.00</td>
<td>3.11</td>
<td>.86</td>
</tr>
<tr>
<td>NSR</td>
<td>2</td>
<td>13</td>
<td>2.85</td>
<td>1.68</td>
<td>.47</td>
</tr>
<tr>
<td>NSR</td>
<td>3</td>
<td>13</td>
<td>3.85</td>
<td>2.15</td>
<td>.60</td>
</tr>
<tr>
<td>NSR</td>
<td>4</td>
<td>13</td>
<td>4.62</td>
<td>2.26</td>
<td>.63</td>
</tr>
</tbody>
</table>

Table 5.13: Mean arousal scores by cycle phase and PMS status. Figures correct to two decimal places.

Figure 5.6 also illustrates these figures.
A repeated measures analysis of variance, with one factor between subjects (PMS status) and two factors within subjects (cycle phase and arousal scores) was carried out on the data. Arousal score was the dependent variable, with PMS-status and cycle phase as independent variables. The results of this analysis are shown in table 5.14.

The analysis of PMS-status, cycle phase and arousal, then, did not reach significance, although figure 5.6 illustrates a slight (non-significant) increase in arousal scores for both groups of women premenstrually.

5.4.6.3 Stress and cycle phase.
Research question three addresses the relationship between PMS status, stress, and cycle phase. Baseline measures of stress were taken across the menstrual
cycle, as some research suggests that women stress is a significant factor in self-reported PMS (see Warner & Bancroft, 1990). Scores were re-aligned (from week of testing to cycle phase), and the mean scores of stress by cycle phase are presented below in table 5.16.

<table>
<thead>
<tr>
<th>Group</th>
<th>Phase</th>
<th>Count</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>1</td>
<td>14</td>
<td>3.29</td>
<td>3.41</td>
<td>.91</td>
</tr>
<tr>
<td>SR</td>
<td>2</td>
<td>14</td>
<td>4.50</td>
<td>4.80</td>
<td>1.28</td>
</tr>
<tr>
<td>SR</td>
<td>3</td>
<td>14</td>
<td>4.14</td>
<td>3.82</td>
<td>1.02</td>
</tr>
<tr>
<td>SR</td>
<td>4</td>
<td>14</td>
<td>2.79</td>
<td>2.94</td>
<td>.79</td>
</tr>
<tr>
<td>NSR</td>
<td>1</td>
<td>13</td>
<td>3.62</td>
<td>4.63</td>
<td>1.28</td>
</tr>
<tr>
<td>NSR</td>
<td>2</td>
<td>13</td>
<td>3.54</td>
<td>3.60</td>
<td>1.00</td>
</tr>
<tr>
<td>NSR</td>
<td>3</td>
<td>13</td>
<td>3.39</td>
<td>4.05</td>
<td>1.12</td>
</tr>
<tr>
<td>NSR</td>
<td>4</td>
<td>13</td>
<td>3.08</td>
<td>4.19</td>
<td>1.16</td>
</tr>
</tbody>
</table>

Table 5.16: Stress scores by cycle phase and PMS status. Figures correct to two decimal places.

Figure 5.7 depicts these figures graphically, to illustrate the baseline scores for stress (as measured by the CAD-ACL) across the menstrual cycle.

A repeated measures analysis of variance was performed on the data, with PMS
status as a between-subject factor and cycle phase and stress score as within subject factors. PMS-status and cycle phase were independent variables, and stress score was the dependent variable. The results of this analysis are shown in table 5.17.

<table>
<thead>
<tr>
<th>Comparison</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMS status</td>
<td>1</td>
<td>2.04</td>
<td>2.04</td>
<td>0.09</td>
<td>.77</td>
</tr>
<tr>
<td>Cycle phase</td>
<td>3</td>
<td>17.75</td>
<td>5.92</td>
<td>0.44</td>
<td>.73</td>
</tr>
<tr>
<td>Cycle phase x PMS status</td>
<td>3</td>
<td>9.38</td>
<td>3.13</td>
<td>0.23</td>
<td>.87</td>
</tr>
</tbody>
</table>

Table 5.17: ANOVA table for stress scores, cycle phase x PMS status. Figures correct to two decimal places.

No significant relationship was found between cycle phase, PMS status and stress scores.

5.4.6.4 Baseline heart rate and cycle phase.

Research question four focuses on the relationship between baseline heart rate (used in this study as a marker for arousal), PMS status and cycle phase. Table 5.18 shows the mean levels of heart rate, by group and cycle phase. Figures given represent the mean number of heart beats per minute for each group. Figure 5.8 illustrates this data graphically.

<table>
<thead>
<tr>
<th>Group</th>
<th>Cycle phase</th>
<th>Count</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>1</td>
<td>14</td>
<td>73.21</td>
<td>10.12</td>
<td>2.72</td>
</tr>
<tr>
<td>SR</td>
<td>2</td>
<td>14</td>
<td>75.71</td>
<td>10.49</td>
<td>2.80</td>
</tr>
<tr>
<td>SR</td>
<td>3</td>
<td>14</td>
<td>75.36</td>
<td>12.39</td>
<td>3.31</td>
</tr>
<tr>
<td>SR</td>
<td>4</td>
<td>14</td>
<td>71.71</td>
<td>14.19</td>
<td>3.79</td>
</tr>
<tr>
<td>NSR</td>
<td>1</td>
<td>13</td>
<td>71.08</td>
<td>10.40</td>
<td>2.89</td>
</tr>
<tr>
<td>NSR</td>
<td>2</td>
<td>13</td>
<td>72.62</td>
<td>11.69</td>
<td>3.24</td>
</tr>
<tr>
<td>NSR</td>
<td>3</td>
<td>13</td>
<td>70.46</td>
<td>11.57</td>
<td>3.21</td>
</tr>
<tr>
<td>NSR</td>
<td>4</td>
<td>13</td>
<td>71.62</td>
<td>9.61</td>
<td>2.66</td>
</tr>
</tbody>
</table>

Table 5.18: Mean heart rate scores by cycle phase and PMS status. Figures represent heart beats per minute, correct to two decimal places.
Repeated measures analysis of variance was carried out on the heart rate data to address the research question, with PMS status as a between subject factor and cycle phase and heart rate as a within subject factor. Heart rate was the dependent variable, and table 5.19 shows the results of this analysis.

<table>
<thead>
<tr>
<th>Comparison</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMS status</td>
<td>1</td>
<td>176.39</td>
<td>176.39</td>
<td>0.749</td>
<td>.39</td>
</tr>
<tr>
<td>Cycle phase</td>
<td>3</td>
<td>100.47</td>
<td>33.49</td>
<td>0.35</td>
<td>.79</td>
</tr>
<tr>
<td>PMS status x cycle phase</td>
<td>3</td>
<td>80.76</td>
<td>26.92</td>
<td>0.28</td>
<td>.84</td>
</tr>
</tbody>
</table>

Table 5.19: Anova table for heart rate x PMS status x cycle phase. Figures correct to two decimal places.

As table 5.19 illustrates, no significant relationship between heart rate, PMS status and cycle phase was found.

5.4.6.5 Laboratory-induced stress, self-reported stress and arousal, and heart rate across the menstrual cycle.

Research question five addressed the relationship between reactivity to a stressful laboratory task, measured by pre and post-task comparisons of arousal,
stress and heart rate, PMS status, and cycle phase. The Stroop task was therefore used both as a measure of attentional bias, and as a stressor. Measures of baseline stress and arousal were taken pre-test, to examine cycle phase differences. The same measures were taken immediately after completing the Stroop task, to investigate stress reactivity in SR and NSR women. These scores were then converted into indices, by subtracting the baseline scores from the post-task scores. This data is summarised in table 5.20 below. Standard deviations are shown in brackets.

<table>
<thead>
<tr>
<th>Group</th>
<th>Cycle phase</th>
<th>Stress: Mean (SD)</th>
<th>Arousal: Mean (SD)</th>
<th>Heart rate: Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>1</td>
<td>-1.21 (3.45)</td>
<td>1.64 (2.17)</td>
<td>1.36 (9.30)</td>
</tr>
<tr>
<td>SR</td>
<td>2</td>
<td>0.79 (3.02)</td>
<td>0.14 (1.29)</td>
<td>-4.43 (11.26)</td>
</tr>
<tr>
<td>SR</td>
<td>3</td>
<td>-0.43 (2.28)</td>
<td>1.07 (1.94)</td>
<td>-1.36 (9.10)</td>
</tr>
<tr>
<td>SR</td>
<td>4</td>
<td>-0.71 (2.40)</td>
<td>0.79 (2.19)</td>
<td>1.17 (10.85)</td>
</tr>
<tr>
<td>NSR</td>
<td>1</td>
<td>0.77 (2.09)</td>
<td>1.00 (3.37)</td>
<td>3.23 (9.50)</td>
</tr>
<tr>
<td>NSR</td>
<td>2</td>
<td>1.62 (3.60)</td>
<td>1.69 (2.59)</td>
<td>-1.77 (10.01)</td>
</tr>
<tr>
<td>NSR</td>
<td>3</td>
<td>1.15 (3.26)</td>
<td>1.85 (3.02)</td>
<td>0.23 (13.77)</td>
</tr>
<tr>
<td>NSR</td>
<td>4</td>
<td>1.39 (2.76)</td>
<td>0.69 (2.25)</td>
<td>1.00 (8.69)</td>
</tr>
</tbody>
</table>

Table 5.20: Pre and Post task index scores for stress, arousal and heart rate. Figures correct to two decimal places, standard deviations shown in brackets. SD = standard deviation.

Repeated measures analysis of variance was then carried out for each individual measure, with PMS-status as a between-subject factor and cycle phase and measure scores as within subject factors. The results of these analyses are shown below, in table 5.21.

<table>
<thead>
<tr>
<th>Comparison</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle phase x PMS status x stress</td>
<td>3</td>
<td>18.82</td>
<td>6.28</td>
<td>1.11</td>
<td>.35</td>
</tr>
<tr>
<td>Cycle phase x PMS status x arousal</td>
<td>3</td>
<td>4.63</td>
<td>1.54</td>
<td>0.20</td>
<td>.89</td>
</tr>
<tr>
<td>Cycle phase x PMS status x heart rate</td>
<td>3</td>
<td>42.51</td>
<td>14.17</td>
<td>0.13</td>
<td>.95</td>
</tr>
</tbody>
</table>

Table 5.21: Anova table for interactions of stress score index, arousal score index and heart rate index respectively with cycle phase and PMS status. Figures correct to two decimal places.
The results of these analyses, illustrated in table 5.21, did not reach significance, and do not indicate a relationship between reactivity, PMS-status and cycle phase.

5.4.6.6 Heart rate estimation, PMS status and cycle phase.
Research question six addressed the relationship between the ability to estimate heart rate (a measure of the self-monitoring of arousal symptoms), PMS-status and cycle phase. There is some research to suggest that patients with panic disorder monitor their physiological events more closely than normal controls (see Edelmann, 1992). Panic disorder is an emotional disorder with distinct physiological and emotional components, and a parallel may be drawn with PMS. When each participants baseline heart rate had been taken, they completed the heart rate estimation task described previously, and the data from actual and estimated heart rate was converted into index form by subtracting actual heart rate from estimated heart rate. This task was completed at each of the four testing sessions, to investigate the effect of cycle phase and PMS status on the heart rate estimation task.

The mean heart rate estimation indices are summarised in table 5.22 below.
A repeated measures analysis of variance was performed on the data, as before, to address the research question, with heart rate estimation index as the dependent variable. The results are shown in table 5.23.

<table>
<thead>
<tr>
<th>Comparison</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMS status</td>
<td>1</td>
<td>94.10</td>
<td>94.10</td>
<td>0.37</td>
<td>.55</td>
</tr>
<tr>
<td>Cycle phase</td>
<td>3</td>
<td>88.62</td>
<td>29.54</td>
<td>0.60</td>
<td>.62</td>
</tr>
<tr>
<td>Cycle phase x PMS status</td>
<td>3</td>
<td>12.50</td>
<td>4.17</td>
<td>0.08</td>
<td>.97</td>
</tr>
</tbody>
</table>

Table 5.23: Anova table for heart rate estimation indices, showing analysis for PMS status x cycle phase interaction. Figures correct to two decimal places.

Again, the results of this analysis failed to reach significance, providing no support for a relationship between heart rate estimation, PMS status, and cycle phase.

5.4.6.7 Summary.

The results show no effect of PMS or cycle phase, or any PMS status and cycle phase interaction, on any of the study measures taken. Arousal, measured by self-report, increased premenstrually for both groups of women, however this just failed to reach significance. No attentional bias was demonstrated for the PMS-related Stroop stimuli (PMS emotional and physical words) by either SR or NSR women, and the experimental PMS-related stimuli themselves did not produce a Stroop effect compared with their control word sets.
5.4.7 Discussion.

This study compared women who did and did not consider themselves to suffer from PMS, on measures of stress, arousal, heart rate, heart rate estimation, and attentional bias, across the course of one menstrual cycle. Measures of heart rate, arousal, stress, heart rate estimation, and attentional bias were taken across test sessions to examine the relationship between PMS status, cycle phase and the variables under study, and measures of post-task reactivity (arousal, stress and heart rate) were taken within each session, and compared across the cycle between SR and NSR women. The research questions focused upon the relationships between PMS status, cycle phase and these physiological and psychological variables, to investigate women’s sensitivity to body cues, the salience of PMS-related stimuli, and possible changes in arousal, stress, and stress reactivity.

The first research question addressed the possible relationship between attentional bias, PMS-status and cycle phase. However, no significant relationship between these factors was found, and the PMS-related stimuli themselves (emotional and physical words) did not produce longer colour-naming reaction times than their neutral control words. This is in contrast with the results of the pilot study, where the PMS-related stimuli did demonstrate a significant Stroop effect. This finding could be explained in terms of an increased number of measurements and a more sensitive design, and it may be that the finding of the pilot study is due to participants only being exposed to stimuli once during testing, with the colour Stroop as a 'practice' card. The present study used all stimuli in a testing session, and followed this with four consecutive weeks of experimental testing, by which time any Stroop effect elicited by the PMS emotional and physical stimuli may have been negated by practice and familiarity. This would suggest that the stimuli were not ‘strongly’ salient in the first place, and it would perhaps be useful to test a broader range of emotional and physical stimuli (although the McKenna emotional Stroop employed in the pilot study elicited no effect of PMS), or to use a different experimental paradigm, such as word completion and recall, to test a different aspect of emotion and cognition.

Another factor that may have affected this analysis is the relatively small $n$ of each sample, within the four cycle phases. Because of these relatively small numbers, any cycle phase effect would have to be fairly robust for a significant
relationship to be found. It is possible, then, that any cycle phase effect was not shown by this analysis because of this factor. In order to overcome this problem, a larger sample of women would need to be tested. This would mean either running more women in parallel in a larger study, or staggering two samples of women across a ten week period. The first of these options would not be possible with only one experimenter, as each woman took nearly an hour to complete all of the tasks, and by the time all of the women had been tested (testing ran from Tuesday to Friday, in order to exclude any ‘Monday morning’ effects), there was no time left in which to run any additional subjects.

Research questions two to four addressed the possible relationships between PMS status, cycle phase, and measures of arousal, stress, and heart rate. Arousal scores, measured by self-report (using the CADACL : Cruickshank, 1984) showed an increase in both groups of women premenstrually, a finding that replicates previous studies (see Ussher & Wilding, 1992). This failed to reach significance, however. Ussher & Wilding (1992) who employed the same measure of arousal, tested a smaller sample of women at only two discrete cycle points, and it may be that the failure of premenstrual increases in arousal to reach significance is accounted for in this study by the larger sample size and greater number of measurement points. No significant relationship was found between self-report of stress, PMS status and cycle phase. This may also be accounted for in part by the design of the study, although many other studies have failed to find any premenstrual increases in stress in women who suffer from PMS (see Ussher, 1992a). Ussher (1992a) and Ussher & Wilding (1992) have suggested that this may be because reactivity to stress, rather than baseline stress levels, change across the cycle. Baseline measures of heart rate, and heart rate estimation, did not exhibit a significant relationship with cycle phase and PMS status. Heart rate is a physiological marker for self-reported autonomic arousal, and as this was not significantly affected by PMS status or menstrual cycle phase, then this result is perhaps not suprising. To summarise, the results of this study do not support a relationship between PMS-status, cycle phase, and measures of arousal, stress and heart rate across the cycle.

Research question five focused on the relationship between post-task reactivity (measured by self report of arousal, stress, and a measure of heart rate), PMS status, and cycle phase, however, no significant relationship was found for either
of these three analyses. This suggests that this sample of women did not exhibit increased reactivity to laboratory induced stress, and raises the question of the appropriateness of the design. It is possible that the Stroop task, in this instance, did not act as a stressor. The Stroop task consisted of 300 trials, and took around 12-15 minutes to complete. Women were tested a total of five times, including the practice session, and it may be that by the end of the study, and even by the end of each test session, the Stroop task elicited the opposite effect to the one required. In other words, despite efforts to create a stressful laboratory situation, by experimenter presence in the testing environment, and by the emphasis placed on performance and reaction time in participants instructions to complete the study, the task was actually quite boring for participants to complete, as it consisted of one set of repeated stimuli. Ussher (1987) and Ussher & Wilding (1992) have suggested that a broad band testing strategy, where participants are exposed to a number of different stressors rather than one, may be more appropriate for investigating PMS within a stress research framework, and this strategy would also address the second explanation for the results of the present study: That uni-task laboratory stress fails to elicit a self-reported stress response, because it does not adequately replicate the real-life conditions under which PMS is experienced. A broad band testing strategy, with a number of different concurrent or serial stressors, may therefore be more appropriate to this end, and future research could usefully investigate arousal, activation and stress from within a broad band testing strategy, across the menstrual cycle.

Finally, research question six addressed the relationship between PMS status, cycle phase, and sensitivity to internal environment or body cues, by using a heart rate estimation paradigm. However, women who self-reported PMS did not prove to be significantly better at estimating their own heart rate than the NSR sample, and no significant effect for cycle phase was found. Further, neither group of participants were particularly accurate at this task. Heart rate estimation was included in the study to investigate sensitivity to and monitoring of an internal event associated with arousal, as it was suggested that although women who self-report PMS might not experience a significantly greater increase in autonomic arousal premenstrually than NSR women, they might instead attend to these sensations more closely. This suggestion was not supported by the results of this study, however, the apparent difficulty of the task may account at least in part for this, and it may be appropriate to investigate awareness of physiological
cues using a different paradigm.

Future research might usefully investigate the salience of PMS-related physiological cues in SR and NSR participants, examining the number and type of symptoms reported across the cycle, subjective ratings of these symptoms, and estimation of cycle phase. Designing an experiment to test the relative weighting and experience of different premenstrual symptoms poses a difficult task, however, and it may be that an experimental paradigm is not the most appropriate medium through which to investigate this issue.

It has been suggested (see McFarlane & MacBeth-Williams, 1994) that studies testing participants over one menstrual cycle may fail to find any effect of cycle phase, because of variation between menstrual cycles. The present study took measures of response latency, arousal, stress and heart rate over the course of only one menstrual cycle, and it may be more appropriate for future research to employ a two- or three-cycle testing period.

The use of undergraduates in menstrual cycle research may be inappropriate, as undergraduates do not necessarily constitute a sample that is representative of the general population, or of the population of women who experience PMS. An undergraduate, non-clinical sample may not be a sufficiently ‘strong’ population for this type of research. Warner & Bancroft (1990), for example, report that women responding to a PMS questionnaire in a women’s magazine were most likely to be aged 25 - 35, cohabiting, with one or more children. Part time work was also associated with PMS status. The mean age of the sample of participants in this study was less than that of Warner & Bancroft’s (1990) sample, although information on other variables (for example, parity and marital status) was not collected. This is a weakness in this study, and could be rectified in later research.

Many social factors may interact to produce stress, and undergraduate samples tend to have a mean age that is relatively low, and tend to be single and nulliparous. Further research into premenstrual symptoms experienced by different populations of women, and the context in which they experience symptoms (for example, if undergraduate populations report stress responses premenstrually, what situations tend to elicit these responses) would therefore be of interest.
Definition of self-reported PMS, whilst not as complex a matter as applying diagnostic criteria, remains problematic. It would be useful to investigate cycle phase effects within a sample of women who have experienced PMS at some time in the past, and compare the results to an NSR and an SR sample of women. However, the utility of employing an SR sample in the first place is, in part, to avoid problems with definition, as well as to apply a more emancipatory research framework in the area, and there is a danger that these benefits would be lost if too many SR categories were introduced.

McFarlane & MacBeth-Williams (1994) propose an innovative analytic strategy for menstrual cycle research. In a longitudinal prospective study, mood fluctuations were assessed for PMS effects, as well as the effects of day-of-week, other menstrual factors and lunar cyclicity. When prospective measures of mood had been collected over 120 days, participant’s means and standard deviations were used to determine each individual’s normal range for that variable. Any data point falling one or more SD above or below the mean was considered positive / non-average or negative / non-average, creating two possible variables for each of the seven variables, and a zero rating for days which were reported as within one SD of the average range. Prediction analysis was then used to determine whether non-average experiences occurred statistically more often for particular phases or days than others. The authors report that both female participants and male controls reported cyclical patterns of mood, with two thirds of both women and men exhibiting one or more menstrual phases, lunar phases or days of the week that were markedly more positive or negative than average. Few participants in this study exhibited stereotypical cyclicity such as PMS (McFarlane & MacBeth-Williams, 1994).

Given the previously argued importance of a multi-factor approach (Ussher, 1992a) to premenstrual experience, and high levels of inter-subject variability on measures such as heart rate, heart rate estimation and reading time, there would seem to be strong support for the adoption of a statistical technique that allows for subjective differences and deviation from the individual norm, rather than collapsing variance across participants. It would further be possible, if data were scored using the method described above, to perform a non-parametric analysis of variance (Kruskal - Wallis test) or Chi Square, to investigate differences between
SR and NSR groups of women. This is arguably a more appropriate way to investigate self-reported PMS, and any further study should consider the possibilities afforded by such an analytic technique as more appropriate to investigating the experience of PMS from an experimental standpoint.

Keeping women blind to the purpose of a phase-specific menstrual cycle study is not a simple task, and it is quite possible that many women in this study had guessed (at least in part) that the menstrual cycle was under investigation. Certainly, some research reports that women who are not blind to the purpose of menstrual cycle research produce different responses to women who are (see chapters two and three). However, it is possible that in this respect menstrual cycle research is not unique - many 'abnormal' populations who have been highly researched (such as panic disorder or anxiety patients, or depressives) will perhaps be aware of the purpose of research in which they participate, and their responses in the laboratory or on questionnaires may be confounded by this. So whether research accesses information that is 'true' for the individual's subjective experience, or some social factor, is debatable. One would, however, anticipate that knowledge of the purpose of the study would be equally distributed across participants, and this is certainly something that could be assessed in a future study, and compared with measures obtained.

5.6 Conclusion.

To conclude, the results of this study provide little support for the suggested cognitive components associated with self-report of PMS. Problems in the research design that may have affected the data collected have been discussed, and further research has been suggested that may be more appropriate to the research questions.
Chapter six: The Women's Health Questionnaire: An investigation of perceived detriment to emotional and physical health in self reported PMS.

6.1 Introduction.

It has already been noted (see chapters two, three and five; Richardson, 1990, 1992) that the overwhelming majority of women will experience some change in internal sensation and experiential state as a result of the normal biological and hormonal changes of the menstrual cycle (see chapter two). Since the earlier part of this century, much menstrual cycle research and theory has been focused towards the extreme ends of what might be termed experiential spectrums of emotional and physical distress, and Nicolson (1993) suggests that within medicine and psychology, the menstrual cycle is traditionally positioned within a deficit model. Chapter three reviews the many instruments that have been designed to measure the extent of women's experience of different premenstrual symptoms, most commonly from within a diagnostic or classificatory framework.

A multi-factor approach to PMS, as discussed in chapter four, arguably affords the use of different research strategies by which to investigate different facets of women's experience, that may contribute to their status as PMS sufferers. At the same time, the adoption of a feminist standpoint allows for a critical examination of the account of PMS (and it's measures) provided by traditional psychology. A feminist standpoint does not rule out the use of a questionnaire based research strategy in this area (see chapter four), but it does prompt markedly different research questions. A questionnaire, for example, may be used to gather information about other circumstances in women's lives, and to investigate how these circumstances, or factors, contribute to their status as PMS sufferers, avoiding the problems of circularity and representation outlined earlier. Existing measures of PMS, traditionally used to describe the extent and nature of symptoms experienced, cannot address these issues. This chapter presents the results of a study, using the Women's Health Questionnaire (Hunter, 1992), that investigated perceived emotional and physical health in different samples of self-reporting and non-self reporting women.

Further, Multi-factor approaches to PMS (see, for example, Ussher, 1992a; O'Brien, 1993; Walker, 1993, 1995) presuppose that a variety of factors or influences may combine to produce reports of PMS (Hunter, Swann & Ussher, 1995). These factors,
which may include social and cultural elements as well as psychological and hormonal ones, may differ in weighting between individuals, dependent upon the processes by which women define themselves and their symptoms as being specifically related to PMS (Hunter, Swann & Ussher, 1995), and dependent partly upon the population under study. Many studies on the menstrual cycle and PMS have used undergraduate samples, and have subsequently been criticised for generalising from a population that may not be representative (see Ussher, 1992a). Thus, the experience of PMS should not be considered in isolation from other factors that may influence a woman’s physical and emotional health.

The extent to which psychosocial factors are influential in the process that leads a woman to seek help for PMS is suggested by a number of studies (see also chapters five and seven). Stress or life events (Warner & Bancroft, 1990), attributional style (Bains & Slade, 1988), personality factors (Ussher, 1987), marital dissatisfaction and role strain (Coughlin, 1990), and co-morbidity have all been implicated as significant factors.

The vast majority of studies have used scales such as the MDQ (Moos, 1968; 1985) or the Premenstrual Assessment Form (Halbriech & Endicott, 1982) to assess levels of PMS retrospectively, or to prospectively confirm it’s presence, and then used other measures to investigate the prevalence of affective, psycho-physical or physical complaints in different samples.

A good example of such a study is that of Morse, Dennerstein, Varnavides & Burrows (1988), who investigated levels of menstrual cycle symptoms in a clinical and non-clinical sample. The clinical sample were prospectively confirmed using a set of (non-standard) criteria and the MMDQ (Moos, 1968; 1985), and compared with a non-clinical non-SR group on MMDQ scores, Eysenck Personality Inventory (EPI, Eysenck, 1964), Trait Anxiety Scale (STAI, Spielberger et al., 1966), Self-Esteem Scale (SES, Rosenberg, 1965) and other psychometric scales. The non-clinical group were divided into high and low scorers on the basis of MMDQ assessments over one menstrual cycle. It was found that all participants had elevated neuroticism, extraversion and anxiety scores, a finding might be partly accounted for by the self-selected nature of both samples (the non-clinical sample were recruited largely by advertisement and radio publicity). It was found that the non-clinical sample could be distinguished from the clinical sample, on
scores of depression, stress and self esteem.

Picone & Kirkby (1990) compared scores on the MDQ (Moos 1968) with measures of trait anxiety. It was found that trait anxiety was correlated with all three subtypes measured by the MDQ (physical, psychological and behavioural symptoms), the strongest correlation being found between high scores on the psychological MDQ sub-type and trait anxiety.

Other cognitive differences have also been noted, although research findings are often contradictory in this area (see Ussher, 1992a; Richardson, 1992a; Sommer, 1992). For example, Keenan et al (1992) compared 14 prospectively confirmed PMS sufferers with 10 non-sufferers on a battery of neuropsychological tests during the follicular (mid-cycle) and luteal (premenstrual) cycle phases, for two consecutive menstrual cycles. The authors report that the PMS sample showed a significant non-phase specific difficulty in learning novel material compared to the control sample, a finding which was not accounted for by changes in mood across the cycle.

In a recent study, using a self-reporting population, Corney & Stanton (1991) surveyed a sample of 658 women, drawn from newspaper and magazine readerships. Over 60% of this sample reported chronic PMS symptoms, of more than five years in duration. Both psychological and somatic symptoms were commonly reported, with psychological symptoms typically perceived as more distressing. Over 60% of the participants were further found to be suffering from some form of psychological distress, with the same proportion reporting one or more social problems. Because participants were recruited through newspapers and magazines specifically for the purpose of a PMS study, they were not blind to the research focus, and were self-selected, which may have introduced some degree of bias into the results.

Fava et al (1992) investigated the presence of current anxiety and mood disorders, using a clinical interview, in 32 prospectively confirmed PMS sufferers, and compared this sample with 35 amenorrhoea patients, and 38 normal control participants. Both the PMS and the amenorrhoea sample exhibited a significantly higher incidence of comorbid anxiety or mood disorders, compared with the healthy control sample. 59% of the PMS sample had a comorbid anxiety disorder.
either alone or in conjunction with a mood disorder. Within this sample, generalised anxiety, social phobia and panic disorder were found to be the most common diagnoses.

Chandraiah, Levenson & Collins (1991) assessed the incidence of psychiatric disorders in a sample of 43 women presenting for treatment at a U.S. PMS clinic. Within this sample, lifetime prevalence of psychiatric disorders was found to be 67%, with participants reporting significantly higher rates of depression, social maladjustment, general psychiatric symptomology and dysthymia than women in comparable general population samples.

The development of multi-factor approaches, when considered with existing research on psychosocial factors in PMS, therefore suggest a complex relationship between environment, psychology and biological elements (see chapters three and four). To what extent different factors contribute to PMS status is not clear, and whilst there is some research on psychosocial factors contributing to self report of PMS exists (see, for example, Warner & Bancroft, 1990), none has examined the role of subjective assessment of emotional and physical health. Traditional approaches to and measures of PMS have tended to assume a direct causal relationship between premenstrual symptomology and the hormonal changes associated with the menstrual cycle, rather than examine the significance of psychosocial factors to the incidence of PMS.

The Women's Health Questionnaire (WHQ; Hunter, Battersby & Whitehead, 1986; Hunter, 1992) contains 39 items reflective of mood states, sexual behaviour, physical sensations and experiences (termed 'somatic' symptomology), vasomotor and menstrual symptoms, and levels of self esteem. The scale was developed by Hunter (1992) in order to assess levels of perceived detriment to emotional and physical health in menopausal populations of women, but was also standardised on a younger Family Planning Clinic sample (age range 23 - 38, mean age 30.4).

The 39-items of the WHQ form nine subscales, each measuring factors that have been previously investigated by menstrual cycle and PMS research. These are depressed mood (see, for example, Pearlstein et al, 1990; Morse et al, 1988; Almagor & Ben-Porath, 1991; Boyle, 1985; Gerstein, Reznikoff, Severino & Hurt, 1989; Warren & Baker, 1992); somatic symptoms (e.g. Patkai & Pettersson, 1975; Morse et
al, 1988); memory and concentration (e.g. Richardson, 1992; Barclay, Petitto, Labrum & Carter-J Jessop, 1991); vasomotor symptoms (e.g. Patkai & Pettersson, 1975; Girdler, Pederson, Stem & Light, 1993); anxiety / fears (e.g. Morse et al, 1988; Beck, Gervitz & Mortola. 1990; Pearlstein et al, 1990); sleep problems (e.g. Woods, Taylor, Mitchell & Lentz, 1992); sexual behaviour (e.g. Schreiner-Engel & Schlavi, 1986; Greenblatt, Teran, Barfield & Bohler, 1987; Chandraiah, Le verson & Collins, 1991; Miccio-Fonseca, Jones & Futterman, 1991); menstrual symptoms (e.g. Kuczmierczyk & Adams, 1986; Bancroft & Rennie, 1993) and self-esteem (e.g. Morse et al, 1988; Christensen & Oei, 1990). Use of the WHQ allows investigation of these factors, in the populations under study.

Use of a subjective measure of emotional and physical health, in a self-reporting population, is appropriate to a multi-factor feminist standpoint approach, as it makes no presumptions about the nature of PMS, and imposes no diagnostic categories (other than participants own definitions) on the population under study. Self-report of PMS also has particular clinical relevance (Hunter, Swann & Ussher, 1995), since the issue of help-seeking behaviour and appropriate treatment has in part fuelled the development of multi-factor approaches (Ussher, 1992a, 1992b). Griffin & Phoenix (1994) have argued that such quantitative research strategies may be seen as appropriate to a feminist standpoint, as they will provide important information about broader groups of women. By placing women as the centre of the research process, and using their own self-diagnosis as the inclusion criteria, problems of over and under inclusion are avoided (Hamilton & Gallant, 1990), and the use of a measure of subjective detriment to emotional and physical health should provide information about some aspects of the context in which women experience PMS, their perception of their own emotional and physical health, and how this relates to their PMS status.

The Women's Health Questionnaire (Hunter, 1992; Hunter, Battersby & Whithead, 1986) was administered to different populations of self-reporting and non-self-reporting women, to investigate the relationship between perceived emotional and physical health, socio-economic and environmental variables (see, for example, Warner & Bancroft, 1990; Coughlin, 1990) and PMS status. The present study set out to investigate some of the factors that may contribute to the experience and self-diagnosis of PMS, using a questionnaire based research strategy.
6.2.1 Design.

Three samples of women (a PMS clinic (help-seeking) sample, a family planning clinic (FPC) control sample, and an undergraduate (UG) sample) were recruited to investigate the relationship between perceived detriment to emotional and physical health, other socio-economic and environmental variables (marital and employment status, age, parity, educational achievement, oral contraceptive use, self-report of stress, and sexual activity), and PMS status. Women from each of the different sample populations were administered an instrument containing the WHQ (Hunter, 1992) and questions to assess women’s status on socio-economic and environmental variables.

Three different populations were included in the study to provide information about socio-economic factors and perceived detriment to emotional and physical health in each group of women, and to allow comparison between groups. Further, the family planning clinic and undergraduate samples, each consisting of an SR and an NSR group, were included to investigate the extent to which each of these factors contributed to, and predicted, PMS status. Efforts were made to keep UG and FPC participants blind to the PMS focus of the study, and they were told that it was a survey of women’s health and menstrual health. The PMS clinic sample completed the WHQ as part of a needs assessment exercise, so whilst they were obviously aware that they were being surveyed as patients on a PMS clinic waiting list, they were explicitly told that the intention of the study was to provide information relevant to an investigation of women’s experience of PMS.

6.2.2 Research Questions.

The study was, therefore, intended to provide information about a help seeking (PMS clinic) sample of women, and to compare this sample with two non-help seeking samples, on WHQ subscales (Hunter, 1992), and socio-economic and environmental variables. The research questions were as follows:

(1) What are the help-seeking sample like, in terms of socio-economic and environmental data, and scores on the nine WHQ subscales?

(2) Are there relationships between the different subscales of the WHQ for the help seeking (PMS clinic) sample?

(3) Are there relationships between different socio-economic and environmental variables and the nine WHQ subscales for the PMS clinic sample?
(4) What are the control samples like, in terms of socio-economic and environmental data, and WHQ subscale scores?
(5) Is there a relationship between sample (PMSC, FPC, UG) and WHQ subscale scores?
(6) Is there a relationship between PMS status and WHQ subscale scores?
(7) Can the subscales of the WHQ, and the other variables included in the study, be used to predict PMS status in the two non-help-seeking (control) samples?

Questions (1) to (3) are intended to provide a detailed picture of the help seeking (PMS clinic) sample on these variables. Questions (4) to (6) are intended, in a similar manner, to provide similar descriptive information about the two control samples, and about the SR (self-reporting) and NSR (non-self-reporting) groups of women within these two control samples, and to examine the relationship between group (PMSC, FPC, UG) and PMS status (SR, NSR). Finally, question (7) is intended to examine the individual contribution of each variable, and the overall ability of all of the variables under investigation, to predict PMS status in the two control samples.

6.2.3 Analyses.
The study was designed to investigate the relationship between items on the Women’s Health Questionnaire (Hunter, 1992), and self-report of PMS. Data was also collected on age, socio-economic factors, oral contraceptive use, menstrual cycle phase at time of questionnaire completion, presence or absence of (self-assessed) life stress, parity, PMS status, and the WHQ sub scales (Hunter, 1992).

These measures were used to provide a detailed profile of the help-seeking (PMS) clinic sample of women. In addressing research questions (1) to (3), summary information (means and standard deviations) was calculated for these variables. Further, correlations between WHQ subscales (using the Spearman rank correlation coefficient, and the Pearson product moment correlation tests), and differences on subscale scores (using t-tests, one-way analysis of variance, Mann-Whitney and Kruskal-Wallis tests) by the other variables measured, were examined to this end.

Summary information (means and standard deviations) for the same variables were also calculated for the two control samples, and for the groups of SR and NSR.
women within these samples, in response to question (4).

In addressing research questions (5) and (6), factorial analysis of variance, and Kruskal-Wallis tests, were used to investigate the relationship between group (PMSC, FPC, UG) and WHQ subscale scores. T-tests and Mann-Whitney tests were used to investigate the relationship between PMS status (SR and NSR) and WHQ subscale scores. Multivariate analysis of variance (MANOVA) was used to examine interactions between group and PMS status, for five of the WHQ subscales.

Finally, in response to question (7), a logistic regression analysis was used to investigate the predictive ability of the nine WHQ subscales and the other variables measured for PMS status, in the two control samples (FPC and UG).

6.2.4 Populations.

Three different populations of participants were selected for use in this study, to provide information about levels of perceived detriment to emotional and physical health in each group of women. In the first place, a group of women seeking help at a PMS clinic were used, to provide information about emotional and physical health factors in a help-seeking sample. Other studies (e.g. Chandraiah, Levenson & Collins, 1991) have found high levels of co-morbidity in women seeking treatment for PMS. Secondly, a sample of family planning clinic attendees were used. This population was included as a comparison group to the PMS clinic population, but contained both women who did and did not consider themselves to suffer from PMS (self report - SR - and non-self-report - NSR). Therefore, this population was considered as a non-'clinical' comparison to the PMS clinic population, but was comprised of a non-help-seeking SR, and an NSR sample. This population was included to enable an investigation of perceived detriment to emotional and physical health in a non-help-seeking SR group, and in an NSR group. Finally, an undergraduate population was included, also consisting of SR and NSR women. It has been noted previously (see also Ussher, 1992a) that much PMS research has been carried out on undergraduate population, but little, if any, information exists about emotional and physical health in this population, relating to PMS status.

6.2.4.1 Undergraduate sample.

A sample of undergraduate students was used, drawn as volunteers from medical
students, student teachers, undergraduate Human Sciences students and first year psychology undergraduates. The recruitment procedure was to address students at the beginning of lectures or seminars in the mid to end part of the Autumn / Winter term 1993, and ask them to complete a survey examining lifestyle, well-being and health.

Criteria for inclusion in the final sample were that participants should be menstruating regularly (i.e. that they should not be perimenopausal-menopausal, pregnant or breast feeding), that they should not currently be undergoing treatment for PMS or other gynaecological problems, or any mental health problems. Because of the nature of the design, these factors could only be determined on questionnaire completion. As a result of this, and in view of the need to have equally sized self-report and non-self-report groups within this sample, of the original 104 questionnaires completed by students, only 88 could be included in the final analyses. Within this sample of 88 completed questionnaires, 44 were completed by women who considered themselves to regularly suffer from PMS (the self-report - SR - group) and 44 by women who considered themselves free of PMS symptoms (the non-self-report - NSR - group). The first 44 correctly completed questionnaires were used in each group. The mean age of the total sample was 23.5 years.

6.2.4.2 The family planning clinic sample.
This sample was drawn from family planning clinic attendees in the Camden and Islington Health Trust area. The recruitment procedure was initially through the Family Planning Services area manager, who aided the project by gaining the consent of individual clinics. Once managerial and ethical consent had been attained, participants were approached individually by the researcher at each clinic’s regular Family Planning session (see, for example, Hunter 1992). Again, because of the design constraints (see section 3.2.4.1) and non-completion, whilst 115 women returned questionnaires to the researcher, only 88 were used in the final analysis (see information for the undergraduate sample). Of these, 44 women fell into the SR category and 44 into the NSR category. The mean age of the undergraduate sample as a whole was 26.6 years.

6.2.4.3 The PMS clinic sample.
This sample was recruited as part of a needs assessment exercise for the
University College Hospital PMS clinic. Women on the waiting list for their first appointment at the clinic were sent a needs assessment questionnaire, and at the same time asked to complete the WHQ and related questions used for the other two samples. Criteria for inclusion in the study were as above, and of 59 questions sent out by post, 47 were returned and 44 used in the final analyses. As all of the participants had been referred to the Clinic for treatment for PMS by their GP's, the sample was treated as SR. The mean age for this sample was 34.5 years.

Sample characteristics for each population group can be seen in table 6.1. Ethical approval for this study was obtained from the University and Health Trust Committees.

6.2.5 Materials.
In the first place, a simple information sheet and informed consent slip were used to explain the purpose of the study to the FPC (Family Planning Clinic) and undergraduate samples, and to gain participants written consent (see appendix IV) As it was intended to keep the participants blind to the purpose of the study, effort was made to conceal the PMS focus of the survey and participants were told that well-being, life style and health were being investigated. PMS clinic patients were sent a letter asking them to complete the needs assessment and WHQ as part of a survey, it was stressed that this survey was unrelated to their treatment at the Clinic.

A set of general questions was included at the beginning of the questionnaire, to assess participants suitability for inclusion in the study and gather demographic / socio-economic data for later use. These questions included items about age, educational and marital status, parity, whether the participant considered herself to be suffering from any considerable life-stress, oral contraceptive use and employment status.

Finally, the Women's Health Questionnaire (WHQ; Hunter, Battersby & Whitehead, 1986; Hunter, 1992) was used as a subjective measure of detriment to health and well-being. The WHQ contains 39 items\textsuperscript{42} reflective of mood states, sexual

\textsuperscript{42} Three items have been added by the original author, since the instrument's publication in 1992. These items pertain to the self-esteem subscale.
behaviour, physical sensations and experiences (termed ‘somatic’ symptomology),
vasomotor and menstrual symptoms, and levels of self esteem. The scale was
developed by Hunter (1992) in order to assess levels of perceived detriment to
emotional and physical health in perimenopausal and climacteric populations of
women, but was also standardised on a younger FPC sample (age range 23 - 38,
mean age 30.4), making it an appropriate measure for this study (see appendix V
for the entire survey instrument).

6.2.6 Procedure.
Procedure for each participant group varied slightly, as was appropriate to the
context in which they completed the questionnaire. Continuity was maintained as
much as possible, with regards to the instructions that participants received.

6.2.6.1 Procedure followed for the undergraduate sample.
Participants were recruited through volunteers from lecture, seminar and
laboratory groups. The participants consisted of student teachers, medics, human
sciences and psychology undergraduates (first year). The researcher approached
the groups (consisting of anything from ten to seventy students), which were of
mixed sex, and explained that a survey on aspects of health, life-style and well­
being was being carried out. The women present in each groups were asked to
volunteer for participation in the survey, and if verbal consent was obtained,
then the information sheet was read to each participant individually. Participants
were assured of the confidentiality of any information obtained by the study, and
that all questionnaires were to be completed anonymously. Once participants had
been asked if they understood the procedure for completing the questionnaire,
and any questions had been answered by the researcher, written consent was
obtained. Participants then proceeded to complete the questionnaire individually
in the presence of the researcher, so that any further questions could be
answered. Participants were unaware of the PMS focus of the study, and the
researcher was unaware of each woman’s PMS status until the final part of the
questionnaire had been completed. On finishing the questionnaire, participants
were informed of the focus of the study and had the opportunity to again question
the researcher.

6.2.6.2 Procedure followed for the family planning clinic sample.
Participants were recruited through volunteers at regular Family Planning
sessions at Clinics in the Camden and Islington area. Women waiting for an appointment were approached by the researcher as they registered at the Clinic reception, and told that a survey on aspects of health, life-style and well-being was being conducted on Clinic attendees. Once verbal consent had been obtained, the information sheet was read to the participant. Any questions on the study or procedure for filling in the questionnaire were answered by the researcher, and participants were assured of the confidential nature of the study and that questionnaires were to be completed anonymously. Participants were then required to complete an informed consent form, and proceeded to complete the questionnaire individually whilst waiting for their appointment. The researcher was present at all times to answer any questions that the participant might have. Again, participants were unaware of the PMS focus of the study, and the researcher was unaware of each woman's PMS status until the questionnaire had been completed. On finishing the questionnaire, the aim of the study was explained to each woman, who again had the opportunity to question the researcher.

6.2.6.3 Procedure followed for the PMS clinic sample.
Women on the waiting list for treatment at the PMS clinic, University College Hospital, were approached to take part in the study by letter. Patients were asked to participate in a needs assessment of the Clinic waiting list, and complete a questionnaire covering demographic and socio-economic, past and present treatment status and preferences, and the WHQ (Hunter, 1992) as the final section. All women completing the questionnaire had been referred to the Clinic by their GP, or had approached the clinic independently, for PMS treatment. All women considered themselves to suffer from a significant degree of PMS. Participants were assured of the confidential nature of the study, and instructions for completing the questionnaire were included. A stamped addressed envelope was provided for the purpose of returning the questionnaire, and participants were invited to contact the clinic if they required further information.

6.3 Results.
6.3.1 Sample characteristics: Between sample information.
Of the 59 questionnaires sent out to the PMS clinic sample, 47 of these were returned, and 44 completed. This was a response rate of 74.6%. Of the 130 women approached in the FPC sample, 115 questionnaires were returned (88.5% response
rate), the first 88 of which (44 for each - SR and NSR - group) used in the final analysis (76.5%). Of the 127 women approached in the undergraduate sample, 104 completed questionnaires (response rate 81.9%), again, the first 44 correctly completed questionnaires for the SR and NSR women within this sample were used in the final analysis (84.6%). For both the FPC and UG samples, it was necessary to collect such a high number of questionnaires in order to provide equal numbers of SR and NSR women.

In response to research questions one and four, characteristics of each sample, for socio-economic information, parity, oral contraceptive use, self report of stress and cycle phase are shown in table 6.1. These measures are summarised, as they will be used in further analysis. For the FPC and UG samples, summary information by PMS status (SR or NSR) is given in section 6.6.8.2.

The PMS clinic sample were, on average, in their mid-thirties (mean = 34.5), compared to a mean age of 26.6 for the whole FPC group, and 23.5 for the UG group (irrespective of PMS status). A one-way Anova (group x age) was carried out, which showed that the PMS group were significantly older than the two non-clinical sample ($f(2) = 45.36, p < .0001$).

The samples differed in terms of marital status. The summary data in table 6.1 illustrates the total numbers and percentages within each sample who were either single, married or cohabiting, or divorced / separated / widowed. A chi-square analysis (used to compare actual category distributions with predicted category distributions) showed that there was a significant association between sample and marital status category frequencies for each sample ($x^2(2) = 22.65, p < .0001$), the UG sample having a greater number of single women (73.9%) than either the PMS clinic or FPC sample, of which 45.5% (FPC) and 59.5% (PMS clinic) were married or co-habiting. Figure 6.1 depicts these distributions graphically, and considering the younger mean age of the UG sample, this is perhaps not suprising.
<table>
<thead>
<tr>
<th></th>
<th>Undergraduate</th>
<th>FPC</th>
<th>PMS Clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age Range</strong></td>
<td>19 - 37</td>
<td>15 - 49</td>
<td>15 - 50</td>
</tr>
<tr>
<td><strong>Mean Age (SD)</strong></td>
<td>23.5 (4.3)</td>
<td>26.6 (7.0)</td>
<td>34.5 (7.7)</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>88</td>
<td>88</td>
<td>44</td>
</tr>
<tr>
<td><strong>Marital status:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single (%)</td>
<td>65 (73.9%)</td>
<td>43 (48.8%)</td>
<td>14 (33.3%)</td>
</tr>
<tr>
<td>Cohabiting/ married (%)</td>
<td>22 (25%)</td>
<td>40 (45.5%)</td>
<td>25 (59.5%)</td>
</tr>
<tr>
<td>Separated/ Divorced/ Widowed (%)</td>
<td>1 (1.1%)</td>
<td>5 (5.7%)</td>
<td>3 (7.1%) (missing data: 2)</td>
</tr>
<tr>
<td><strong>Employment:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time (%)</td>
<td>31 (35.2%)</td>
<td>15 (35.7%)</td>
<td></td>
</tr>
<tr>
<td>Part time (%)</td>
<td>6 (6.8%)</td>
<td>11 (26.2%)</td>
<td></td>
</tr>
<tr>
<td>Student (%)</td>
<td>88 (100%)</td>
<td>19 (21.6%)</td>
<td>5 (11.9%)</td>
</tr>
<tr>
<td>Housewife/ full time mother/ carer (%)</td>
<td>21 (23.9%)</td>
<td>9 (21.4%)</td>
<td></td>
</tr>
<tr>
<td>Unemployed (%)</td>
<td>11 (12.5%)</td>
<td>2 (4.8%)</td>
<td></td>
</tr>
<tr>
<td>Parity (% with 1 or more children)</td>
<td>9 (10.2%)</td>
<td>33 (37.5%)</td>
<td>28 (63.6%)</td>
</tr>
<tr>
<td>Currently sexually active (%)</td>
<td>64 (72.7%)</td>
<td>73 (83%)</td>
<td>27 (61.4%)</td>
</tr>
<tr>
<td><strong>Education History:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left School 14 - 17 (%)</td>
<td>33 (37.5%)</td>
<td>24 (60%)</td>
<td></td>
</tr>
<tr>
<td>A-Levels (%)</td>
<td>20 (22.7%)</td>
<td>9 (22.5%)</td>
<td></td>
</tr>
<tr>
<td>University (%)</td>
<td>88 (100%)</td>
<td>35 (39.8%)</td>
<td>7 (17.5%)</td>
</tr>
<tr>
<td>OC users (%)</td>
<td>27 (30.7%)</td>
<td>46 (52.3%)</td>
<td>4 (10%)</td>
</tr>
</tbody>
</table>

Table 6.1: Sample characteristics (Key: figures inside brackets represent % of sample, figures outside brackets represent N; OC represents oral contraceptives).

The undergraduate sample was comprised entirely of students, therefore they were not included in an analysis of educational achievement or employment status, however the distributions within each sample for employment status and educational achievement are shown in figures 6.2 and 6.3 respectively. 60% of the PMS clinic sample had left school aged 14 -17, compared to 37.5% of the FPC sample, and 39.8% of the FPC sample had attended (or were currently attending) a University, Polytechnic or higher education establishment, compared to 17.5% of the PMS clinic sample. There was a significant association between sample and
educational achievement, for the PMS clinic and FPC samples \( (\chi^2 (2) = 15.69, p < .0004) \). Approximately equal proportions of the FPC and PMS clinic samples worked full-time (35.2% and 35.7% respectively), 26.2% of the PMS clinic worked part-time compared to only 6.8% of the FPC clinic. There were more students in the FPC sample than the PMS clinic sample (21.6% compared to 11.9%), and more unemployed (12.5% compared to 4.8%). Finally, the proportion of women in each sample who were full-time mothers or home workers was roughly equal (23.9% for the FPC sample, 21.4% for the PMS clinic sample). There was a significant association between employment status and sample \( (\chi^2 (4) = 11.35, p < .02) \). Again, this may have been due to the differences in age between the samples.

Figure 6.1 Marital Status by sample (figures in %). Key: Marr/cohab - married or cohabiting, sep/div/wid - separated, divorced or widowed.
Figure 6.2: Employment Status by sample (figures in %). Key: ft = full time employment, pt = part time, st = student, hw = housewife, u = unemployed.

Figure 6.3: Educational achievement by sample (figures show %). Key: 14/17 = left school aged 14 to 17, a-levels = gained a-levels, higher ed = attended college / polytechnic / university.
The summary information for oral contraceptive use shows that a greater proportion of the FPC sample were using some form of oral contraceptive, compared to the UG and PMS clinic groups. This association between sample and OC use proved to be significant ($x^2 (2) = 24.9$, $p < .0001$). Considering that this sample was comprised of family planning clinic attendees, many of whom would have been attending routine checks for OC users, this difference is hardly surprising. Further, significantly less of the PMS clinic sample were sexually active than the FPC sample or UG sample (61.4% compared to 83% and 73% respectively, $x^2 (2) = 7.46$, $p < .02$). Again, this difference may be partly explained by differences in sample selection, and possibly age.

Proportionately more of the PMS clinic sample had one or more children, compared to the UG and FPC samples (63.6%, compared to 37.5% and 10.2% respectively), and this association between sample and parity was found to be significant ($x^2 (2) = 40.75$, $p < .0001$). This may again be partly explained by differences in age between the samples.

Table 6.2 shows the summary information for self-report of stress for each sample. Life stress was measured by self-report, as a simple yes / no or presence / absence response. No significant association was found between the samples for self-report of stress ($x^2 (2) = 5.52$, $p < .06$).

<table>
<thead>
<tr>
<th>Stress:</th>
<th>UG sample</th>
<th>FPC sample</th>
<th>PMSC sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>74 (84.1%)</td>
<td>62 (70.5%)</td>
<td>27 (61.4%)</td>
</tr>
<tr>
<td>No</td>
<td>14 (15.9%)</td>
<td>26 (29.5%)</td>
<td>17 (38.6%)</td>
</tr>
</tbody>
</table>

Table 6.2: Summary information for self-report of stress. Key: Figures represent total N, figures in brackets represent %.

Finally, table 6.3 shows the summary information for participant's menstrual cycle phase at time of questionnaire completion. This information was collected in order to investigate the effect of cycle phase on WHQ scores, and cycle phase was divided into four categories: 1 (menstruating), 2 (had period in last two weeks), 3 (mid cycle), 4 (premenstrual). ‘Don’t know’ responses, along with non-completion of this item, were treated as missing data.
Table 6.3: Summary information for cycle phase at time of questionnaire completion / sample.

No significant association between cycle phase and sample was found ($x^2 (6) = 8.23, p < .22$).

To summarise, the PMS clinic sample were significantly older, were more likely to have had children, and left full time education earlier than the UG or FPC samples. Employment status also differed significantly between the PMS clinic and FPC samples. Significantly more of the FPC sample were using oral contraception, compared to the UG and PMS clinic samples. The UG and FPC samples were significantly more sexually active than the PMS clinic sample. NO differences were found between the samples on self-report of life stress, or cycle phase at time of questionnaire completion.

6.3.2 Sample characteristics: Within sample summary information.

Addressing research question (4), both the FPC and UG samples were comprised of two groups, according to PMS status: SR and NSR (self-reporting PMS and non-self-reporting). The summary information for each group, within the UG and FPC samples, is given below in table 6.4, followed by analyses of differences between groups within each sample.
<table>
<thead>
<tr>
<th>Age Range</th>
<th>UG / SR</th>
<th>UG / NSR</th>
<th>FPC / SR</th>
<th>FPC / NSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (SD)</td>
<td>24 (4.30)</td>
<td>23.07 (4.28)</td>
<td>27.82 (7.13)</td>
<td>25.42 (6.67)</td>
</tr>
<tr>
<td>N</td>
<td>44</td>
<td>44</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single (%)</td>
<td>32 (72.7)</td>
<td>34 (77.3)</td>
<td>15 (34.1)</td>
<td>27 (61.4)</td>
</tr>
<tr>
<td>Cohabiting/ married (%)</td>
<td>11 (25)</td>
<td>10 (22.7)</td>
<td>27 (61.36)</td>
<td>14 (31.8)</td>
</tr>
<tr>
<td>Separated/Divorced/ Widowed (%)</td>
<td>1 (2.3)</td>
<td>0</td>
<td>2 (4.6)</td>
<td>3 (6.8)</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time (%)</td>
<td>-</td>
<td>-</td>
<td>8 (18.2)</td>
<td>13 (29.6)</td>
</tr>
<tr>
<td>Part time (%)</td>
<td>-</td>
<td>-</td>
<td>4 (9.1)</td>
<td>2 (4.6)</td>
</tr>
<tr>
<td>Student (%)</td>
<td>44 (100)</td>
<td>44 (100)</td>
<td>16 (36.3)</td>
<td>11 (25.0)</td>
</tr>
<tr>
<td>Housewife/ full time mother/ carer (%)</td>
<td>-</td>
<td>-</td>
<td>10 (22.7)</td>
<td>12 (27.3)</td>
</tr>
<tr>
<td>Unemployed (%)</td>
<td>-</td>
<td>-</td>
<td>5 (11.4)</td>
<td>6 (13.6)</td>
</tr>
<tr>
<td>Parity (% 1 child or more)</td>
<td>6 (13.6)</td>
<td>3 (6.8)</td>
<td>18 (40.9)</td>
<td>15 (34.1)</td>
</tr>
<tr>
<td>Currently sexually active (%)</td>
<td>34 (77.3)</td>
<td>30 (68.2)</td>
<td>37 (84.1)</td>
<td>36 (81.8)</td>
</tr>
<tr>
<td>Education History:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Left School 14 - 17 (%)</td>
<td>-</td>
<td>-</td>
<td>15 (34.1)</td>
<td>17 (38.6)</td>
</tr>
<tr>
<td>A-Levels (%)</td>
<td>-</td>
<td>-</td>
<td>6 (13.6)</td>
<td>14 (31.8)</td>
</tr>
<tr>
<td>University (%)</td>
<td>44 (100)</td>
<td>44 (100)</td>
<td>22 (50.0)</td>
<td>13 (29.6)</td>
</tr>
<tr>
<td>OC use (%)</td>
<td>14 (31.8)</td>
<td>13 (29.6)</td>
<td>25 (56.8)</td>
<td>21 (47.7)</td>
</tr>
</tbody>
</table>

Table 6.4: Sample characteristics for SR and NSR groups, within the UG and FPC samples.

Group ages were compared using one-way unpaired t-tests, to investigate possible group differences. The difference in group (SR / NSR) mean ages for each sample (UG, FPC) were not significant (t (86) = 1.12, p < .156; t (85) = 1.62, p < .109 respectively).

No significant association was found between marital status and PMS status for the UG sample ($\chi^2 (2) = 1.32, p < .517$), but for the FPC sample, where the majority of the NSR group were single, and the majority of the SR group married or cohabiting, there was a significant association between PMS status and marital status ($\chi^2 (2) = 6.61, p < .04$).
Distribution for education and employment status was uniform for the UG sample, comprised entirely of students. For the FPC sample, no significant association between SR and NSR groups and either education or employment was found ($\chi^2 (2) = 1.45, p < .485, \chi^2 (4) = 1.36, p < .851$ respectively).

No significant association was found between parity (number of women with one or more children) and PMS status for the UG sample ($\chi^2 (1) = 1.11, p < .291$), or for the FPC sample ($\chi^2 (1) = 0.436, p < .509$). Nor was any significant association between PMS status and sexual activity found for the UG sample ($\chi^2 (1) = 0.917, p < .338$), or for the FPC sample ($\chi^2 (1) = 0.080, p < .777$). Oral contraceptive use was not significantly associated with PMS status for the UG groups ($\chi^2 (1) = 0.143, p < .705$) or between FPC groups ($\chi^2 (1) = 3.49, p < .06$).

The summary information for each group within the UG and FPC samples (total numbers and percentages) for self-report of stress is reported below, in table 6.5.

<table>
<thead>
<tr>
<th>Stress:</th>
<th>UG / SR</th>
<th>UG / NSR</th>
<th>FPC / SR</th>
<th>FPC / NSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>39 (88.6%)</td>
<td>35 (79.6%)</td>
<td>35 (79.6%)</td>
<td>27 (61.4%)</td>
</tr>
<tr>
<td>No</td>
<td>5 (11.4%)</td>
<td>9 (20.5%)</td>
<td>9 (20.5%)</td>
<td>17 (38.6%)</td>
</tr>
</tbody>
</table>

Table 6.5: Summary information for self-reported stress by sample / PMS status.

Again, chi-square tests were used to investigate associations between factors. There was no significant association between in self-report of stress and PMS status for the UG sample ($\chi^2 (1) = 1.36, p < .244$), or for the FPC sample ($\chi^2 (1) = 3.49, p < .062$).

Finally, the summary information for menstrual cycle phase at time of questionnaire completion, for each group within both samples, is reported in table 6.6.
There was no significant association between cycle phase and PMS status for the UG sample \( (x^2 (3) = 6.45, p < .09) \), nor for the FPC sample \( (x^2 (3) = 2.70, p < .440) \).

To summarise, there was no significant difference in age between SR and NSR groups for either sample. Marital status was not significantly associated with PMS status for the UG sample, but significantly more SR / FPC women were married. No significant associations were found for the FPC sample between PMS status and educational achievement or employment status, and no significant associations were found with PMS status for either sample for oral contraceptive use, self report of stress, parity, or cycle phase at time of questionnaire completion.

### 6.3.3 The Women's Health Questionnaire: Summary information.

The WHQ (Hunter, 1992) (see appendix V) provides scores for each of nine subscales, relating to emotional and physical health. It does not provide an overall score. The Mean subscale scores for each sample, and for the SR and NSR groups within the UG and FPC samples, are presented in table 6.7. In response to research questions (1) and (4), the summary information for each sample, and for the SR and NSR groups within the two control samples, is presented in this section.

Scores on subscales were calculated by summing the symptom scores, recorded as present or absent (with 'yes definitely' and 'yes sometimes' scored as 1, and 'no not at all' and 'no not much' scored as 0), and dividing this total by the number of items in each subscale (Hunter, 1992). For some of the items (7, 10, 21, 25, 31), scoring is reversed as some items are phrased positively and some negatively. Subscales therefore provide a 0-1 rating, with 1 indicating extreme presence of a group of symptoms, and 0 indicating their complete absence. However, for the

---

### Table 6.6: Summary information for cycle phase at time of questionnaire completion, by PMS status and sample. Figures in brackets are %.

<table>
<thead>
<tr>
<th>Cycle phase</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG / SR</td>
<td>8 (18.2%)</td>
<td>16 (36.4%)</td>
<td>10 (22.7%)</td>
<td>5 (11.4%)</td>
<td>5 (11.4%)</td>
</tr>
<tr>
<td>UG / NSR</td>
<td>8 (18.2%)</td>
<td>8 (18.2%)</td>
<td>17 (38.6%)</td>
<td>11 (25%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>FPC / SR</td>
<td>6 (13.6%)</td>
<td>11 (25%)</td>
<td>12 (27.3%)</td>
<td>11 (25%)</td>
<td>4 (9.1%)</td>
</tr>
<tr>
<td>FPC / NSR</td>
<td>5 (11.4%)</td>
<td>15 (34.1%)</td>
<td>16 (36.4%)</td>
<td>6 (13.6%)</td>
<td>2 (4.6%)</td>
</tr>
</tbody>
</table>

---

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subscales of memory / concentration, vasomotor symptoms, sexual behaviour and sleep problems, this scoring system resulted in a subscale rating range with less than five points (e.g. possible scores on vasomotor symptoms subscale: 0, 0.5, 1, therefore a 3-point rating scale). Because of this, these subscales were treated as non-parametric scores in subsequent analysis. Finally, not all of the participants were sexually active, which meant that the sexual behaviour subscale (designed to assess symptom levels and problems in sexually active women: Hunter, 1992) did not apply. Those participants who were not sexually active were treated as 'missing data' (Hunter, 1992; Hunter, Swann & Ussher, 1995) for this subscale. The standardised norms for both FPC and climacteric samples from Hunter's (1992) original study may be seen in appendix VII.
The WHQ further provides an estimation of caseness (validated in the original study with the GHQ: Hunter, 1992) by providing a cut-off point (over 5 points) for depression. Within the PMS clinic sample, 54.5% of women scored above the cut-off point for depression, indicating a high incidence of caseness. For the UG sample overall, 10.27% scored above the cut-off point for depression, breaking down into 4.55% of the UG/NSR group, and 15.91% of the UG/SR group. For the FPC sample overall, 22.73% scored above the cut-off point for depression, breaking down into 6.82% of the FPC/NSR group, and 14.77% of the FPC/SR group.

Table 6.7: Summary information for the Women's Health Questionnaire (Hunter, 1992). Mean scores for each sample are given (standard deviations in brackets), followed by SR and NSR groups within the UG and FPC samples (standard deviations in brackets). Key: SR = self reporting, NSR = non-self-reporting, UG = undergraduate, FPC = family planning clinic, PMSC = PMS clinic.
6.3.4 Within sample information: The PMS clinic sample.

Research questions (2) and (3) address the issues of relationships within the PMS clinic sample between WHQ subscale scores, between subscale scores and socio-economic and environmental factors. Such relationships, between different aspects of emotional and physical health, and between different socio-economic and environmental factors and emotional and physical health, may be illuminative in considering context in which this sample of women experience PMS. Therefore, correlations and differences within each sample on WHQ-subscale scores and socio-economic and environmental variables were examined. This section presents this information for the PMS clinic sample.

6.3.4.1 WHQ intercorrelations.

In the first instance, the intercorrelations between those subscales of the WHQ that were treated as parametric data, and age, were examined, using a Pearson product moment correlation. Age was included in addition to the WHQ subscale scores to investigate the relationship between age and different aspects of physical and emotional health. Table 6.8 shows the resulting correlation matrix.

<table>
<thead>
<tr>
<th></th>
<th>PMSC/age</th>
<th>PMSC/anx</th>
<th>PMSC/dep</th>
<th>PMSC/som</th>
<th>PMSC/self est.</th>
<th>PMSC/menst</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMSC/age</td>
<td>-</td>
<td>-0.69</td>
<td>0.22</td>
<td>0.01</td>
<td>-0.14</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.329)</td>
<td>(p&lt;.445)</td>
<td>(p&lt;.472)</td>
<td>(p&lt;.184)</td>
<td>(p&lt;.437)</td>
<td></td>
</tr>
<tr>
<td>PMSC/anx</td>
<td>-0.07</td>
<td>-</td>
<td>0.23</td>
<td>0.20</td>
<td>0.23</td>
<td>0.17</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.329)</td>
<td>(p&lt;.066)</td>
<td>(p&lt;.099)</td>
<td>(p&lt;.67)</td>
<td>(p&lt;.136)</td>
<td></td>
</tr>
<tr>
<td>PMSC/dep</td>
<td>0.02</td>
<td>0.23</td>
<td>-</td>
<td>0.20</td>
<td>0.39**</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.445)</td>
<td>(p&lt;.066)</td>
<td>(p&lt;.093)</td>
<td>(p&lt;.05)</td>
<td>(p&lt;.183)</td>
<td></td>
</tr>
<tr>
<td>PMSC/som</td>
<td>0.01</td>
<td>0.20</td>
<td>0.20</td>
<td>-</td>
<td>0.31**</td>
<td>0.41**</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.472)</td>
<td>(p&lt;.099)</td>
<td>(p&lt;.093)</td>
<td>(p&lt;.021)</td>
<td>(p&lt;.003)</td>
<td></td>
</tr>
<tr>
<td>PMSC/self esteem</td>
<td>-0.14</td>
<td>0.23</td>
<td>0.39**</td>
<td>0.31**</td>
<td>-</td>
<td>-0.06</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.18)</td>
<td>(p&lt;.067)</td>
<td>(p&lt;.005)</td>
<td>(p&lt;.021)</td>
<td>(p&lt;.362)</td>
<td></td>
</tr>
<tr>
<td>PMSC/menst</td>
<td>0.03</td>
<td>0.17</td>
<td>0.14</td>
<td>0.41**</td>
<td>-0.06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(p&lt;.437)</td>
<td>(p&lt;.136)</td>
<td>(p&lt;.183)</td>
<td>(p&lt;.003)</td>
<td>(p&lt;.362)</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.8: Pearson product moment correlation for WHQ subscales and age. Significance (one-tailed) is given in brackets. ** marks significance. Key: PMSC/age = age, anx = anxiety / fears subscale, dep = depressed mood subscale, som = somatic symptoms, self est. = self esteem, menst = menstrual symptoms.
A significant correlation was found between scores on the depression and self-esteem sub-scales (p < .005), indicating a relationship between these two sub-scales for this sample. A significant correlation was also observed between the menstrual problems and somatic symptoms subscales (p < .003), both measuring physiological symptomology. A significant correlation was also found between self-esteem and somatic symptoms subscales (p < .021). No other significant correlations were observed.

Spearman rank correlation coefficients were calculated for the WHQ subscales treated as non-parametric data. These are shown in table 6.9.

<table>
<thead>
<tr>
<th></th>
<th>PMSC/mem</th>
<th>PMSC/sleep</th>
<th>PMSC/vaso</th>
<th>PMSC/sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMSC/mem</td>
<td>-</td>
<td>0.53**</td>
<td>0.21</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.000)</td>
<td>(p&lt;.080)</td>
<td>(p&lt;.157)</td>
<td></td>
</tr>
<tr>
<td>PMSC/sleep</td>
<td>0.53**</td>
<td>-</td>
<td>0.12</td>
<td>0.42**</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.000)</td>
<td></td>
<td>(p&lt;.224)</td>
<td>(p&lt;.015)</td>
</tr>
<tr>
<td>PMSC/vaso</td>
<td>0.21</td>
<td>0.12</td>
<td>-</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.08)</td>
<td>(p&lt;.224)</td>
<td></td>
<td>(p&lt;.059)</td>
</tr>
<tr>
<td>PMSC/sex</td>
<td>0.20</td>
<td>0.42**</td>
<td>0.31</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(p&lt;.157)</td>
<td>(p&lt;.015)</td>
<td>(p&lt;.059)</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.9: Spearman rank correlation coefficients (rho) for NP WHQ subscales. Significance (one-tailed) given in brackets. Significant results marked with **. Key: PMSC/mem = memory / concentration subscale, sleep = sleep problems subscale, vaso = vasomotor symptoms subscale, sex = sexual problems subscale.

Scores on the memory / concentration subscale were significantly correlated with scores on the sleep problems subscale (p<.000), and scores on the sexual behaviour subscale were significantly correlated with scores on the sleep problems subscale (p < .015). However, only 27 women completed the sexual behaviour subscale, which may in part explain this relationship. No other significant correlations were observed.

Finally, Spearman rank correlation coefficients were used to examine the intercorrelations of the two sets of WHQ subscales. The results are shown in

43 I refer to these as sets simply because, as earlier discussed, four of the nine
Table 6.10 represents Spearman rank correlation coefficients (rho) for WHQ subscales. Significance (one-tailed) is given in brackets. Significant results are marked with **. Key: PMSC/anx = anxiety/fears subscale, dep = depressed mood subscale, som = somatic symptoms subscale, mens = menstrual symptoms subscale, self est. = self-esteem subscale, mem = memory/concentration subscale, sleep = sleep problems subscale, vaso = vasomotor symptoms subscale, sex = sexual problems subscale.

Significant, although relatively low, correlations were observed between anxiety/fears and sleep problems (p<.023), anxiety/fears and sexual behaviour (p<.020). Scores on the depressed mood subscale correlated with memory/concentration (p<.013), sleep problems (p<.018), and sexual behaviour (p<.005). Presence of somatic symptoms correlated with scores on the memory/concentration subscale (p<.017), sleep problems (p<.049), vasomotor symptoms (p<.000) and sexual behaviour (p<.008). Menstrual symptom scores correlated with scores on the memory/concentration subscale (p<.005) and the sleep problems subscale (p<.020). Finally, scores on the self-esteem subscale were found to correlate with the vasomotor symptom subscale (p<.014) and the sexual behaviour subscale (p<.035).

6.3.4.2 The relationship between socio-economic and environmental variables, and WHQ subscale scores, for the PMS clinic sample.

Subscales are calculated in such a way as to result in participants having a score on a less than five-point scale. This (arguably) means that they do not meet the criteria for a parametric analysis, and therefore the final set of correlations presented has been calculated using a non-parametric analysis.
Addressing research question (3), the relationship between scores on the nine subscales of the WHQ, and the socio-economic and environmental variables measured (self-report of stress, parity, oral contraceptive use, employment status, marital status, educational achievement, and sexual activity) were investigated using t-tests, Mann-Whitney tests, one-way analysis of variance and Kruskal-Wallis analysis of variance, as appropriate.

Unrelated two-tailed t-tests were used for examining the relationship between grouping variables (parity, self-report of stress, oral contraceptive use, and sexual activity) on the depressed mood, anxiety / fears, somatic symptoms, self-esteem and menstrual symptoms subscales of the WHQ.

Parity (measured, for the purpose of this analysis, as a yes / no response indicating whether or not the participant had one or more children) was found to have no significant effect for depressed mood (t (42) = 0.14, p < .886), somatic symptoms (t (42) = -0.51, p < .616), menstrual symptoms (t (42) = -0.34, p < .736), or self esteem (t (42) = 0.79, p < .432). However, a significant effect of parity for anxiety (t (42) = 2.37, p < .023) was found, indicating that for this sample, the presence of one or more children had a significant effect for the levels of anxiety experienced (mean scores: parous women: 0.50 (SD 0.27), nulliparous women: 0.69 (SD: 0.21). This suggests that women with children actually experienced less anxiety than those without children.

Self-report of stress (self-rated by the participant as a yes / no response) was found to have no effect for depressed mood (t (41) = -0.02, p < .984), somatic symptoms (t (41) = 0.41, p < .686), anxiety (t (41) = -0.41, p < .686), menstrual symptoms (t (41) = -0.44, p < .660), or self esteem (t (41) = -0.35, p < .729).

Oral contraceptive use was found to have no effect for depressed mood (t (40) = 0.56, p < .581), somatic symptoms (t (40) = 0.78, p < .438), anxiety (t (40) = 0.53, p < .597), menstrual symptoms (t (40) = -0.70, p < .487) or self esteem (t (40) = 0.43, p < .669).

Sexual activity (measured as a yes / no response, indicating whether the participant was sexually active or not) was found to have no significant effect for depressed mood (t (42) = 0.56, p < .581), somatic symptoms (t (42) = 0.83, p < .410),
anxiety (t (42) = 0.68, p < .498), menstrual symptoms (t (42) = -0.52, p < .608), or self esteem (t (42) = -0.28, p < .780).

Mann-Whitney tests were used to individually investigate the relationships between the remaining four WHQ subscales, and the two-level variables of parity, self-report of stress, sexual activity, and oral contraceptive use. This test was considered appropriate for these subscales, as their scoring method renders a rating scale of less than five points (in these instances, the scoring method rendered a rating scale of either three or four points).

Parity was found to have no significant effect for the memory / concentration subscale scores (U = 195, p < .455), sexual behaviour (U = 67, p < .893), sleep problems (U = 196.5, p < .481) or vasomotor symptoms (U = 181.5, p < .250).

Self report of stress (presence or absence) was found to have no significant effect for the memory / concentration subscale scores (U = 140, p < .151), sexual behaviour (U = 54, p < .497), sleep problems (U = 136.5, p < .123) or vasomotor symptoms (U = 180, p < .705).

Sexual activity was found to have no significant effect for memory / concentration symptoms (U = 222, p < .849), sleep problems (U = 192, p < .342), or vasomotor symptoms (U = 187, p < .256). No test of the effect of sexual activity on levels of sexual problems was performed, as the WHQ measures sexual behaviour only for women who are sexually active, and the Mann-Whitney test is not appropriate for missing data. Thus use of the WHQ on this measure is limited for populations of women not currently sexually active or in a relationship.

Oral contraceptive use was found to have no significant effect for memory / concentration symptoms (U = 75.5, p < .859), sexual behaviour (U = 19.5, p < .215), sleep problems (U = 66.5, p < .595) or vasomotor symptoms (U = 75, p < .859).

One-way analysis of variance was used to examine differences in scores on the WHQ subscales of depressed mood, anxiety / fears, somatic symptoms, menstrual symptoms and self-esteem, by educational achievement, marital status, employment status and cycle phase at time of questionnaire completion.
Educational achievement was found to have no significant effect for depressed mood ($f(2) = 0.08, p < .921$), somatic symptoms ($f(2, 38) = 0.18, p < .840$), anxiety ($f(2, 38) = 0.80, p < .456$), menstrual symptoms ($f(2, 38) = 0.38, p < .687$) or self esteem ($f(2, 38) = 0.10, p < .907$).

Marital status was found to have no significant effect for depressed mood ($f(2) = 0.08, p < .924$), somatic symptoms ($f(2, 40) = 1.10, p < .342$), anxiety ($f(2, 40) = 2.21, p < .123$), menstrual symptoms ($f(2, 40) = 0.99, p < .380$) or self esteem ($f(2, 40) = 0.46, p < .635$).

Employment status was found to have no significant effect for depressed mood ($f(4, 37) = 1.19, p < .330$), somatic symptoms ($f(4, 37) = 1.92, p < .128$), anxiety ($f(4, 37) = 1.09, p < .377$), menstrual symptoms ($f(4, 37) = 2.11, p < .099$) or self esteem ($f(4, 37) = 1.28, p < .296$).

Cycle phase at time of questionnaire completion (measured by self report, as one of four possible phases) was found to have no significant effect for depressed mood ($f(3, 30) = 1.38, p < .266$), somatic symptoms ($f(3, 30) = 0.27, p < .845$), anxiety ($f(3, 30) = 1.66, p < .195$), menstrual symptoms ($f(3, 30) = 0.97, p < .420$) or self esteem ($f(3, 30) = 0.86, p < .473$).

Finally, Kruskal-Wallis one-way analysis of variance was used to examine differences in scores on the WHQ subscales of memory / concentration, vasomotor symptoms, sexual behaviour and sleep problems, by employment and marital status, educational achievement, and cycle phase at time of questionnaire completion. All results presented are corrected for ties.

Educational achievement was observed to have no significant effect for the memory / concentration subscale ($H(2) = 0.07, p < .965$), vasomotor symptoms ($H(2) = 3.89, p < .143$), sexual behaviour ($H(2) = 0.74, p < .690$), or sleep problems ($H(2) = 1.74, p < .419$).

Marital status was found to have no significant effect for memory / concentration ($H(2) = 0.07, p < .965$), vasomotor symptoms ($H(2) = 3.89, p < .143$), sexual behaviour ($H(2) = 0.74, p < .690$) or sleep problems ($H(2) = 1.74, p < .419$).
Employment status was found to have no significant effect for memory / concentration \( (H (4) = 6.33, p < .176) \), vasomotor symptoms \( (H (4) = 1.02, p < .906) \), sexual behaviour \( (H (4) = 0.86, p < .930) \) or sleep problems \( (H (4) = 4.15, p < .386) \).

Cycle phase at time of questionnaire completion had no significant effect for memory / concentration \( (H (3) = 1.59, p < .663) \), vasomotor symptoms \( (H (3) = 3.74, p < .291) \), sexual behaviour \( (H (3) = 2.08, p < .557) \) or sleep problems \( (H (3) = 0.50, p < .919) \).

### 6.3.4.3 Summary.

To summarise, a detailed examination of WHQ scores for the PMS clinic sample reveals some associations between WHQ subscales, illustrating the complex relationship between physiological, emotional and behavioural symptoms that would seem to constitute the experience of PMS for many women. Furthermore, marital and employment status, educational achievement, self report of stress, parity, and use of oral contraception, and cycle-phase at time of questionnaire completion were found to have no significant effects for the WHQ subscale scores, with the one exception of anxiety (whether or not women had had one or more children had a significant effect for scores on the anxiety / fears subscale).

### 6.3.5 The relationship between sample and WHQ scores.

In addressing research question (5), factorial analysis of variance (group x subscale score) and Kruskal-Wallis non-parametric analysis of variance (group x subscale score) were used. The mean scores achieved by each sample, and standard deviations, are shown in table 6.7.

Significant differences between sample groups for subscale scores were observed for depressed mood \( (f (2, 41) = 33.74, p < .0001) \), somatic symptoms \( (f (2, 41) = 21.83, p < .0001) \), anxiety / fears \( (f (2, 41) = 18.35, p < .0001) \), self esteem \( (f (2, 41) = 20.01, p < .0001) \), menstrual symptoms \( (f (2, 41) = 17.86, p < .0001) \), memory / concentration \( (H (2) = 22.43, p < .0001) \), sleep problems \( (H (2) = 22.90, p < .0001) \), vasomotor

\[44\] It is, however, acknowledged that the cycle phase analysis is a between subject comparison. Between subject designs have been discussed in chapter five, and it is suggested that such a design is not the most appropriate for an examination of any cycle phase effect. This is a limitation of this study, but cycle phase is not a central research question.
symptoms ($H(2) = 8.54, p < .014$) and sexual problems ($H(2) = 23.25, p < .014$). The mean scores for each subscale are illustrated in figures 6.4 - 6.12.

Figure 6.4: Mean scores, by sample, for the depressed mood subscale of the WHQ.

Figure 6.5: Mean scores, by group, for the somatic symptoms subscale of the WHQ.
Figure 6.6: Mean scores, by group, for the memory / concentration subscale of the WHQ.

Figure 6.7: Mean scores, by group, for the vasomotor symptoms subscale of the WHQ.
Anxiety / fears.

Figure 6.8: Mean scores, by group, for the anxiety / fears subscale of the WHQ.

Sexual behaviour.

Figure 6.9: Mean scores, by group, for the sexual behaviour subscale of the WHQ.
Figure 6.10: Mean scores, by group, for the sleep problems subscale of the WHQ.

Figure 6.11: Mean scores, by group, for the menstrual symptoms subscale of the WHQ.
6.3.6 The relationship between PMS status and WHQ scores.

In addressing research question (6), which focuses on the relationship between PMS status and WHQ scores, unrelated t-tests (PMS status x WHQ subscale scores) and the Mann-Whitney test (PMS status x WHQ subscale scores) were used to investigate the relationship between PMS status and WHQ subscale scores, across samples. Following this, in order to investigate differences between SR and NSR groups within the FPC and UG sample, the same analyses were performed on the data from these two samples, in the absence of data from the PMS clinic sample. This was done in order to examine whether any apparent relationship between PMS status and WHQ subscale scores was due to the presence of data from the PMS clinic sample, and therefore did not extend to all of the SR groups (see also table 6.7)

A significant difference between SR and NSR women was found for the depressed mood subscale of the WHQ (t (218) = 5.96, p <.0001), somatic symptoms (t (218) = 6.38, p <.0001), anxiety / fears (t (218) = 5.32, p <.0001), self esteem (t (218) = 4.40, p <.0001), menstrual symptoms (t (218) = 7.55, p <.0001), memory / concentration (U = 3688.50, p <.0001), sexual behaviour (U = 4028.00, p <.0001), and sleep problems (U = 3933.50, p <.0001). No significant difference between SR and NSR women was found
for the vasomotor symptoms subscale ($U = 5344.00, p < .316$).

When the same analyses were repeated on the data from the UG and FPC samples alone, a significant difference between SR and NSR women was found for the depressed mood subscale ($t (174) = 3.70, p < .0003$), somatic symptoms ($t (174) = 4.32, p < .0001$), anxiety / fears ($t (174) = 3.40, p < .0008$), menstrual symptoms ($t (174) = 5.61, p < .0001$), self esteem ($t (174) = 2.64, p < .009$), memory / concentration ($U = 2786.50, p < .001$), sexual behaviour ($U = 2960.00, p < .007$) and sleep problems ($U = 3070.00, p < .018$). Again, no significant difference between SR and NSR women was found for the vasomotor symptoms subscale ($U = 3848.00, p < .943$).

These results show that even when the PMS clinic sample are not included in the analyses, there is a significant difference between SR and NSR women, for WHQ subscale scores, with the exception of vasomotor symptoms.

6.3.7 Interactions of sample and PMS status on WHQ subscale scores.
As significant relationships between sample and WHQ subscale scores, and PMS status and WHQ subscale scores had previously been noted, multi-variate analysis was considered useful to examine the interactions of sample and PMS status, on those WHQ subscales appropriate to a parametric analysis (Depressed mood, somatic symptoms, anxiety / fears, menstrual symptoms and self esteem). This analysis continues from research questions (5) and (6).

Multi-variate analysis of variance (MANOVA) was carried out to examine interactions between sample and PMS status for the WHQ subscale scores of depressed mood, somatic symptoms, anxiety / fears, menstrual symptoms and self esteem. Tables 6.11 and 6.12 present the multivariate tests of significance, and the results for each subscale, of this analysis.

---

45 A multi-variate analysis including those subscales not appropriate to a parametric test was not performed. There is not (as far as I can ascertain) any non-parametric equivalent of MANOVA, and even if there were, because of the way that data is treated within unrelated non-parametric comparisons (for example, the Kruskal-Wallis ANOVA, where data points are ranked) it would be extremely difficult to ascertain in which direction any significance lies.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypoth SS</th>
<th>Error SS</th>
<th>Hypoth MS</th>
<th>Error MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dep</td>
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<td>9.867</td>
<td>0.00013</td>
<td>0.046</td>
<td>0.003</td>
<td>.958</td>
</tr>
<tr>
<td>Som</td>
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<td>11.653</td>
<td>0.04583</td>
<td>0.054</td>
<td>0.846</td>
<td>.359</td>
</tr>
<tr>
<td>Anx</td>
<td>0.01740</td>
<td>15.578</td>
<td>0.01740</td>
<td>0.072</td>
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<td>.625</td>
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<tr>
<td>Mem</td>
<td>0.01278</td>
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<td>0.01278</td>
<td>0.084</td>
<td>0.152</td>
<td>.697</td>
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<tr>
<td>Self est.</td>
<td>0.21841</td>
<td>13.850</td>
<td>0.21841</td>
<td>0.064</td>
<td>3.390</td>
<td>.067</td>
</tr>
</tbody>
</table>

Table 6.11: Group x PMS MANOVA: Univariate (i.e. each separate dependent variable, by the two independent variables) F-tests, DF = (1, 215). Key: Hypoth = hypothesised, SS = sum of squares, MS = mean square, dep = depressed mood subscale, som = somatic symptoms subscale, anx = anxiety/fears subscale, mem = memory/concentration subscale, self est. = self esteem subscale.

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Exact F</th>
<th>Hypoth. DF</th>
<th>Error DF</th>
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<td>Pillais</td>
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<td>0.974</td>
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<td>211.00</td>
<td>.435</td>
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<td>0.974</td>
<td>5.00</td>
<td>211.00</td>
<td>.435</td>
</tr>
<tr>
<td>Wilks</td>
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<td>0.974</td>
<td>5.00</td>
<td>211.00</td>
<td>.435</td>
</tr>
</tbody>
</table>

Table 6.12: Group x PMS MANOVA: Multivariate tests of significance (s = 1, m = 1/2, n = 104 1/2).

As may be seen in the two tables above, no significant interaction for group (PMS clinic, FPC or UG) or PMS status (SR or NSR), for the five WHQ subscales, was observed.

**6.3.8 Predictors of self reported PMS.**

The final research question of this study concerned the predictive value of each of the subscales of the WHQ, and the socio-economic and environmental variables measured, for PMS status, in the two non-help-seeking groups. It has been shown that scores on the WHQ are significantly higher in women who self-report PMS, irrespective of the sample from which they come. The clinical, or help-seeking, sample, were not included in this analysis, as the intent was to investigate the utility of the WHQ to predict self-report of PMS in a non-help-seeking sample.

Therefore, as this study was investigating the effect of many factors on self report of PMS, a logistic regression analysis (using deviation contrasts) was used to predict the outcome of PMS self-report (measured simply as a yes / no...
response) by each of the variables under study, and a log likelihood measure of total predictive efficacy for all of the variables under study. Logistic regression is preferable to other regression models in data sets with a binary (categorical) dependent or response variable (Gilbert, 1993).

Of the predictor variables, those subscales previously used in parametric analysis (depressed mood, somatic symptoms, anxiety / fears, menstrual symptoms, and self esteem) were treated as continuous variables in this analysis. Those remaining subscales previously used in non-parametric analyses (memory / concentration, vasomotor symptoms, sexual behaviour and sleep problems) were transformed into binary categories by means of a median split. This results in some loss of sensitivity in the analysis for these measures, but was necessary to include them in the regression. Those socio-economic and environmental variables measured as binary categories (parity, oral contraceptive use, self report of stress and sexual activity) were treated as binary categories in the analysis. Finally, those socio-economic and environmental variables measured as categories of more than two levels were converted into series of 'dummy' binary variables: For example, the variable 'marital status', originally measured as one of three responses (single, married / cohabiting, or divorced / separated / widowed), became two dummy binary variables, with '0, 0' representing 'single', '1, 0' representing 'married / cohabiting', and '0, 1' representing 'separated / divorced / widowed'. This allowed those categorical variables of more than one level to be included in the regression analysis. Thus, 26 variables were included in the analysis, of which 11 were dummy binary variables representing marital status, cycle phase at time of questionnaire completion, employment status and educational achievement. A forward stepwise method was used to select variables. The results of the logistic regression analysis are presented in table 6.12 (variable intercorrelations may be seen in appendix VI).
<table>
<thead>
<tr>
<th>Predictor</th>
<th>β - value</th>
<th>S.E.</th>
<th>DF</th>
<th>O.R.</th>
<th>C.I. (lower)</th>
<th>C.I. (upper)</th>
<th>P</th>
</tr>
</thead>
<tbody>
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<td>0.05</td>
<td>1</td>
<td>1.10</td>
<td>0.99</td>
<td>1.10</td>
<td>0.04*</td>
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<td>1.07</td>
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<td>2.49</td>
<td>0.89</td>
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<tr>
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<td>1</td>
<td>0.52</td>
<td>0.35</td>
<td>1.69</td>
<td>0.10</td>
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<tr>
<td>Employ. (dummy 1)</td>
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<td>0.56</td>
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<td>3.42</td>
<td>0.67</td>
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<td>Employ. (dummy 2)</td>
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<td>0.10</td>
<td>2.29</td>
<td>0.25</td>
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<tr>
<td>Employ. (dummy 3)</td>
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<td>0.95</td>
<td>0.34</td>
<td>2.94</td>
<td>0.93</td>
</tr>
<tr>
<td>Employ. (dummy 4)</td>
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<td>0.61</td>
<td>1</td>
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<td>0.31</td>
<td>3.48</td>
<td>0.92</td>
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<td>Group</td>
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<td>1</td>
<td>0.98</td>
<td>0.46</td>
<td>2.13</td>
<td>0.97</td>
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<td>Marit. (dummy 1)</td>
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<td>0.26</td>
<td>1</td>
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<td>0.53</td>
<td>1.48</td>
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<td>Marit. (dummy 2)</td>
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<td>0.16</td>
<td>0.36</td>
<td>1</td>
<td>1.17</td>
<td>0.52</td>
<td>2.15</td>
<td>0.66</td>
</tr>
<tr>
<td>Sex. active</td>
<td>-0.30</td>
<td>0.26</td>
<td>1</td>
<td>0.74</td>
<td>0.59</td>
<td>1.54</td>
<td>0.25</td>
</tr>
<tr>
<td>Dep. mood</td>
<td>1.53</td>
<td>1.46</td>
<td>1</td>
<td>4.62</td>
<td>0.53</td>
<td>163.14</td>
<td>0.29</td>
</tr>
<tr>
<td>Som. symp.</td>
<td>0.98</td>
<td>1.25</td>
<td>1</td>
<td>2.66</td>
<td>0.32</td>
<td>39.26</td>
<td>0.43</td>
</tr>
<tr>
<td>Mem / conc. (binary)</td>
<td>-0.52</td>
<td>0.26</td>
<td>1</td>
<td>0.60</td>
<td>0.52</td>
<td>1.46</td>
<td>0.05*</td>
</tr>
<tr>
<td>Vaso. symp (binary)</td>
<td>0.50</td>
<td>0.26</td>
<td>1</td>
<td>1.65</td>
<td>0.68</td>
<td>1.92</td>
<td>0.06</td>
</tr>
<tr>
<td>Anx. / fears</td>
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<td>0.96</td>
<td>1</td>
<td>1.63</td>
<td>0.64</td>
<td>10.51</td>
<td>0.61</td>
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<tr>
<td>Sex. beh. (binary)</td>
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<td>0.36</td>
<td>1</td>
<td>0.74</td>
<td>0.45</td>
<td>1.81</td>
<td>0.40</td>
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<td>Sleep (binary)</td>
<td>0.12</td>
<td>0.28</td>
<td>1</td>
<td>1.13</td>
<td>0.60</td>
<td>1.80</td>
<td>0.67</td>
</tr>
<tr>
<td>Mens symp</td>
<td>2.93</td>
<td>0.89</td>
<td>1</td>
<td>18.78</td>
<td>2.37</td>
<td>76.22</td>
<td>0.0009*</td>
</tr>
<tr>
<td>Self esteem</td>
<td>0.71</td>
<td>1.03</td>
<td>1</td>
<td>2.04</td>
<td>0.28</td>
<td>15.75</td>
<td>0.49</td>
</tr>
<tr>
<td>Stress</td>
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<td>0.55</td>
<td>1</td>
<td>0.79</td>
<td>0.30</td>
<td>2.49</td>
<td>0.67</td>
</tr>
<tr>
<td>Cycle phase (dummy 1)</td>
<td>0.11</td>
<td>0.32</td>
<td>1</td>
<td>1.12</td>
<td>0.55</td>
<td>1.38</td>
<td>0.73</td>
</tr>
<tr>
<td>Cycle phase (dummy 2)</td>
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<td>0.32</td>
<td>1</td>
<td>1.10</td>
<td>0.55</td>
<td>1.92</td>
<td>0.76</td>
</tr>
<tr>
<td>Cycle phase (dummy 3)</td>
<td>0.21</td>
<td>0.37</td>
<td>1</td>
<td>1.24</td>
<td>0.53</td>
<td>2.22</td>
<td>0.56</td>
</tr>
</tbody>
</table>

Table 6.13: Results of logistic regression analysis. Significance marked with *. Predictor
variables (left hand column) for dependent, or outcome, variable, self report of PMS.

From table 6.13, it can be seen that for the FPC and UG samples, there were three significant predictor variables for PMS status. These were: age of participant (odds ratio (OR) = 1.10, confidence interval (CI) = 0.99 - 1.10, p <.004), memory and concentration symptoms (WHQ subscale) (OR = 0.60, CI = 0.52 - 1.46, p <.05) and menstrual symptoms (OR = 18.78, CI = 2.37 - 76.22, p <.0009). None of the other variables proved to be significant predictors of PMS status, however, using these variables, the log likelihood model was able to correctly predict 77.36% of the cases (PMS SR / NSR) (see also table 6.7 for summary information).

6.4 Discussion.
The first research question of this study addressed the use of the WHQ (Hunter, Battersby & Whitehead, 1986; Hunter, 1992) and the other variables measured (marital and employment status, parity, educational achievement, oral contraceptive use, cycle phase at time of questionnaire completion, self-report of stress, sexual activity and age) to provide information on the characteristics of a help-seeking sample of women (the PMS clinic sample).

The mean age of the PMS clinic sample was 34.5 years, and the highest percentage of these women were married or cohabiting, had one or more children, were in full time employment, had left school aged 14 - 17, did not use the contraceptive pill, and were currently sexually active. 61.4% of the sample reported concurrent stress in their lives at the time of the study. Turning to the scores of this population of women on the subscales of the WHQ, levels of symptomology were elevated in comparison with both the FPC and general samples in Hunter's (1992) original paper. For example, in Hunter's (1992) FPC sample, who were comparable in age to the PMS clinic sample here (mean age = 30.4, compared to a mean age of the PMS clinic sample in this study of 34.2), the mean score of her sample on the anxiety / fears subscale was 0.30. In the present study, the mean score of the PMS clinic sample on the anxiety / fears subscale was 0.57. Specifically, caseness (non-psychotic psychiatric disorder) was recorded here as 54.55% of the sample scoring above the validated cut-off point for depression. Hunter (1992) has suggested that symptomatology as recorded by the WHQ would tend to increase with age, but the sample here scored higher on all scales, with the exception of vasomotor symptoms and sexual problems, than the oldest sample on which the WHQ was
standardised (Hunter, 1992). The level of caseness in the PMS clinic sample is particularly striking, as the WHQ provides a conservative estimate of mood disturbance (Hunter, 1992). This result is comparable to other outpatient gynaecological samples, where morbidity has been recorded as high as 50% (see Bebington et al, 1981). Further, other studies of concurrent psychiatric and emotional problems have previously indicated similarly high levels of distress in PMS samples (e.g. Corney & Stanton, 1991; Chandraiah et al, 1991; Morse et al, 1988).

Research question two concerned the relationships between the WHQ subscales, for the PMS clinic sample. The intercorrelations of scores arguably indicate a complex inter-relation of symptoms. In a study using an early version of the WHQ (Hunter, Battersby & Whitehead, 1986) examined the factor correlations between what became seven of the WHQ subscales (depressed mood; somatic symptoms, memory / concentration; vasomotor symptoms; anxiety / fears; sexual behaviour; sleep problems) and found that whilst all correlations were statistically significant (p < .05), they were generally low, in a sample of 850 pre, peri and post menopausal women, indicating the relative independence of factors. However, the results indicated that there were associations between depressed mood, anxiety and sleep problems, that memory / concentration problems were associated with anxiety, and that vasomotor symptoms were associated with somatic symptoms and sleep problems. Hunter et al (1986) took a factor intercorrelation scores of greater than 0.30 to indicate these associations. Adopting this approach, for the PMS clinic sample, who have already been shown to have a high co-morbidity for depression, a number of inter-factor associations are apparent. Depression would appear to be associated with memory / concentration symptoms, sleep problems, sexual behaviour and self-esteem. Anxiety is associated with sleep problems and sexual behaviour. Sleep problems and sexual behaviour are associated. Somatic symptoms are associated with memory / concentration symptoms, sleep problems, vasomotor symptoms, sexual behaviour and menstrual symptoms. Self esteem is associated with vasomotor symptoms, sexual behaviour and depression, and sleep problems are associated with memory / concentration. These intercorrelations present a picture that one might associate with the experience of PMS: A complex relationship between physiological, psychological and behavioural symptoms, highlighting the generally elevated subscale scores. As the results indicate that in this sample, symptoms were reported as present irrespective of the cycle phase.
of participants, it is possible to speculate that this sample of women are suffering from a wide array of problems, not necessarily related temporally to their menstrual cycles, but which they attribute to PMS.

Research question three addressed the relationship between the different socio-economic and environmental variables measured, and scores on the WHQ subscales, for the PMS clinic sample. No significant relationships were found between self report of stress, oral contraceptive use, cycle phase at time of study, sexual activity, employment status, marital status, or educational achievement, and any of the nine WHQ subscales. No significant relationship was found between parity and WHQ subscales, with the exception of the anxiety / fears subscale, where women without children achieved a significantly higher score. This finding does not concur with the literature on morbidity and parity, which often indicates an increase in psychiatric symptomology with parity (see, for example, Ussher, 1992c).

The fourth research question of this study focused upon the use of the socio-economic and environmental variables measured, and the WHQ, in describing the characteristics of the two control samples. The two control samples differed from the PMS clinic sample on all socio-economic and environmental variables. The mean age of the FPC sample was 26.6, approximately half of the women in this sample were single (48.8%) and approximately half married or cohabiting (45.5%). The majority of this sample worked full-time (35.2%), and had either left school aged 14 - 17 (37.5%) or completed higher education (39.8%). Only 37.5% had one or more children, 83% were sexually active, and 52.3% were using oral contraceptives. The UG sample had a mean age of 23.5 years, and the majority of these women were single (73.9%). All were currently attending University, 72.7% were sexually active, and 10.2% had one or more children. The FPC sample contained the greatest number of sexually active women, and the greatest number of oral contraceptive users, which would be expected in a family planning sample. The three samples (PMS, FPC, UG) differed significantly on measures of education, marital status, employment status, oral contraceptive use, parity and sexual activity. No significant relationship between sample and self-report of stress or distribution of cycle phase was found. Within the two control samples, comparisons between SR and NSR women within these samples revealed no significant differences on environmental or socio-economic variables, with the
The WHQ subscale scores of the two control samples were lower than those in Hunter's (1992) original paper, and compared with the PMS clinic sample, although this will be discussed in greater detail shortly. Caseness for both the FPC and UG sample was lower than for the PMS clinic sample, and comparable with community outpatient surveys of psychological morbidity (see Bebington et al., 1981). Caseness for the UG sample was recorded at 10.27%, breaking down into 4.55% of the NSR group, and 15.91% of the SR group. Caseness for the FPC sample was recorded at 22.73%, breaking down into 6.82% of the NSR group and 14.77% of the SR group. It is of note that in both control samples, levels of caseness were higher for SR than NSR groups.

The relationship between sample (PMSC, FPC, UG) and WHQ subscale scores was addressed in research question five. Results illustrated the significant differences between samples for WHQ subscale scores, where in every case, mean scores for the PMS clinic sample are higher than for the two control samples. Additionally, for each subscale with the exception of the memory / concentration subscale (where the UG sample score, on average, slightly higher than the FPC sample), the FPC sample achieve a slightly higher mean score than the UG sample. This may be in part a function of age - the FPC sample are, on average, slightly older than the FPC sample, and Hunter (1992) notes that WHQ scores tend to increase with the age of the sample - and other sample characteristics such as parity. The slightly higher mean score of the UG sample compared to the FPC sample on the memory / concentration subscale may be partly explained by situational factors: It may be that because the UG sample is comprised entirely of students, who were tested during term time, that they were more aware of their memory and concentration levels, factors which are important in study. However, this is speculative.

The relationship between PMS status (SR or NSR) and WHQ subscale scores was addressed in answering research question seven. Significant differences between SR and NSR women were found for all subscales except the vasomotor symptom subscale, with the scores of all SR groups being higher than NSR scores. This analysis was repeated on the UG and FPC sample alone, to ensure that the
generally elevated symptom levels of the PMSC sample were not confounding this result. Again, significant differences between SR and NSR women were found, with the exception of the vasomotor symptoms subscale. This indicates that women who self-report PMS, across all of the samples, had higher levels of symptomology, as measured by the WHQ, than the NSR women. The result of the analyses for the vasomotor symptom subscale may be explained by the nature of the symptoms that it measures, which are arguably more relevant to Hunter’s (1992) climacteric sample of women, rather than the comparably young and non-menopausal women in this study. Multivariate analysis of variance revealed no significant interaction between PMS status and sample for five of the WHQ subscales, supporting the interpretation that SR women generally achieved higher subscale scores than NSR women.

Finally, research question seven addressed the predictive efficacy of the WHQ subscales and environmental and socio-economic variables measured, for PMS status in the two control samples. Three significant predictors of PMS status were found, which were age, the memory / concentration subscale, and the menstrual symptoms subscale. Previous research (see, for example, Warner & Bancroft, 1990) would suggest age to be a significant factor in the self-report of PMS, and the result of this study would support this. The presence of menstrual symptoms as significantly predicting self-report of PMS would suggest that perhaps the aspects of menstrual symptomology measured by the WHQ (sore breasts, heavy periods, abdominal discomfort, bloatedness) contribute to the self-report of PMS, and perhaps make women more aware of their premenstrual phase, or possibly more likely to attribute any distress that they are experiencing to their menstrual cycles. The finding that high scores on the memory / concentration subscale significantly predicts PMS status for these samples indicates that the aspects of memory and concentration measured by the WHQ (clumsiness, poor memory, lack of concentration) are perhaps factors which women associate with PMS. Overall, despite the fact that only three significant predictors of PMS status were found, a relatively high percentage of cases (77.36%)\(^{46}\) were predicted by the regression equation using the variables measured, indicating again a relationship between generally high symptomology and self-report of PMS. However, the conversion of a number of the variables into either two-level (through a median split), or

\(^{46}\) It must be borne in mind however that some of this percentage (in the case of two-level variables, for example, 50%) could be accounted for by chance.
dummy variables, to concur with the requirements of the analysis, may have resulted in some loss of sensitivity in the results, and may partly explain these findings.

This study has some further limitations. In the first place, the three samples were measured under very different circumstances. Use of women on the waiting list for a PMS clinic may have resulted in some over-reporting of symptoms, as may use of women in a family planning clinic, because of the context in which the data was collected. In other words, the elevated levels of symptomology in the PMS clinic sample may in part be explained by the fact that participants were surveyed as a PMS-clinic waiting list group, and whilst they were not told of the specific purpose of the study, a reporting bias may have been introduced. Similarly, for the FPC sample, as women were again surveyed in a clinical setting, any symptoms or negative experiences may have been more available to them than to those participants in the UG sample.

Future research could utilise a more sophisticated measure of life stress, such as the CADACL (Cruickshank, 1984) perhaps in conjunction with a broad-band measure of life circumstances that allows for a more sophisticated analysis of the effects of stress (for example, working full time and having one or more children, and being a single parent) on the self-report of PMS. This study is limited by a very simplistic measure of stress, and there is a paucity of research adopting a broad-band measure of life stress.

It is also difficult to generalise from the populations in this study, to the population in general. The results presented here are for specific samples of women in specific contexts, and future research could compare a wider selection of populations. Hunter (1992) argues that the WHQ provides a detailed description of the interplay between emotional and physical complaints experienced by women, measures which could usefully be applied for longitudinally evaluating PMS treatments, or for comparing women with prospectively diagnosed PMS and a non-clinical self-reporting sample.

6.5 Conclusion.

This study illustrates the high levels of perceived emotional and physical symptomology in a sample of women seeking help for PMS, as measured by the
WHQ (Hunter, 1992), compared to control samples. Further, it illustrates higher levels of emotional and physical symptomology in non-help-seeking women who self-report PMS, compared to NSR groups. The WHQ provides a detailed description of the levels of symptom experiences in the samples studied, and may be usefully applied to other aspects of PMS research.
Chapter seven: A discourse analytic approach to self-reported PMS.

7.1.1 Introduction.
The previous two chapters have presented two pieces of research into the self-report of premenstrual syndrome, one experiment-based, and one questionnaire-based study. In an attempt to move away from the constraints of diagnostic criteria and definitions of premenstrual syndrome, the inadequacies of, and problems associated with which are discussed in chapter three, women who self-diagnose PMS have participated in all of the research presented in this thesis. This criterion, then, also represents an attempt to conduct women-centred research, a premise of a feminist standpoint approach.

These different research strategies have further been employed to examine their efficacy in providing a theoretical account of the process by which women come to self-diagnose PMS. The experimental study, of self-reported PMS and attentional bias, found no difference between women who do and don't self-report PMS. The questionnaire study was able to describe perceived detriment to emotional and physical health in samples of women self-reporting PMS, but did not identify any individually significant predictors of PMS status. Further implications of these findings, in relation to the utility of different psychological research strategies, will be discussed in chapter eight. This chapter presents the final piece of research conducted for this thesis: A discursive analysis of self-reported PMS.

The relationship between feminism, specifically a feminist standpoint approach, and research strategies, is set out in chapter four, where I conclude that the adoption of different research strategies, with the acknowledgement that each strategy can only access one particular facet of experience, and alongside a critique of positivist psychological practice, may be useful for researching the factors that lead a woman to self-report PMS. Because of the feminist standpoint approach used within this thesis, each piece of research represents a different research strategy, rather than the 'trying on' of different epistemological 'hats'.

This chapter will draw on two further strands of argument in order to present the case for a qualitative approach to premenstrual syndrome. In the first place, the argument for the role of social factors in the experience of PMS will be reviewed, along with examples of relevant research. Secondly, the theoretical
framework outlined in chapter four will be examined, including the consideration of PMS as a gendered illness (Parlee, 1991), setting the case for the qualitative approach.

To summarise, this chapter will present the argument for a qualitative approach to self-reported PMS, from within a feminist multi-factorial approach. This rationale will then be narrowed to support the use of a particular qualitative research strategy, namely a grounded discourse analytic approach. Other qualitative research into PMS and the menstrual cycle (such as exist) will be reviewed, and the preceding arguments summarised. An interview based discourse-analytic study, examining women's accounts of PMS, will then be presented. This chapter concludes with a discussion of the analysis of these accounts, and a consideration of the utility of this particular qualitative approach for providing a theoretical account of the process by which women come to diagnose themselves as suffering from PMS.

7.1.2 Why a qualitative approach to self-reported PMS?
The failure of a range of aetiological theories of PMS to accurately identify any difference between women who do, and those who do not, experience significant levels of premenstrual distress is outlined in chapter three of this thesis. No reliable biological marker of PMS has been identified, despite the vast amount of research that has been dedicated to this end (see Parlee, 1991; Nicolson, 1992). The resulting struggle between what have been termed the bio-medical and socio-cultural research camps (Ussher, 1992a) to provide the definitive (biological / traditional or socio / cultural) account of menstruation, the menstrual cycle and PMS has arguably failed to place the distress of women who seek help for premenstrual symptomology at the centre of the research process (Ussher, 1992a).

One strand of the justification for a qualitative approach to PMS comes, then, from the impasse reached by more traditional methods, even in studies that examine the role of social and cultural factors in PMS, to provide a substantial theoretical account of premenstrual experience (see also chapters five and six; see Swann & Ussher, 1995). This section will, in the first place, review the evidence for socio-cultural factors in the experience of menstruation and PMS. The second part of this section will focus upon different theoretical strands that may suggest a
7.1.2.1 The evidence for socio-cultural factors in the experience of the menstrual cycle and PMS.

Multi-factor approaches to PMS, such as the example provided by Ussher (1992a) which is cited throughout this thesis, indicate levels of experience at which culture and the social realm may contribute to the interpretation of bodily experience. In Ussher's (1992a) model (see chapter three), the first of these levels is between the physical / experiential (where social support and environmental factors are also implicated) and the cognitive, and the second is between the cognitive and the outcome behaviour (self-report / diagnosis of PMS). The argument for the role of such social factors as social support, beliefs and expectations about the menstrual cycle, comes from research into these factors that suggests them to be relevant. Richardson (1992a) also notes the relationship between the social and cognition, suggesting that whilst the cognitive (being, in a general sense, all aspects of knowledge and knowing) is dependent, in his view, upon the existence and functioning of particular biological structures and organisation, so culture and social being determines the content (and context) of cognition. It should also be noted that the social and scientific understanding of the process of cognition is framed and constrained by the language and conceptual frameworks used to describe it.

Ussher (1992a) suggests that one way in which these socio-cultural factors impact upon women is through the influence of cultural constructions of the menstrual cycle and menstruation. She uses the example of internalisation of negative stereotypes about menstruation, as debilitating or shameful, which might affect the way in which an individual woman interprets the experience of her menstrual cycle, and notes that different social and cultural factors (such as stress or poverty) may act at different levels of her multi-factor model.

Studies of the effects of socio-cultural factors on PMS and the experience of the menstrual cycle tend to fall into four categories: Those examining the effects of gender on beliefs about and attitudes towards menstruation, those investigating the specific action of gender positions within particular cultures, those looking at positive cultural influences on menstrual experience, and investigations of the relationship between attitudes and beliefs, and premenstrual and menstrual
Golub (1981) examined gender differences in beliefs about menstruation. She found that women and men acquire related but distinct sets of beliefs about the menstrual cycle. For example, men (perhaps predictably) were less knowledgeable than women about menstruation itself, and believed it to be more painful and debilitating than women did. Ernster (1975) found 128 different slang terms for menstruation in a survey of American menstrual euphemisms. Taken together, Koeske (1983) suggests that these two studies indicate a relationship between the experience of the menstrual cycle and cultural concepts of femininity and female roles. Further, Sayers (1982), in illustrating the social construction of menstruation, comments upon the existence of menstrual taboos in various cultures with the observation that negative cultural attitudes (such as the Orthodox Jewish practice of female segregation, followed by ritual cleansing, during and after menses) may well contribute to women's menstrual experiences.

More specific research upon gender positions within cultures and their relationship to beliefs and menstrual cycle experience has focused upon culturally specific constructions of femininity. Atcheson (1977), like Sayers (1982) and Ussher (1989), argues that menstrual taboos and practices are linked to cultural assumptions about female 'otherness' and devaluation of women because of a more visible link to biology. Zelman (1977) further suggests that such beliefs and practices reinforce gender differences. There is some evidence for the existence of positive menstrual beliefs - Brooks, Ruble & Clark (1977) found that college students held a variety of beliefs about menstruation, only some of which were negative.

In experimental contexts, researches have attempted to test hypotheses about the relationship between beliefs and experience further. Ruble (1977) gave women misleading feedback about their menstrual cycle phase, and found that such false information could produce different symptom ratings among women who were actually at the same phase of their menstrual cycles. McFarland, Ross & DeCourville (1989) collected prospective reports of symptom levels whilst assessing participant's beliefs about menstrual distress. They found that when these respondents were asked to recall their symptom levels after a two week interval, those who had strong menstrual-distress beliefs were more likely to
exaggerate their previous symptom levels, contradicting their prospective
records. Brook s-Gunn & Ruble (1982) studied the attitudes and expectations of a
group of pre-menarchal girls, and found that negative beliefs and expectations
were already well-established. The often unrealistic nature of these beliefs was
illustrated by comparison with a group of older, post-menarchal girls, who
reported significantly less distress than they had originally experienced.
However, in the same study, a significant relationship was found between early
attitudes and subsequent experience of premenstrual symptoms -participants
who reported negative attitudes experienced more severe premenstrual and
menstrual symptoms. In contrast, Paige (1973) found that possible social
influences upon beliefs and attitudes, such as parental attitudes and maternal
experience, bore no relationship to subsequent menstrual complaints.

Koeske (1983) argues that whilst socio-cultural studies serve as a critique of the
prevailing bio-medical tradition in menstrual cycle and PMS research, they are
subject to similar methodological problems. Koeske (1983) notes that socio­
cultural studies tend not to question the positioning of particular premenstrual
experiences as abnormal or normal, often use retrospective and correlational
designs, suffer from the same problems as traditional research in terms of cycle
phase definition, and often ignore the problems of sampling bias in populations
under study. For these reasons, she argues that research into socio-cultural
factors that may effect premenstrual and menstrual experiences also fail to
provide an adequate account of the action and meaning of pervasive social and
cultural factors (Koeske, 1983).

Recently, Mohan & Grewal (1990) investigated the perception of child rearing
practices of mothers with PMS. Using the retrospective form of the MDQ (Moos,
1968: See chapter six), mothers with at least one adolescent child were assessed by
their children, using a mother-child interaction scale. It was found that the
children of mothers who achieved a high score on the MDQ rated their mothers as
providing less good child care than the children of the low-scoring mothers. This
appears to be an interesting study, but has three major flaws. In the first place,
the authors are assuming an hormonal aetiology to PMS and do not acknowledge
the possibility that some socio-cultural factors (for example, number of children,
or economic circumstances) as having any possible effect on the relationship
under study. Secondly, the retrospective form of the MDQ was used to assess
premenstrual symptomology, a measure that has been shown to be problematic (see chapter six). Finally, it is not clear at all that participants were blind to the purpose of the study. All of these factors illustrate not only Koeske's (1983) argument, but the trend by many researchers, even those in the socio-cultural field, to either ignore the social context in which their research is carried out, or to utilise research strategies that cannot take account of these.

A 1981 study by the World Health Organisation Task Force on Psychosocial Research in Family Planning examined the ability of women in a variety of cultural settings to recall and predict menstrual events. Using a combination of survey, menstrual diaries and a short menstrual questionnaire, respondents in ten countries were asked about their recollection and perception of menstrual events, and to predict their next menstrual bleed. The study found a high level of cultural variation in awareness of, and ability to predict, menstrual events: For example, 49% of Egyptian women predicted their next menstrual bleed accurately, compared to only 14% of Pakistani women. Such differing levels of awareness and knowledge must surely indicate an effect of culture, education and belief upon menstrual experience. However, this study was again limited by a simplistic, non-blind research strategy, and a small number of research questions.

Klebanov & Jemmott (1992) examined the effects of expectations and bodily sensations upon self-report of premenstrual symptoms. Using a method similar to that of Ruble (1977), it was found that those women who were falsely informed to be premenstrual reported a greater number of symptoms than those who believed themselves to be intermenstrual, regardless of actual cycle phase.

The studies reviewed above would seem to indicate that cultural context, beliefs and expectations about the menstrual cycle, play an important role in the experience of menstruation and in PMS. However, studies focusing on these aspects of experience tend to be, as Koeske (1983) argues, just as limited by methodological problems as more traditional menstrual cycle and PMS research, and fail to place the experience of PMS in anything other than the context of the (usually small) number of variables under study.

Nicolson (1986), in a study of post-partum depression, argued that a qualitative analysis was more appropriate for this particular area than a quantitative
approach, because it elicited more detailed information about the problems and anxieties of individual women as they adjusted to motherhood. By the same token, as the process of defining, or deciding, oneself to be suffering from PMS is arguably as much grounded in the social (the drawing upon beliefs and attitudes through the use of social resources) as in any pathology, the justification for examining the socio-cultural context in which women self-report PMS is strong. A qualitative approach may afford a more detailed analysis of the way in which women construct PMS, and themselves as PMS sufferers, than is possible using more traditional questionnaire or experimental methodologies.

7.1.2.2 Theoretical considerations.
In chapter four, the relationship between feminism and research strategies was explored. The second strand of argument for a qualitative approach comes from some feminist critiques of PMS research, and this section will further explore the relationship between PMS, feminism and research strategy.

Parlee (1991) suggests that PMS is best envisaged as a 'gendered illness', which has developed as an illness category in response to the 'second wave' of feminism in the 1970's. Rittenhouse's (1991) research on the emergence of PMS as a social problem supports this thesis: In a content analysis of medical, psychological and popular journals over the last twenty years, Rittenhouse suggests that the illness category of 'PMS' only became legitimised as a social problem, one that affects a vast number of women, in the 1980's. Richardson (1992) has similarly argued that PMS is an issue of gender.

Rodin (1992) proposes that the inconclusiveness of PMS research, as noted previously in this chapter, is more symptomatic of the persistence of cultural beliefs in the production and reproduction of medical knowledge, rather than of any underlying pathology in women that research has simply not yet discovered. In an analysis of PMS research that draws upon a critique of positivism and of the construction of knowledge, Rodin (1992) draws parallels between ancient references to hysteria and femininity, and the modern construction of the female body. She suggests:

"The nature of these understandings is readily apparent in studies which look at the correlation of unusual behaviour with phase of the menstrual cycle. This type of endeavour, which dates back to the late nineteenth
Both Parlee (1991) and Rodin (1991), then, present arguments that explain the problems in PMS research (described in chapter three) in terms of the social construction of the female body. In other words, it can be argued that the failure of medical and psychological research to date to provide an adequate theoretical and etiological account of premenstrual syndrome is because the existence of PMS as an illness category is reflective of particular social and cultural beliefs.

It has been noted that traditional positivist research strategies fail to take into account a wealth of contextual and social information, that may be important if research is conducted from within a multi-factor approach to PMS. From a feminist standpoint, whilst it is true to say that research questions may be adapted, and researched, using a variety of different methods (see chapter four), it may be that the adoption of a qualitative approach to PMS, which can attend to the construction of PMS by the women who consider themselves to suffer from it, would be illuminating. Certainly, Rodin (1992) suggests that an approach which attends to the social construction of PMS may be more fruitful for research, given it’s social and historical links. Feminist standpoint approaches (Harding, 1991) emphasise the extent to which knowledge, about oneself and the world, is situated in the social. It can be argued then that the process of defining oneself as a PMS sufferer would involve the use of various social resources by women, their previous experience, their knowledge of the menstrual cycle, and so forth - in other words, that this is a subjective process. Traditional, or positivist, research strategies, because of their epistemological concerns (that phenomena are ‘real’ and ‘knowable’, and may be measured objectively) can hardly apply to this.

Feminist research has a tradition of using qualitative research techniques, in order to explore the dynamic qualities of gender and femininity (see, for example, Griffrin, 1986). Griffrin & Phoenix (1994) suggest that feminist standpoint research is characterised by the emphasis that it places on reflexivity, on the conduction of women-centred research, and on the acknowledgement of the political role of research. The rationale for use of a qualitative approach in much feminist
research, then, stems from both the critique of positivism outlined in chapter four, and from the need to provide an alternative, more appropriate research strategy through which to accomplish these aims.

7.1.2.3 Summary
It has been noted that whilst multi-factor models tend to position social factors as important in the experience of PMS, traditional approaches to investigating such social factors have tended to focus on uni-variate social aetiological accounts, and that they are subject to the same methodological problems as traditional biomedical research into PMS. Further, feminist accounts of PMS suggest that social influence on the experience of menstruation and the menstrual cycle may not necessarily be researched through traditional means, rather that the social construction of the female body, menstruation and PMS are factors of great importance. Therefore, it is concluded that a research strategy that enables the investigation of these factors, and which affords the process of self-diagnosis of PMS to be placed in it's social context, may be of use.

7.1.3 Qualitative research on PMS and the menstrual cycle.
Little qualitative research has been carried out within psychology on the experience of the menstrual cycle and PMS. In this section, two qualitative studies conducted in the area of the menstrual cycle and PMS from other academic disciplines are reviewed, as well as a qualitative psychological study of young girl’s experience of menarche. Because of the paucity of qualitative research in this area, I shall also review a study on depression in the post-partum period, which represents a useful application of qualitative methodology in a related area.

One of the most notable examples of qualitative research into the menstrual cycle and PMS is the large scale interview-based study conducted in Baltimore by the social anthropologist Emily Martin and her colleagues, and reported in her 1987 book “The Woman in the Body”. 165 women were interviewed over a number of years, from different socio-economic and ethnic backgrounds, and medical texts on menstruation, childbirth and the menopause were also analysed and compared with the women’s accounts. In an effort to find out how women of different backgrounds experienced their reproductive life-cycles, Martin (1987) analysed this vast body of qualitative data using what could be termed a critical realist
Marxist approach. She found that the women in her study represented themselves as fragmented into different experiential ‘pieces’ - the mother, the worker, the wife, the pregnant or menstruating body, and went on to illustrate how the oppositions present in American culture, such as home versus work, literally become embodied within the category of women, resulting in this fragmentation process. She comments:

"Because their bodily processes go with them everywhere, forcing them to juxta pose biology and culture, women glimpse every day a conception of another sort of social order.... since they do not fit in to the ideal division of things (private, bodily processes belong at home), they are likely to see that the dominant ideology is partial: It does not capture their experience."


Martin (1987) further uses Marxist theory to illustrate how modern conceptions of the female body work to keep women in their socio-economic position, and how class and race are also used within American culture to confound this positioning. This study is of interest because of the vast detail Martin (1987) provides from her interviewees to support her original reading of the texts, and represents an excellent example of qualitative research from another discipline.

Rittenhouse (1991) used a qualitative content analytic technique to investigate the emergence of PMS as a ‘social problem’. Arguing that the 1980’s resulted in a sudden upsurge of popular and medical articles on PMS, implying it’s problematic status, Rittenhouse (1991) examined why this had not occurred at an earlier point in time, when PMS was first ‘identified’ in the 1930’s, to describe the social context that triggered it’s emergence in the 1980’s. Rittenhouse examined medical, popular and feminist literature on the subject of PMS from the 1930’s to the 1980’s, devising a coding system for the way in which each article described the symptoms of PMS, it’s aetiology, the impact of PMS on women’s lives, the view of women who suffered from it, and the ideology and imagery of PMS that each article contained. From the results of this analysis, Rittenhouse (1991) argued that the emergence of PMS in the 1980’s was in part shaped as a social problem by interactions between popular, medical and feminist responses to two British trials in which women charged with manslaughter used PMS as a defence. She was also able to examine the shift in the medical and popular literature as a result of feminist challenges to the original discussions of PMS, concluding that the public debate around PMS was at that point subsiding. This study is a good example of the
use of a qualitative research strategy, focusing on specific texts, to place the social ‘phenomena’ of PMS within it’s cultural context.

Lovering (1993) used an interpretive discourse analytic technique on data collected from discussion groups about menarche and menstruation, with young girls and boys. Lovering (1993) employed this research strategy in order to examine the meaning of menarche to young girls and boys, as a challenge to the existing body of traditional research that contained largely negative accounts of the meaning and experience of menarche and menstruation. The interpretive discourse analytic technique that Lovering used was based on a Foucauldian (1976) reading of the texts, in order to identify the different discourses used by the young people, and the historical and cultural relevance of these. Lovering (1993) identified discourses of shame and embarrassment in the girls and boys discussions about menstruation and menarche, and of the ‘other-ness’ of the female body (compared to the male body). Recounting a particularly difficult discussion group, where the conversation of a group of boys about female genitalia highlighted her own position as a woman amongst a group of men, and thus as the ‘other’, Lovering concludes her paper thus:

"I consider that this approach can be particularly powerful for investigating the dynamics of gender. And with this revealing example from my own experience as a woman researcher into the 'bleeding' female body and adolescents, I rest my case for the usefulness of an interpretive and reflexive discourse analysis for feminist psychological research"

(Lovering, 1993 Pp 12).

Finally, Nicolson (1986) developed a specific qualitative psychological approach to women's experience of depression after childbirth. Noting that traditional research in this area had tended to rely on standardised definitions of depression after childbirth (thereby negating the very different experiences of individuals), that it placed women in the category of 'faulty machinery', and that the term post-natal depression, despite the lack of medical and research consensus, had attained the status of a 'fact' of female life, Nicolson developed this women-centred, feminist approach in order to challenge what she terms the 'male-oriented perspective on women' (Pp138) in this area. Further, she argues that women-centred research would provide a more 'truly' value free account of women's experiences than that which exists in the mainstream, a central premise
of feminist standpoint approaches (Henwood & Pidgeon, 1994). At this point, a parallel between inconsistencies and problems in the area of post-natal depression, and the problems already described in PMS research, may be drawn - a parallel which makes Nicolson’s (1986) research particularly appropriate to this chapter.

Nicolson (1986) collected interview data from a sample of 40 women about their experience of childbirth and their feelings, immediately after delivery and three months later. Nicolson (1986) used an interpretive, feminist and women-centred approach to inform her readings of the texts, also comparing the talk of her participants about their feelings and experiences with their scores on a standardised measure of post-natal depression. She reports, for example, that whilst the psychological instrument used would have indicated some of her participants to be chronically depressed, from analysing their interview data, and listening to them talk about the conditions in which they lived, their relationships and experiences of childbirth, a feminist interpretation might be that they were instead chronically oppressed. Nicolson argues that this subjective interpretation, and attention to individual experience, is lacking from standardised measures and traditional quantitative approaches, and notes:

"The difference between feminist methodology and interpretive methods in psychology and sociology lies in the approach of the researcher to the conceptualisation of the problem; relationship with the respondents; and the collection, analysis and dissemination of the data"

(Nicolson, 1986 Pp 147).

This section has reviewed a small but diverse series of qualitative studies relevant to research on the menstrual cycle, PMS and reproduction. As Nicolson (1986) indicates, the type of research strategy employed, and the way in which data is interpreted, will depend on a number of factors, not least of which is the issue of identifying a research strategy appropriate to the research question. Further, qualitative research methods are increasingly being taken up by feminist researchers (for example, in the study of anorexia nervosa, Malson, 1995; see Henwood & Pidgeon, 1995), as appropriate to their aims, specifically by research that is women-centred.

7.1.4 Which qualitative approach to PMS?

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The justification for a qualitative approach to PMS, then, comes from the evidence for the role of social factors in the experience of PMS (although these studies have been argued to be limited by methodological problems), and from feminist observations on the social and cultural production of PMS as an illness category. Qualitative research methods have been applied to the experience of menarche, and to women's lifetime experience of the menstrual cycle (including PMS), and reproduction. It is suggested that qualitative approaches can provide detailed descriptive accounts of the menstrual cycle and PMS, that are positioned within their social context.

In spite of this, little or no qualitative research has been carried out upon women who are actually seeking help for PMS, in order to investigate the nature of their experiences and the factors that have contributed to their PMS status. As this thesis is concerned with self-report of PMS, and the utility of different research strategies to addressing this issue, this section will consider different qualitative approaches within psychology, providing explanations of the assumptions of discourse analytic research, and concluding with the adoption of a specific qualitative research strategy.

It is important to note that there is no one, homogenous qualitative approach, rather that qualitative approaches to research may be categorised by broadly shared epistemological characteristics. For example, the studies reviewed in section 7.1.3 represent a number of diverse approaches within similar areas, tailored to very different research questions. Henwood & Pidgeon (1992) note that qualitative approaches, coming from a naturalistic or interpretative position, represent an alternative to the 'natural science' or positivist approach, and stem themselves from the various critiques of positivism (see chapter four). The characteristics that such approaches share include what Henwood & Pidgeon (1992) term a commitment to constructivist epistemologies, the representation of reality through the eyes of participants, an emphasis on description over and above explanation, the importance of examining the meaning of behaviour and experience within it's social context and in it's full complexity (rather than reducing it to certain variables), and on generating concepts and hypotheses from data rather than imposing an a priori theoretical account.

Henwood & Pidgeon (1994) suggest that there are three strands of qualitative
approaches within psychology: Those concerned with reliability and validity (for example, data display models); those concerned with the generation of theory grounded in data; and those concerned with the analysis of discourse and reflexivity. They emphasise that the particular qualitative approach used is largely dependent upon the epistemological position of the particular research project, for example, those approaches concerned with reliability and validity tend to stem from an empiricist approach to qualitative research, and focus upon the accurate representation of ‘real’ social phenomena (Henwood & Pidgeon, 1994).

Taking into account the particular research question of this thesis (namely, ‘what makes a woman self-report PMS), the theoretical framework set out in chapter four (a multi-factor, feminist standpoint approach), and the feminist critiques of PMS examined earlier in this chapter, a research strategy that affords not only the central positioning of the experiences of PMS-sufferers within the research, but one that also affords a detailed analysis of the social context within which women experience PMS is necessary.

One qualitative approach that is dependent upon the accounts of it’s participants, and which has been argued to place those accounts within their social context (Malson, 1995), is discourse analysis. Stemming from critiques of positivism, and used widely in research with post-structuralist epistemologies, discourse analysis is concerned with the deconstruction of language and linguistic resources. Wetherell & White (1992), in a discourse analytic account of young women and dieting, suggest that rather than positioning language as a neutral and transparent medium between the social actor and the social world, discourse analysis seeks to examine how language is used for specific functions, and how it constitutes social life. So, whereas positivist epistemologies would position language, and accounts, as describing ‘real’ experiences and feelings, discourse analysis seeks to unpick the way in which language is used to construct the ‘real’, and the ideological patterns contained therein (Wetherell & White, 1992). Talk, or language construction, is then positioned as the active ‘selecting out’ of pre-existing linguistic resources for a particular purpose (Burman & Parker, 1993).

Within psychology, discourse analytic approaches draw upon principles from ethnomethodology (Garfinkel, 1967), speech-act theory (Austin, 1962), post-
structuralism, conversation analysis and linguistics in viewing discourse as constructive of reality and action-oriented (Potter & Wetherell, 1987). The term discourse, then, may be defined as being a set of shared cultural beliefs and practices, that are utilised in everyday life, in order to construct meaning and objects (Parker, 1992). Discourses also constitute subjectivities\(^{47}\) and subject positions, which interpolate the social actor in particular ways (Hollway, 1989). In other words, the meanings of objects and events are inseparable from the way in which they are constituted within particular discourse (Widdicombe, 1993).

It should be noted that there are various strands and methodological approaches within discourse analytic psychology itself, and that the term ‘discourse analysis’ is used generically to cover a number of different analytic techniques and epistemological positions. Discourse analytic techniques have been used in the study of what Parker (1992) broadly terms ‘repertoires’, for example the negotiation of ‘facts’ (see, for example, Potter & Mulkay, 1985), and the use of different discursive ‘repertoires’ in conversational organisation (see, for example, Widdicombe, 1993); research into power and subjectivity, for example an approach illustrated by the work of researchers such as Hollway (1989), Henriques et al (1984) and Parker (1992), focusing on the way in which objects, practices, and subjectivities are constituted in and regulated by discourses and discursive practices; and analyses based on reflexive techniques, a good example of which is Smith’s (1984) paper on the social construction of mental illness. In researching the issue of self-report of PMS, it can be argued that a thematic decomposition, or thematic discourse analysis, would enable a detailed description of the different cultural and social resources employed by women to position themselves as PMS sufferers.

A good example of an analysis of the function of conversational repertoires is provided by Stenner (1993), who undertakes a discourse analytic account of jealousy within relationships, with a view to describing the way in which meanings within texts (or, in this case, conversations) are constructed through the use of specific discursive resources. Using what he terms a thematic

\(^{47}\) By the term subjectivity, I mean to refer to the notion of a ‘multifaceted and heterogeneous subject positions’ (Ussher, 1994 Pp 171), that within post-structuralist and constructionist approaches are contained within discourse. Ussher (1994) contrasts this with the unitary notion of ‘identity’, traditionally used in the literature on sexuality.
decomposition approach to discourse analysis, which attempts, through close reading of the text, to separate accounts (in this case, the text of a conversation between a couple) into coherent themes or stories, Stenner (1993) argues that jealousy, rather than being a real and unitary psychological product, is the negotiated product of a 'series of storied contestations' (Stenner, 1993: Pp 115). Therefore, rather than asking whether jealousy is a 'real' phenomenon, expressed in various degrees within conversation, Stenner (1993) is using this technique to break the conversation down into specific themes or stories, and examine what end is achieved by the use of each type of theme, or 'story', within the conversation. In this sense, his approach can also be termed constructionist, as it positions jealousy not as originating from within the individual's own mind, but as a complex social production generated and mediated by culturally available discursive resources.

Discourse, or discursive, analytic approaches are, then, not concerned with discourses as representations of 'the real', but in analysing, and describing, discourses and their actions. In this sense, discourse analytic approaches position themselves at a 'critical distance' from the texts under study (Parker, 1992), although the 'size' of this 'distance' varies depending upon the underlying epistemological assumptions of a piece of research. For example, from a post-structuralist epistemology, texts are read only at the level of the text, and the discursive structures contained therein analysed, to the end of describing, for example, the relations of power within a particular context (see, for example, Walkerdine, 1981). Other feminist research, such as Nicolson (1986), strikes a critical distance from traditional assumptions about women's experience, but similarly contains within it's remit the purpose of using a qualitative discourse analytic approach to underline the complexities and relations of the experience of particular individuals (women). Feminist standpoint approaches, because their very aim is to privilege a particular set of discourses or a particular group of participants, often to political or emancipatory ends, have been termed 'critical realist' (see Doherty, 1994). In other words, whilst a feminist standpoint discourse analytic approach would take data at the level of the text, it would also consider the function of particular discourses in the accounts of women, and in the social positioning of those women.

A common theme to the feminist arguments of Rodin (1992), Sayers (1982) and
Ussher (1989) is that the historical construction of the female body is central to modern ideas of female 'madness' and pathology. Many feminists, in seeking to provide alternative accounts of gender and behaviour, have utilised the approach of Foucault (see, for example, 1971; 1984). Foucault's work was largely concerned with the analysis of social power and its relation to the body. McNay (1992) suggests:

"It is Foucault's notion of the body as the point where power relations are manifest in their most concrete form which, in the last few years, has made a significant contribution to feminist thinking on the body. Of all post-structuralist work on this theme, Foucault's has received probably the most attention because of his insistence on the body as an historical and culturally specific entity"


One of the central tenets of Foucault's work on the social technology of the sexual body centred around the discourse of 'scientia sexualis' (1978, Pp 53), or the science of the sexual. This discourse, Foucault suggested, acted in both private and public arenas, regulating sexual expression, prohibiting or encouraging particular forms of sexual behaviour. This scientific and medical discourse of sexuality, rather than promoting a deeper understanding within this arena (which, returning to chapters three and four, is precisely what science is positioned as doing), created many misunderstandings (Edwards, 1981). With regard to female sexuality and behaviour, Foucault argued that the 'hysterization' of women's bodies was an axis of knowledge and power used as a social tool by which to control women (Edwards, 1981). He suggests:

"...the female body was analysed - qualified and disqualified - as being thoroughly saturated with sexuality; whereby it was integrated into the sphere of medical practices, by means of a pathology intrinsic to it"

(Foucault, 1978, Pp 104).

Edwards (1981) observes that gynaecological constructs have informed Western understanding of female sexuality, and that a discourse of 'scientia gynecologica' has prevails, acting to frame the interpretation of female sexual and social expression almost exclusively through a lens of gynaecology and causation. Edwards (1981) deconstructs nineteenth and early twentieth century medical texts, and draws upon a quote from Otto Weininger to illustrate the extent of
preoccupation with positioning women as (gynaecological) bodies: "Man possesses sexual organs; her sexual organs possess women", concluding that this discourse of the female body has played an important part in shaping past and present understanding of female behaviour (Edwards, 1981).

Foucault's deconstructive genealogical accounts of madness, sexuality and the criminal system (Foucault, 1971, 1978, 1977) provided an important starting point for the current practice of discourse analysis (Parker, 1992). Parker (1992) defines a discourse as a 'system of statements which construct an object' (Pp 5), and the work of Michel Foucault on the emergence of a discourse of madness (Foucault, 1971) is an excellent example of the way in which particular discourses are historically developed and adapted, and the action of discourse upon the individual. Thus, a Foucauldian approach to discourse analysis is one in which attention is paid to the historical and cultural roots of particular discourses. In the area of PMS, where many feminist critiques (see, for example, Rodin, 1992) have drawn analogies between ancient discourses of hysteria and female lability, and the twentieth century phenomena of PMS, such an approach in addressing the issue of self-report of PMS may prove to be illuminating.

Thus, a Foucauldian approach to discourse analysis would be one that treats discourses as regulated sets of statements that represent and describe a social object, and one that also considers the historical roots of discourses. A thematic discourse analytic approach, employed to this end, would enable a description of the different discourses and themes within a text or set of texts, an analysis of how these themes and discourses are used to construct a phenomenon, and of how these themes and discourse are culturally and historically located. For example, in presenting a discourse analytic approach to anorexia nervosa, Malson (1995) argues that discourse analysis facilitates 'a mode of enquiry that more fully locates anorexia within it's socio-cultural discursive contexts' (Pp125). In the area of PMS, where the social construction of the female body has been argued to be central (see Rodin, 1992; Ussher, 1989), such an approach would seem to be appropriate.

7.1.4 Grounded theory, discourse & analysis.
In setting the case for qualitative approaches within feminist psychology, Henwood & Pidgeon (1995) note the emphasis that many of these approaches place
on the generation of new ways of seeing, or theoretical accounts. They argue that
grounded theory, or approaches that seek to generate new theoretical accounts
from data, are appropriate to this end.

Grounded theory, developed in 1967 by sociologists Glaser & Strauss, refers
directly to the practice of 'generating theory from a close and detailed inspection
of qualitative data relevant to people's phenomenal worlds' (Henwood & Pidgeon,
1994, Pp 7). It represents an alternative to the positivist tradition, that research
should test a priori assumptions and hypotheses, and entails a set of practices, or
method, by which to go about this.

Glaser & Strauss (1967) proposed that qualitative data should be analysed through
the development and refinement of open-coding schemes, attention to variation
and complexity within accounts, between and within coding-category
comparisons, theoretical sampling to test developing analyses, and constant re-
evaluation of emerging themes. Henwood & Pidgeon (1994) stress the importance
of the researcher's interpretive activity, and reflection, in the process of
analysing data from a grounded approach. So, grounded theory assumes that data
may be treated in this way in order to generate new theoretical accounts, and also
contains a particular analytic method by which to achieve this end.

Feminist standpoint theory (see Harding, 1987, 1991; Henwood & Pidgeon, 1992,
1994) requires that research be grounded in the experience of its participants.
Stemming again from feminist critiques of positivism, and the notion that
scientific accounts are only partial and distorted, and based in androcentric
epistemological concerns, the rationale behind feminist standpoint approaches is
that by seeking to view the world through the eyes of participants, a less distorted
account may emerge (Henwood & Pidgeon, 1994). Because of the emphasis placed
upon reflexive practice and the generation of new theoretical accounts, Henwood
& Pidgeon go on to suggest that a grounded approach to qualitative research
creates a valuable resource for deconstructive and reflexive analysis, one that is
compatible with the notion that the principle of 'grounding' cannot be viewed in
isolation from the discursive and power relations that frame psychological
research.

In other words, by adopting a grounded approach in order to generate new or
less partial theoretical accounts, Henwood & Pidgeon (1994) re-work Glaser & Strauss' original grounded theory, and suggest that we may continue to deconstruct the accounts provided by more traditional approaches, and focus instead on the complexities and dynamics of discursive representation. It is concluded, then, that a grounded analytic technique may be used to compliment the process of discourse analysis, not only by making the process of discourse analysis more 'accountable', but also by providing a framework through which to generate new accounts of phenomena.

7.1.5 Summary.
Evidence from research into the role of social factors in PMS, and from feminist critiques of PMS, has been considered, and it is concluded that a qualitative approach may be usefully adopted in order to address the shortcomings of traditional research into socio-cultural factors, and to address feminist concerns around the social and historical implications of PMS, and the female body. Other qualitative research in this area has been reviewed, illustrating a diverse and interesting array of research strategies, which emphasise the importance of the relationship between epistemology, research question and research strategy. The feminist standpoint of this thesis, and the adoption of a multi-factor approach, necessitates the use of a qualitative approach that places the accounts of women who consider themselves to suffer from PMS centrally, and that afford the examination of the self-report of PMS within it's social context. From a review of qualitative approaches within psychology, and of different discourse analytic techniques, it is concluded that a thematic, and interpretive, discourse analytic approach, drawing on some Foucauldian principles, would be useful in investigating the self-report of PMS. Finally, the utility of grounded approaches in the analysis of qualitative data, and for the generation of theoretical accounts, has been discussed, and it is suggested that the adoption of such an approach in conjunction with discourse analytic techniques may produce an accountable, and well-grounded, analysis.

7.2.1.1 A discourse analytic approach to women's accounts of premenstrual syndrome: Introduction to the study.
The development of multi-factor approaches to women's experience of PMS (see, for example, Ussher 1992a; O'Brien, 1993; Walker, 1993), and the failure of traditional bio-medical and psychological approaches within the area to identify
any specific cause or treatment for PMS (see Ussher, 1992a; Richardson, 1992; O’Brien, 1993; Walker, 1993), has highlighted the need for detailed and contextualised accounts of the factors and processes that lead the individual woman to self-report, or seek help for, premenstrual distress (see Swann & Ussher, 1995).

Feminist critiques (Ussher, 1989, 1992a; Parlee, 1991; Rodin, 1992) have further underlined the need for theoretical accounts of PMS that can acknowledge not only individual experiences, but the pervasive social and cultural factors that may contribute to these experiences. For example, Rodin (1992) has drawn parallels between the twentieth century illness category of PMS, and discourses of hysteria in Ancient Greece and in Victorian times. She suggests that the inability of current bio-medical and psychological research to find, for example, any one biological marker for this supposedly biological disorder, or to agree on any one definition or set of diagnostic criteria, is due the production and reproduction of medical knowledge through social constructions of femininity and the female body. Further, Parlee (1991) has argued that PMS is a 'gendered illness', grounded in the social and in relations of power and gender, rather than in any female biological pathology.

There is some empirical evidence for the role of social factors, such as beliefs and expectations (see, for example, Ruble, 1977) as contributory to women's experience of their menstrual cycles. However, Koeske (1983) has suggested that research into the role of social factors in the menstrual cycle and PMS, utilising positivist research designs, tend to be as methodologically limited as more traditional bio-medical research. Further, the critiques of positivism, and of positivist methods within psychology (see Parker, 1989), have called the use of positivist research strategies, and their assumptions about measuring real phenomena, and the unitary rational subject (Parker, 1992) into question. Nicolson (1986) has suggested that quantitative research designs, specifically those used for research into the lives of women, cannot take into account a wealth of detailed information and individual experience that may be necessary to reach a less partial or distorted understanding, and which a women-centred and qualitative approach may provide us with.

Little research has directly addressed the issue of the context in which women
self-report or seek help for PMS, or focused directly on the accounts of these women. It is suggested that in researching the question 'what makes a woman self-report PMS', a qualitative approach may provide a richly detailed account of the different and convergent cultural resources upon which women draw, in order to negotiate their status as PMS sufferers, and the investment that women have in positioning themselves thus. A qualitative approach may also be a valuable step towards breaching the impasse which, it has been argued (Ussher, 1992a), psychological research into PMS has reached. This final study aims, therefore, the explore the discursive construction of PMS, from within the accounts of help-seeking women.

7.2.1.2 Research questions
The question that I set out to explore at the beginning of this thesis, which was informed by my reading of both critical and traditional literature on PMS, was 'what makes a woman self-report PMS'. Naturally, with each research strategy that I have adopted, this question has shifted slightly in focus and application, depending upon the type of strategy used and it's limitations. In this case, the adoption of a discourse analytic approach allowed me to ask what different discourses were used by women in constructing PMS, and their position in relation to this.

Although I wanted this research to be grounded, in the sense of data-driven rather than hypothesis-driven (Henwood & Pidgeon, 1994), it was necessary to begin the study with some specific questions in mind, to provide a focused starting point. In this case, because of the ability of qualitative approaches (and specifically discourse analytic approaches) to describe discourses used within texts, their function and their historical context, I was interested in addressing two specific questions. These were:

1. How is PMS discursively constituted by women?
2. What functions do these different discourses and discursive strategies used by women have, at the level of social representation, and for the women who position themselves within them?

7.2.2 Design.
Women attending their first appointment at a London hospital PMS clinic were interviewed, using a semi-structured interview design (see appendix VIII). The
interviews were conducted prior to each participant's appointment with the clinic doctor. Interviews were recorded throughout, and later transcribed using a system adapted from Potter & Wetherell (1987).

The methodology used was based upon the discourse analytic technique of Potter & Wetherell (1987), using a thematic decompositional (Stenner, 1993) and interpretive (Nicolson, 1986; Lovering, 1993) approach. The interviews were transcribed using a system adapted from Potter & Wetherell (1987). Discourse analysis refers to those approaches which attend to the structuring effects of language, and which use reflexive and interpretive techniques to analyse texts (Burman & Parker, 1993), and in this study an approach which allowed a detailed description of the different discourses and themes employed within the interview texts (thematic decomposition) and their actions and meanings (interpretive) was used. Ethical approval for the study was granted by the University ethics committee, and by the ethics board of the Hospital where the clinic is based.

7.2.3 Participants.
Wilkinson (1986), in discussing the developing movement of feminist social psychology, states: 'if you want to know why a person did what they did, ask them, they might just tell you' (Wilkinson, 1986 Pp 20). Whilst this comment oversimplifies the process of women-centred research, and neglects to mention the 'critical distance' (Parker, 1992) employed by discourse analysis, it is a useful illustration of a basic premise to feminist standpoint research. And it was from this starting point, in designing a qualitative study investigating women's experience of PMS, that I decided to recruit women who were seeking help for premenstrual distress as participants in the study. An examination of the discursive content of the illness category of PMS could be conducted from many different angles, from the text of women's magazines or medical journals (see Rittenhouse, 1991), or in talking to non-help-seeking women, and men. But because I was specifically interested in the reasons that women decided that they suffered from PMS, I decided that a help seeking or 'clinical' group of women would be most appropriate to my questions, and I was fortunate enough to have an opportunity (thanks to a helpful clinical psychologist, and an interested clinic doctor) to conduct research in a clinical context.

Forty one women on a waiting list for their first appointment at a London hospital
PMS clinic were, in the first instance, contacted by letter (see appendix IX), informing them that I was a psychologist conducting research for my doctoral degree on women's accounts of PMS, and that I was interested in providing a women-centred account of the different problems and experiences associated with this. Women who were interested in taking part in the study wrote back or telephoned the clinic, and were told to arrive an hour early for their appointment.

This arrangement was not convenient for all of the women contacted, and not all who were interested in the study could take part. Twenty women expressed an interest in the study, and ultimately, only fourteen of these took part. Further, not all of the women who were contacted wanted to take part in the study, and in this sense the sample are self-selected. Although this information was not collected (women who were not interested often simply did not respond to their letter, or spoke only briefly to a clinic nurse), it may be that one of the reasons that so many women did not respond is that they considered their problem to be biological in nature, and had no wish to talk to a psychologist. I return to this point in the analysis of the texts.

The fourteen participants who took part in the study were aged from 26 to 44 years old. One woman was Asian, and the remaining thirteen were white European in origin. They came from diverse socio-economic backgrounds: One of the women (Samira) was a student, one (Alice) a probation officer, another (Nadine) a teacher. Six of the women were full time mothers or home workers, and seven had children, of these seven, three were single parents. One of the participants (Hannah) was on remand at the local prison at the time of the interview, for a crime she committed when, she said, she was premenstrual. Another of the women (Andrea) had also been a prison inmate, and was suffering from anger and violence management problems that both she and her GP thought were due to PMS.

All of the women who took part in the study had been referred by their GP's to the clinic for treatment for PMS, in most cases (eleven of the women) because other treatments (hormone replacement therapy, the contraceptive pill) had failed to improve their symptoms, or in three of the cases, they had been referred to the new clinic straight away because of the severity of their problems.
7.2.4 Analytic technique

All of the interviews were transcribed, using a system adapted from Potter & Wetherell (1987), which emphasises readability rather than detailed recording of speech characteristics such as intonation and millisecond timing (see appendix IX). Overall, there was approximately sixteen hours worth of recorded material, and using a transcription machine, it took approximately eight hours to transcribe one hour of recorded material. Annotations were made for pauses, and speech expressions such as laughter.

The transcripts were then analysed using a grounded approach (Glaser & Straus, 1968; Henwood & Pidgeon, 1994) to discourse analysis (Potter & Wetherell, 1987; Parker, 1992). This entailed repeated reading of the texts, followed by the decomposition of the texts into coded, or themed, open ended categories (Stenner, 1993), using different files in a computer word-processing program. These themes were then themselves coded into subcategories, re-read, and the process repeated until all of the relevant instances that might have any bearing on a category were included. The different categories were compared, and these processes often resulted in some over-lap of texts between related categories. Differences between categories were also noted. In this way discourses within the texts, and themes within these discourses, became apparent, and they were checked for coherence.

The criteria for discourses set out by Potter & Wetherell (1987) were used, and the emergent discourse categories and themes were checked for participant orientation, opposition with other discourses within the texts, and fruitfulness in providing a new explanatory and descriptive account of women’s experience of PMS. It is this final criteria which I take to be interpretive (Nicolson, 1986; Lovering, 1993), as it affords detailed and rich descriptions of the discursive composition of accounts.

So, different discourses within the texts of the interviews were picked out through this process of reading and re-reading, of breaking down the texts of the interviews into coded 'chunks' and placing these chunks into computer files corresponding to each code, of comparing excerpts within each file to check for coherence, and of comparing between files to examine differences. In this way, files became discourses and themes or strands within discourses. To this end, I also bore in mind Parker's (1992) ten criteria for distinguishing discourses, thus:
(1) A discourse is realised in texts (in this case, the texts of the interviews).
(2) A discourse is about objects (for example, menstruation).
(3) A discourse contains subjects (for example, the premenstrual woman).
(4) A discourse is a coherent system of meanings (in this case, we may see a discourse about PMS as containing different metaphors, analogies and cross-references, that together build a picture of the premenstrual experience).
(5) A discourse refers to other discourses (for example, a discourse about PMS may also refer to a discourse about femininity).
(6) A discourse reflects on its own way of speaking (here, there may be positions of 'resistance' or reflection, where women consider other explanations for experience).
(7) A discourse is historically located (again, to this end I could draw analogies between discourses of PMS and ancient discourses of hysteria).
(8) Discourses support institutions (for example, a discourse of PMS may be said to support particular areas of medical and psychological research, and related activities. See also Parlee's (1991) comments).
(9) Discourses reproduce power relations (perhaps in this case between men and women, for example).
(10) Discourses have ideological effects (see my review of the work of Susan Edwards in section 7.1.4).

I include all of Parker's (1992, Pp's 6 - 20) (the examples, of course, are my own, if rather simplistic) criteria, because I found them useful in considering the process of what I was doing with these pieces of text, and because to include them I would argue makes my own analysis more accountable. Obviously, the analysis I have produced reflects in part my own position within different discourses around menstruation and femininity: Somebody else's reading of these texts might produce a very different account. Further, I am not positioning my reading and analysis of the texts as definitive or all-encompassing, there may be other discourses at work within these interviews, and other ways of interpreting them. This is a piece of work particular to my reading of the texts, the result of my use of these techniques.

Discourse analytic techniques read data at the level of the text, rather than taking language to be a neutral and transparent medium between the social actor and the
world (Wetherell & White, 1992). Therefore, I did not position the interviews as an attempt to gather facts or 'objective' data about women's experiences of PMS. Rather, the emphasis of this study design, and the focus of the research questions, was upon subjective experience, and the different discursive resources that the women drew upon to describe these experiences, to position themselves as PMS sufferers, and to construct the category of PMS (see Griffin & Phoenix, 1994). However, because of the thematic and interpretive approach of the analysis, I attend to information given to me by my participants about their lives and experiences throughout the analysis, and use it to inform my reading of the interview texts (see Nicolson, 1986).

7.2.5 Procedure, interview structure and technique.
The women recruited for this study attended the clinic an hour before their appointment with the doctor was due. In reality, this afforded up to an hour and a half for the interviews to be conducted in, as the clinic was extremely busy and appointment times nearly always behind. The interviews were conducted in a private counselling room in the clinic, a quiet and private setting in comparison to the context of the busy clinic outside. The interviews were conducted over a period of two and a half months, from March to April 1994.

The women were given an information sheet about the study (see appendix X), after which they were asked if they had any questions that they would like answered. They were then asked to sign a consent form, which was countersigned by the researcher (see appendix XI). When consent had been gained from the participant, the tape recorder was started, and the interview began.

The interviews themselves were semi-structured, loosely based around an interview schedule (see appendix VIII). The questions contained within the schedule were chosen to prompt discussion from the participants around their experience of PMS, when they first started to think that they were suffering from PMS, and the types of symptoms they experienced. It also asked them about their worst-ever experience of PMS, their best-ever or symptom free menstrual cycle, and any positive experiences or symptoms that they had. My first question was usually around the issue of how they came to be at the clinic, and how they first decided that they had PMS. Despite the clinical setting of the interviews, I attempted to maintain an informal and conversational style (see Marshall &
Wetherell, 1989; Malson, 1995), to keep participants at their ease and encourage discussion. It was also important to me that the women being interviewed were free to ask their own questions, and to discuss the issues that they considered important.

I made it clear to the women who were participating in the interviews that they were free to terminate the discussion whenever they wished, or to switch off the tape recorder, and all of the women’s names have been changed to preserve their anonymity.

In order to create a safe environment for the participants to explore and reflect upon often complex feelings and experiences, I used an interviewing technique that, as well as being informal and conversational in style, included some basic counselling techniques. This approach (following Coyle, Good & Wright, 1994) uses the techniques of paraphrasing, reflecting, summarising and open-questioning within the context of the interview. This practice also afforded some flexibility into the interview, so in addition to the central themes, there was scope to follow up areas that the women themselves raised. Although I did not ask any direct questions about past problems or traumas, because women often considered these to be relevant to their experiences of PMS, especially to their worst-ever experience, and possibly because I was a ‘psychologist’ in a clinical setting, several of the women disclosed particularly distressing experiences to me. Two of the women became very distressed during the course of their interviews, and at this point I paused the interview and asked them if they wanted to stop, however both of the women wished to continue.

All but two of the women were interviewed individually. Andrea bought her mother to the interview with her, and her mother contributed a great deal to the discussion in terms of describing Andrea’s experiences, and her background. This provided an interesting text, and one of the longest interviews, as both women negotiated these experiences and their meanings. It is quite possible that this situation produced a very different interview, than if I had seen Andrea alone, as the power relationships were shifted (despite my status as interviewer, I was placed in the position of the minority, and of the onlooker to an intimate relationship). For the interview that I conducted with Hannah, who was a prison inmate, a prison officer was present for the duration. Again, this probably
affected the resulting interview.

The interviews themselves took between twenty minutes and an hour and a half to conduct. The time that they took depended upon the developing rapport between myself and the interviewee (which, in the case of the twenty-minute interview, did not develop very strongly), and upon the constraints of the appointment time. The interviews were often intense and emotional in content, which proved distressing for both the participant and myself, but above all, they proved to be compelling and stimulating. Griffin & Phoenix (1994) note the power differential that is often present between researcher and participant, especially when they are from different ethnic backgrounds, ages or socio-economic groups. In an attempt to reduce any power imbalance, I did try to engage with the women emotionally throughout the interviews, which resulted in my contributing some of my own experience, and feelings. My presence as a psychology graduate student, interviewing the women in a clinical context, undoubtedly created some power differential, and the adoption of an informal, semi-structured interviewing technique, using basic counselling skills, and also contributing some of my own experience, rather than maintaining an emotional distance, was an attempt to minimise this. Further, although, like all of the women interviewed, I am a woman who is obviously of an age to menstruate, I was younger than all of the women that I interviewed, and my position as a young, white, middle class graduate student, as well as my position within various discourses around femininity and menstruation, undoubtedly influence both the texts provided by the interviews, and my subsequent reading of these texts.

All of the interviews were transcribed, and analysed, using the techniques described in section 7.2.4. It is misleading, however, to position these interviews and the resulting analysis as a factual account, or as an attempt to identify any underlying cause of PMS, which may be applied to all women. Rather, they represent texts produced within a certain context, from specific subjective positions, and I use this study to illustrate some of the positions and discursive resources that are available to women. In the remainder of this chapter, I will explore the discursive construction of PMS by women this sample of women, and the function of the different discourse and discursive strategies employed within the texts to position the women as PMS sufferers.
7.2.6 Analysis and discussion.

It could be argued that PMS itself is a discourse - in many respects, it fulfils Parker's (1992) criteria for this. However, my first research question focused on the way in which the discursive category of PMS was constituted, and the analytic technique described above resulted in four main discourses being identified, as contributing to the discursive category of PMS. These discourses were: a discourse of biology and embodiment, a discourse of femininity, a dualist discourse, and a discourse of blame and attribution. Different themes ran within these discourses, and sometimes, in opposition, between them. Further, there was a theme of resistance within the biological discourse. It is in describing these four discourses that I try to address the discursive construction of PMS, and by means of this thematic decomposition, and in analysing the different themes, and the women's subject positions within the discourses, that I use an interpretive technique to examine the function of these different discourses.

7.2.6.1 The biology of the female body: A discourse of embodiment.

It has been noted previously (see chapters two and three) that the prevailing medical construction of PMS is as a biological problem (Ussher, 1992), most usually as an hormonal imbalance (Vines, 1993). Edwards (1981) argues that a discourse of gynaecology serves to frame understandings of female behaviour. Perhaps not surprisingly, the discourse that emerged most frequently from these texts was a discourse of PMS as located in the biology of the female body. In this sense, I term it a discourse of embodiment, for the problems associated with PMS were invariably mapped onto the female body within the text, although there were positions of resistance to this contained within the discourse. Further, this discourse contained a number of distinct themes, around female reproductive hormones, and the bad or dysfunctional body (sometimes fragmented into parts, or using metaphor).

All of the women in this study drew upon this discourse of female biology at some point in their account, and of the female body, in describing the problems and the cause of their experiences. This discourse was most evident when women described how they first came to believe that they were suffering from PMS. This discourse permeated the accounts, and consisted of a number of different themes, although it was often implicit as reproductive life events (menarche, stopping or starting use of the contraceptive pill, pregnancy or miscarriage) were employed.
to map-out their symptoms and experiences.

Paula:

"I think it [PMS] was worse since coming off the pill [C: Right] and I was 27 then I got sterilised...you know, sort of I was on the pill at 18 so I suppose I didn't really notice until coming off the pill you know my husband would sometimes say 'oh, I can tell YOU'RE [her emphasis] going to come on' [laughs] I don't know, you just get on with it really [C: Right] but recently I thought , why keep putting up with it"

Andrea:

"It's got worse definitely since I got sterilised. I mean, I was saying to my Mum [...] before I fell for my last daughter I was on the pill [...] and [...] I never knew when I was gettin' a period [...] never [...] never had feelings like this but I'd say definitely since I've been sterilised [...] I've noticed ...

Dalton (1991) suggests that the onset of PMS frequently occurs after such reproductive life events, but it is interesting how hormonal contraception is positioned as containing the natural, and problematic, hormones of the woman's own reproductive cycle. Also, the experience is normalised within the text, by extending it to others ('you just get on with it really'). Detailed descriptions of reproductive life histories, in the context of the experience of PMS, were evident in many of the accounts, and in some cases these stories represented a particular accounting or warranting practice (Smith, 1984; Potter & Wetherell, 1987; Woolgar, 1989), in order to present women's status as PMS sufferers as factual. For example:

Jane:

"By then I'd realised that it was something that was happening to me regular I thought maybe it's me I'm a bit depressed and things [...] you know it took a good few years for me to suss it out that the [...] there was something wrong and then I started reading things about PMS [...] and it's sort of like all coming home I've got all these sort of things wrong with me...I thought it was a bit of post-natal depression [...] it might have been [...] it was just [...] being depressed and feeling [...] feeling depressed"

Within this excerpt, reference to post-natal depression establishes at quite a late point that hormones and the menstrual / reproductive cycle are the cause of the
symptom of depression. This, however, is framed by reference to a long, reflective process, in which the speaker consults other sources (reads about PMS) and the realisation gradually dawns on her. Woolgar (1989) has noted similar discursive strategies in the speech of scientists, in presenting discoveries as 'facts', and constructing a natural and logical progression to their discovery. In other words, within this excerpt of text, reflection and discovery are used as discursive strategies to uncover the true (biological) cause of the symptom. I would argue that the discursive use of these reproductive life events, both highlights the pervasive discourse of female biology in the construction of PMS, and serves as just such a warranting strategy in presenting PMS status as fact.

It is possible that these warranting techniques prevailed in the texts because of the context in which the interviews were conducted. Participants had been on a waiting list for their PMS clinic appointment for some time, and spoke with me before their visit to the doctor. Therefore it possible that rehearsal, and anticipation, produced accounts of the female body that would not be achieved in other circumstances. To this end, the interviewees were also concerned with my own status in the clinic, and my experiences of my own body. For example:

Sarah:

"C:... I had about twenty consent forms last week I don't know where they've all gone
S: That's all right dear I feel a bit like that myself I'm just coming up to a period [laughs] everything's all too much for me at the moment
C: [laughs] I don't even have that excuse so .
S: yeah [...] well I've just put a towel on now 'cos it's going to happen in the next 24 hours [...] so actually you might find me at my rattiest [C: laughs]
S: So are you a doctor, I mean....
C: Not a medical doctor, no but I'm doing these interviews for my doctorate in psychology, um [...] I mean, I've been researching into PMS for the last three years [...] 
S: I think you've got to go through it to actually experience it [...] you hardly look old enough to [laughs] but right so [...] "

So as well as drawing upon this discourse of female biology, in as much as Sarah is describing her current mood ('you might find me at my rattiest') as being due to a biological process, the imminence of her menstrual period ('it's going to happen
in the next 24 hours’), Sarah clearly marks her status as an older woman, setting a power differential, that is emphasised by the fact that I am not a medical doctor. But when she has established that I have some credentials, she immediately continues:

Sarah:

"...from the beginning...about 3 or 4 years ago I started getting bad periods [.] heavy periods erm [.] If I can describe it in a month [.] I was OK but it was when I was hitting a period all of a sudden I had a heavy heavy period [.] and it started to get worse and I started to get a bit irritable [.] at the beginning when I had a period [.] everything was too much erm [.] I had a laparoscopy [.] and then they found that I had a small amount of endometriosis..."

This part of Sarah’s ‘story’ continues for some time, and she tells me the long process of medical exploration and her own observations that finally led her to believe that she had PMS. Within the text she is positioning me as someone with some expert knowledge, who does not need an explanation of the medical terms she uses, and from this position she warrants her status by way of this extended (three pages of transcript) narrative.

Other women were concerned with my position, but many more wanted to know, from me, what was going to happen to them, what treatment would they get, or could they use a particular treatment. For example:

Andrea (and Andrea’s mother)

“A: But I, going back to the pill I was actually on (brand of pill is mentioned) and that was the best time of my life... I don’t remember any [...] ever feeling [...] ever feeling bad [...] M: Can you go on the pill if you’ve had [...] you know [...] if you’ve been sterilised to keep it at bay [...]"

48 Of course, my observations at this point could equally reflect my own internal process, of justifying my presence at a busy clinic, and my own feeling of inadequacy at not being to provide help or answers to the women’s many questions about what was going to happen to them, or what sort of treatment could they get - even though it was most definitely not my place to provide these answers, and I always replied to questions with a “well, that’s something you can discuss with Dr B.” It is important to note these feelings, but within this particular excerpt I do think that Sarah was using this strategy to ascertain my status, and that this affected the ensuing ‘story’ that she told me.
C: Well I don’t (M interrupts)
M: I know there’s no need from THAT [her emphasis] point of view but would there be any possibility […]
C: Theoretically I suppose if A found the pill helpful there’s
M: Which she did, very much so
C: then that’s something you should talk to Dr B about later (M interrupts, speaking over to A)
M: Cos you’d like to try the pill again wouldn’t you […]
A: Yeah”

Hannah:
“H: I dunno I feel [laughs] very uncomfortable talking to you […]
C: Do you?
H: yeah
C: Why’s that?
H: […] Dunno… ’Cos I don’t even know what’s going to happen to me […]
C: […] Right I mean well […] presumably Dr B will ask you some similar questions to what I’m asking you […]  erm will talk to you , you know, about your symptoms […] and I know women usually come back for a second appointment […] but I mean you should talk to Dr B about this really, she can explain what will happen to you […] I mean I’m not connected with your treatment in any way er […] I’m talking to women about their experiences of PMS […] for research, but it says on the information sheet […] er talking to me won’t affect you treatment […] and Dr B can explain what will happen to you and about treatments and things […]
H: OK.”

The excerpt from Andrea illustrates both the predominance of this biological discourse, and, as in Hannah’s excerpt, the women’s chronic need for explanation and treatment. Talking to the women about their treatment at the clinic was not my responsibility, and I always took care to stress that their talk with me would in no way influence their treatment, my status as a researcher, and that by talking to me they were taking part in my research. This highlights too that whilst the women had their own explanations, descriptions and repertoires, centred within a discourse of the body, for the cause of their problems, they desperately wanted a diagnosis, perhaps to legitimate their status. For example:
Andrea:

"C: What do you think then is the cause of your [.]. PMS
A: Wish I knew
C: you don't know, you've got no idea
A: No idea, haven't got a clue"

So, whereas Andrea was convinced that the pill would cure her PMS, she stopped short of saying outright that it was due to her hormones. I would argue that these excerpts, from Sarah, Hannah and Andrea, also illustrate a discourse not related necessarily to PMS, or to the research questions of this study, but to a broader discourse of medical authority, of the need for a medical diagnosis to legitimate experience, and of the power imbalance of doctor / patient relationships - a discourse that made me feel uncomfortable, and sometimes inadequate, even though such a diagnosis, or such a power relationship, was not within my ability, responsibilities or my intention. Rodin (1992) has observed the power of medical knowledge in the construction of PMS, and so perhaps it is inevitable that the power of science as a discourse is encountered in these texts. Again, I can use Foucault's analysis of the power of a medical discourse about sex to control bodies, expression and individuals here, and suggest that these excerpts illustrate this discourse in the PMS clinic.

A central theme within this discourse was female hormones. Although these were often referred to in an oblique manner, through reference to the changes bought about by childbirth or the contraceptive pill, the effects of hormones were frequently placed in the position of cause. For example:

Alice:

"My assumption IS [her emphasis] that it's [.]. some sort of [.]. probably quite normal hormonal changes [.]. which are occurring....it HAS [her emphasis] been suggested that it could be [.]. a possibility something to do with hormones....and IF that's hormonal [.]. if that is to do with sort of [.]. imbalance or whatever [.]. chemistry that can be just kind of levelled out [.]. why not, you know"

Sandy:

"Previous to going on the hormones last March  oh for [.]. near on a year when they [her symptoms] started getting worse again...so I started the"
These two excerpts illustrate the use discursive use of the category of hormones in the construction of PMS. Alice uses this discursive category, or theme, of hormonal change to frame her experience of her menstrual cycle. The theme of biology, and female reproductive hormones, is used to contain her description of her symptoms, indicating her 'hormones' as a causal factor. Vines (1993) has suggested that the cultural construction of female hormones, as the cause of perceived female lability, has taken a central place in the last fifty years in the understanding of gender and behaviour. This, Vines (1993) argues, reflects not an increasing public understanding about hormones (which is often vague or confused), but the reliance upon 'knowledge' produced by scientific method in reproducing the power relations of gender. Certainly, Foucault (1976) analyses the increasing technology around sex and sexual function in terms of the action of power upon the body and the individual, and historical parallels may be drawn between the theme of hormones, and the power accorded to them, within the biological discourse, and themes of spiritual possession within discourses around witchcraft in the middle ages (Ussher, 1989; 1991). Ussher (1989; 1991) has argued that the discourses of possession and witchcraft parallel modern day discourses of female madness (Showalter, 1989), and in this sense, a further parallel with PMS may be drawn.

There were positions of resistance, and anger, within this discourse, where women reflected on their experiences of PMS, and searched for other means of expressing them. However, in taking up these positions, the overlying discourse of female biological pathology was again highlighted. For example:

Alice:

"Well as a woman [...] and as a probation officer [...] I mean [...] you know I can well understand it but I also know that some women can be a bit clever and uh [...] they know that they can use that as an excuse but people use all sorts of excuses for bad behaviour don't they [...] because they want to blame anybody but themselves for bad behaviour...I mean obviously it's [PMS] always been there [...] erm but [...] you know I don't know what the things are that impact on it [...] that make it more [...] maybe it's er [...]partly a sort of attitude of mind that you have that [...] you put up with it for years and years [...] and why should you [...] you know if there's something that can be done"
Nadine:
"I think it can really disrupt women's lives a hell of a lot [...] and-and there should be some kind of alternative or it should be recognised in a way that the solution isn't just to go back on the pill [...] I don't see why I should spend [...] all my time on the pill"

Jenny describes a process of self reflection, in which she questions her own status as a PMS sufferer, and it's possible causes:

Jenny:
"I HAVE [her emphasis] wondered this [C: yeah] and I've wondered if I went out looking for it [C: mmm] you know to - you know, looking for the symptoms sort of but er I do question myself, you know, in all sorts of areas anyway erm [...] BECAUSE erm th-that doubt is still there...I think to myself, you know, how much is real how much is imagined you know, how much are other factors responsible...but I stopped taking the evening primrose tablets on two occasions noticed the difference"

These positions of resistance do highlight the different subjectivites within the discourse of the body, but are ultimately tied to it.

The use of the discursive category of hormones in constructing the experience of PMS, from within a discourse of the female body, underlines the negative properties ascribed to female reproductive hormones. So too is the female body constituted as bad, or dysfunctional, with a myriad series of aches and pains, and symptoms, which for Alice is 'out of control', which makes Jane feel clumsy and overweight, so that she is unrecognisable to others.

Alice:
"There'll be [...] physically would be [...] getting extremely ... probably the worst thing that happens to me ...that I get terribly tired [...] during the day [...] more tired than usual and I get knackered anyway 'cos I'm getting old ...go to bed really early [...] and sleep too early [...] wake up at three [...] feeling energised [...] only to start the whole thing the following day [...] when I say feeling energised feeling [...] erm [...] almost manic...in the early hours of the morning [...] and erm everything you know out of kilter....the other thing...for me that premenstrual period as well it's a COMPULSION [her
emphasis] an urge to eat or drink...yes I've noticed what it is now and that's why I'm wondering if there's...it's sugar it's a kind of chocolate craze"

Jane:
"I'm aching all over [...] erm I feel like I put five stone on [...] and I've only been laying in bed for an hour [...] and erm I don't go to the toilet as much [...] feel like I want to go but I don't go [...] erm [...] headaches [...] joints [...] eating [...] or depressed [...] it just goes on everything ...everything I've ever looked at [...] it's hard to think now it's sort of 'cos I feel like [...] I do everything's round the wrong way [...] back to front [...] can't talk properly sometimes try to talk and I'm [...] you know [C: mmm] I walk into things and I get bruises all over me"

Jane:
"You know, it's not my body it don't feel like my body [...] clomping about with these great big legs like I've put two stone on...I put a stone on [...] [C: Really] mmm people say they don't recognise me"

The body is also constituted as a burden, something heavy or unpleasant that the woman must carry around with her and cope with, along with everything else in her life.

Anne:
"Well it certainly would...to be able to be free of all those um [...] handicapping symptoms [...] which to me take up too much time [...] if it was two days I wouldn't mind at all [...] but it's often ten"

In contrast, this embodied discourse of biology was also used to re-frame, or re-focus experience, making distressing events more manageable:

Samira:
"It's not every month, when I really will be as depressed as I was depressed when I was depressed [C: mmm] only it's for a shorter time. But because it's that intense I can almost [...] it becomes quite hard to think that it's just PMT, this is alright, it's gonna go away"
Joanne:

"it's the greyness, you know [C: yeah] erm the feeling I mean i-i-it just suddenly seems to present itself it j-just seems to be there and [...] it's like to step back from it you know at the time and say [...] it's OK you know [...] this is just part of a monthly problem you know it will go away...at the time I feel gripped by it you know and er I think [...] god, this is never going to go away why am I feeling like this and why do things look so bad, and why do they make me feel so bad [...] it's not until the depression lessens with hindsight that you know"

Samira illustrates how this discourse of female biology is may actually be employed to re-frame or interpret experience. When Samira terms her experience 'PMS', it becomes less distressing, or at least more bearable, as the depression may be attributed to her 'hormones' and the problem will disappear when her period starts. Thus self-diagnosis of PMS could be seen as a coping strategy for other problems in itself. Certainly, other research (Koeske, 1983; Bains & Slade, 1989) suggests that the menstrual cycle acts as a salient source of attribution for aversive events and experience. It is interesting to note, too, how the reproductive body is blamed for the worst of her depression. Thus, the two excerpts above illustrate the way in which the discursively constructed premenstrual body, in the form of this biological discourse, serves not only to pathologise the female body (Ussher, 1989), but to make other facets of experience less distressing. Ussher (1989) argues that the way in which the female body is positioned as a site of blame for distress and lability, serves to reproduce social power relations of gender. In a similar way, by framing experience through the lens of PMS, the body is again highlighted as bad, or faulty, and as gendered.

To summarise, the presence of a biological discourse within these texts might have been expected, as biological or bio-medical (Ussher, 1992b) models of PMS are predominant in both medical and popular literature (Martin, 1987; Rittenhouse, 1991). It may be suggested, then, that this particular discourse reflects, at least in part, a debate in the public arena as much as private 'reality', or subjective experience. The way in which the biological discourse is utilised, and the themes present therein, in the context of this self-reflective process, serves to highlight the pervasive nature of this discourse. This discourse of the female biological body, then, can further be said to be reproducing social power
relations. Parlée (1991) has suggested that PMS is a gendered illness, which reproduces and reinforces these relationships, a concern also echoed by Walker (1993; 1995). The premenstrual body is constituted as aching, sore, and excessive. In a discourse analysis of texts from interviews with anorexic women, Malson (1995) notes the constituting of the female body as excessive, and in need of containment. Kirmayer (1992), in a study of the use of metaphor, notes the constitutive nature of language and metaphor in the construction of bodily pain. Here, the adoption of a qualitative approach allows us to place in context the use of this discourse, and its relation to others within the texts of the interviews. Within these texts, the female body was construed as all encompassing, bad, as a site of pain and a cause of physical excess. In this sense, the body is very much gendered, and I will relate these themes, and the discourse of female biology, to a discourse of gender that was also apparent in the texts.

7.2.6.2 My body, my self: A discourse of embodied femininity.
The discourse of female biology, discussed in the previous section, overlapped to an extent and contrasted with a discourse of embodied femininity. Again, I use the term 'embodied' to denote the way in which the discursively constituted body frames women's subjectivities for premenstrual experiences. The discursive category of 'PMS' is used to separate, and signify, 'bad' or unfeminine behaviour, and this in turn links with the discourse of female biology. Again different themes ran through this discourse, of anger, violence, bad mothering, sloppy behaviour. Taken together, these themes constitute a major discourse of bad (versus ideal) femininity.

Hannah:
"I hit my fiancé [laughs] he woke up with erm a black eye and a thick lip [.]
I must have gived him a hell of a whack, I dunno why...he was just sleeping there poor bugger [.] and [. I just got up and whacked him"

Jane:
"He [her partner] just sort of like grabbed my hand and things and tried to stop me from hitting him [...] and he says you're like a mad possessed person [...] he hit me once and [...] I ended up on the floor and then I was straight back up again [...] it was like there's something inside you [...] he said you're ANGRY you're really angry"
Andrea:

"The first sign is normally the crying...or [...] the only other way I can put it is that someone's talking to you - you wanna say shut up you don't wanna hear it you don't wanna speak to anybody [...] you just want to be left alone...I can't be bothered [...] with anything or anybody [...] ... I just wanna go away and sit in a room somewhere [...] you know an-and it's hard with the children 'cos they'll want something and you - my fists will go, I clench my fists a lot 'cos it's horrible, it's horrendous... I'd say the worst month was when I actually attacked my daughter"

In identifying this discourse, I looked at the way in which behaviours such as those described in the excerpts above, were presented within the context of the experience of PMS. The women in this study were presenting for treatment for these problems, therefore they must be undesirable, unwanted, and problematic. Relating back to the discourse of female biology, with its themes of faulty or out-of-control hormones, of the body as bad or burdensome, and as a frame through which to interpret experience, I noted again how this discursively constructed body was gendered.

Thus, I took these accounts of behaviour and experience to constitute a discourse of (bad) femininity within the texts, in which difficult emotions, inappropriate responses, and aspects of behaviour and experience incongruent with archetypal notions of femininity (Swann & Ussher, 1995) were attributed to the menstrual cycle. In other words, because of the emphasis on forms of 'bad' femininity, within this discourse there is a textual reference to 'good' or ideal femininity. And because of it's relation to the discourse of the body, this discourse can be said to be extending from ancient constructions of female pathology, related to the womb and menstruation (Sayers, 1982; Ussher, 1989).

Hannah, who was on remand in a local prison at the time, speaks of being violent towards her fiancé. Not only does she position this act as premenstrual behaviour, but hits him whilst he is asleep, avoiding the problem of retaliation. Violence towards one's partner is not only bad behaviour, it is also 'unfeminine'. Vines (1993) notes that male violence is often explained from within a hormonal model, and female violence, towards men or children, even under the guise of hormone-
driven behaviour represents behaviour that is taboo, or socially unacceptable.

Further, the bad mother is positioned within this discourse, constituted as uncaring, neglectful, and violent, and related to the overlying construct of PMS. Andrea's life, at the time of the interview, was chaotic and distressing. Effective treatment for PMS was her last chance for keeping her children herself - if she did not manage her anger and violent responses, Andrea's children were to be taken into local authority care. Another example of 'the bad mother' can be seen in the text of my interview with Jenny.

Jenny:

"My daughter does my son's two [...] he doesn't really understand my [...] my daughter she does [...] she says when I'm better she says oh you're better now you've been to the doctor's and she thinks I'm at the doctor's and I'm getting tablets and I'm not well [...] and it's sad to [...] look at your little girl [...] and one minute you're a nice [...] calm and placid mum [...] got all the time in the world and the next minute you're just [...] got no time I don't want to read a book I don't want to sit there I don't want to be touched or [...] I just want to go upstairs and I sit in the bathroom on my own [...] just to have that peace and quiet and I get annoyed if they [...] knock on the door or they want to come in [...] and it's normal for them to come in because they want to be with their mum and I just want to be away"

Within Jenny's text, as well as a discourse of embodied femininity, is a reference to a discourse of motherhood - the ideal mother as calm, placid, 'with all the time in the world', one who never needs to take time out for herself - a maternal ideal that seems impossible for anyone to achieve.

Loss of control was also a central theme to this discourse.

Alice:

"It just [...] [C: and is that how you feel?] yeah [...] yeah this is probably quite a good way of putting it [C: Right] that there is a sense of um [...] not being in control [...] I don't mean [...] it's not erm [...] DANGEROUS [her emphasis] out of control [...] but it's uh [...] um somehow feeling that [...] being swept along you know [...] [C:mm] you want to kind of check at each point what's happening"

Andrea:
"You know some women will get these feelings but can look into them [...] I couldn't, I just blew [...] [C: Right] no questions asked ... at that point it was got to the point where I was self-inflicting injuries as well as [...] hurting children [C: what sort of self-inflicted injuries?] I gave myself black eyes"

Jenny:

"It's not that I'd think 'right, in a minute I'm going to run you over' [...] It's just that he was on the pavement on his bike and I was sitting in my car [...] and I [...] soon as he drove off the pavement [...] I just drove straight into him [...] and on the motor way [...] I just drove my car [...] it was very quiet [...] but I drove the car over...pulled over and made him get out [...] but to think of doing that"

Andrea tells of how, when premenstrual, she cannot control her temper, she 'just blew', harming her children and sometimes herself. Jenny, who had had severe depression after the birth of her second child, which had caused considerable problems in her relationship with her partner, literally ran him over, and framed this experience as premenstrual. Alice feels 'swept along', a side reference perhaps to the tide of her hormones, and of feeling dangerous.

These themes within the accounts, aspects of subjective experience that do not fit in with Western ideals of femininity were, then, positioned as premenstrual, and unfeminine behaviour, and therefore undesirable or unwanted. This is in line with the feminist argument that women who step outside of their gendered roles and behave 'inappropriately' are positioned in one of two ways, as either 'bad' or 'mad' (Chesler, 1973; Ussher, 1991).

The premenstrual woman then, is angry, violent, a bad mother, dangerous and out of control. Taken together, these different positions form a discourse of 'bad' femininity realised in the texts, which positions itself in opposition to any notion of 'ideal' (but desirable) femininity. I would argue that the way this discourse of femininity is employed within the social context of PMS illustrates traditional constructs of femininity, and relates back to the discourse of female biology and the female body.

7.2.6.3 The other woman: A dualist discourse.
Kirmayer (1992) argues that a mind / body dualism is inherent in Western culture, where discursively the action of the 'rational' mind is valued over and above that of the 'irrational' body. Feminists (e.g. Edwards, 1981, McNay, 1992; Bem, 1993) would argue that this dualism is particularly pronounced when constructions of gender are considered, with the traditionally exclusive categories of 'male' and 'female' being split further into positions of 'rational / mind' and 'irrational / body'. Kirmayer (1992) continues, suggesting that our 'aching' bodies remind us that there are at least two orders to experience: The order of the text, and the order of the body.

This approach could be argued to be in opposition to some strands of post-structuralist thought, where the body is understood only as it is represented through text, a position which some (see, for example, McNay, 1992) have argued to be essentialist, in the same way that epistemological positions discounting any role of the social in the interpretation of experience are essentialist. What Kirmayer (1992) terms the experiential orders of the body and the text result in an 'inescapable circularity' (Pp 324) between language and the body, often discounted by researchers in either social or biological camps, for, as he observes, after infancy, bodily experience is most commonly elaborated and expressed through language, which is itself in turn grounded in bodily experience, providing a framework of common referents. Kirmayer argues that the body cannot be contained by a theory of representation alone, and suggests that how to approach the 'privileged' position of the body without discarding the perspective of representational theories and post-structuralist arguments is a serious challenge.

Kirmayer (1992) analyses the 'embodiment' of metaphor in the talk of patients and doctors, as a method of approaching the body as it is realised in text, that does not negate physical experience. He suggests that the use of metaphor within talk creates textual meaning both through enactment and through presentation, and that the presentation of metaphors for bodily experience takes two forms: As cognitive tools that can be used to fashion new meaning for experience, and as communicative acts, used within a framework of social reference, but which can give rise to new patterns of social interactions and 'modes of discourse' (Kirmayer, 1992 Pp 337). Yardley (1995) too, argues for a need of theoretical approaches to the body to encompass the realm of the 'material' (or bodily)
experience. The final two discourses that I identified within the texts of my interviews with the women I would argue illustrate a gendered relationship between the body and discourse, and the use of metaphoric strategies by women in seeking to communicate their experience in language. Further, I go on to suggest that these representations of the premenstrual body and mind have a dual function: They may be seen to reproduce relations of power in the social world, but they may also represent a negotiation by women within texts for time, space, or the acting out of feelings that would otherwise be unacceptable.

So, as Kirmayer (1992) notes the body / mind dualism that is present in the texts of medical encounters and pervasive in Western culture, so is premenstrual behaviour is positioned as separate from normal behaviour. More than this, however, the premenstrual woman is positioned as separate from her non-premenstrual self. It is this discursive action of the ‘splitting’ of the premenstrual woman / experience from the ‘normal’ woman / experience that I term a discourse of dualism, and the use of this splitting metaphor that I argue serves a two functions. Firstly, it could be argued that as a regulatory tool, this discourse ties closely with the theme of loss of control in the discourse of femininity, to act as a regulator of women. Thus:

Jenny:
"she [a doctor] just said um [...] um oh you're suffering from [...] you're depressed um [...] and I said it's up to my periods because I did write out a chart of how I was for a good few months before that and um [...] [C: so you had an idea] had an idea there was something going on but I I thought it was ME [her emphasis] I'm going mad [...] this thing takes over me every month"

Jane:
"I knew that when people was coming on a couple of my friends would be a bit [...] moany or be a bit argumentative towards you [...] they would have a row over something stupid [...] [C: mmm but you never [...] but this is uncontrollable what I've got [...] it just takes over [...] it's like my mouth goes off and I'm screaming and shouting and swearing and [...] there's nothing I can do to stop it [...]"
Jenny:

"She's [Jenny's mother] a bit more understanding now [...] that it's actually like you know it's not ME [her emphasis] it's this thing called PMS so....I explain to her how I'm feeling and she's she's quiet [...] and she listens to me....I realise it's [her period] coming so [...] I'm not I haven't got nothing now to [...] like I haven't got the cyclogen I haven't got the oil of evening primrose so I just have to deal with this on my own [C: mmm] and I've had it for long enough and I'm just trying to [...] get on with it [C: yeah] [...] shut my mouth [...] bite my tongue [...] it's hard because it seems to fly off without me even knowing it"

Andrea:

"I gave myself black eyes and [...] smashed a [...] actually there was an incident in the family centre where I was living [...] and nobody could believe it 'cos I'd walked the girls to school and then I'd come back in [...] they all said how are you and I said fine and then ten minutes later they heard this almighty din and again I don't remember anything happening...with my daughter she [...] I was drying her hair one minute and the next minute she had a black eye and was on the floor"

Andrea describes the uncontrollable harming of herself or her child, and this 'splitting' process is so powerful that she actually blacks out, remembers nothing of what she has done. She is literally 'overtaken' by her body, forcing her to do things that are beyond her control because 'she' wasn't there at the time. If Andrea's body does these dreadful things, and not Andrea, then this relates back to the theme of the female body as 'bad'.

Jenny says that she has no control over her 'mouth', and it is interesting to note how she positions treatments for PMS that she has taken in the past in the context of this 'battle' with her premenstrual self and her premenstrual body, as, perhaps, her last line of defence between being 'normal' and being premenstrual. The violence and sheer energy that marks out much of women's talk about their premenstrual behaviour continues this metaphor of the battle ground, of the struggle between premenstrual self and normal self, the struggle to maintain control.
Both Jenny and Jane speak of being 'taken over' every month. Again, this discourse can be traced back to a discourse of witchcraft and spiritual possession that was used to control women in the middle ages (Ussher, 1989, 1991). I would argue that, as well as this discourse being employed to regulate women, women themselves take it up and position themselves within it. In other words, within the social arena, this dualist discourse acts as a regulator, marking boundaries for women of acceptable and unacceptable behaviour, and by highlighting their unpredictable and uncontrollable tendencies ('at the mercy of their hormones'), policing the presence of women and the interpretation of their behaviour in different arenas. However, I would go on to argue that in taking up this discourse, and positioning themselves therein, these women are negotiating something for themselves, rather than simply being, as Foucault (1984) might suggest, passive bodies upon which discourses of power inscribe their mark:

Jane:

"He's [her partner] not really [supportive] because he doesn't know how to deal with them he thinks it's ME [her emphasis] actually having a go at him all the time [.] and not this thing that takes over me"

Sarah:

"...erm the mood swings [.] it's like being two different people [.] [C: right] as I said earlier on it the one that's shouting is enjoying it [.] and yet the normal side of me is standing next to me thinking WHY [her emphasis] are you doing this you're [...] you can't help it"

Paula:

"That must have been about four years ago when I realised you know sort of using the till I would make stupid mistakes on the till [C: yeah] and think WHAT [her emphasis] is the matter with me I sort of feel embarrassed and then I'd have a period and think OH [her emphasis] [laughs] that's when I sort of realised that you know [...] if I made silly mistakes and things it would be at that time of the month [...] it was like I was a different person really"

Again, the premenstrual woman as being a 'different person' from the non-premenstrual woman is a theme common to these excerpts.

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It is possible to argue the case for these women's expressions of anger as being a secret, and by definition unacceptable, pleasure. Women, I would suggest, use this 'Jeckyll and Hyde' position as a metaphor for their experience, and as a way of negotiating the expression of 'unacceptable' emotions and behaviours from within a pre-existing (and oppressive) social framework. It is, perhaps, the social emphasis on the primacy of women's reproductive role, their public biological functions, that actually produces this splitting process, rather than the other way around. Kirmayer (1992) argues that our bodies seek discursive, or linguistic expression, using a language that is itself grounded in and driven by bodily experience. Taking again Richardson's (1992) point, about the interfacial position of the menstrual cycle, then the female body not only 'insists' on discursive meaning, but the discourses of the female body themselves use the body as a site of expression, in this case through the adoption of particular metaphoric strategies. And more than this, in taking up this position, and this metaphoric structure, it is possible to argue that rather than being constrained and controlled by discursive prescriptions and limits, women simply use this strategy to negotiate a way of expressing what is otherwise inexpressible. In this sense, the agency of women who are positioned thus is highlighted, rather than their passivity.

7.2.6.4 The primacy of the female body: Contextualising self diagnosis.

So then, discourses of femininity and biology frame women's experience. Parlee (1991) has argued that PMS effectively trivialises anger and resistance, rendering it meaningless. Further, in line with Parker's (1992) criteria for identifying discourses, Parlee goes on to suggest that PMS supports and represents the interests of certain (male) institutions. If the discursive 'splitting' of the premenstrual and 'normal' self illustrates how discourse imposes meaning upon bodily experience, despite the agency of the woman within this discourse, then this discourse of the primacy of the body illustrates the way in which all experience is re-framed and re-interpreted.

The discursive body was often placed over and above, and used to explain or interpret, other aspects of experience. This I found particularly distressing, as women disclosed the most intimate and upsetting details of their lives, which they
framed with the discursive category of PMS.

Hannah:

"Because the reason for that [a criminal offence] is that I suffer from migraines [C: right] 1 - I was on I had PMT I got very ratty and er as well as get very bad migraines on top as well as the alcohol [C: mmm] and er the sexual abuse [C: mmm] It's all just crammed in my head ... my head feels like it's gonna explode 'cos I've got everything to cram in"

Hannah, for example, refers to episodes of abuse that she experienced as a child, and to her periodic problems with alcoholism.

Andrea:

"Well I didn't have any control over [...] my life [...] [C: right] erm and I was taken into a family centre because things became so bad [...] er ultimately the reason I came off the [...] antidepressants was cos I took an overdose [...] er last January"

"[I was in prison for] fraud [...] erm and I had Charlotte [daughter] erm we split up when I was pregnant and [...] I've had injunctions and that, he's quite violent ... I don't know, at the moment it's the [PMS] symptoms, everything else in my life is fine"

Andrea draws upon a romantic discourse (Wetherell, 1992) at the end of this piece of text, positioning herself as having just the one problem, if only the PMS could be cured, then everything else in her life would be fine. But this is markedly contradicted by the other information that she gives throughout the interview text, and this strategy firmly locates the blame for her problems within and upon her body.

Samira:

"I mean, I just had quite a sort of [...] emotionally abusive rather than sexually abusive relationship with my parents [C: mmm] I mean a BIT [her emphasis] physically [...] I mean I got hit quite a lot probably more than most [...] teenagers get hit I mean I was sort of HIT [her emphasis] quite a lot at sort of 15, 16 and sort of hit with objects and sort of belted and sort of whipped and things"
Nadine:

"Work's [teaching] very stressful [..] also erm not having a place of my own [..] ...my own space to work when I come home 'cos I only have a small room ...and I don't have the space to do it [..] and that stresses me out an awful lot erm [..] and that again stresses me out at work because I haven't got the stuff that I need for the next day [..] Neil [boyfriend] that's a big area of stress cos I was constantly up and down [..] one minute everything's fine and the next minute it's not [..] that's really difficult ... I actually go and see a therapist as well now "

"I have panic attacks [C: Right] have panic attacks and I was on beta blockers [..] over Christmas to try and chill out, that was when I was the most stressed and I just couldn't [..] I just felt so tense I thought what am I gonna do?"

It seemed to me that there were graphic and illustrative themes of stress, and pain, and terrible life circumstances in these texts, that positioning under the category of 'PMS' effectively negated. Why, for example, were these women not seeking help with legal aid, or for better housing, why were they locating blame upon their bodies and not upon the violent, or distant partner, the abusive father, or poverty?

Returning to the concept of PMS as a 'gendered illness' (Parlee, 1991), PMS is also a socially acceptable category, positioned within a particular medical and social ideology, within which there is a (limited) framework for understanding and treatment. Further, by positioning themselves within a particular medical diagnosis, perhaps women won some 'space' away from everyone and everything else, they no longer had to cope because they were ill. The framework that exists for dealing with violent partners, abuse, depression or rape, or other negative aspects of being a woman in Western culture is, perhaps, even less available than treatment for PMS.

By privileging the body as an attribution for distress, experiences that might in other circumstances be usefully alleviated are negated. And although the taking up of a particular position within a dualist discourse may be, in some senses, emancipatory, as it affords particular, and otherwise prohibited, behaviours, it
also highlights the distinctly oppressive nature of the social context within which these women exist. Nicolson (1986) observes that the women she interviewed who, traditionally would be seen as chronically depressed, could equally, from a feminist position, be seen as chronically oppressed. I was left to consider the reasons why many of these women were seeking help for PMS, and not for the other myriad (and, to me, more compelling) problems in their lives. It struck me that there were perhaps two explanations for this: In the first place, it may be that seeking help for a gynaecological problem is the most available avenue for help for many women, that it is easier to visit a GP than, say, to seek legal aid or deal with a violent partner. A second explanation may be that the body is a more legitimate site for blame than the mind, in other words that the women perhaps find it more palatable to be labelled as physically (i.e. PMS) rather than mentally (e.g. depression) ill. This does not, however, fully explain why these women specifically report premenstrual problems, and not one of the many other predominantly female disorders such as anorexia. In many senses, as a middle class, educated, childless white woman, my virtual incomprehension of this could be put down to my privileged position within many of these discourses, I had available to me many different alternatives and explanatory frameworks that these women did not. I would argue that the most striking implication of this discourse of the primacy of the body is the way in which it illustrates the shortcomings, contradictions, and oppressive practices embodied in Western constructions of femininity.

7.3 Conclusions.
In addressing the research question of this thesis, namely, 'what makes a woman self-report PMS', using a discourse analytic research strategy, I narrowed the focus of the research to ask how the illness category of PMS was discursively constituted, and what the function, or meaning, of these discourses were, at the level of social representation, and for the women who positioned themselves within them.

From the analysis of the data collected from this study, it is possible to conclude that PMS is discursively constituted through a discourse of the body, and a discourse of femininity, which are closely intertwined. The adoption of a dualist discourse arguably allows women to negotiate and maintain their status as women, despite behaviour and emotions that they experience which, in Western
culture, are narrowly defined as unfeminine. This dualist discourse also, however, has the broader action (at the level of social representation) of re-producing and maintaining gendered relations of power. Finally, a discourse of the primacy of the female body, as a site of blame and as a referential explanatory framework, relates back to the action of a dualist discourse and metaphors of splitting, highlighting the ultimately oppressive nature of Western constructions of femininity and the female body. These discourses have their roots in many older constructions of femininity (see Ussher, 1989, 1991; Showalter, 1989; Rodin, 1992), and perhaps reflect too the way in which the development of a discourse of medical science can shape and transform ancient constructions into modern explanatory frameworks, modified and warranted by the legitimacy of a scientific status.

This study, I would argue, illustrates the way in which the 'gendered illness' of PMS (Parlee, 1991) is grounded in the discursively constructed female body, and the contradictions inherent in Western notions of femininity - how behaviour and emotions expressed by women, if they do not conform to some culture-bound feminine ideal, are 'split off' from the 'normal' woman, and labelled as PMS. Further, rather than being the 'passive bodies' of a traditional Foucauldian analysis (McNay, 1992), perhaps positioning oneself within a discourse of PMS and the female body, may be a method of coping with contradictions and disparities, or of reconciling them, resulting in this splitting process but enabling the woman herself to maintain her identity.

The use of this particular qualitative approach affords an examination of the subjective experience of PMS to the women who position themselves as PMS sufferers, the meaning of self-diagnosis to them, and the relationship of PMS to overlying constructions of femininity and the female body. In this sense, it allows the illness category of PMS to be placed firmly within it's social context, and to link the analysis to a broader discourse of what it means to be a reproductive woman in Western culture (Swann & Ussher, 1995). These issues have, thus far, been largely neglected in PMS research, and this women-centred research strategy provides a rich and detailed account of the meanings of PMS to the women who self-report, the way in which experience is socially constructed through the lens of gender (Bem, 1993), and the way in which experience is framed by and interpreted through particular discourses, which themselves act
It may be argued that the failure of traditional approaches to take women’s experiences into account renders their explanatory powers weak (Swann & Ussher, 1995), and that this approach provides a contextualised account of the experience of PMS. Univariate, or biological models of PMS cannot necessarily provide definitive explanations of PMS, as PMS is not simply a univariate or biological phenomenon, rather, this study illustrates the way in which PMS status is continually negotiated by women, amidst a complex interplay of competing and complimentary discourses.

There are some important limitations to this study. I mentioned at the beginning of this chapter that a different researcher, or different interviewees, may provide a different reading of the interview texts, or a very different set of interviews. That is not to say that this account is relativist, but it does mean that it illustrates only some of the discourses and subject positions available to women around PMS. In effect, it is a small study of a small number of women, and there is room for many further studies, and for different analytic approaches. Further, the analytic process could have been continued indefinitely - I could have carried on adding in excerpt after excerpt in order to build on the discussion I have presented, but I have limited myself for the practical reasons of time and space.

It must be noted that discourse analytic approaches are not the only way forward for PMS research, and that this study has some important limitations. It represents the accounts of only a very small group of women, interpreted and analysed by one person, and there are of course many other possible readings of the texts. Further, different texts may be produced in different contexts, and future research may usefully concentrate on patient / doctor interactions in the PMS clinic, on the accounts of non-help-seeking samples of women, and the way in which PMS is discursively constituted from different positions, for example by men, by women’s partners, or by the researchers and clinicians themselves. This would give a valuable, and less partial insight into the dynamics of power in the category of PMS, and it’s different cultural meanings. Future research could also examine women’s narrative accounts of their reproductive life histories: I was struck throughout my time working on this study just how many different problems some of the women had experienced, and their (sometimes quite
negative) interactions with medics. I would argue that the literature and theory I have reviewed in this chapter, and the study presented here, provide support for further research on the meaning of reproduction, or of being reproductive, to women, and life-history or narrative research would be a fascinating and illuminating way of going about this. It is certainly a project that I wish to begin at some point in the future.

This study may be used to compliment and inform a multi-factor model of women's experience of PMS (Ussher, 1992a) where one aspect of experience, or one type of data, is not privileged above another (Swann & Ussher, 1995). But in recognising PMS as a complex interplay of the internal and external, of the orders of the body and the text (Kirmayer, 1992), an important step towards breaching the impasse of PMS research (Ussher, 1992a) may be reached.
Chapter eight: Conclusions.

8.1 Introduction: Considering the premenstrual body.

I chose to study premenstrual syndrome because it seemed to me to typify many of the issues both surrounding femininity, and debated within feminism. As I stated in the opening chapters of this thesis, there is an argument (see Parlee, 1991) that the disease category of 'PMS' is what may be termed a 'gendered illness'. With the research question 'what makes a woman self report PMS' in mind, I have reviewed traditional research on the menstrual cycle, and on PMS. Chapter two explored the biological processes associated with the menstrual cycle, an exercise which represents some of the early research conducted for this thesis, and in order to frame a subsequent critique of notions of women being 'naturally' disabled by their hormonal fluctuations. In chapter three I suggest that this 'gendered illness' represents a dynamic relationship between the actions of science and discourse on the female body, and the pervasive practice of using the body as a site of blame for female experience. Ussher (1992d) illustrates this position:

"The female body is at the centre of the discourse which defines and controls women. To speak of woman is to speak of the body, as femininity has been located within the body, and is constructed by the body. And this is a physical, sexual, fertile body, which houses women's danger, women's power, and women's weakness."

(Ussher, 1992d Pp 31)

In this sense, the argument I introduce is a Foucauldian one, drawing upon critiques of science and the historical origins of negative constructions of the female body. Foucault has argued that the body bears the marks, or stigma, of past experience upon it's surface:

"The body is the inscribed surface of events (traced by language and dissolved by ideas), the locus of a dissociated self (adopting the illusion of a substantial unity), and a volume in perceptual integration. Genealogy as an analysis of descent, is thus situated within the articulation of the body and history. It's task is to expose a body totally imprinted by history and the processes of history's destruction of the body"

(Foucault, 1984 Pp 83).

Foucauldian principles of deconstruction have been increasingly taken up by feminist researchers over the past twenty years, as they afford a detailed analysis
of the action of discourse and power upon the female subject, and the
collection of femininity (see, for example, Edwards, 1983). The argument that I
present in chapter three, along with a review of the literature around PMS, might
indicate that precisely such an analytic account of premenstrual syndrome is
required.

However, an account that draws only upon critiques of material experience, as
represented in the traditional literature around PMS, is also perhaps guilty of
denying the problems that many women report and experience. McNay (1992), in
an analysis of the utility of Foucauldian approaches to feminist endeavours, notes
that Foucault's emphasis on the body, and the expense of a less partial notion of
individuality, is problematic for feminists given the emphasis placed by feminist
endeavour upon the re-discovery and re-valorisation of women's experiences.
She comments:

"Although the oppression of women is based on the appropriation of their
bodies by patriarchy, it does not follow, therefore, that oppression derives
from the body or sex, or that the notion of natural sexual difference can be
used to explain gender inequalities. Rather, the 'natural' body must be
understood as a device central to the legitimisation of certain strategies of
oppression.... whilst the sex / gender distinction has been successful in
bypassing the notion that one's biological makeup is one's social destiny,
the social constructionist approach it leads to remains caught in a
problematic opposition between the body understood as a biological
category and gender as a social one... By privileging the gender side of this
equation, the body is in effect neutralised and denied any salience
whatsoever."


At the end of chapter three, and throughout chapter four, I have presented an
epistemological framework, by use of which I hoped to overcome, to some extent,
the limitations of either biological\textsuperscript{49} or social\textsuperscript{50} essentialism. By adopting a multi­
factor approach to PMS, where women's experiences are central to the conceptual

\textsuperscript{49} By biological essentialism, I mean to refer to theoretical accounts of PMS
grounded soley in the biological process of the female reproductive cycle.

\textsuperscript{50} By social essentialism, I mean to refer to the problems of an analysis grounded
solely in the social construction of PMS, a practice which McNay (1992) illustrates
with regard to constructions of femininity in general.
and research process, and by the use of a feminist standpoint in driving my research questions and practice, I have stated that I hoped to contribute to a theoretical account of women’s experiences of PMS less partial than those within traditional bio-medical or psychological approaches (see Ussher, 1992a). Further, by utilising different research strategies in addressing my research question, I am arguably able both to question the position and assumptions of traditional psychological approaches, and their place in the construction of the subject, and to consider their utility in contributing to this theoretical account.

As I stated in the opening chapter, this process has at times been somewhat overwhelming. My initial studies were carried out using particularly ‘strong’ positivist strategies, and the studies themselves are presented in a ‘self-contained’ manner. It is only here, in my concluding chapter, that I hope to be able to draw together the different strands of my argument. It is important to note, also, that the research question ‘what makes a woman self-report PMS’ could have been investigated in many, many different ways, using research strategies that I do not discuss in this thesis. The research strategies that I have chosen have been determined by environment, and opportunities available to me, as well as by epistemological considerations.

This conclusion will summarise the three studies contained in this thesis and the results presented therein. I will then consider the limitations of each study in turn, including critical accounts of each research strategy where appropriate. The implications of this approach for women who self-report PMS will then be considered, followed by the implications of my research and approach for a theoretical account of women’s experience of PMS. In the light of these implications, some further research will be suggested, and I conclude this thesis with a summary of the arguments presented in this chapter.

8.2 Summary of the research.

The first piece of research presented in this thesis reports an experimental investigation of the relationship between the menstrual cycle, self-reported PMS, and attentional bias for PMS related stimuli, attention to body cues, autonomic arousal, and self-report of stress. Using a repeated measures design, comparing samples of SR (self-reporting) and NSR (non-self reporting) undergraduate women, it was concluded that no significant relationship was found between PMS status, menstrual cycle phase, and any of the variables measured.
Chapter six presented a study using the Women's Health Questionnaire (Hunter, 1992) to investigate the relationship between PMS status, and perceived detriment to emotional and physical health. The study compared samples of undergraduate women, family planning clinic attendees, and women on the waiting list for an appointment at a PMS clinic. Significant relationships were reported between group (UG, FPC, PMSC) and scores on eight of the nine WHQ subscales, and between PMS status and eight of the nine WHQ subscales. No significant group x PMS status interaction was found. Elevated levels of caseness (non-psychotic depression) were recorded in the PMS clinic sample, and scores for this sample on all of the nine subscales were elevated in comparison both with the control samples, and with the samples on which the WHQ was originally standardised (Hunter, 1992). Further, a logistic regression analysis used to evaluate the predictive efficacy for PMS status of all of the socio-economic variables and the WHQ subscales for the two control samples, and the inter variable correlations for the PMSC sample, indicated a complex interrelationship of different problems as contributory to women's PMS status.

Chapter seven presented a discourse analytic study of women's accounts of premenstrual syndrome. Using an analytic technique drawing upon Foucauldian notions of discourse, on the principles of discourse analysis suggested by Potter & Wetherell (1987) and Parker (1992), and a grounded approach (Glaser & Strauss, 1967; Henwood & Pidgeon, 1993), four main discourses were identified in a sample of interviews about women's experiences of PMS, collected from women attending their first PMS clinic appointments. It is suggested that these discourses, of the biological female body, of femininity, of dualism, and of embodiment, represent some of the discursive resources and subject position available to women, and graphically illustrate the action of discourse upon the female body, positioning female experience as pathological and PMS as a 'gendered illness' (Parlee, 1991).

8.3 Limitations of the research
These studies, as I have stated earlier, represent only a fraction of the research that could be used to investigate the research question. Further, in their use of different participant populations and strategies, each study did not examine the same aspect of the phenomena of PMS. Rather, I would argue that each study investigates a different aspect of women's experiences, and that each research
strategy can, therefore, only provide a small amount of information about a phenomena that, as a multi-factor approach necessitates, has many different facets. In this sense, all of the studies are somewhat limited. One way of addressing this problem would be to use different participant groups within the same study design, for example to interview non-help-seeking women about their experiences of PMS, or to conduct an experimental study on a sample of help-seeking women.

The study presented in chapter five has a number of important limitations, most of which are detailed in the discussion of that chapter. These limitations, of research strategy and design, may have all contributed to the finding of no significant relationship between the variables measured. However, it is also important to note some of the broader critiques of cognitive psychology, and the implications of these critiques for cognitive research into PMS.

Chapter four noted the critique of attribution theory presented by Potter & Edwards (1990), that it fails to question the context or meanings of the stimuli and measures used; that it takes a naive realist approach to the language which people use to describe their beliefs; and that its subsequent accounts and explanations of behaviour are thus constrained by a lack of context. Thus 'cognitive factors', the meaning of which may differ even between cognitive approaches, may be seen to be positioned as much in the social, or language, as in internal mental processes. It is further of note that the interpretation, construction and diagnosis of emotional disorders may be dependent upon the social and cultural context within which they occur (an excellent example of this type of critique is provided by Smith, 1978; see Littlewood & Lipsedge, 1987. See also chapter three for a critique of positivism).

Hollway (1989) observes that, whilst cognitive theory was supposed to solve the problem of the relation between the individual and the social, because it inherits a set of basic and limiting assumptions from psychology, it failed to incorporate content and therefore is incapable of theorising meaning. Hollway (1989) argues that cognitive approaches take on the premise of perception theory, that external events are represented internally through a series of fundamentally neuropsychological events. Whilst cognitive theory emphasises the active role of internal cognitive mechanisms in organising incoming information, it
nonetheless maintains an individual / social dualism. Hollway (1989) points out a fundamental inconsistency in cognitive theory, in as much as any departure from the objective (and measurable) truth of external reality is seen as an effect of the organisation into patterns of vast amounts of incoming information, yet at the same time it may be seen as a deviation from how the information-processing mechanism may ideally function. Hollway (1989) argues that this inconsistency, or circularity, is 'swept under the carpet' (Pp 103) by the adoption of a descriptive individual differences model, with no explanatory power.

In this sense, the attentional bias paradigm used in chapter five may be suggested to be using stimuli that are too abstracted from real life, or of presuming these stimuli to be 'neutral' and 'transparent' rather than contributing to discourses around femininity and the menstrual cycle. Further, the finding of no significant relationship between the other variables measured (autonomic arousal, stress, sensitivity to body cues), PMS status and cycle phase, is in line with much previous research into PMS (see, for example, Ussher & Wilding 1991; see Sommer, 1992; See Ussher 1992a; see Richardson, 1992a). In light of this, it is also possible to question the appropriateness of an experimental paradigm in investigating women's experiences of PMS, and the critique of positivism presented in chapter three highlights many of the problems with science and scientific methods. There is one area of research which has found some evidence of menstrual-cycle related variations in functioning through the use of experimental paradigms, and this area is visual and ocular research (see Dye, 1992; see Guttridge, 1994). However, the utility of much of this research is questionable with regard to the research question: The variations in visual and ocular function that have been recorded are so small as to have little impact on women's experiences (see Guttridge, 1994).

The questionnaire-based study presented in chapter six highlights the levels of distress present in women seeking help for premenstrual syndrome (which, it is concluded, are not dependent upon menstrual cycle phase at time of questionnaire completion), and the complex inter-relationships of symptoms that contribute to this experience. The results of this study may have been affected by recruitment and completion procedures, however, and specific methodological criticisms are discussed in chapter six - for example, the use of women on a waiting list for their first appointment at a PMS clinic could have produced a
reporting bias in the results. At a more general level, the use of questionnaire-based research strategies in psychology have also been criticised, and again it is important to note these accounts.

For example, it could be argued that critiques of questionnaire assessment in other areas of psychology, such as occupational assessment (see Hollway, 1984) can be applied more generally to all areas in which structured measures of internal characteristics are devised and utilised. Chapter three noted that traditional psychology tends to operate within the confines of science, or positivism, and critics of traditional psychology (see, for example, Henriques et al, 1984), and even philosophers of science (e.g. Woolgar, 1988) would argue that the notion of objectivity within the 'hard' physical sciences or the 'softer' social sciences is a misleading one, as all knowledge is socially situated and constrained. Science as a route to knowledge, it is argued (e.g. Harding, 1991) is a powerful tool to social control, as scientific knowledge (taking a traditionalist view of society) dictates social belief and ultimately action. Thus, by setting itself as a science, psychology is implicated in the process of social regulation (Hollway, 1984).

Taking this line of argument one step further, it can be suggested that questionnaire and psychometric measurement is not only productive and reflective of social knowledge, but as means to acquire such knowledge are part of the dynamics of a discipline that itself is a historical product of what Foucault would term the 'technology of the social' (Foucault, 1973). The origins of many questionnaire measures, and the subsequent flaws detected by many social and feminist critics, might serve as a powerful example of how the science of psychology may be mis-used or misleading. Squire (1989), for example, notes that working class women score lower than middle class women on tests such as the US Scholastic Aptitude Test (SAT), which is geared towards middle class family and educational experiences.

Furthermore, differential measures can be utilised in a discriminatory manner - Furnell (1986) observes that psychology is more likely to give social (either survey or interview) accounts of lesbian identity, whereas gay male identity tends to be treated on an individual level, which is arguably less likely to lose sight of individual context or subjectivity. Even when tests are rigidly standardised, questions can be raised as to the representativeness of the
population upon which they were tested, the validity of the internal constructs of the questionnaire and so on. Thus this chapter begins by relating back to issues around science and psychology: That the premise of objectivity / scientific status in psychological questionnaire measurement may itself be called into question on an individual or micro and a social or macro level. To illustrate this, questionnaire measures of PMS will be reviewed, placed within a critical context.

In the case of the Women's Health Questionnaire (Hunter, 1992), it could certainly be argued to contain a 'negative bias' in it's items. To some extent, this is precisely because it claims to measure detriment to emotional and physical health, and in the study presented in chapter six, the effects of this negative bias would be equally spread amongst participant responses. Unlike Hollway's (1989) example, however, the epistemological assumptions behind this study were not to classify or define in order to promote or exclude particular 'types' of people from certain arenas (and many of the arguments presented above may be directed, with great effect, to instruments specifically designed to measure PMS), but to 'give voice' to women's perceptions of their emotional and physical health, and provide information in an area with little previous research. Of course, this too could be said to be productive of knowledge, and representational in it's action, but perhaps the endeavour of feminist research in providing this voice for women allows a counter-argument for the privileging of these experiences above other, patriarchal accounts.

Finally, the study presented in chapter seven represented an attempt to place women's experience of PMS within it's social and cultural context (Sommer, 1992) by use of a discourse analytic research strategy. Again, this research strategy, placing women's accounts at the centre of the research process, has been little used in the area of PMS, and it's conclusions are striking. It is not, however without it's problems: The study can be used to illustrate many aspects of this social and cultural context, but as Griffen & Phoenix (1994) point out, whilst qualitative methods provide an in-depth analysis of the experiences and 'realities' of a relatively small sample of people, often quantitative or survey techniques are required to present a broader picture of a general sample of women. There are also problems associated with the reading of the text by the particular researcher, and the subject positions available to that researcher, that
may sometimes render an account if not relativist, then somewhat limited in its scope.

8.4 Implications of the research for women
The research and theoretical framework presented in this thesis does, I would argue, have some important implications for women who suffer from or seek help for PMS. In the first place, the very act of conducting women-centred research, of 'giving women a voice' in this arena, is arguably a step forward in the current debates around aetiology and consequences of PMS. The study presented in chapter seven also highlights some very important problem areas for women that could be addressed: So many of the women mentioned uncontrollable anger, or considerable life stress, that this study can only add support to the move towards psychological interventions for PMS, such as anger management and coping skills training. The life-stresses mentioned by some of the women, such as a violent partner or poverty, are also issues constantly debated in feminist literature, and issues which should continue to be given priority in any feminist agenda.

Further, by deconstructing traditional accounts of PMS, and highlighting both the extreme levels of distress that women attribute to their menstrual cycles (as I do in chapter six), and the gendered nature of the discourses around PMS, the strict limitations of the discourse of 'ideal' or unattainable femininity, such research may go towards providing women with a new set of explanations for their experiences, of different (and, perhaps, non-sexist) discursive resources through which to frame and interpret their experiences. Ussher (1992d) suggests:

"In order to integrate the female body into our understanding of the psychology of women's health, we cannot deny the body - central aspects of our experiences as women have been silenced for too long.... Yet we need to unveil the body as it is framed in the male gaze, and reclaim it as our own. We need to deconstruct the negative discourse....To deconstruct the pseudo-syndromes which give a false air of legitimacy to the scientific rhetoric which controls us. We need to look beyond biology, beyond the body, for reasons for women's unhappiness, anger or depression. We will find many legitimate reasons. This will empower us to question the categorisation of psychological illness put upon us, and upon our bodies"
To this end, the studies presented in this thesis, whilst only a fraction of the research that could be carried out, and perhaps even more importantly the use of a multi-factor, feminist standpoint approach, allows us to draw out the importance of different aspects of women's experiences, and the extent to which negative constructions of the female body frame these experiences. To this end, I argue that the finding of no significant relationship between variables in chapter five, of elevated levels of distress in chapter six, and my deconstruction of the discourses that constitute women's accounts of PMS, may be empowering to women.

8.5 Implications of the research for theoretical accounts of PMS.

Again, I would like to suggest that the research and theoretical framework presented in this thesis does have some important implications for theoretical accounts of PMS.

As I have previously stated, it may be argued that the use of a women centred approach in researching PMS may help to breach the 'impasse' that has been noted in the field (Ussher, 1992a). Use of a feminist standpoint also affords the adoption of different research strategies in addressing a research question, and this may prove to be fruitful in providing theoretical accounts of PMS. The location of PMS within it's socio-historic and cultural context illustrates the limitations of more traditional research strategies, and perhaps highlights the pervasive problems and contradictions inherent in being feminine in Western culture.

The results of the experimental study presented in chapter five, and the results of other cognitive-experimental studies in the area of PMS, may underline the problems associated with the use of experimental methodology in this area, where results are frequently non-significant or contradictory. I would argue that it is, perhaps, more appropriate to question just why so much research energy has been expended upon these studies, the answer to this question reflecting the autocracy of 'science' as an ideological system, the tendency to pathologise female experience, and the cultural need to provide 'proof' of lability and detriment, Rodin (1992) has suggested that the disease category of PMS reflects the action of science, and the production and reproduction of medical knowledge in the
cultural arena. Using a feminist standpoint, and a multi-factor approach, and keeping in mind the results of the two further studies presented in this thesis, I would like to conclude that perhaps the avenue of cognitive-experimental approaches to PMS will not be the one that is most fruitful in addressing the research question 'what makes a woman self-report PMS'.

The results of the questionnaire based study presented in chapter seven also have implications for theoretical accounts of PMS. No relationship between cycle phase at time of questionnaire completion, and scores on the nine WHQ subscales was found, despite the markedly elevated levels of symptomology reported in the help-seeking sample. The problem areas highlighted by this study, and the inter-relationship of different symptoms as contributory to the experience of PMS, provide support for multi-factor approaches, and again for specific psychological intervention. The gendered nature of PMS itself, in relation to this study, also supports specific feminist arguments, around the interpretation of women's experience as representing some underlying pathology (see Ussher, 1991). Such a questionnaire-based research strategy, as Griffen & Phoenix (1994) suggest, may be extremely useful for gathering information about the experiences of a large sample of women, and for highlighting the levels of distress within such a sample.

Finally, the discourse analytic study of women's accounts of PMS, has two very important implications for theoretical accounts of women's experiences of PMS. In the first place, through the use of a grounded thematic-decomposition technique, the discourses emerging from the interview texts may provide important research questions for future studies, and allow us to re-focus our interpretations of more traditional research. By placing PMS thus in it's social and cultural context, it's status as a 'gendered illness', and the implications of this, are illustrated. So, for example, I could return to the results of my experimental study, and conclude that I found no significant relationship between variables because the variables that I selected to study, and the method through which I chose to study them, were not appropriate to this population of women, or to explaining the 'differences' between women who do, and women who do not, consider themselves to suffer from PMS. Using a strategy dependent upon the premises of a masculine science (Keller, 1985) may only serve to reproduce cultural constructions of femininity. Again, that is not to say that experimental
techniques are *never* appropriate to PMS research, as strategy is obviously dependent upon the research questions that one wishes to address. Rather, I should like to argue that research strategies that allow for an examination of the dynamics of gender, femininity, and the construction of the female body, may prove to be extremely fruitful in research into PMS, and vital at this point in the medical and psychological debate around the 'nature' of PMS itself. The second implication of this study is to be found in the support that it provides for multi-factor approaches, by highlighting the diversity of women's experience. Taking a step back from a discourse analytic approach, and acknowledging the different problems that the women I interviewed were experiencing, it may be suggested again that further research is needed into the utility of women-centred psychological interventions for PMS.

8.6 Suggestions for future research

I have suggested methods of modifying the research presented in this thesis, and possible future research, in the appropriate chapters. In order to conclude this thesis, however, I should like to consider three specific studies, that may address some of the issues made in this chapter, and that may be useful in considering the factors and processes that contribute to the self-diagnosis of PMS.

In the first place, a further limitation of the studies presented herein, in providing any theoretical account of PMS, is that the dynamics of self-diagnosis are not addressed. For example, previous feminist research has highlighted the gendered nature of many different medical and psychological problems (see, for example, Chesler, 1973; Malson, 1975). In light of such research, it is possible to ask why certain women report PMS, and not anorexia, or depression, for example. To address this issue, it would be interesting to conduct a longitudinal study of young girls approaching menarche, based on interviews and questionnaire measures, in order to examine experiences of menarche and menstruation, and specifically to follow those girls who go on to self-diagnose PMS. This would not be to provide any aetiological or causal account of PMS, but rather to examine the development of women's experience, and to investigate the way in which young women position themselves in relation to their reproductive cycles.

A second study, and one which I mention in chapter seven, would involve an investigation of the reproductive life-histories of an older sample of women. The
interview excerpts presented in this thesis often illustrate the wealth of different experiences that women have in relation to their reproductive cycles, and given the prominence of constructions of the female body in feminist arguments, it would be useful to use a narrative analysis to investigate how women's reproductive life histories contribute to their identities, and how femininity is discursively constituted in these women's accounts.

Given the elevated levels of distress recorded both in this thesis (see chapter seven), and in other studies of gynaecological outpatient clinics (see Hunter, 1992), it is possible to suggest that such findings illustrate the salience of the female body as a site of 'blame' (Ussher, 1992d). A study investigating large samples of such outpatients, using a modified version of the design presented in chapter seven with more sophisticated and comprehensive measures of life stress and concurrent events, would provide a great deal of important information about levels of distress and other factors that contribute to help-seeking for gynaecological problems.

These studies would provide much needed information towards a women-centred account of PMS, and an analysis of the place of reproduction in women's identities.

8.7 Conclusion.
I am sure that there are other interpretations, and other readings possible of the studies that I present here, even from within a feminist standpoint. I hope to have provided a coherent account of this research, the underlying rationale, and the principles of a women-centred, feminist standpoint approach. To this end, I should like to conclude this thesis by summarising four brief points.

Firstly, I have argued that traditional accounts provide only partial explanations of PMS, and what it means to women. I have also suggested that by placing women at the centre of the research process, some less-partial account may be reached.

To this end, I have considered the research presented in this thesis both from 'within' each research strategy, and subsequently widened my discussion of these studies in order to examine their implications for women and research in general, and the utility of each strategy in contributing to a women-centred
theoretical account of PMS.

I should like to argue that this thesis highlights the need for both continued research from within a multi-factor framework of women's experiences of PMS, and for the consideration of issues of gender within this approach.

My concluding point relates to research into PMS in general: Even when research is conducted from a feminist standpoint, with the ultimate aim of empowering women, there is a necessity to consider the action of such research. The medicalisation of menstruation is something that can be redressed through education and discussion, both at an educational and academic level (see, for example, Golub, 1992). Thus, research that seeks to highlight commonalities, or the non-problematic experience of menstruation, is as valuable as research into the extremities of premenstrual distress, in examining the dynamics of femininity and female experiences. In concluding my research into PMS, I am then adding the proviso that it is not my intention to continue the mystification, or medicalisation, of the reproductive process - but to highlight the problems that exist for some women, and possible strategies for investigating these problems.
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Appendices.
These questions ask you about your menstrual cycle and health. Please read carefully, and answer as accurately as you can. You do not have to answer them if you do not wish to do so.

(1) How regularly do your periods occur? _______________ days.

(2) Can you remember when your last period started? Please give the date (if you cannot remember, there is a calendar to help you. Please ask the experimenter): _________________________________________________________________

(2) Do you think that you get PMS or PMT? Yes / No.

(3) Have you ever been diagnosed as having this by a doctor, or had any treatment for it? Please explain: 

______________________________________________________________

______________________________________________________________

(4) If you do get PMT / PMS, what sort of symptoms do you have? Please explain:

______________________________________________________________

______________________________________________________________

Thank you.
Appendix II. CAD-ACL.

Mood rating scale.

This scale is a list of adjectives, that could describe how you might be feeling today. As you read each word, think about how well it describes the way that you are feeling RIGHT NOW. If a word describes something that you DEFINITELY FEEL, then circle the ‘++’ sign next to it. If it describes something that you FEEL SLIGHTLY, then circle the ‘+’ sign next to it. If it describes something that you DO NOT FEEL, circle the ‘-’ sign, and if it describes something that you DEFINITELY DO NOT FEEL, then circle the ‘- -’ sign next to it.

If you have any questions about how to rate these words, then please ask the researcher.

| UNEASY  | ++ + | - | - | RELAXED | ++ + | - | - |
| ENERGETIC | ++ + | - | - | SLUGGISH | ++ + | - | - |
| NERVOUS | ++ + | - | - | RESTFUL | ++ + | - | - |
| ALERT | ++ + | - | - | SLEEPY | ++ + | - | - |
| FEARFUL | ++ + | - | - | PEACEFUL | ++ + | - | - |
| ACTIVE | ++ + | - | - | DROWSY | ++ + | - | - |
| TENSE | ++ + | - | - | AT REST | ++ + | - | - |
| LIVELY | ++ + | - | - | TIRED | ++ + | - | - |
| WORRIED | ++ + | - | - | CONTENTED | ++ + | - | - |
| BOTHERED | ++ + | - | - | CALM | ++ + | - | - |
| DISTRESSED | ++ + | - | - | COMFORTABLE | ++ + | - | - |
| UPTIGHT | ++ + | - | - | CHEERFUL | ++ + | - | - |
| JITTERY | ++ + | - | - | PLEASANT | ++ + | - | - |

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Appendix III
Weekly questionnaire.

Name: Date: Time:
Estimated heart rate: Actual heart rate:

(1) How many of the following have you had over the last seven days
Units of alcohol: 0 1-4 5-9 10-15 15 or more
(1 unit = 1/2 pint beer, 1 glass wine, 1 measure spirits)

Units of exercise: 0 1-4 5-9 10-15 15 or more
(1 unit = 1/2 hour of exercise e.g. walking, running, swimming, aerobics)

(2) How many of the following have you had in the last 24 hours?
Units of alcohol: 0 1-4 5-9 10-15 15 or more
(1 unit = 1/2 pint beer, 1 glass wine, 1 measure spirits)

Units of exercise: 0 1-4 5-9 10-15 15 or more
(1 unit = 1/2 hour of exercise e.g. walking, running, swimming, aerobics)
Cigarettes: 0 1-5 6-10 11-15 16 or more
Hours of sleep: 6< 6-9 >9
Caffeinated drinks: 0 1-3 4-6 7 or more
(e.g. tea, coffee, coke).

(3) Have you taken any medication today? YES / NO
If yes, please explain:

(4) WOMEN ONLY: Do you have your period today? YES / NO
If yes, please give the date that your period started:

THANKYOU FOR COMPLETING THIS QUESTIONNAIRE. NOW PLEASE HA?
IT BACK TO THE RESEARCHER.
Appendix IV:

Information sheet & Consent Form.

Study: Women's health survey.
Researcher: Catherine Swann, Psychology department, University College London.

This study is investigating women's health, lifestyles and menstrual cycles. The information that you provide us with will help us to understand about women's experiences, and any problems that they may have had. All of the information collected in this survey will be entirely confidential.

You do not have to take part in this study if you do not want to. If you decide to take part you may withdraw at any time without having to give a reason. If you have any questions, please ask the researcher now.

I hereby declare that I have read the information sheet concerning this study and I understand what will be required of me if I decide to take part.

My questions concerning this study have been answered by Catherine Swann.

I understand that at any time I may withdraw from this study without giving a reason, and without affecting my normal care and management.

I agree to take part in this study.

Signed: ................................................................. Date:.................................

Signature of researcher: .................................................................
Appendix V: Survey Instrument.

The following questionnaire covers a number of issues to do with your lifestyle, health and menstrual cycle. Please try to answer the questions as honestly and as accurately as possible. All information given will be treated as strictly confidential.

Section A:

(1) Please give today's date: ________________________________

(2) Please give you DATE OF BIRTH: ________________________________

(3) Are you: Single ____

Married/ cohabiting ____

Separated / divorced / widowed ____

(4) Employment: Please tick the case that best describes you:

Full time ____

Part time ____

Housewife / mother / carer ____

Student ____

Unemployed ____

(5) Education: Please tick the case that best describes you:

Left school aged 14 - 17 ____

Obtained A-levels / highers ____

Attended college / University / Poly ____

(6) How many children do you have? ________________________________

How old are they? ________________________________
Section B:

(1) Are there any stresses in your life at the moment? YES / NO.
    If yes, please describe:___________________________________________
    ________________________________________________________________
    What do you think is the main cause of your stress?:

(2) Do you have any emotional or health problems at the moment? YES / NO
    If yes, please describe:___________________________________________
    ________________________________________________________________

(3) How do you usually cope with stress?:
### Section C: The Women's Health Questionnaire

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<th>Yes, sometimes</th>
<th>No, not much</th>
<th>No, not at all</th>
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<td>2. I get very frightened or panic feelings for apparently no reason at all.</td>
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<td>3. I feel miserable and sad.</td>
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<td>4. I feel anxious when I go out</td>
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<td>5. I have lost interest in things.</td>
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<td>6. I get palpitations or a sensation of “butterflies”, in my stomach or chest.</td>
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<td>7. I still enjoy the things I used to.</td>
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<td>8. I feel life is not worth living.</td>
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<td>9. I feel tense or “wound up”.</td>
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<td>10. I have a good appetite.</td>
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<td>11. I am restless and can’t keep still.</td>
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<td>12. I am more irritable than usual.</td>
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<td>13. I worry about getting old.</td>
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<td>14. I have headaches</td>
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<td>15. I feel more tired than usual.</td>
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<td>I have dizzy spells.</td>
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<td>My breasts feel tender or uncomfortable.</td>
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<td>I suffer from back-ache or pains in my limbs.</td>
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<td>I have hot flushes.</td>
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<td>20.</td>
<td>I am more clumsy than usual.</td>
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<td>21.</td>
<td>I have abdominal cramps or discomfort.</td>
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<td>22.</td>
<td>I feel sick or nauseous.</td>
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<td>23.</td>
<td>I have lost interest in sexual activity</td>
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<td>24.</td>
<td>I have feelings of well-being</td>
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<td>25.</td>
<td>I have heavy periods.</td>
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<td>26.</td>
<td>I suffer from night sweats.</td>
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<td>27.</td>
<td>My stomach feels bloated.</td>
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<td>29.</td>
<td>I often notice pins and needles in my hands and feet.</td>
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<td>30.</td>
<td>I am satisfied with my current sexual relationship. (Please omit if not sexually active.)</td>
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<tr>
<td></td>
<td>Yes, definitely</td>
<td>Yes, sometimes</td>
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<td>31.</td>
<td>I have difficulty in concentrating.</td>
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<td>32.</td>
<td>As a result of vaginal dryness, sexual intercourse has become uncomfortable. (Please omit if not sexually active.)</td>
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<td>I need to pass urine/water more frequently than usual.</td>
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<td>34.</td>
<td>My memory is poor.</td>
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<td>35.</td>
<td>I feel full of life.</td>
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<td>36.</td>
<td>I lack pride in myself.</td>
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<td>37.</td>
<td>I am happy with the way I look.</td>
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<td>38.</td>
<td>I wish I was someone else.</td>
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<td>39.</td>
<td>I feel I have lots of good qualities.</td>
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Section D:

(1) What stage of your menstrual cycle are you at the moment? (please tick)
   - Menstruating __
   - Had period in last 2 weeks __
   - Mid cycle __
   - Premenstrual __
   - Don’t know __

(2) Are you currently taking oral contraceptives (the pill or mini-pill)? YES / NO

(3) Do you now have, or have you ever had, any problems with your menstrual cycle? YES / NO
   If yes, please describe:

(4) Do you think that you suffer from PMT / PMS (premenstrual syndrome / tension)? YES / NO
   If yes, how long do you think you have had it?:
   What type of symptoms do you get?:
   What is the aspect of the problem that you find most difficult to deal with?:

(5) What do you think is / are the main causes of your PMT / PMS?

(6) Do you think that any of the following influence your PMT / PMS? (Please tick)
   - Stress __
   - Other people __
   - Genetic factors __
   - Coffee, tea __
   - lack of exercise __
   - Alcohol __
   - Hormones __
   - Any drugs __
   - Diet __
   - My personality __
   - The way I deal with it __
   - Other, please state __
(7) Which of the following best describes your symptoms?: (please tick)

They occur during my period __ __
They occur most of the time __ __
They only occur before my period __ __
They occur most of the time but become worse before my period __ __
I'm not sure __ __

Thankyou for completing this questionnaire. Please check your answers and return it to the researcher.
Appendix VI: WHQ Variable intercorrelations (regression analysis)
## Correlation Matrix:

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<th>FPC sample</th>
<th>General sample 1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
<td>23 - 38</td>
<td>45 - 54</td>
<td>55-65</td>
<td>45 - 65</td>
</tr>
<tr>
<td>Mean age (SD)</td>
<td>30.4 (4.13)</td>
<td>49.64 (2.78)</td>
<td>57.66 (2.64)</td>
<td>52.32 (4.92)</td>
</tr>
<tr>
<td>N</td>
<td>55</td>
<td>474</td>
<td>179</td>
<td>682</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHQ scale</th>
<th>FPC</th>
<th>Gen samp 1</th>
<th>Gen samp 2</th>
<th>Gen samp 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressed mood sores (SD)</td>
<td>0.15 (0.17)</td>
<td>0.22 (0.22)</td>
<td>0.20 (0.22)</td>
<td>0.22 (0.23)</td>
</tr>
<tr>
<td>Somatic symptoms</td>
<td>0.32 (0.24)</td>
<td>0.36 (0.25)</td>
<td>0.41 (0.24)</td>
<td>0.39 (0.25)</td>
</tr>
<tr>
<td>Vasomotor symptoms</td>
<td>0.13 (0.26)</td>
<td>0.44 (0.41)</td>
<td>0.41 (0.43)</td>
<td>0.43 (0.44)</td>
</tr>
<tr>
<td>Anxiety / fears</td>
<td>0.30 (0.31)</td>
<td>0.35 (0.28)</td>
<td>0.34 (0.29)</td>
<td>0.35 (0.28)</td>
</tr>
<tr>
<td>Sexual behaviour</td>
<td>0.21 (0.27)</td>
<td>0.28 (0.30)</td>
<td>0.38 (0.32)</td>
<td>0.32 (0.32)</td>
</tr>
<tr>
<td>Sleep problems</td>
<td>0.24 (0.30)</td>
<td>0.42 (0.35)</td>
<td>0.48 (0.35)</td>
<td>0.45 (0.36)</td>
</tr>
<tr>
<td>Menstrual symptoms</td>
<td>0.31 (0.28)</td>
<td>0.45 (0.39)</td>
<td>0.26 (0.24)</td>
<td>0.38 (0.29)</td>
</tr>
<tr>
<td>Memory / concentration</td>
<td>0.24 (0.27)</td>
<td>0.47 (0.36)</td>
<td>0.41 (0.37)</td>
<td>0.47 (0.36)</td>
</tr>
<tr>
<td>Self esteem</td>
<td>0.28 (0.33)</td>
<td>0.36 (0.28)</td>
<td>0.40 (0.31)</td>
<td>0.38 (0.29)</td>
</tr>
</tbody>
</table>
Appendix VIII: Interview schedule (semi-structured guidelines)
Topics:
Body awareness, physiological symptoms, attributional issues, stress and coping skills, best and worst experiences.

(1) How did your family regard menstruation? What did you learn about it before your first period? What was your first period like?

(2) When did you first learn about PMS / PMT? When did you first notice symptoms in yourself? How did you first decide that you might be suffering from PMS / PMT?

(3) What do you think causes your PMS? What makes it worse? What makes it better? Does the severity change from month to month? In what way? Why, do you think?

(4) What sort of symptoms do you get? Are they the same every month? Why / why not? What is the best aspect of your PMS?

(5) How do you feel about your body? Do you always know when your period is due? What is the first sign that it’s due? Do you think you are more or less aware of this than other women?

(6) How do you cope with your PMS? What do your friends / family think about it? How does PMS affect the rest of your life and the people in it?

(7) Is there any stress in your life at the moment? Why do you think there are stressful situations in your life? Can you see any way of making your life less stressful?

(8) What made you seek help for your PMS?

(9) Can you tell me about a bad experience that you’ve had with PMS, the worst it’s ever been? What made it so bad? Can you tell me about any positive experiences that you’ve had with PMS? Why were they good?

(10) What would you like to be done about your PMS? Is there anything you would have liked to have been asked about, that I’ve left out?
Appendix IX: Transcription convention.

= : Indicates an overlap or the absence of a gap between two successive utterances

[] : Indicates a pause. Each dot denotes approx. one second, thus [...] denotes 3 second pause.

UPPER CASE : Indicates where the speaker has placed emphasis on word or phrase.

.... Indicates that part of the transcript text has been omitted.

[C: mm] Indicates speech by the interviewer

[] Brackets also surround explanations that are not part of the text, e.g. [her daughter]

Speech sounds such as 'mmm' or 'er' are transcribed phonetically, as are colloquialisms, abbreviations, stutters and half-said words. Effort has been made to ensure that the interviews are transcribed for readability.
Appendix X: Information sheet.

Women's accounts of premenstrual syndrome.
Catherine Swann.

This study is investigating women's accounts of premenstrual syndrome (PMS / PMT). Your co-operation is required as a participant in an interview prior to your first appointment with the clinic doctor. The aim of this study is to provide information about the emotional and physical experiences of PMS sufferers, and to examine any problems they have had.

You will be interviewed in a private counselling room in the clinic. The interview contains questions about your health, lifestyle, menstrual cycle and your own experience of PMS. You do not have to answer any questions that you do not wish to, and you are free to terminate the interview at any time. The interview will be recorded onto audio tape to allow a detailed analysis of the conversation, but your identity will be protected at all times and any information that you give the researcher will be treated in the strictest confidence.

This interview is not part of your treatment at the PMS clinic. No further participation will be required of you, once the interview is completed. If you have any questions about the study, you may ask now or at any point during the interview.
Appendix XI: Consent form.

Women's accounts of premenstrual syndrome.

Researcher: Catherine Swann, University College London.

I hereby declare that I have read the information sheet concerning this study, and I understand what will be required of me should I decide to take part.

My questions concerning the study have been answered by Catherine Swann.

I understand that I may withdraw from this study at any time, and that this will not affect my normal care and management.

I agree to take part in this study.

Signed: Date: 

Doctor: 

Researcher: