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Title: Ethnic Factors in Eating Disorders

A comparison of the eating attitudes and behaviours characteristic of bulimia nervosa between ethnic groups in a female British urban population.

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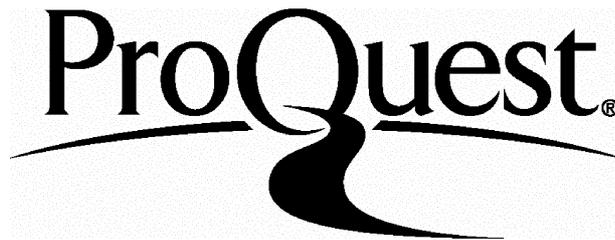
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ABSTRACT

Objective - To determine the level of disturbed eating attitudes and behaviour associated with binge-eating in a population of second generation black British females, and to compare these with an indigenous control group.

Design - A self-report eating and health questionnaire was administered. Selected respondents were also administered an eating interview.

Subjects - 418 female family planning clinic attenders aged under 40 years. 136 Afro-Caribbean women; 192 Northern European women.

Main outcome measures - Level of disturbed eating attitudes and eating behaviour as given by the Bulimic Investigatory Test, Edinburgh. Level of general psychiatric morbidity as given by the scaled version of the General Health Questionnaire.

Results - The Afro-Caribbean women were found to have both significantly more disordered eating attitudes and a significantly higher level of abnormal eating behaviour than the Northern European women. There were no significant demographic disparities between the two populations. Although the Afro-Caribbean group had a significantly higher mean Body Mass Index this did not mediate the difference in levels of eating attitudes. When compared with the Northern European group more Afro-Caribbean women reported feelings of failure, guilt, abnormality and self-consciousness concerning their eating habits. In addition a higher proportion of Afro-Caribbeans found that their eating habits and urges dominated their lives than Northern Europeans. There was no significant difference between the two groups in general psychiatric morbidity. For the Northern European group disordered eating

attitudes were significantly positively correlated with somatic symptoms, social dysfunction, anxiety and insomnia whereas in the Afro-Caribbean group the only significant positive correlation was with social dysfunction.

Conclusions - The results of this study support the hypothesis that rapid socio-cultural change is an additional risk factor for bulimia nervosa and indicate that there may be differences in the nature of eating disorder psychopathology between ethnic groups.

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LITERATURE REVIEW

Eating disorders

Gull and Lasègue are usually regarded as the first modern authors on anorexia nervosa, but it was Louis Marcé who, by describing the syndrome in 1859, began the scientific literature of eating disorders (Silverman, 1991). Eating disturbances which are possibly analogous to anorexia nervosa existed before the present era of scientific medicine (DiNicola, 1990a; Bell, 1991), but it is only in contemporary times that anorexia nervosa and its more recently described sister disorder bulimia nervosa have been identified as major health problems in Western societies (Bruch, 1978; Cooper & Fairburn, 1983).

Bulimia nervosa

Bulimia nervosa is the most recently described eating disorder. The clinical syndrome is characterised by three essential features (Fairburn, 1990):

A) There is loss of control over eating with recurrent episodes of binge-eating (bulimia). The binges are typically performed secretly and the subject experiences consequent shame and self-disgust.

B) Various behaviours intended to counteract the weight increasing and shape altering effects of food, including self-induced vomiting, strict dieting, and the abuse of purgatives and diuretics.

C) Disturbed attitudes to shape and weight, resembling those found in anorexia nervosa.

Russell (1979) was the first to lay down operational criteria for its identification as a discrete syndrome and it was incorporated into DSM III (American Psychiatric Association, 1980), with a somewhat overinclusive definition, as 'bulimia'. Revised and more restrictive diagnostic criteria appeared in DSM III-R (American Psychiatric Association, 1987). A review of those published prevalence studies which are comparable, having applied either recent criteria or the original criteria of Russell, found a prevalence rate among adolescent and young adult women in the region of 0.3% - 1.5% (Fairburn and Beglin, 1990).

The abnormal eating behaviours of bulimia nervosa, binge-eating, self-induced vomiting and laxative abuse, were first described in patients with anorexia nervosa, and within this context they were considered to be indicators of a more pernicious form of illness (Hsu et al. 1979; Russell, 1979). Perhaps because of the ready availability of these patients for clinical observation the first series of patients with bulimia nervosa had a high proportion of anorectics (Russell, 1979). Subsequent studies, although they have revealed that a majority of patients exhibit bulimia nervosa in the absence of previous anorexia nervosa, still indicate that at least one third have met diagnostic criteria for anorexia nervosa in the past (Fairburn, 1990).

Patients who present disordered eating behaviour and abnormal eating attitudes frequently demonstrate associated general psychological morbidity and suffer from impaired social functioning (Fairburn, 1990; Johnson-Sabine et al. 1992). It is well established that the most common associated psychiatric symptomatology in bulimia nervosa is that which characterises depressive disorders (Garfinkel & Garner, 1982; Herzog, 1984; Cooper & Fairburn, 1986). Although it has been argued that bulimia nervosa and major depressive disorder are closely related (Pope & Hudson, 1984) when a mood disturbance is present it should usually be considered to be secondary to

the eating behaviour (Johnson-Sabine et al. 1984; Cooper & Fairburn, 1986; Johnson-Sabine et al. 1992).

Aetiology of eating disorders

DiNicola (1990a), in a comprehensive review of the historical and cultural context of the eating disorders, lists and details eight major aetiological hypotheses of anorexia nervosa:

Individual

1. Biomedical hypothesis
2. Mood disorder hypothesis
3. Developmental psychobiological hypothesis
4. Psychodynamic hypothesis

Family

5. Family systems hypothesis

Socio-cultural

6. Feminist (social) hypothesis
7. Culture-bound syndrome (cultural) hypothesis
8. Culture-change syndrome (transcultural) hypothesis

Socio-cultural, developmental, psychological and biological risk factors may all have their part to play in the aetiology of anorexia nervosa and bulimia nervosa. This review will examine further the socio-cultural aetiological hypothesis.

Socio-cultural aetiological factors

The socio-cultural theory of the aetiology of eating disorders proposes that the observed increased frequency of eating disorders in Western cultures is linked to the strong and

pervasive societal pressure towards slimness which is brought to bear upon women (Bruch, 1974; Palazzoli, 1974; Boskind-Lodahl, 1976; Garner & Garfinkel, 1978). In the last decade the concept of anorexia nervosa as a culture-bound syndrome has had many proponents (Prince, 1983; Littlewood & Lipsedge, 1987; Nasser, 1988). Important epidemiological evidence in favour of this view is the apparent rarity of the eating disorders in non-Western cultures when contrasted with their prevalence in Western society (Dolan, 1991).

Why should black women in Western society have a lower recorded prevalence of eating disorders? It has been suggested that they tend to be of lower social class than white women and they value thinness less. In consequence they are not so stigmatised by obesity (Lawlor & Rand, 1985; Robinson & Andersen, 1985). In Western societies ascent up the social scale is accompanied by a tendency to weight reduction. The midtown Manhattan study of 1,660 adults (Goldblatt et al. 1965) determined an inverse relationship between obesity and socioeconomic status, with upwardly mobile females being less obese than downwardly mobile ones, implicating social class as a discriminatory factor. In the United Kingdom anorexia nervosa has been found to be commoner in independent schools compared with comprehensive schools, also implying a social class factor (Crisp et al. 1976).

Differences exist in the prevalence of obesity between ethnic groups which diminish but still persist even when social class variation is allowed for. For example, in the midtown Manhattan study twice the proportion of upper class Italian women were obese when compared to women of British descent (Goldblatt et al. 1965). This difference may be accounted for by examination of the traditional diets and social implications of eating of these two ethnic groups. In several less developed, non-Western cultures, fatness and obesity symbolise beauty and are preferred by the wealthy (Nasser, 1988). Fat may be seen as healthy in other cultures, for

example first generation Italian mothers in the United States regarded obesity in their children as protection against tuberculosis (Joffe, 1943). Ford et al. (1990) found that a sample of Arab women (students at the American University in Cairo, Egypt) reported a significantly larger ideal shape than American women. Cultural differences in body shape preference may have a role in predisposing the individual to the development of eating disorders.

The sex ratio found in the eating disorders, with female far outnumbering male sufferers, is another very consistent epidemiological finding. This feature motivates the feminist interest in these syndromes (Striegel-Moore et al. 1986). The midtown Manhattan study (Goldblatt et al. 1965) found that whereas women in the higher social classes tended towards underweight, men tended towards normal weight, indicating the gender selective nature of the cultural pressure. The pressure on women to be slim may well be increasing rapidly in the second half of the twentieth century. Garner et al. (1980) and subsequently Wiseman et al. (1992) examined the vital statistics of Playboy centrefolds and Miss America Pageant contestants. From this evidence a significant trend towards a thinner standard ideal shape for women in American culture for the years 1960-1980 continuing through 1979-1988 was determined. These papers also reported that for the period 1950-1988 there was a significant increase in diet and exercise articles in popular women's magazines. Given the context of increasing population weight norms for young women, this cultural force may act as an important determinant of the perceived increasing incidence of anorexia nervosa and bulimia nervosa among vulnerable adolescents.

Several other socio-cultural factors have been found to be important in predisposing people to the development of anorexia nervosa when a multi-determined model of its genesis is considered. Some are associated with youth and maturation, accounting for the particular vulnerability of adolescents to

develop eating disorders. Certain other sub-sections of the larger at-risk population may be even more susceptible to the development of eating disorders. Anorexia nervosa and excessive dieting concerns were found to be over represented in a sample of dance and modelling students as compared to normal female university students (Garner and Garfinkel, 1980). Within the dance students those from the most competitive environments had the greatest frequency of anorexia nervosa. Thus both pressures to be slim and, within a group required to maintain a thin body shape for career purposes, achievement expectations were found to be risk factors in the development of anorexia nervosa.

Cultural change itself has been implicated as a further risk factor for the development of an eating disorder (DiNicola, 1990b). The midtown Manhattan study (Goldblatt *et al.* 1965) found that the longer a woman's family had been in the United States the less likely she was to be obese. Further research has investigated the effect of changing socio-cultural pressures upon dissatisfaction with body size. In an examination of how Kenyan Asian, British and immigrant Kenyan British females from similar backgrounds perceive female body shapes it was shown that the Kenyans rated larger figures more favourably and smaller figures less favourably than both the British and the immigrant group (Furnham & Alibhai, 1983). A less predictable finding of this study was that the immigrant Kenyan British tended to be even more extreme in their positive evaluation of slimness than the British group. These two groups not uncommonly expressed a preference for small body shapes to the point of being anorexic. The results, although open to criticism as a Western derived self-report instrument was used, support the view that social and cultural factors play the dominant role in the perception of one's own and others' body shapes. Exposure to Western society may shift attitudes and therefore increase the rate of eating disorders in a cultural group.

Bulimia nervosa in ethnic minorities

Evidence in favour of the socio-cultural model has often been determined by using women of foreign extraction living in Western countries as an example of a group of women who, although in possession of their own culturally determined eating attitudes, are adopting both Western ways of thinking about eating, body shape and weight, and Western methods of coping with stress. In particular, the literature has concentrated on black women living in Western countries.

The prevalence of the eating disorders in the population of black women living in Western countries has, until the last few years, been regarded as considerably lower than that in women whose place of origin is Northern Europe. The earliest modern literature, consisting of the collected clinical findings of individual specialists in the field, comments on the apparent rarity of anorexia nervosa in blacks resident in the United States (Bruch, 1966; Rowland, 1970). These authors did not, however, provide epidemiological evidence to support this claim apart from the noting the absence of blacks from their clinics. Although Warren & Vande Wiele (1973) found one black female in their series of 42 New York patients with anorexia nervosa, reports of cases from all centres were very rare throughout the seventies.

Epidemiological studies broadened the trawl for black patients. Kendell et al. (1973), reported on a psychiatric case register study, looking until 1971, performed in London, Scotland and Monroe County, New York. Although this study has been often quoted as evidence in favour of the view that anorexia nervosa was rare in blacks, his calculated expected number of 'coloured' patients was 1.4 for the New York and London populations combined and he did find one, a Guyanan Asian patient resident in London. Jones et al. (1980), examining Monroe County records until 1976, found one black, 21-year old, anorexic patient. If their annual incidence rate

for whites was applicable to the 'non-white' population they would have predicted 2.8 cases. Although they only found one third of the expected number of cases such small numbers, in studies using the analysis of case registers as the principal means of detection, are not sufficient evidence to prove the hypothesis that black women in the community have less morbidity from eating disorders.

Researchers have attempted to examine the epidemiology of bulimia nervosa among black women using US college student populations. White et al. (1985), using a self-report questionnaire, showed that their sample of 224 American black college women, although heavier than a matched sample of white college women, were more positive regarding their current weight and body image. Nevo (1985) surveyed 689 female college attenders but only 25 of these were black. The black sample, with a total similar to that of the Asian-American respondents, scored notably less on her bulimia questionnaire than the Caucasian majority. Gray et al. (1987), also using a self-report questionnaire, found that of their 341 black college females 1.5% fulfilled Russell's criteria for bulimia nervosa, significantly less than the 5% prevalence in their Caucasian sample. None of these studies employed any method of interview validation of these results.

In the 1980s there were an increasing number of reports of American blacks with anorexia nervosa often accompanied by the authors' impression that the incidence of anorexia nervosa in blacks was rising rapidly. Two of a group of fifty patients in Baltimore were black (Hedblom et al. 1981). A Canadian clinic had seen four blacks out of one hundred and twenty patients since 1979 (Garfinkel & Garner, 1982). Pumariega et al. (1984) gave a more detailed description of two blacks in the United States with anorexia nervosa. Silber (1984) reported on two black female adolescents with anorexia nervosa who came from the black middle and professional classes. Robinson & Andersen (1985) described five more American black

cases, two of whom were male.

Following the initial derivation and definition of operational criteria for the syndrome, American black cases of bulimia nervosa also began to be reported. Only one of a Chicago series of 316 cases of bulimia, as determined by postal survey, was black (Johnson *et al.* 1982). One further case was reported who had participated in a Californian treatment programme (Roy-Byrne *et al.* 1984). One of a series of female cases of anorexia nervosa also fulfilled Russell's criteria for bulimia nervosa (Robinson & Andersen, 1985). The first detailed case report of bulimia nervosa in a black woman was a relatively recently published description of a single case of an 18 year old woman from Florida whose illness met Russell's criteria (Lawlor & Rand, 1985). Three further cases of DSM III defined bulimia were reported from a Pittsburgh clinic (Hsu, 1987).

From Camberwell, London, Thomas & Szmukler (1985) described three cases of eating disorder in locally resident Afro-Caribbean women. Two satisfied Russell's criteria for bulimia nervosa, one of whom also fulfilled criteria for anorexia nervosa. Both these cases came from working class families, were the first generation to be born in England, had achieved well at school and were in their late teens at the time of presentation. Lacey & Dolan (1988) reported on five ethnic minority patients with DSM III bulimia, one of whom was an ethnic Afro-Caribbean born in London. Two of the others had white mothers and were born in England, one to a West Indian and the other to an African father; one was mixed West Indian and Asian; one was from Pakistan.

A more sophisticated British study attempted to determine differences between black and white patients using a control group, although patient numbers were still very low (Holden & Robinson, 1988). A series of thirteen black eating disordered patients collected at a tertiary referral centre, including

three described previously (Thomas & Szmukler, 1985), was compared with white matched controls. Eleven of the cases were of bulimia nervosa. Eight of the cases, including the two anorexic patients, were born in the United Kingdom to Afro-Caribbean parents, three were of mixed Afro-Caribbean and white parentage, one was from Nigeria and one was born in the Sudan with one Sudanese and one German parent. They found that the black patients differed from their white controls in several respects. In particular, parental divorce or separation was significantly more prevalent in the black group. The authors believed that this finding confirmed the impression given by several previous reports of black eating disordered patients in which the cases described had come from broken homes (Pumariega et al. 1984; Robinson & Andersen 1985; Lacey & Dolan, 1988) perhaps indicating an over representation of broken homes in the black as compared to the white eating disorder population. In addition black patients had a stronger history of premorbid obesity, and their fathers were of relatively lower social class, although the subjects themselves were not. Indeed, it was found that the educational attainments and social classes of the black patients were higher than average for the black population, as was also the situation in another of the earlier reported cases (Lawlor & Rand, 1985). The study also reported an increasing presentation rate of eating disorders in blacks and noted that as more of the black patients referred to the clinic had bulimia nervosa, it could be suggested that the observed increase in eating disorders among blacks may be most evident in bulimia nervosa.

Exposure of women from other cultures to Western society may lead to the development of pathological eating attitudes and abnormal eating behaviour. Nasser (1986) studied two matched samples of high social class Arab female undergraduates attending London and Cairo Universities. The more Westernised London University Arab women (50 subjects, mean length of stay in the United Kingdom 3.4 years) had more abnormal eating

attitudes, with 22% of them reporting positive responses on the Eating Attitudes Test (EAT-40; Garner & Garfinkel, 1979), and a higher prevalence of eating problems than the more traditionally oriented students living in Cairo (60 matched subjects, 12% with positive responses on the EAT-40). The rate of interview diagnosed bulimia nervosa (Russell's criteria) was 12% in the London group, this being an extremely high rate for a community sample. No clinical cases were among the high scorers in the Cairo group. Justifiably the study has been criticised both for its selective recruitment of subjects and, most importantly, for its uncritical application of instruments designed and validated in the West in a non-Western population, thus leaving the interpretation of the results open to doubt (Bhugra & King, 1988).

Most recently British epidemiological surveys have looked at the prevalence of eating disorders and frequency of abnormal eating attitudes, comparing ethnic minority groups with their white counterparts, in larger samples. Eating disorders are presumed to be rare on the Indian subcontinent but a study of second generation Asians in Britain has suggested that adolescent girls are increasingly adopting Western patterns of reacting to stress. Mumford and Whitehouse (1988) surveyed 204 Asian and 355 white girls from a 14-16 year old schoolgirl population in Bradford using a screening questionnaire, which included the eating attitudes test (EAT-26; Garner et al. 1982) and a body shape questionnaire (BSQ; Cooper et al. 1987) which for high scorers was followed by a semi-structured interview, the eating disorder examination (EDE; Cooper & Fairburn, 1987). A highly significant difference was found between the two groups in their mean scores on the EAT, with Asian girls scoring higher, 15% of the Asian girls scored above the cut-off on the EAT as compared to 12% of the white girls; no difference was found on the BSQ. The interview stage of the study determined the prevalence of DSM III-R bulimia nervosa to be 3.4% in the Asian girls but only 0.6% in the white girls, this proving to be a significant difference.

The only girl diagnosed with anorexia nervosa was Asian. More detailed scrutiny of the results (Mumford et al. 1991) involving factor analyses of the EAT and BSQ, which showed a similarity of factor structures for both instruments in both cultural group samples, provided evidence supporting the cross-cultural validity of the questionnaires and attempted to refute the criticism that they too easily applied a Western validated questionnaire and interview to a non-Western population, leading to a high rate of positive response (Bhugra & King, 1988).

A simplistic view would be that it is simple exposure to Western society, accompanied by gradual adoption of the culture of the majority population, that leads to the development of eating disorders in the immigrant population at a rate similar to the indigenous Western population. Mumford et al. (1991) provided evidence in favour of the cultural change aetiological theory of eating disorders (DiNicola, 1990b), as well as possible explanations for an increased level of eating disorders in the a second generation of an immigrant population. An assessment of cultural orientation was made in their Asian sample which showed that high EAT and BSQ scores were associated with a greater use of Asian language and dress and not with greater Westernisation. The Asian girls found to fulfil diagnostic criteria for bulimia nervosa reported leading significantly more traditionally Asian lifestyles than the rest of the Asian girls. It is possible that larger cultural differences lead to greater internal conflicts and anxieties. A complementary theory is that there may be greater conflict between the generations within more traditionally Asian families.

Dolan et al. (1990), in a study using a self-report questionnaire, which included the EAT-26 and the BSQ, but no interview stage, found that Asian British women had significantly more disordered eating attitudes than the Caucasian women sampled. Whereas in the Caucasian group

disordered eating attitudes were significantly positively correlated with feelings of anxiety and depression, this was not true of the Asian group, or of the Afro-Caribbean group which was also looked at. There was no difference found between the three groups in their concern with their body weight and shape. Numbers, however, were small in this study: although 353 Caucasians were sampled there were only 57 Afro-Caribbeans and 38 Asians.

The present study

The controversial finding by Mumford & Whitehouse (1988), of an 'epidemic' level of bulimia nervosa in their Asian population, raised the question of whether a similar phenomenon is to be found in the second generation of other immigrant groups. Despite the problems associated with studies of this nature it seemed appropriate to devise a project which would look at eating attitudes typical of that eating disorder which the literature indicated would probably be most prevalent, bulimia nervosa. The sample would need to be an English speaking, predominantly English educated ethnic minority population in this country.

The Afro-Caribbean population, whose parents travelled to Britain in the fifties and sixties, provided a suitable group for further investigation into these eating attitudes. Eating disorders, as shown in the above literature review, are held to be rare, in the black community, although there are indications that the rate may be increasing. The popular view is that Afro-Caribbeans have a very positive attitude towards eating and food. The coincidence of the scientific and the anecdotal opinions may mean that even if an eating disorder is present it may be ignored or overlooked by both general practitioners and psychiatrists.

The second generation population from which the sample was

drawn may be subject to internal conflict as its members move between cultures. There may also be a source of conflict between the imported cultural attitudes, including those relating to food, eating and body shape, of the parents and the newly adopted Western values and behaviours of their offspring. The group examined may therefore be at a higher risk of developing eating disorders than expected and could show a higher level of disordered eating attitudes.

RATIONALE OF THE STUDY

With reference to the above, the study to be described set out to answer the following questions:

(a) What is the level of disturbed eating attitudes and eating behaviour associated with binge-eating in a possible high risk group, i.e. young Afro-Caribbean females attending family planning clinics?

(b) How does the nature of the eating attitudes and eating behaviour of the Afro-Caribbean group compare to those found in an equivalent sample of Northern European women.

METHOD

1. The study population and overall design

The study population was drawn from women who attended four family planning clinics in Haringey Health District, which were held weekly at three health centres between November 1990 and January 1991. The individual clinics were chosen, after preparatory fieldwork, for their high proportion of ethnic Afro-Caribbean attenders. All available clinics were included, one further suitable clinic was determined but there was not physically enough room in it to conduct the study. The three centres were situated approximately one mile apart in the Haringey health district, an inner-city area of North London. The clinics were held in the evening except for one, a morning session, which was atypical in that it was not scheduled for one week each month and was linked with the local domiciliary family planning service. Only this last and one other clinic provided facilities for the insertion of intra-uterine contraceptive devices. None of the clinics operated an appointment system and therefore the vast majority of attenders had to spend some time in the waiting area.

After registering at the clinic all women taking a seat in the waiting room were asked by the author, who was seated at a prominently situated desk, if they would participate in an 'Eating and Health' survey. Much effort was taken to ensure that every one of the family planning clinic attenders was asked to participate in the study. It was explained that the research was being conducted independently of the family planning clinic itself, that participation was entirely voluntary and that the results would be anonymous and confidential. Subjects were requested to complete a questionnaire and then return it to the desk, at which stage they would then be asked a few brief questions. In addition they were advised that the questionnaire would take

approximately ten minutes to complete and that in most cases it could be completed before the woman was seen by the clinic staff. If the subject was called into the clinic before she had completed and returned the questionnaire she was recommended to take it into the clinical area with her and to continue to fill it in during any waits that occurred. The subject would then return it when she had been dealt with by the clinic.

The study used a specially prepared self-report questionnaire. It was designed to elicit important demographic information, including age, occupation and marital status; details of height and weight history, together with eating habits and attitudes. It included two self-administered instruments: the Bulimic Investigatory Test, Edinburgh, or BITE (Henderson and Freeman 1987), a measure of abnormal eating attitudes and behaviour associated with binge-eating; and the scaled version of the General Health Questionnaire, or GHQ-28 (Goldberg and Hillier, 1979), a measure designed to detect psychiatric disorder.

Prior to the study the instruments were shown informally to several local Afro-Caribbean female health professionals, who were requested to highlight any potential for cultural misunderstanding. No possible problematic areas of the questionnaire were identified by this exercise and therefore no amendments were required.

An assessment of ethnicity was performed when the subject returned her questionnaire: all participants were asked their place of birth and that of both of their parents. This information was combined with a visual and auditory appraisal in order to ensure that each subject was placed in the correct ethnic category. The sample was classified into eight ethnic and cultural groups: Northern European (NE); Afro-Caribbean (including Guyanan) (AC); African; Cypriot (Greek and Turkish); Asian (including Indian, Pakistani, Sri Lankan and

East African Asian); Mauritian; Asian Caribbean and 'other'.

Following the administration of the questions to determine ethnicity the BITE was inspected and rapidly totalled. If the subject achieved a score on the BITE sufficient to indicate that she could possibly fulfil diagnostic criteria for DSM III-R bulimia nervosa (American Psychiatric Association, 1987) she was requested to participate in an additional brief interview which took place in an adjoining private room. This interview was confined to the application of a specially compiled semi-structured interview the purpose of which was to elicit the relevant diagnostic criteria. Owing to practical reasons it was not possible to interview all respondents who scored at or above likely threshold levels (see below) for a diagnosis of bulimia nervosa. Priority was given to ensuring that all women who entered the clinics were offered a questionnaire. There was also a deliberate interview selection bias towards black subjects in order to maximise the potential of the interview to validate the BITE questionnaire. Some women who scored below the suggested scores were also interviewed if time permitted.

2. The Bulimic Investigatory Test, Edinburgh (BITE)

The BITE (Henderson and Freeman, 1987) was used to identify binge-eaters in the family planning clinic population. This 33-item self-report questionnaire was designed as an objective screening test for use in a wide variety of settings to identify subjects with symptoms of bulimia or binge-eating. In addition, it can also be employed to assess attitudes and behaviours characteristic of bulimia nervosa. It was validated on a Scottish sample and has been found to discriminate well, when used as a screening instrument in a student population with a low incidence rate, between subjects with bulimia nervosa and normal undergraduates (Freeman and

Henderson, 1988). The instrument has not been validated for any other ethnic groups.

The questionnaire is divided into two subscales. The 'Symptom' subscale is made up of 30 items relating to symptoms, behaviour and dieting. Responses are limited to 'Yes' or 'No'. Questions 1, 13, 21, 23 and 31 score one point for a 'No' response. The remaining 25 items score one point for a 'Yes' response. The maximum possible score is 30. The 'Severity' subscale contains six items measuring the severity of bingeing and purging behaviour as defined by its frequency. The maximum possible score is 39. The authors of the scale consider that a symptom score of 20 or more indicates a highly disordered eating pattern, the presence of binge-eating and a high probability that the subject will fulfil DSM III (and 'probably' DSM III-R) criteria for a diagnosis of bulimia (nervosa). For the severity subscale they consider a score of 5 or more to be clinically significant. They also report that a combined symptom and severity score of 25 or above may be considered to be indicative of the presence of a severely disordered eating pattern.

3. The General Health Questionnaire (GHQ)

The 28-item GHQ (Goldberg and Hillier, 1979) was used to detect psychiatric morbidity in the family planning clinic population. This is a self-administered screening questionnaire designed for use in primary care settings aimed at detecting those with a diagnosable psychiatric disorder. It was originally validated on an English general practice sample and has not been validated specifically for a British AC population.

The instrument consists of 4 subscales: (A) somatic symptoms, (B) anxiety and insomnia, (C) social dysfunction and (D) severe depression. The 'GHQ scoring method' which gives a

maximum score of 7 for each subscale with a maximum of 28 for the combined total score, was applied in this study. The best threshold for use in primary care settings has been found to be 5/6 (Goldberg, 1985).

4. The semi-structured interview (see Appendix II: interview)

This interview was compiled by the author specifically to elicit the diagnostic criteria for bulimia nervosa as defined in DSM III-R (American Psychiatric Association, 1987). The questions were not newly formulated but were taken from two existing interview schedules. Many items were derived from an interview which was designed for use in a community setting to elicit information about the forms of behaviour and attitudes characteristic of anorexia nervosa (Mann et al. 1983). Questions were also taken from the Eating Disorders Examination, an interview designed for use with community-based samples to assess the specific psychopathology of anorexia nervosa and bulimia nervosa (EDE; Cooper & Fairburn, 1987). The individual items were combined with the intention of providing a rapid, valid and reliable assessment of the presence or absence of each of the five diagnostic criteria. Prior to the study the interview was demonstrated informally to several local Afro-Caribbean women. No areas of possible cultural misunderstanding were identified.

5. Body Mass Index (BMI)

The body mass index (BMI or Quetelet index, weight divided by height squared) was used for purposes of comparison of fatness between the ethnic groups (Garrow & Webster, 1985). Standard ranges for BMI have been developed using white North Americans as a standard (Bray, 1979; based on Metropolitan Life Insurance tables, 1960). They give the 'acceptable weight range' as BMI 18.7-23.8; 'obesity' is defined as in excess of

BMI 28.6. Actuarial standard weight tables are not available for ethnic minority groups. There are also no standard ranges for the BMI of ethnic minority groups therefore, as the AC sample was a community sample, a reference range was derived from itself.

6. Pilot Study

The study was piloted for two months in one of the three evening clinics in order to check that the method was applicable within the chosen setting. It was ascertained that almost all clinic attenders could complete the questionnaire within their waiting time, thus ensuring a good response rate. The questionnaire itself was acceptable to the subjects. The original intention was to recall high scorers by letter to a subsequent clinic for their interviews but not one of the three subjects approached by this method responded. Therefore the system was adopted of interviewing selected respondents immediately after returning their questionnaires and this also allowed the questionnaires to be completed anonymously. As the interview was a brief one the risk of missing potential respondents while the author was absent from the waiting room was found to be minimal. The pilot study did not spoil the clinic for further use the following year. When the main study was subsequently conducted only two women were found to have completed a questionnaire for the pilot study and they were both happy to help the project again.

7. Exclusions

In order to improve the homogeneity of the group under examination all women aged 40 and above were excluded from analysis.

8. Statistical Analysis

Data were entered into a personal computer and analysed using SPSS (Norusis, 1988). In the statistical analysis the t test, Mann-Whitney U test and the Chi square test were applied as appropriate.

RESULTS

The questionnaire was offered to 508 women. 33 women aged 40 and over were identified and excluded leaving 475 women eligible for the study.

Refusals: 26 (5.5%) women refused to participate. Their ethnicity was judged using external appearance as the only criterion. They were: 12 white; 8 black; 5 Asian; 1 mixed race.

Reasons for Refusal: 19 subjects just said that they did not want to fill it in; 3 women elaborated further: 'I don't want to, I think it's really stupid'; 'I don't like filling in forms'; 'Sorry, my mother's bulimic. I'm into all that myself'; 4 subjects simply returned the questionnaire to the desk and gave no reason as to why they were unable to complete it.

Poor English: 25 women (5.3%) indicated that their English was too poor to be able to complete the questionnaire. By language these were: 7 Turkish; 5 Greek; 2 Cantonese; 1 Bengali; 1 Punjabi; 1 Spanish; 1 Vietnamese; 1 Urdu; 1 Amari; 1 Portuguese; 4 English speakers could not read English well enough to complete the questionnaire.

One woman (0.21%) came with a child who was too disruptive to allow her to complete the questionnaire.

Exclusions: Only those questionnaires that had basic demographic data and a completed BITE were used for analysis. 5 (1.1%) women did not complete their questionnaires sufficiently and these were excluded from the study.

This left a final overall response of 418 completed questionnaires, a response rate of 88%. The ethnicity, as

determined by the author, of the total sample is given in Table 1.

TABLE 1
Ethnic group of 418 family planning clinic attenders

ETHNIC GROUP	n (418)	%
Northern European *	192	45.9
Afro-Caribbean	136	32.5
African **	36	8.6
Cypriot (Greek+Turkish)	15	3.6
Asian	8	1.9
Mauritian	8	1.9
Asian Caribbean	4	1.0
'Other'	19	4.5

* predominantly British, some Irish, a few others.

** all black African, mostly from West Africa.

'Other': In this group there were, by birthplace of parents: 3 mixed AC and NE; 3 mixed AC and Asian; 2 mixed Asian and Spanish; 2 mixed Cypriot and NE; 1 mixed Asian Caribbean and NE; 1 Italian; (all of these 12 above were born in the United Kingdom); 2 Arab; 1 mixed Indonesian and Asian; 1 Malaysian; 1 Vietnamese; 1 Filipino; 1 Japanese; (all of these last 7 were born abroad).

Birthplace: Table 2 gives the numbers of subjects for each of the seven defined ethnic groups classified according to whether they were born in Northern Europe or elsewhere.

TABLE 2
 Birthplace of 418 family planning clinic attenders,
 classified by ethnic group
 (NE = Northern Europe; Else = Elsewhere)

ETHNIC GROUP	Born NE	%	Born Else	%
Northern European	192	100	0	0
Afro-Caribbean	103	75.7	33	24.3
African	12	33.3	24	66.7
Cypriot	9	60	6	40
Asian	3	37.5	5	62.5
Mauritian	0	0	8	100
Asian Caribbean	3	75	1	25

The statistics for age (in years), BMI, BITE symptom scale score, BITE severity scale score and GHQ-28 total score, as calculated for each of the seven defined ethnic groupings, are given in Tables 3 to 9.

TABLE 3
Age, BMI and questionnaire scores of Northern European sample

NORTHERN EUROPEAN	Mean	Std Dev	Min	Max
Age	25.3	5.8	15	39
BMI	22.5	3.6	15.6	42.1
BITE Symptom Score	5.3	4.2	0	20
BITE Severity Score	1.5	1.9	0	16
GHQ Total Score	3.5	4.8	0	26

TABLE 4
Age, BMI and questionnaire scores of Afro-Caribbean sample

AFRO-CARIBBEAN	Mean	Std Dev	Min	Max
Age	26.0	5.0	15	36
BMI	23.9	4.2	16.8	35.6
BITE Symptom Score	6.5	4.8	0	20
BITE Severity Score	1.9	2.5	0	14
GHQ Total Score	4.3	5.2	0	22

TABLE 5

Age, BMI and questionnaire scores of African sample

AFRICAN	Mean	Std Dev	Min	Max
Age	27.1	5.2	18	37
BMI	24.6	3.2	19.6	31.2
BITE Symptom Score	6.1	5.7	0	25
BITE Severity Score	2.3	2.9	0	11
GHQ Total Score	5.0	7.0	0	26

TABLE 6

Age, BMI and questionnaire scores of Cypriot sample

CYPRIOT	Mean	Std Dev	Min	Max
Age	27.9	5.8	19	39
BMI	26.1	8.1	17.8	51.8
BITE Symptom Score	9.7	5.3	1	19
BITE Severity Score	2.1	2.1	0	5
GHQ Total Score	9.1	5.5	0	15

TABLE 7
Age, BMI and questionnaire scores of Asian sample

ASIAN	Mean	Std Dev	Min	Max
Age	27.3	7.0	17	35
BMI	24.5	1.3	22.4	26.1
BITE Symptom Score	10.1	8.0	3	23
BITE Severity Score	1.5	1.8	0	4
GHQ Total Score	9.0	8.8	0	19

TABLE 8
Age, BMI and questionnaire scores of Mauritian sample

MAURITIAN	Mean	Std Dev	Min	Max
Age	30.8	6.0	20	39
BMI	23.1	5.6	16.5	31.2
BITE Symptom Score	5.4	3.3	0	9
BITE Severity Score	1.0	1.2	0	3
GHQ Total Score	1.3	3.0	0	8

TABLE 9

Age, BMI and questionnaire scores of Asian-Caribbean sample

ASIAN-CARIBBEAN	Mean	Std Dev	Min	Max
Age	27.0	4.1	24	33
BMI	20.7	0.8	20.1	21.3
BITE Symptom Score	2.3	1.5	1	4
BITE Severity Score	0.8	1.0	0	2
GHQ Total Score	1.0	1.4	0	2

Interviews: 42 (10%) of the study respondents had a BITE symptom score of 20 or more, and/or a BITE severity score of 5 or more. 26 (62%) of these were interviewed. Of these 26 women 6 were identified as fulfilling the required diagnostic criteria for bulimia nervosa.

The 42 study respondents reported in the above paragraph contained 7 women with a symptom score of 20 or more, and 39 women with a severity score of 5 or more. Of the 7 women 5 (71.4%) were interviewed; of the 39 women 25 (64.1%) were interviewed. 9 study respondents had a combined symptom and severity score of 25 or more and 8 (88.9%) of these were interviewed. (The numbers in these three subgroups add up to more than the 42 total, this is because some women fell into more than one category.)

36 interviews were conducted in all and not one of the 10 interviewed whose BITE scores fell below the above threshold

scores fulfilled all of the diagnostic criteria. No women refused to have an interview. In only a few cases were there discrepancies, and these were always of a minor nature, between the written disclosures and information elicited in the subsequent interview. Table 10 shows how subjects who had an interview were divided between the ethnic groups.

TABLE 10
Ethnic group of 36 subjects who were interviewed

ETHNIC GROUP	n (36)	%
Northern European	9	25.0
Afro-Caribbean	15	41.7
African	6	16.7
Cypriot	3	8.3
Asian	1	2.8
'Other'	2	5.6

DSM III-R Bulimia Nervosa: The ethnic groups of the 6 women who were found on interview to fulfil diagnostic criteria for bulimia nervosa, together with their scores on the BITE and the GHQ-28 are given in Table 11.

TABLE 11

Ethnic group, age, BMI, BITE symptom score (SY), BITE severity score (SE) and GHQ-28 total score (GT) of 6 subjects who fulfilled diagnostic criteria for bulimia nervosa

SUBJECT	ETHNIC GROUP	Age	BMI	SY	SE	GT
1	Nth European	19	26.6	20	4	-
2	Afro-Carib	27	29.1	16	9	-
3	Afro-Carib	20	19.1	12	6	22
4	African	18	25.1	23	11	15
5	Asian	21	25.3	22	18	18
6	'Other'	23	24.2	27	8	8

All of the 6 women were born in Northern Europe. The African and Asian women were of Nigerian and Indian parentage respectively. The subject in the 'Other' group had parents who were born in Italy. Social class information was only available on three of the women. The Asian and the younger AC were both from social class III(N), the woman in the 'Other' group was social class II. Marital status was reported for all except the older AC. All of these women were single except for the Asian who was separated.

Comparison of the Northern European and Afro-Caribbean groups:

For the purposes of comparison between ethnic groups most of the results given above were not from large enough samples to allow conclusions to be drawn from inferential statistical analysis. Therefore the 90 (21.5%) women in the African, Cypriot, Asian, Mauritian, Asian Caribbean and 'Other' groups were excluded from further scrutiny leaving a sample of 328 NE

and AC women. There was no significant difference on any individual reported item in the proportion of information available from either ethnic group.

Age: All subjects gave their age. The mean age of the total sample remaining was 25.6 years (± 5.5 , standard deviation). There was no significant difference between the two ethnic groups.

Marital status: 323 (98.5%) of the subjects reported their marital status. The majority of women had never been married (71%). There was no significant difference between the two groups in the proportion of women who had never been married.

Social class: 248 (75.6%) of the subjects gave sufficient occupational information for their social class to be derived. Social class was determined using the Registrar-General's classification. Women were classed in their own right, if working, and by a partner's occupation if no previous employment was given. 5 women (2.0% of those for who information was available) were classified in social class I; 65 (26.2%) social class II; 124 (50%) social class IIIN; 32 (12.9%) social class IIIM; 21 (8.5%) social class IV; 1 (0.4%) social class V. The majority of the women classified were therefore from the non-manual social classes I, II and IIIN (78%). There was no significant difference between the two ethnic groups in the proportion coming from the manual as compared to the non-manual social classes.

Height: 307 (93.6%) of the subjects reported their height. The mean height of the sample was 1.64m (± 0.07). There was no significant difference between the two ethnic groups.

Weight: 293 (89.3%) of the subjects reported their current weight. The mean weight of the AC sample was 64.7kg (± 13.4), significantly more than the NE sample mean weight of 60.2kg (± 10.7), ($t=3.19$, $p<0.005$).

BMI: The BMI could be calculated for 281 (85.7%) of the subjects. The mean BMI of the AC sample was 23.9 (± 4.2) which was significantly greater than that of the NE sample which was 22.5 (± 3.6), ($t=2.89$, $p<0.005$).

BITE symptom score: The mean BITE symptom score for the AC group was 6.5 (± 4.8) which was significantly higher than that of the NE group of 5.3 (± 4.2), ($t=2.39$, $p<0.02$). Using the recommended cut-off of 19/20, one subject from each ethnic group was over the cut-off, indicating that there was no significant difference in the number of high scoring subjects between the two groups.

As recorded above both the mean BMI and the mean BITE symptom score were significantly greater in the AC sample. The higher AC BITE symptom score may, therefore, not have been related to ethnicity but to the increased values of the BMI. To allow for the possible interaction between BMI and BITE symptom score an analysis of covariance was performed which, by removing the effect of the BMI on the BITE symptom score, could show if there was an independent effect of ethnicity remaining on the symptom score. After the analysis of covariance was performed a significant group difference remained in the BITE symptom score ($F(1,278)=4.93$, $p<0.03$).

BITE severity score: The overall mean BITE severity score for both ethnic groups combined was 1.6 (± 2.2). The AC mean BITE severity score was 1.9 (± 2.5), that for the NE group was 1.4 (± 1.9). The BITE severity score values were not normally distributed therefore the clinical cut-off of 4/5 was used to compare the two ethnic groups. 17 (12.5%) of the AC group were found to be over the cut-off as compared to 11 (5.7%) of the NE group. This was a significant difference ($\chi^2=3.85$, $p<0.05$).

BITE total score: The clinical cut-off of 24/25 was used to analyse the combined BITE symptom score and BITE severity

score. 3 (2.2%) of the AC group were found to be over the cut-off as compared to 1 (0.5%) of the NE group but the difference was not statistically significant.

GHQ-28 scores: 296 (90.2%) of the subjects completed the GHQ. The overall mean score was 3.8 (± 4.9). 75 (25%) were over the recommended cut-off of 5/6. There was no significant difference between the two groups on either the total score, the proportion over the cut-off, or any of the four individual sub-scales.

Further analysis of BITE symptom scale: The analysis of covariance described above assumes that the relationship between BMI and BITE symptom scores is the same relationship in the two ethnic groups, i.e. there is no difference between the slopes of the two regression lines. This hypothesis was tested using a multivariate analysis of variance as the test for heterogeneity. The factor-by-covariate interaction was found to be nonsignificant and therefore the above result was allowed to stand. However there was still a possibility of non-linear differences between the two ethnic groups, and to allow for this the four quartiles were looked at separately.

BMI percentiles: BMI percentile values for the Northern European and Afro-Caribbean groups are given in Table 12.

TABLE 12
 BMI percentiles for 192 Northern European and 136 Afro-Caribbean subjects

Percentile	BMI N. European	BMI Afro-Caribbean
5th	18.6	18.6
25th	20.4	20.7
50th	21.7	22.8
75th	23.6	26.7
95th	27.3	32.9

It could be expected that the standard ranges for BMI (please refer to method section) (Bray, 1979; based on Metropolitan Life Insurance tables, 1960) would be relevant to the NE family planning clinic sample described in the present study. The given 'acceptable weight range' is approximately equivalent to the NE group range from the 5th to the 75th percentile. The lowest value of the 'obesity' range is near the 95th percentile. The BMI values developed from a white North American sample do therefore appear to have some validity in the NE community sample reported here. To extend the argument further, as there is no reason to suppose that the AC group is not a similarly representative community sample, the range of BMI for the AC group can be taken as being likely to be very similar to that which could be expected from larger and more representative selection of AC women.

For simplicity, and in order to have adequate numbers in each range, the quartile groups were used for further analysis. As shown in Figure 1 the BITE symptom scale mean score increases from the 1st to 4th quartiles. It increases more for the AC group than for the NE group. Comparing the means for each quartile group there was no significant difference for the 1st, 2nd or 3rd quartiles but in the 4th quartile the AC mean symptom score was significantly higher than the NE one ($t=2.37$, $p<0.03$).

Other variables were also looked at in each BITE quartile to see if a significant difference appeared in any of the ranges. There were no significant differences for age, marital status, social class, height, BITE severity score or GHQ-28 total score when the four quartiles were compared separately using the same comparison methods as previously.

Symptom Profiles of BITE Symptom Scale: In order to compare and contrast the two main ethnic groups of the study population in terms of their answers on the 30 questions comprising the symptom scale of the BITE, group profiles of these items were constructed. The percentage of those responders endorsing each of the 30 items comprising the BITE symptom scale with a positive score were calculated for the NE and AC groups. Symptom profiles were charted for both groups and these are illustrated in Figure 2. (See Appendix I: Questionnaire)

Visual inspection of the two graphs revealed an overall similarity of pattern of response but there were also several points where the profiles diverged. Inferential statistical analysis was performed using the Chi square test with Yates Correction. The Bonferonni correction for multiple significance tests was calculated and the appropriate level of significance was $0.05/30 = 0.00166$ therefore a level of $p<0.00166$, rounded to $p<0.002$ was determined as appropriate.

FIGURE 1

Bar chart of BITE symptom scale mean score by BMI quartile for 192 Northern European and 136 Afro-Caribbean subjects

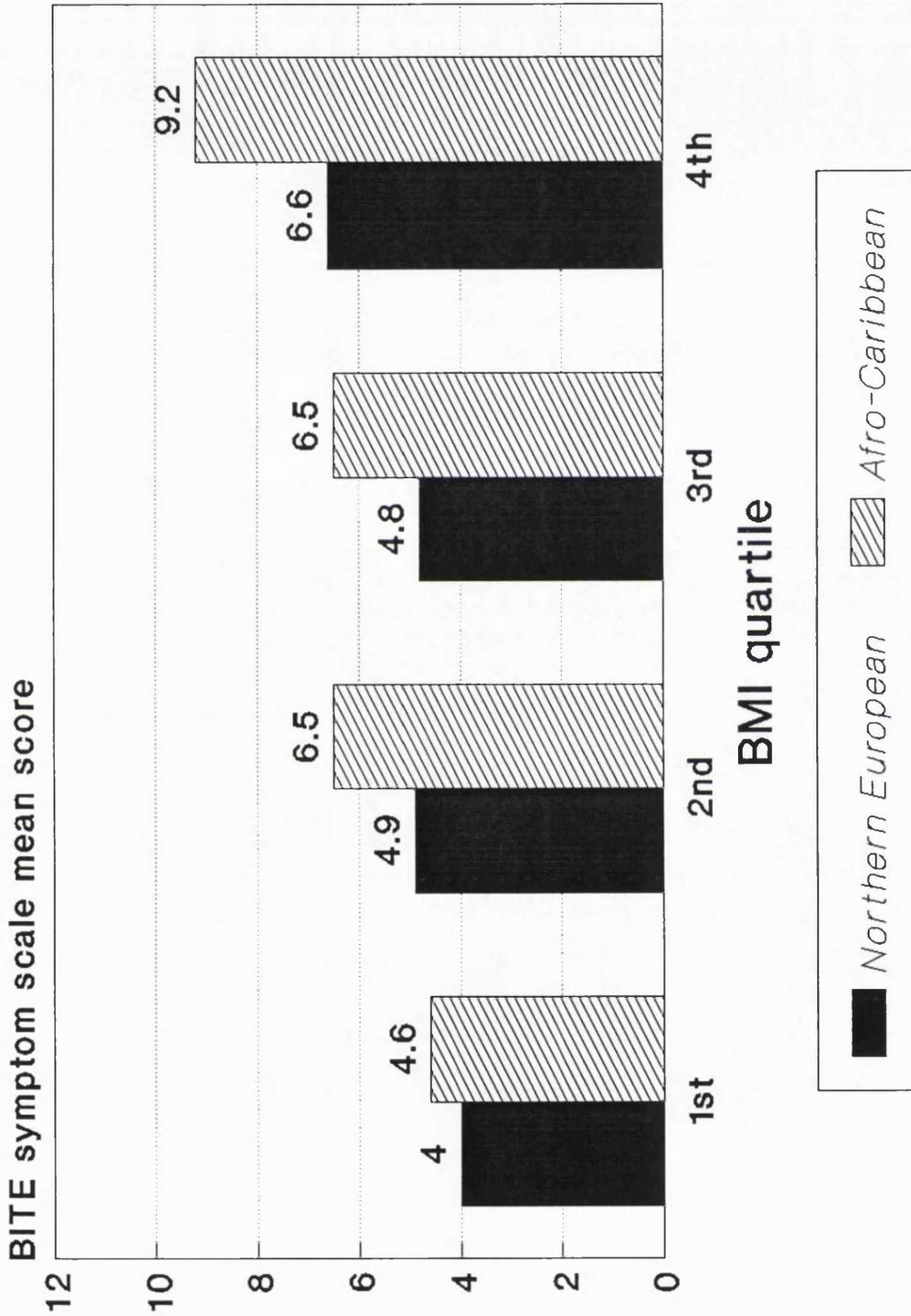
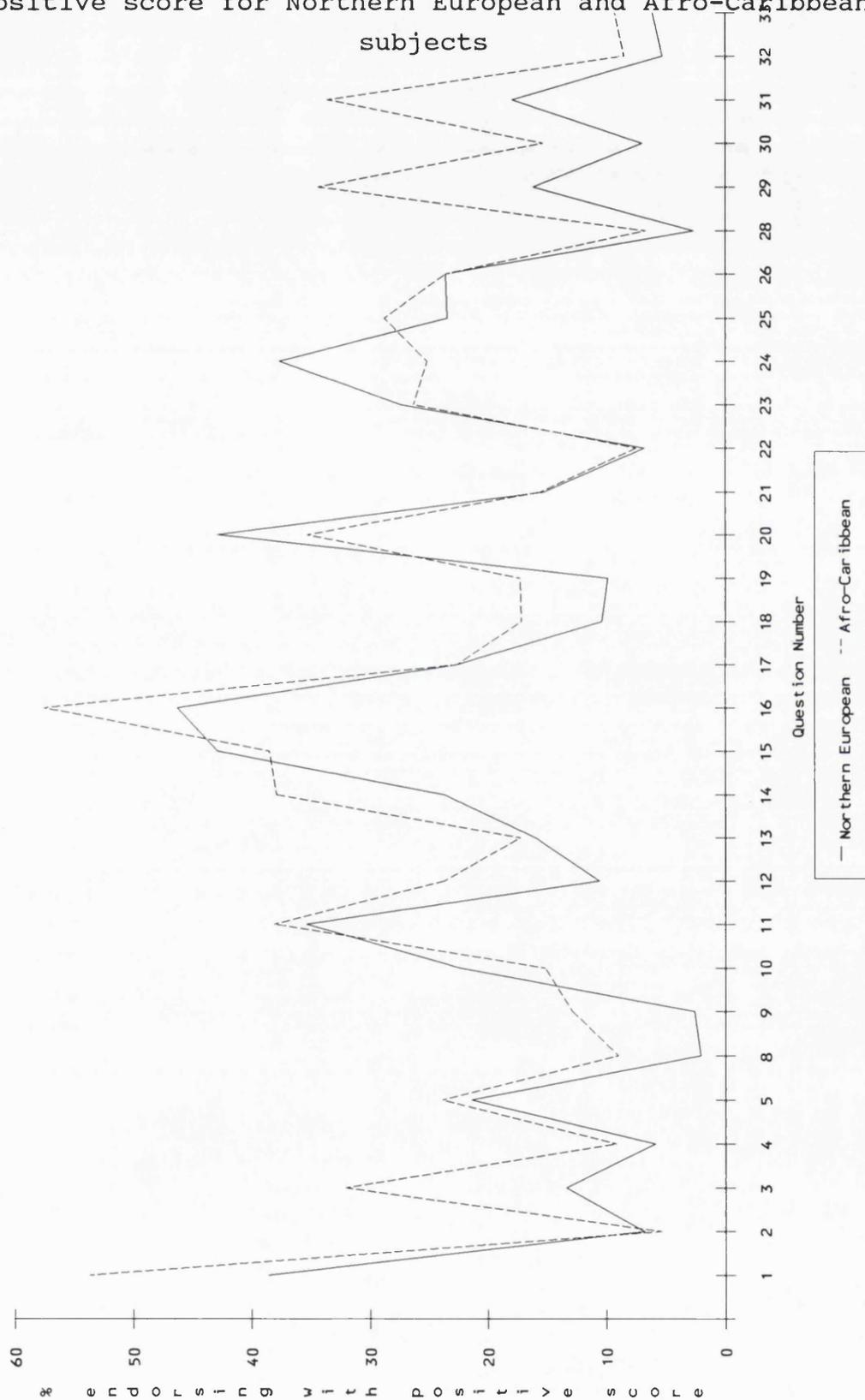


FIGURE 2

Profiles of % endorsing items of BITE symptom scale with a positive score for Northern European and Afro-Caribbean subjects



Looking at those questions for which a higher proportion of the AC group scored positively than the NE group three questions were found to be definitely significant by the above method: 29. ($\chi^2=15.64$, $p<0.0002$); 3. ($\chi^2=13.18$, $p<0.0004$); 9. ($\chi^2=11.29$, $p<0.0009$). Six questions were found to tend towards significance: 12. ($\chi^2=8.93$, $p<0.003$); 31. ($\chi^2=9.16$, $p<0.003$); 14. ($\chi^2=6.83$, $p<0.009$); 30. ($\chi^2=4.90$, $p<0.03$); 1. ($\chi^2=6.64$, $p<0.02$); 8. ($\chi^2=6.61$, $p<0.02$).

The questions listed above are:

1. Do you have a regular daily eating pattern?
3. Do you feel a failure if you break your diet once?
8. Does your pattern of eating severely disrupt your life?
9. Would you say that food dominated your life?
12. Do you eat sensibly in front of others and make up in private?
14. Do you ever experience overpowering urges to eat and eat and eat?
29. If you overeat do you feel very guilty?
30. Do you ever eat in secret?
31. Are your eating habits what you would consider to be normal?

In one question the NE group had a proportion of answers scoring positively which tended to significance: 24. ($\chi^2=4.98$, $p<0.03$)

24. Do you ever binge on large amounts of food?

The rest of the questions showed no tendency towards a significant difference between the two groups.

Further Analysis of BITE Severity Scale: Questions 6, 7 and 27 of the BITE comprise the severity scale (see Appendix I: questionnaire):

70 (21.3%) of the sample (38 (19.8%) of the NE group; 32

(23.5%) of the AC group) fasted at least now and then; 11 (3.4%) of the sample (4 (2.1%) NE; 7 (5.1%) AC) took diet pills occasionally or more often; 7 (2.1%) of the sample (1 (1.0%) NE; 5 (3.7%) AC) took diuretics occasionally or more often; 9 (2.7%) of the sample (3 (1.6%) NE; 6 (4.4%) AC) took laxatives occasionally or more often; 8 (2.4%) of the sample (5 (2.6%) NE; 3 (2.2%) AC) vomited occasionally or more often; 23 (7.0%) of the sample (9 (4.7%) NE; 14 (10.3%) AC) binged 2-3 times a week or more. In all the above results there was no significant difference between the NE sample and the AC sample. Although more of the NE group answered question 24 positively, 14 of the AC group replied to question 27 that they binged 2-3 times a week or more as compared to 9 of the NE group.

Additional questions: Two additional questions were asked and subsequently analysed which were not on the standardised self-report questionnaires. One was taken from the optional front data sheet suggested for use with the BITE (Henderson & Freeman, 1987). The question was: 'Do you feel yourself to be (a) very overweight; (b) overweight; (c) average; (d) underweight; (e) very underweight.' Subjects were requested to respond by circling a number adjacent to the appropriate response. Analysis of the results compared those who responded that they were average or less (c,d,e) with those who considered themselves overweight or more (a,b). The question was answered by 325 (99.1%) subjects. 36.5% of the NE responders considered themselves in the overweight categories as compared to 51.1% of the AC responders. This was a significant difference ($\chi^2=6.33$, $p<0.02$).

The second question which was adapted from a previous epidemiological study conducted on a community sample (Mann et al. 1983) was: 'How does your weight vary? (a) weight generally remains the same; (b) tending to gain weight; (c) tending to lose weight; (d) weight tending to fluctuate.' Subjects were again requested to respond by circling a number

adjacent to the appropriate response. Analysis of the results compared those who responded that their weight varied (b,c,d) with those who considered that their weight generally remained the same (a). The question was answered by 311 (94.8%) subjects. 67.5% of the NE responders considered that their weight generally remained the same as compared to 48.0% of the AC responders. This was a highly significant difference ($\chi^2=11.06$, $p<0.001$).

Comparison within Afro-Caribbean sample by birthplace:

A significant difference was found in the age and marital status of those in the AC group who were born inside the United Kingdom compared with those who were born abroad. The members of the AC group born abroad had a mean age of 30.6 years (± 4.9) as compared to those born in the United Kingdom whose average age was 24.5 years (± 3.9), this was very significantly greater ($t=7.36$, $p<0.001$). Significantly more of the sample born abroad were currently married (46.9%) as compared to the sample born in the United Kingdom (19.8%), ($\chi^2=7.84$, $p<0.01$). There were no significant differences for any of the other variables examined.

Correlation Matrices: Spearman's Rank Correlation Coefficient was calculated to derive correlation matrices for BITE symptom and severity scores, GHQ total score and the GHQ subscales for the NE and AC groups (Tables 13 and 14). 296 (90.2%) subjects were suitable for this analysis. For both groups there was a significant positive correlation between the BITE symptom and severity scores. For the NE group there were significant positive correlations between the BITE symptom score and the GHQ-28 total score as well as three of the GHQ subscales, A, B and C, the correlation with subscale B being the strongest. For the AC group the only significant positive correlation was with the GHQ C subscale.

For both groups there were significant positive correlations between the GHQ total score and all of the GHQ subscales. The

GHQ subscales also all significantly positively correlated with each other with the exception of a non-significant correlation between subscales A and D in the AC group.

TABLE 13

Correlation matrices of BITE symptom score (SY), BITE severity score (SE), GHQ-28 total score (GHQT) and GHQ subscale scores (GHQA, GHQB, GHQC, GHQD) for 182 Northern European subjects

	SY	SE	GHQT	GHQA	GHQB	GHQC	GD
SY	-	-	-	-	-	-	-
SE	0.61**	-	-	-	-	-	-
GHQT	0.28**	0.12	-	-	-	-	-
GHQA	0.20*	0.07	0.79**	-	-	-	-
GHQB	0.30**	0.12	0.87**	0.55**	-	-	-
GHQC	0.19*	0.08	0.81**	0.45**	0.64**	-	-
GHQD	0.14	0.09	0.62**	0.25**	0.44**	0.53**	-

2-tailed significance, *p<0.01, **p<0.001

TABLE 14

Correlation matrices of BITE symptom score (SY), BITE severity score (SE), GHQ-28 total score (GHQT) and GHQ subscale scores (GHQA, GHQB, GHQC, GHQD) for 114 Afro-Caribbean subjects

	SY	SE	GHQT	GHQA	GHQB	GHQC	GD
SY	-	-	-	-	-	-	-
SE	0.53**	-	-	-	-	-	-
GHQT	0.21	0.11	-	-	-	-	-
GHQA	-.05	0.02	0.70**	-	-	-	-
GHQB	0.19	0.11	0.86**	0.55**	-	-	-
GHQC	0.30*	0.11	0.82**	0.50**	0.58**	-	-
GHQD	0.18	0.06	0.66**	0.17	0.54**	0.42**	-

2-tailed significance, *p<0.01, **p<0.001

Spearman's rank correlation coefficient was also calculated for the relationship between BITE symptom score and BMI. 261 (79.6%) subjects were available for this analysis. The correlation coefficient was found to be significantly positive for both the NE group (r=0.26, p<0.001) and the AC group (r=0.35, p<0.001). A significant positive correlation was also found in the AC group between age and BMI (r=0.29, p<0.01), the correlation was not significant in the NE group. Neither group showed a significant correlation between BMI and BITE severity score, GHQ-28 total score or any of the GHQ subscale scores.

Cronbach's alpha values: This reliability coefficient was calculated for the instruments used. For the BITE symptom

score $\alpha=0.82$ for the NE group and $\alpha=0.83$ for the AC group. For the GHQ-28 $\alpha=0.76$ for the NE group; $\alpha=0.78$ for the AC group (the four subscale scores were used as input values). These values are all sufficient to justify use of the scales in both of the samples. For the BITE severity scale $\alpha=0.25$ for both the NE group and the AC group. From these values the scale would not appear to be reliable for use in either group.

Factor analysis: (Principal Components Analysis) Exploratory factor analysis was performed on the BITE symptom subscale. Scree diagrams were plotted.

Factor analysis confirmed the result of the reliability study. In both groups the unrotated factor solution strongly suggested a single underlying dimension which loaded positively on many of the items (NE group: 13 items with at least 0.40 loading; AC group: 20 items with at least 0.40 loading; 12 in common between the two groups). Scree diagrams indicated that this single variable represented the best summary of the data. In each case it only explained a small amount of the variance (NE group: 17.7%; AC group: 20.2%) and this may well have been due to the use of binary variables rather than variables with a Likert-type or normal scale of measurement.

The rotated factor solutions, using varimax rotation, suggested that there was some similarity between the factor structure of the NE group and the AC group. These rotated factors would only explain rather small amounts of the total variance and may not have been a reliable guide to the underlying structure.

DISCUSSION

Methodological Issues

General methodological limitations:

What are the general problems that may be encountered in psychiatric research with ethnic minority groups? An important potential area of difficulty is the 'category fallacy' defined by Kleinman (1987) as 'the reification of a nosological category developed for a particular cultural group that is then applied to members of another culture for whom it lacks coherence and its validity has not been established'. The present study has examined eating attitudes in an English speaking ethnic minority group, the majority born and raised in Britain. It could therefore be expected that the concepts of abnormal eating attitudes and the diagnosis of bulimia nervosa would have validity in such a population.

There may be difficulties in establishing the reliability and validity of subjective reports (Shaw and Garfinkel, 1990). This area of concern is particularly important in studies involving ethnic minority groups. For example, the problem of standardising what constitutes a 'binge' of eating has been highlighted by Nevo (1985). In the present study although more NE women admitted to bingeing, more AC women reported bingeing frequently. Further research would be required in order to be absolutely confident of the validity of this finding. It is essential to be aware of potential cultural differences in understanding between the ethnic groups examined in this study.

The written self-report measures used in this study, the BITE and GHQ, have not been specifically validated in AC populations. If time and resources were available it would have been preferable to conduct a specific validation study of these instruments before the main study took place. Although

a separate study designed specifically to validate the questionnaire in the ethnic minority population was not performed, the interview, which was administered to selected respondents, did provide a limited form of validation for the BITE. A specific validation study would involve administering the instrument to be validated to a population and then interviewing a stratified random sample of respondents. A suitable model would be the validation study of the Eating Attitudes Test in 15-year-old schoolgirls performed by Mann et al. (1983).

Even interviews, however, have been criticised for failing to address potential cultural misunderstanding (Bhugra & King, 1988) and in this context it should be noted that the interviewer was male and from the NE ethnic group. No form of external validation of the GHQ-28 was attempted.

Problems associated with a selected population:

There are a number of issues associated with the selection of the population for study. The study population, defined by attendance at a family planning clinic, cannot be assumed to be representative of the general population and cannot be taken as equivalent to a community or general practice sample. Previous researchers in the field have expressed concern as to the possible biases present in family planning clinic populations (Cooper & Fairburn, 1983; Dolan et al. 1990).

Research in an Asian population has shown that cultural differences are present in usage of family planning services (McAvoy & Raza, 1988). It is impossible to speculate as to how the results may have been influenced by these factors but it should be appreciated that, if present, cultural differences may mediate differences in eating attitudes.

It is possible that, in addition to cultural factors, bias may also stem from the attitude of women with eating disorders

towards family planning clinics. Bulimics as a group have been found to be a sexualised population. Lacey et al. (1986) found that for most bulimics the start of their binge eating was associated with either the beginning or the end of their first sexual relationship. In a more recent study he reported that of a sample of 112 patients 78 (65%) had current partners and all the relationships were fully sexualised (Lacey, 1992). These results suggest that bulimic women should be users of family planning services. However, there is no evidence as to their pattern of usage of family planning clinics as compared to the general population.

Advantages of the family planning clinic population were primarily practical. For the purposes of the project it was important to administer the questionnaire to a large number of healthy young women. The clinics provided ease of access and a suitable environment for the completion of the questionnaire. In view of the potential areas of difficulty described above future research should be conducted in populations selected by alternative methods.

Problems of using self report measures:

Most information was gathered by means of a self-report questionnaire and, apart from the limited interview, there was no way of checking the data provided. The fact that the interview was held in a separate room, removed from any accompanying friends or relatives, may have encouraged greater frankness. Clearly it is possible that some subjects may have denied, distorted, minimised or maximised their behaviour. Some may have been genuinely unable to put their thoughts into words accurately. Eating disorders are by their nature secretive and stigmatised thus the results here probably underestimate the true morbidity.

Care must be taken, however, in the interpretation of investigatory instruments standardised on Western populations when these are applied to other cultural groups. It is

important for the researcher to have some familiarity with the cultural setting to be operated in. King and Bhugra (1989) reported that although 29% of their sample of Northern Indian schoolgirls scored above the recommended cut-off for the EAT-26 (which was translated into Hindi) this apparent high prevalence of abnormal eating attitudes (the sample was not assessed by interview) was due to the girls responding positively to several questions which were clearly vulnerable to misinterpretation for social and religious reasons. Eisler & Szmulker (1985) have shown that there are social class variations in patterns of responses to the EAT which imply a lack of shared concepts even within fairly homogeneous populations. In their study on a sample of more than three thousand English schoolgirls important differences were found between the results from the private and state schools, the mean scores on the EAT being significantly higher with state schools than in the private schools. However, the number of cases of anorexia nervosa identified on the basis of individual interviews was higher in the private schools. A detailed analysis of the responses to the individual questions indicated that this discrepancy was due to systematic differences in the way the girls responded to different sets of questions. It is therefore most important that care should be taken to ensure that questionnaires are sufficiently validated within all the populations under study before they are used as research tools. That a test as well established as the EAT could give quite unexpected results when applied to a cross-section of the normal population emphasises the caution that must be applied to interpretation of the results of the present study. It has also been emphasised that even interviews are not immune to similar cultural misunderstandings (King and Bhugra, 1989).

The accuracy of basic demographic information including details of height and weight has been shown to be high in community studies. A study on a general practice sample found that considerable reliance can be placed on reported weights

which are on average within 4% of actual weight (King, 1989). Dolan et al. (1991) found that height on self report has a high degree of test-retest reliability over 18 months but reports of minimum and maximum adult weight are considerably less reliable, the former being inconsistent in over half of subjects. The reports of extreme weights were not analysed in the present study.

More complex technical issues associated with using self-report questionnaires to look at uncommon syndromes must also be taken account of when results are examined. If the true prevalence of a syndrome differs in two groups being compared with a questionnaire, 'the meaning of a high score will be different in the different populations' (Williams et al. 1982). It follows that it could be considered 'unwise to base such a comparison on test scores alone, in the absence of a more detailed assessment.'

Difficulties of assessing ethnicity:

This study was planned prior to the 1991 Census which was the first to record information on ethnic origin (Balarajan & Raleigh, 1992). The terms adopted for describing the population groups are consequently not those used in the Census. The method used in the Census to assess ethnicity was self assignment to a number of predetermined groups. This may have presented difficulties in the self-definition of the British born ethnic minority population as well as in persons of mixed race.

The ethnicity assessment method used in this study has the advantage of relying on a visual and auditory assessment as well as information about the birthplace of both the subject and her parents. Studies which have looked at AC populations which relied solely upon written information on birthplace and language (e.g. Dolan et al. 1990) may have mixed Asian Caribbeans and white Caribbeans with their desired sample.

Classification into homogeneous ethnic groups can be problematical. With particular regard to research in the Afro-Caribbean population it is important to bear in mind that the West Indies comprises a large number of separate islands each of which may have its own distinctive cultural milieu. The extent to which a British born AC can be considered to come from a minority ethnic group will also vary from individual to individual. No assessment of the extent to which each individual identified with Western culture was performed in this study. In order to try to take account of this factor, those in the AC group who were born abroad were compared for all recorded independent and dependent variables with those born in the United Kingdom.

Sample size:

In this principally data exploratory study, which looked at a large number of separate variables in order to assess differences between the two ethnic groups, it was not possible to perform a power analysis in order to determine a minimum sample size in advance. Practical considerations had to determine the duration of the study, the number of clinics attended, and therefore the number of questionnaires distributed. The sample size achieved compares very favourably with that reported in other recent studies in the field (Mumford & Whitehouse, 1988; Dolan et al. 1990).

Discussion of results

Refusals: In an epidemiological study of this kind subjects who refuse to participate are frustrating as these are often the very subjects who one most wishes to complete the questionnaire. High rates of eating problems and eating disorders have been reported among non-participants in recent community eating disorders studies (Johnson-Sabine et al. 1988; King 1989; Beglin & Fairburn 1992). One subject's

reason for not accepting a questionnaire confirmed these findings. The refusal rate of 5.1% in this study was moderate. It can safely be assumed that the level of morbidity in the whole population under study was underestimated although it is uncertain as to whether any one ethnic group was particularly affected. Although the number of Asian family planning clinic attenders was small, they showed a particular reluctance to complete the questionnaire (38.5% refusing). Further work would be necessary to determine whether there is a real difference in the attitude of the Asian population to questionnaires.

Poor English: The other group of potential subjects who did not complete the questionnaire were those whose English was inadequate. Most of these would have come into the numerically smaller ethnic groups and therefore their loss to the study was not an important one.

Birthplace: Over three quarters of the AC sample were born in the United Kingdom and those born abroad differed only in their being older and more likely to be married, indicating that the target population of English-raised subjects had probably been found successfully. Two thirds of the African subjects were born abroad, originating from a variety of different countries, and English was not the first language of many. It could be assumed, therefore, that the African group probably had less formative exposure to Western attitudes than the AC sample.

Smaller ethnic groups: The African results revealed a slightly older sample with a higher mean BMI, mean BITE severity score and mean GHQ score in comparison to the NE and AC groups. In the Cypriot and Asian samples a very high mean BITE symptom score and mean GHQ total score were evident but their numbers are very low and the mean scores may have been distorted by the high scores of only one or two respondents. The Asian group's high level of disturbed eating attitudes was

in accordance with the results of Mumford & Whitehouse (1988). The Cypriot sample had the highest mean BMI of all the ethnic groups, which was increased by one very heavy respondent. Further research in the Greek and Turkish Cypriot populations would be useful.

Interviews: One in ten of the BITE completers had a score which was above the recommended threshold for further enquiry. All of the subjects who were interviewed and found to fulfil diagnostic criteria for bulimia nervosa scored above the suggested cut-offs for clinical probability given by the authors of the BITE. None of those who scored less than the suggested levels and was interviewed did. The instrument was thus found to operate in the total population as predicted by its authors (Henderson & Freeman, 1987).

Larger ethnic groups

The most striking result of this study was that the level of disturbed eating attitudes as measured by the mean BITE symptom score, was significantly higher in the AC group than the NE group. Although the AC group was found to have a significantly higher BMI than the NE group, as was also found by Dolan et al. (1990) in her South London population, the analysis of covariance for the BITE symptom score showed that the difference in the score between the two groups was not wholly associated with the difference in the BMI level.

Statistical analysis was employed in an attempt to verify further the validity of the result. Factor analysis, a technique used in previous studies to support the cross-cultural conceptual equivalence of self-report scales (the EAT-26 and BSQ) in ethnic minority populations (Dolan et al. 1990; Mumford et al. 1991), was applied in this study to the BITE symptom scale. The results showed much similarity between the two ethnic groups and did not contraindicate

comparison of total scores between them.

Additional evidence that the significantly higher level of abnormal eating attitudes in the AC group was real and not a product of the method of examination was provided by the measure of abnormal eating behaviour. Analysis of scores on the BITE severity scale showed that there were significantly more AC than NE subjects over the recommended cut-off. The finding of a higher level of disturbed eating behaviour in the AC group further demolishes the myth that the black population has a low level of eating problems.

Research in another British ethnic minority group has also indicated the presence of a higher level of disturbed eating attitudes and behaviour than was evident in the white population. Possible reasons for this have also been explored. Mumford & Whitehouse (1988) found that a young female Asian sample had significantly more abnormal eating attitudes and a higher level of eating disorder than an indigenous white comparison group. Furnham & Alibhai (1983), suggested that exposure to British values may create the sort of polarization where the individuals may go to extremes in reacting against their own cultural values and this may concur with the finding in the Bradford south Asian population that the highest level of abnormal eating attitudes and bulimia nervosa occurred in those girls with more traditional cultural orientation (Mumford & Whitehouse, 1991). DiNicola (1990b) has postulated that the recently reported increase in the presentation and presumed prevalence of eating disorders in ethnic minority populations could be due to the alteration in pressures on the individual induced by the process of rapid socio-cultural change. Mumford & Whitehouse (1991) argued that both the cultural and the contingent familial difficulties faced by the Asian girls growing up in Britain could contribute to their stress. The evidence that this raised level of abnormal attitudes over that of the general population is found to occur in the AC population as well as

the Asian one supports the above arguments and suggests that both this and the observed increase in prevalence of disturbed eating attitudes and behaviour in ethnic minorities may well at least in part be a result of change of culture.

Cultural factors have been invoked in the past to explain the apparent lack of eating disorders in the black population. Hsu (1987), whilst noting an increase in referral of black patients with either anorexia nervosa, bulimia or both to his Pittsburgh clinic, suggested that the 'black culture' itself protected black women from developing eating disorders. He gave as risk factors for an eating disorder increased fatness, a higher standard of living and rigorous dieting, all factors he associated with whites. He further argued that the black woman was protected as she was thinner, had a better self-image and was less interested in dieting and shape. Lacey & Dolan (1988) suggested that the low relative prevalence of 'non-white' women referred to their clinic could have been because they did not suffer from mild bulimia due to the absence of Western cultural pressures about slimness. Although this study did not attempt to demonstrate a higher level of eating disorder in the AC as compared to the NE population, the results presented, indicating that the AC black population has a higher level of disturbed eating attitudes and behaviour, suggest that the above arguments are fallacious as far as the second generation AC population in North London is concerned.

Various other alternative reasons for the low presentation of ethnic minority patients with eating disorders have been suggested. The black community's attitude to health services in general, and the psychiatric services in particular, may explain the perceived lack of blacks presenting with these problems. It may be a perception in the black population that there are no services for them if they develop an eating disorder. It has been proposed that 'non-whites' may be less likely to use health care systems than whites (Jones et al.

1980) and in particular the psychiatric services (Lawlor & Rand, 1985). It has been noted that when in treatment black families appear to have difficulties trusting the predominantly white staffed psychiatric services (Thomas & Szmukler, 1985; Pumariega et al. 1984). In a review of general psychiatric illness among Afro-Caribbeans in the United Kingdom, London (1986) suggested that the black population may tend to underuse the NHS perhaps because as a minority they feel alienated from a white society's institutions. Holden & Robinson (1988) gave as evidence for the under-utilisation of health care services by blacks their finding that a higher proportion of the black group were self-referrals via emergency services than was true for the control group or the clinic population as a whole. They suggested that this could also lead to underdiagnosis of eating disorders among blacks, and perhaps may have contributed to the rarity with which black eating disorder patients were seen in clinics. Non-recognition by primary health workers may be an area of concern. Pumariega et al. (1984) suggested that the syndrome may have been misdiagnosed in blacks as a consequence of its supposed rarity. Evidence from the relatively newly established eating disorders clinic in Haringey suggests that when easily available local services are provided they are used by ethnic minorities but that the white middle classes may be better able to obtain referral to a more remote specialist centre (E. Johnson-Sabine, personal communication).

Attitudes of ethnic minority groups to the health service, especially psychiatric services, together with the reciprocal perspective of the service providers towards ethnic minority groups, could usefully be explored further.

Assessing the prevalence of abnormal eating attitudes, disturbed eating behaviour, and clinical eating disorders in the third world presents further problems. Although anorexia nervosa does exist in black Africa it considered to be rare (Nwaefuna, 1981). Case-finding is difficult for syndromes for

which services have not been developed. The lack of available Western-type psychiatric services may therefore account for the apparent lack of eating disorders in the third world. It may only be when services are developed that cases will begin to be picked up. Another possible consideration is that the eating disorder syndromes may only have psychological meaning in the presence of an adequate supply of food.

Authors agree that the rate of presentation of eating disorders is increasing in the black population both in the United States and the United Kingdom. One view has been that this increase is due to increasing affluence and the higher social class of the younger black generation. Hsu (1987) suggested that with increasing affluence within the American black community and an accompanying heightened awareness of white values and lifestyle, young black adolescents may have been getting fatter and concerned enough about it to diet enthusiastically, thus precipitating an increased rate of eating disorders. Pumariega et al. (1984) proposed that a rising incidence of anorexia nervosa would support Crisp's hypothesis that a higher incidence of anorexia nervosa was associated with improved social and financial conditions. Theander (1970) postulated that this disorder would anyway become more evenly distributed among all social classes as society became more homogeneous with respect to attitudes about body weight, achievement, and control. Improved recognition of the eating disorder syndromes has also been noted as a possible factor (Pumariega et al. 1984). Holden & Robinson (1988) suggested that the increase in the prevalence of eating disorders in British black population, as evidenced by their increased referral rate in the previous few years, could be due to greater access to medical services or better primary medical care.

Does this perceived increase in the presentation of eating disorders represent an actual increase in their prevalence within the ethnic minority population? The view that anorexia

nervosa has been increasing in prevalence in Western society to the point that it has become a 'sociocultural epidemic' has been received wisdom for many years (Bruch, 1978). Increases in incidence which are obvious to interested practitioners may not always prove to be true when subjected to the rigours of good epidemiological research. Williams & King (1987) showed that the apparent increase in the presentation of eating disorders may have been due to a change in the population age profile resulting in an increase in the susceptible female population, not an increase in the incidence of the disorder. It may be that the ethnic minority population profile has changed to include a higher proportion of vulnerable young females who continue to manifest the disorders at a similar rate to their elders. Demographic factors may therefore account for all or part of the perceived increase. More recent research has demonstrated that in an area of South London the actual incidence of anorexia nervosa in the overall population has stayed the same, as have many of its features such as age of onset, overall dietary pattern and sex incidence, for the three decades from 1960-1990 (Crisp, 1991). This perhaps indicates that this disorder is less vulnerable to the vagaries of social fashion and changes in societal pressure than previously supposed.

It may be, however, that recognition of the characteristic eating disorder syndromes is more difficult in cultures unfamiliar to white, Western psychiatrists. The presence of Western abnormal eating attitudes may not be essential for the diagnosis of anorexia nervosa within other cultures, or even our own culture in previous times. A recent report described a 22 year old Ethiopian torture victim who for over five years manifested eating behaviour similar to that exhibited by Western anorectics, but only acquired 'anorectic attitudes' following exposure to Western society and the company of other anorectic in-patients (Fahy *et al.* 1988). An historian has argued, with evidence given from study of 261 female Italian saints from the thirteenth century onwards, approximately 100

of whom self-starved, that many parallels can be drawn between religious fasting and anorexia nervosa in both attitudes and behaviour and that it is our understanding of the eating behaviour which varies with the historical and cultural setting (Bell, 1991). It is therefore of some interest and importance to examine how the psychopathology associated with abnormal eating behaviour differs between ethnic groups.

How did the nature of the eating attitudes and eating behaviour of the AC group compare qualitatively with that found in the NE population? Comparison of the symptom profiles of the AC and NE groups showed that the AC group reported more feelings of failure, guilt and abnormality concerning their eating habits. This suggests that there may be differences between the ethnic groups in the mood associated with abnormal eating attitudes and habits. These particular affective factors could also be related to lower self esteem in the AC group. A further, perhaps associated, finding was that the AC group reported a more conscious effort to give the outward impression of eating less food than they actually consumed. Abnormal eating is a secretive activity in Western society but the AC population consider their eating patterns to be particularly unacceptable for public view. This could indicate that the AC population with disturbed eating attitudes may feel more ashamed of both their eating habits, and, by logical extension, themselves.

The results for the AC group also indicated that they had a more important place for food in life, felt that their hunger feelings were more overpowering and insatiable, and gave a higher priority to eating over other activities. More of the AC group considered themselves to be overweight or very overweight than the NE group. This was in fact true, but only when compared to the standards of the indigenous white population. The AC group also considered that they had more unstable weights than the NE group. It is possible to conclude from these findings that the AC group may feel that

matters concerning their feelings about food and their eating behaviour are both more important and more out of their personal control than the NE population considers them to be. Comparison by AC women in Western society of their naturally larger frames with the slimmer-built NE population may lead to increased feelings of powerlessness and inadequacy where food, eating, weight and shape are concerned.

There were no significant differences in the scores of the two groups on the GHQ-28 although the AC mean score was higher. The correlation matrices indicate possible differences in the correlations between the NE group and the AC group. Whereas the NE group strongest correlation of the BITE SY score was with the anxiety and insomnia subscale of the GHQ the AC only correlation was with the social dysfunction subscale. Dolan et al. (1990) also found indications of ethnic differences in the relationship between feelings about eating, weight and mood.

Overall Conclusions

The major finding of this study is that the Afro-Caribbean sample was found to have both significantly more disordered eating attitudes and a significantly higher level of abnormal eating behaviour than the Northern European comparison group. The young female second generation of an immigrant, black population may therefore have an even higher level of disturbed eating attitudes and behaviour than the indigenous white population.

Eisler & Szmulker (1985) found, however, that even when a well validated questionnaire is applied, a high reported level of abnormal eating attitudes may not be related to an actual increased level of eating disorders in the population studied. Further research will be necessary to determine the incidence and prevalence of eating disorders in the Afro-Caribbean

population. It would also be important to determine the true rate of change of these indices.

The results presented above show that detailed examination of the reported psychopathology of the Afro-Caribbean population, when compared with that of the Northern European sample, may indicate an increased level of guilt, shame and low self esteem in the ethnic minority population. It is important that these feelings should be clearly distinguished from associated body shape attitudes. The relationship of aspects of eating psychopathology with facets of neurotic distress appears to differ between ethnic groups and would merit further study and elucidation.

If cultural pressure from exposure to Western society leads to the adoption of Western patterns of stress then one would expect a rate of eating disorder similar to that of the general population. If there is an extra reason to have an eating disorder in the process of cultural change itself, then one would expect the results of the present study. The results presented above support the hypothesis that rapid socio-cultural change is an additional risk factor for bulimia nervosa. Further research is necessary but existing work may give an indication of the type of cultural stress applied to second generation immigrants. Lacey (1986) found that at the time of developing bulimia nervosa most of his subjects felt markedly rootless and insecure following a change in occupation or geographical location, and estrangement or separation from a significant family member was also commonly found. It would be interesting to examine further whether the ethnic minority populations have an excess of these factors and to develop in more detail a theory of how they mediate the development of abnormal eating attitudes and consequent bulimia nervosa.

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APPENDIX I: QUESTIONNAIRE

EATING AND HEALTH STUDY

CONFIDENTIAL

EATING & HEALTH STUDY

Your name:

Your address:

Your phone no.:

Your age: years

Your date of birth:

Your occupation:

Please briefly describe what you actually do:

Are you MARRIED SINGLE DIVORCED SEPARATED WIDOWED

If you have a partner please give your partner's occupation, together with a brief description:

Your height: ... feet ... inches, or ... cm. Your weight: ...stone ..lbs orkg.

What is the most that you have ever weighed? ...stone ...lbs, orkg.

What is the least that you have weighed at your present height when you were well? ...stone ...lbs, or ...kg.

What would your ideal weight be if you could choose it? ...stone ...lbs, or ...kg.

Do you feel yourself to be VERY OVERWEIGHT 5
 OVERWEIGHT 4 (please
 AVERAGE 3 circle
 UNDERWEIGHT 2 number)
 VERY UNDERWEIGHT 1

What was the date of the first day of your last menstrual period?

Do you have regular periods? YES NO

Are you taking an oral contraceptive? YES NO

When you were aged ten years were your parents

MARRIED SINGLE DIVORCED SEPARATED WIDOWED

(if you were not brought up by your parents, please describe family situation below)

EATING QUESTIONNAIRE

PLEASE BASE YOUR ANSWERS ON YOUR FEELINGS AND BEHAVIOUR OVER THE PAST THREE MONTHS

1. Do you have a regular daily eating pattern? YES NO
2. Are you a strict dieter? YES NO
3. Do you feel a failure if you break your diet once? YES NO
4. Do you count the calories of everything you eat, even when not on a diet? YES NO
5. Do you ever fast for a whole day? YES NO

6. ... If yes, how often is this?

EVERY SECOND DAY 5 2-3 TIMES A WEEK 4
 ONCE A WEEK 3 NOW AND THEN 2 HAVE ONCE 1

7. Do you do any of the following to help you lose weight? (circle number)

	Never	Occasion- ally	Once a Week	2-3 Times Week	Daily	2-3 Times a Day	5+ Times a Day
TAKE DIET PILLS	0	2	3	4	5	6	7
TAKE DIURETICS	0	2	3	4	5	6	7
TAKE LAXATIVES	0	2	3	4	5	6	7
MAKE YOURSELF VOMIT	0	2	3	4	5	6	7

8. Does your pattern of eating severely disrupt your life? YES NO
9. Would you say that food dominated your life YES NO
10. Do you ever eat and eat until you are stopped by physical discomfort? YES NO
11. Are there times when all you can think about is food YES NO
12. Do you eat sensibly in front of others and make up in private? YES NO
13. Can you always stop eating when you want to? YES NO
14. Do you ever experience overpowering urges to eat and eat and eat? YES NO
15. When you are feeling anxious do you tend to eat a lot? YES NO
16. Does the thought of becoming fat terrify you? YES NO
17. Do you ever eat large amounts of food rapidly (not a meal)? YES NO
18. Are you ashamed of your eating habits? YES NO
19. Do you worry that you have no control over how much you eat? YES NO
20. Do you turn to food for comfort? YES NO

21. Are you able to leave food on the plate at the end of a meal? YES NO
22. Do you deceive other people about how much you eat? YES NO
23. Does how hungry you feel determine how much you eat? YES NO
24. Do you ever binge on large amounts of food? YES NO
25. ... If yes, do such binges leave you feeling miserable? YES NO
26. If you do binge, is this only when you are alone? YES NO
27. If you do binge, how often is this?
- | | | | |
|-------------|---|------------------|---|
| HARDLY EVER | 1 | ONCE A MONTH | 2 |
| ONCE A WEEK | 3 | 2-3 TIMES A WEEK | 4 |
| DAILY | 5 | 2-3 TIMES A DAY | 6 |
28. Would you go to great lengths to satisfy an urge to binge? YES NO
29. If you overeat do you feel very guilty? YES NO
30. Do you ever eat in secret? YES NO
31. Are your eating habits what you would consider to be normal? YES NO
32. Would you consider yourself to be a compulsive eater? YES NO
33. Does your weight fluctuate by more than five pounds in a week? YES NO

How does your weight vary?

WEIGHT GENERALLY REMAINS THE SAME	4	
TENDING TO GAIN WEIGHT	3	
TENDING TO LOSE WEIGHT	2	(please circle number)
WEIGHT TENDING TO FLUCTUATE	1	

Do you

EAT BREAKFAST	6	
EAT A MID MORNING SNACK	5	
EAT LUNCH	4	
EAT AN AFTERNOON SNACK	3	(please circle numbers)
EAT AN EVENING MEAL	2	
EAT JUST BEFORE GOING TO BED	1	

GENERAL HEALTH QUESTIONNAIRE

GHQ-28

Please read this carefully:

We should like to know if you have had any medical complaints, and how your health has been in general, *over the past few weeks*. Please answer ALL the questions on the following pages simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those that you had in the past.

It is important that you try to answer ALL the questions.

Thank you very much for your co-operation.

HAVE YOU RECENTLY:

A1 — been feeling perfectly well and in good health?	Better than usual	Same as usual	Worse than usual	Much worse than usual
A2 — been feeling in need of a good tonic?	Not at all	No more than usual	Rather more than usual	Much more than usual
A3 — been feeling run down and out of sorts?	Not at all	No more than usual	Rather more than usual	Much more than usual
A4 — felt that you are ill?	Not at all	No more than usual	Rather more than usual	Much more than usual
A5 — been getting any pains in your head?	Not at all	No more than usual	Rather more than usual	Much more than usual
A6 — been getting a feeling of tightness or pressure in your head?	Not at all	No more than usual	Rather more than usual	Much more than usual
A7 — been having hot or cold spells?	Not at all	No more than usual	Rather more than usual	Much more than usual
B1 — lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
B2 — had difficulty in staying asleep once you are off?	Not at all	No more than usual	Rather more than usual	Much more than usual
B3 — felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
B4 — been getting edgy and bad-tempered?	Not at all	No more than usual	Rather more than usual	Much more than usual
B5 — been getting scared or panicky for no good reason?	Not at all	No more than usual	Rather more than usual	Much more than usual
B6 — found everything getting on top of you?	Not at all	No more than usual	Rather more than usual	Much more than usual
B7 — been feeling nervous and strung-up all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual

PLEASE TURN OVER

HAVE YOU RECENTLY

C1	– been managing to keep yourself busy and occupied?	More so than usual	Same as usual	Rather less than usual	Much less than usual
C2	– been taking longer over the things you do?	Quicker than usual	Same as usual	Longer than usual	Much longer than usual
C3	– felt on the whole you were doing things well?	Better than usual	About the same	Less well than usual	Much less well
C4	– been satisfied with the way you’ve carried out your task?	More satisfied	About same as usual	Less satisfied than usual	Much less satisfied
C5	– felt that you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
C6	– felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable
C7	– been able to enjoy your normal day-to-day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
<hr/>					
D1	– been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
D2	– felt that life is entirely hopeless?	Not at all	No more than usual	Rather more than usual	Much more than usual
D3	– felt that life isn’t worth living?	Not at all	No more than usual	Rather more than usual	Much more than usual
D4	– thought of the possibility that you might make away with yourself?	Definitely not	I don’t think so	Has crossed my mind	Definitely have
D5	– found at times you couldn’t do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual
D6	– found yourself wishing you were dead and away from it all?	Not at all	No more than usual	Rather more than usual	Much more than usual
D7	– found that the idea of taking your own life kept coming into your mind?	Definitely not	I don’t think so	Has crossed my mind	Definitely has

A B C D TOTAL

Have you ever consulted someone in a professional capacity
for advice on dieting/eating?

YES

NO

... If yes, please give details below.

Have you ever suffered from:

1. Anorexia
2. Bulimia
3. Other eating problem
4. None of the above

If you answered 1, 2 or 3, please give details below.

APPENDIX II: INTERVIEW

EATING INTERVIEW

CONFIDENTIAL

A

B

C

D

E

Bulimia Semi-Structured Interview

To fulfil DSM III-R Diagnostic criteria for bulimia nervosa (criteria A,B,C,D & E).

A. "Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time)."

QUESTIONS:

A1 Do you get uncontrollable urges to eat and eat until you feel physically ill?

YES NO

A2 Have you ever had an episode of eating what others would regard as an excessive amount of food in a short space of time (an eating binge)?

YES NO

If the interviewee does not binge move direct to question C9

A3 How old were you when you first started bingeing?

AGE

A4 How long ago did you last have a binge?

AGO

A5 Over the past three months (or when you last binges) what quantity of food has a typical binge consisted of?

DETAILS

B. "A feeling of lack of control over eating behaviour during the eating binges."

Question A1.

B6 Are there times when you are afraid that you cannot voluntarily stop eating?

YES NO

D. "A minimum average of two binge eating episodes a week for at least three months."

Questions A3, A4.

D7 How old are you now?

AGE

D8 How often, on average, over the past three months (or the last three months when you binged) have you binged?

Note approx. number of times in the month.
Weekly average.

C. "The person regularly engages in either self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercises in order to prevent weight gain."

C9 Have you ever made yourself vomit to get rid of food and prevent weight gain?

YES

NO

If the interviewee does not vomit move direct to question C14

C10 If yes - do you continue to do this?

YES

NO

C11 How old were you when you first did this?

AGE

C12 How long ago did you last do this?

AGO

C13 Over the past three months (or the last three months when you did this) how frequently have you done this?

Monthly average.
Weekly average.

C14 Have you ever used laxatives especially to prevent weight gain?

YES

NO

If no move direct to question C19

C15 If yes - do you continue to do this?

YES

NO

C16 How old were you when you first did this?

C17 How long ago did you last do this?

C18 Over the past three months (or the last three months when you did this) how frequently have you done this?

Monthly average.

Weekly average.

C19 Have you ever taken any diuretic pills (or 'Water tablets') to prevent weight gain?

YES

NO

If **no** move direct to question C24

C20 If **yes** - do you continue to do this?

YES

NO

C21 How old were you when you first did this?

C22 How long ago did you last do this?

C23 Over the past three months (or the last three months when you did this) how frequently have you done this?

Monthly average.

Weekly average.

C24 Have you ever strictly dieted in order to prevent weight gain?

YES

NO

If **no** move direct to question C29

C25 If **yes** - do you continue to do this?

YES

NO

C26 How old were you when you first did this?

C27 How long ago did you last do this?

C28 Over the past three months (or the last three months when you did this) how frequently have you done this?

Monthly average.

Weekly average.

C29 Have you ever fasted in order to prevent weight gain?

YES

NO

If no move direct to question C34

C30 If yes - do you continue to do this?

YES

NO

C31 How old were you when you first did this?

C32 How long ago did you last do this?

C33 Over the past three months (or the last three months when you did this) how frequently have you done this?

Monthly average.

Weekly average.

C34 Have you ever exercised vigorously in order to prevent weight gain?

YES

NO

If no move direct to question E39

C35 If yes - do you continue to do this?

YES

NO

C36 How old were you when you first did this?

C37 How long ago did you last do this?

C38 Over the past three months (or the last three months when you did this) how frequently have you done this?

Monthly average.

Weekly average.

E. "Persistent overconcern with body shape and weight."

E39 Over the past three months how often have you weighed yourself?

RATE

E40 Over the past three months have you been keeping a close eye on your shape, for example, by checking that certain clothes fit or by measuring yourself?

very much (daily)	somewhat (more than half the days)	a little (less than half the days)	not at all
----------------------	--	--	------------

E41 Over the past three months have you spent much time thinking about your shape or weight?

very much (daily)	somewhat (more than half the days)	a little (less than half the days)	not at all
----------------------	--	--	------------

E42 Has thinking about your shape or weight interfered with your ability to concentrate on things you are interested in; for example, read, watch television or follow a conversation?

very much (daily)	somewhat (more than half the days)	a little (less than half the days)	not at all
----------------------	--	--	------------

E43 Has this interfered with your ability to carry out routine daily activities?

very much (daily)	somewhat (more than half the days)	a little (less than half the days)	not at all
----------------------	--	--	------------

E44 Over the past three months has your weight been an important issue for you?
Has your weight influenced how you think about (judge, feel, evaluate) yourself as a person?

If you imagine the scheme (scale) by which you judge yourself - Based on things like ... (your performance at work, being a parent, your marriage, how you get on with other people) ... and you put these things in order of importance, where does your weight fit in?

Supreme importance	Moderate importance	Some importance	No importance
-----------------------	------------------------	--------------------	------------------

E45 Over the past three months has your shape been an important issue for you?
Has your weight influenced how you think about (judge, feel, evaluate) yourself as a person?

If you imagine the scheme (scale) by which you judge yourself - Based on things like ... (your performance at work, being a parent, your marriage, how you get on with other people) ... and you put these things in order of importance, where does your shape fit in?

Supreme importance	Moderate importance	Some importance	No importance
-----------------------	------------------------	--------------------	------------------