An investigation of the influence of life events on relapse and delusional themes in psychosis

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This project aimed to investigate potential relationships between life events, delusional beliefs and psychotic relapse. The background of the research included symptom focused models of psychosis, evidence suggesting stress-delusional theme links and accumulating evidence demonstrating quantitative relationships between life events and the onset/relapse of psychosis. The current study explored these factors in 33 individuals who had experienced an initial onset of psychosis within the past five years. The groups were sub-divided for the analyses, according to whether or not they had relapsed during the past year, and according to their delusional beliefs. Regarding associations between life events and relapse, the current study found a significantly higher frequency of life events in the 0-3 month period prior to interview, in the non-relapsed group, compared with the same period prior to relapse, in the relapsed group. This was in direct contrast to previous research, which has demonstrated significantly elevated frequencies of life events prior to relapse of psychosis. However, there were differences in the types of life events reported. For instance, the relapsed group had a comparatively high incidence of life events focused on the self, whereas the non-relapsed group were characterised by greater frequencies of events focused on others. The second section of this research explored relationships between delusional beliefs and relapse. The relapsed group reported significantly more delusional beliefs during relapse, than the non-relapsed group did at interview. Furthermore, the relapsed group had significantly more life-time delusional beliefs. They were also significantly more distressed by these beliefs at interview, than the non-relapsed group were. The final section of the research explored themes of life
events and themes of delusions. Small frequencies of participants reported some of the themes concerned, limiting the analyses. However, a significant relationship was found between delusions of reference and events associated with danger. Interpretations of the results are put forward, and suggestions for further research are made.
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The history of life events research

Research investigating the relationship between life events and mental health problems largely began in the early 1970's, with studies investigating social factors of depression (Brown & Harris, 1978). Traditionally, there have been two opposing views concerning the aetiology of depression and other mental health problems. On the one hand, researchers such as Brown (1979) view depression as a largely psychosocial phenomenon that stems mainly from environmental strain. On the other hand, on the basis of genetic and pharmacological studies, some researchers believe that psychiatric disorders are biologically determined. Research has demonstrated links between life events and conditions as diverse as depression, myocardial infarction and schizophrenia (Brown & Harris, 1989).

The influential study in Camberwell by Brown & Harris (1978) demonstrated that life events preceded the onset of depression. In particular, events that are rated as ‘severe’ (marked or moderate long-term contextual threat/unpleasantness and focused on the subject) have proved to be of central aetiological importance for depression. Similarly, longer term difficulties rated ‘marked’ (contextually threatening or unpleasant), also appear to be of critical importance. The investigation of relationships between life events and difficulties, and the short and long-term outcome of psychiatric conditions has also attracted recent interest. One study (Brugha et al.,
1997) concluded that both life event stress and support network characteristics are associated with the short-term outcome of depressive episodes.

The role of life event stress in the onset of psychological disorders has been questioned by Tennant (1983) who outlined methodological problems of research studies and the possibility of spuriously positive associations. For example, there is a potential problem of accurately dating events and illness to ensure that events are antecedent. Also, the bias of 'search after meaning' (Brown, 1974) may occur when subjects search their past experience for some explanation of their distress. However, the Brown & Harris (1978) method attempts to control for such problems by employing measures of 'contextual' (objective) as well as 'reported' (subjective) threat and measures for the 'independence' (hypothetical likelihood of the subject’s behavioural influence) and current 'illness related' status of events. Prospective studies, where life events are assessed prior to the onset of illness could also eliminate or reduce these problems, and so provide potentially powerful evidence for the causal association between life events and psychological illness. However, Tennant (1983) reviewed such prospective studies and concluded that the findings do not convincingly show that life events have any substantial causal role in neurotic illness. The possibility of altered psychological states on either the occurrence or the reporting of life events has also not been adequately addressed in the literature.

There is evidence to suggest that life events should be viewed in the context of multifactorial models of mental illness. For instance, vulnerability factors may influence the effect of a provoking agent, (such as a life event) and thus influence the onset of
disorder (Brown & Harris, 1986). Vulnerability factors for depression in women have been identified as a) lack of intimate confiding relationship with spouse/partner, b) presence of three or more children under age 15, c) loss of mother before 11 through death or separation for one continuous year or more and d) lack of employment (Brown & Harris, 1978). Similarly, Cui & Vaillant (1996) found that negative life events, family history of depression and psychosocial stability were independent and statistically significant predictors of depression in male college students, supporting complex aetiological models involving both social and biological factors.

It has been suggested that in much of the published stress research, concepts of stress, coping and well-being are frequently confounded (Cooper 1988). For instance, in life events research, some ‘stressful’ event may also be construed as an inability to cope (e.g. divorce) or a symptom of poor well-being (e.g. personal illness). Individual differences in the appraisal of events or situations may vary greatly according to personality variables, coping strategies and inter-personal resources. Chronic minor life events (i.e. ‘daily hassles’) and stress produced within the individual, such as worry associated with events that have yet to occur may also play an important role. The failure of utilised coping strategies per se may actually produce stress, and successful coping and positive life events may buffer an individual from potential sources of stress. Furthermore, there is accumulating evidence, indicating that the potentially noxious effects of stressful life events may be mitigated or avoided altogether if the individual feels some measure of personal control over their occurrence. By contrast, perceived powerlessness over potentially life disrupting
events can increase vulnerability to negative psychological effects (Dohrenwend & Dohrenwend, 1978).

The topic of social support has also attracted some interest in life events research. The absence of a confiding relationship with a partner has been identified as potentiating the impact of severe events upon depression (Brown & Harris, 1986). Alloway & Bebbington (1987) reviewed the literature pertaining to the ‘buffer theory of social support’. In basic terms, this theory expresses the intuitively acceptable idea that being able to turn to people for support, mitigates the effects of misfortunes, and attenuates links between adversity and the onset of psychiatric disorder. However, the proposed relationship between adversity and a lack of social support to produce minor psychiatric disturbance, was not convincing enough to appear regularly in multiplicative analyses. Reservations regarding methodological inadequacies were expressed regarding much of the available research.

Recent research has explored particular themes of life events and their relationship with different psychological conditions or symptoms. For instance, events associated with a loss are important in provoking clinical depression if the concept of loss is extended beyond that of a person to that of a role (e.g. being made redundant) or a cherished idea (e.g. finding out about a child’s delinquency) (Brown, Bifulco & Harris, 1987). There is also evidence that anxiety is associated with both ‘loss’ and ‘danger’ (potential future loss) (Finlay-Jones & Brown, 1981). This research provides evidence that subjective experiences may be causally related, in a qualitative fashion, with the type of symptoms they appear to provoke.
Regarding the development of depression, Brown, Harris & Hepworth (1995) found that experiences of humiliation and entrapment were more salient than events involving aspects of loss or danger. Similarly, Brown & Moran (1997) found that single motherhood and financial hardship were associated with the onset of depression, via an association with ‘humiliating’ and ‘entrapping’ severe life events. These findings may have some implications for the current study; depressive delusions may also be associated with humiliating and entrapping life events. Therefore, life events with specific psychological associations may trigger relapse of illness, via the development, or exacerbation of certain delusional beliefs. These proposed connections, between specific life events, ‘relapse’ and delusional themes in psychosis, will be discussed further in the section entitled ‘life events and psychosis’.

The impact of life events upon psychotic and neurotic conditions

Historically, there has been a traditional dichotomy equating ‘psychotic’ with ‘endogenous’, and ‘neurotic’ with ‘reactive’ psychiatric conditions. Accordingly, diagnostic contrasts such as ‘endogenous-neurotic’ are frequently assumed. Brown, Ni Bhrolchain, & Harris (1979), questioned the validity of this view, suggesting that life events may be as likely to influence psychotic conditions as neurotic ones. In their study, ‘endogenous’ patients were defined as those without severe life events or major difficulties. Patients with diagnoses of ‘psychotic’ and ‘neurotic’ depression did not differ significantly regarding pre-morbid experiences of life events and difficulties. However, in a subsequent analysis, reallocation of the extreme 20% of each diagnostic group (likely misclassifications), into the other group, tended to enlarge
‘aetiological’ differences. After reallocation, ‘endogenous’ patients were found to have a slightly higher frequency of psychotic-type symptoms than ‘reactive’ patients. These conflicting results are therefore inconclusive but raise important questions about aetiological patterns of different conditions.

The DSM III (American Psychiatric Association, 1987) diagnostic system is organised to assess multifactorial aspects of psychopathology, including severity of psychosocial stressors on axis IV. Gyllenhammar and Wistedt (1987) used this system to assess life events during the past year, for 469 patients with a variety of diagnoses, attending an emergency psychiatric clinic. Neurotic disorders were associated with a higher frequency and severity of life events than were psychotic disorders. Only 16 patients (3.5 per cent) had suffered an extreme or catastrophic life event and in none of these cases did the event appear to have precipitated psychosis. These results support the traditional ‘endogenous-reactive’ dichotomy discussed previously. The DSM III method attempts to assess psychosocial stressors ‘objectively’ according to average standards. However, the authors of this study suggested that the failure to investigate subjective reactions is limiting, in that it does not provide the clinician with additional information pertinent to the individual patient. The assessment of life events in the study also appeared basic and was time limited due to the nature of the emergency clinic procedures. It is likely that some life events went undetected under these circumstances.

Brown, Harris & Hepworth (1994) investigated life events and difficulties in the onset of ‘endogenous’ melancholic/psychotic depression, compared with ‘reactive’ neurotic
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depression. They found that severe events were associated with onset of depression (either first episode or relapse) in the reactive group, whereas only severe events marked the onset of melancholic/psychotic depression in the first episode. It was proposed that the higher the proportion of relapsed melancholic/psychotic depressives in any sample, the weaker relationship between life events and depressive relapse, perhaps explaining some of the variability in research findings. The above results are in contrast to Birley and Brown's (1970) schizophrenia study, which found no significant differences between first episode and relapse in terms of the influence of life events. This study will be reviewed further in the next section. Differences in the impact of life events on first episode, compared with subsequent relapses, may provide information regarding whether life events have either a formative, or a 'triggering' role in certain conditions, although the use of different, diverse diagnostic categories may also partially explain contradictory research findings.

Life events and psychosis

Background

Social theories of schizophrenia first began to emerge during the 1950's. These theories were ambitious in attempting to provide complete explanations of the aetiology of schizophrenia. One of the most well known of these theories was provided by Bateson, Jackson, Haley & Weakland (1956) who regarded schizophrenia to be a result of the family's 'double bind' communication style, with confused and conflicting messages. Other theories implicating parenting style, family
or societal pressures were to follow (see Bebbington & Kuipers, 1992a, 1992b for reviews).

Modern social theories of schizophrenia have been more conservative in their quest to find causal factors involved in the onset of schizophrenia. The current opinion in this field generally takes a multifactorial approach, with social factors playing a part in at least the timing, if not the condition of schizophrenia. Other factors operating at different levels include genetic aspects and the physical environment. Modern social theories have concentrated largely upon psychosocial stress, measured either by life events and difficulties, ‘expressed emotion’ (Vaughn & Leff, 1976) or social support.

Canton & Fraccon (1985) suggest three mechanisms to explain the relationship between life events and the onset of schizophrenia. The first proposes that schizophrenia has mainly a biological cause, with psychosocial factors playing only a minor role; the second suggests that psychosocial difficulties play a major role, with biological factors having less impact; and the third suggests a stress-vulnerability model, where schizophrenia occurs only in individuals with a biological predisposition, but it can be triggered by life events. As the review of the literature in the next section will demonstrate, much of the recent research evidence provides support for the stress-vulnerability model. The current study investigated the hypothesis that life events may trigger relapse, via the development or exacerbation of certain symptoms such as delusions. Therefore, there may be qualitative as well as quantitative relationships between life experiences and certain symptom patterns.
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Experimental studies

The first study of life events in schizophrenia was conducted by Brown & Birley (1968), who investigated 50 patients admitted to psychiatric hospitals with either a first onset psychotic episode, relapse or exacerbation of psychotic symptoms. A significant excess of events was found, compared with controls, which was limited to the three weeks before onset. In the three weeks immediately prior to onset, 46 per cent of the patients had experienced at least one ‘independent’ event, compared to an average of 12 per cent of patients experiencing an event in each of the three earlier three week periods. Most strikingly, events with few, or no threatening associations were frequently implicated in the onset or relapse of psychosis. This is in contrast to findings that only severe events seem to have an aetiological impact in depression (Brown, Sklar, Harris & Birley, 1973). Methodological difficulties with this study have been proposed (Bebbington & Kuipers, 1992a). For instance only 45 out of 50 of the cases had received a clinical diagnosis of schizophrenia and in only 29 cases was onset from a state of normality to the emergence of schizophrenia. Where onset involved an exacerbation of psychotic symptoms, clearly the time-scale for potentially antecedent life events may have been misjudged. However, the issue of diagnosis may be less critical. As discussed later in this section, there have been recent proposals to suggest that the investigation of symptom patterns and changes may be more meaningful than the investigation of particular diagnoses.

Jacobs & Myers (1976) found that schizophrenic patients reported more recent life events than healthy controls, although the results were generally inconclusive. It has
been suggested that the examination of events during the 6-month antecedent interval may have obscured a real increase in frequency in the weeks immediately before onset. This study also had a small sample size. A Saudi Arabian study (Al Khani, Bebbington, Watson & House, 1986) found a significant positive association between events and the onset of schizophrenia only for married women, although there was a parallel trend for men and single women suffering their first schizophrenic episode. Again, the observed impact of life events was limited to the three weeks before onset. This suggests that life events may have most significance in the early stages of psychotic illness. The current study addressed this idea, by investigating life events of people within five years of their first episode of psychosis. Those who had relapsed in the year prior to interview, were compared with those who had remained well.

An alternative approach to studying life events in psychosis has been to compare the frequency of events in a set period preceding onset with analogous periods in the same patient, not followed by relapse. This method allows patients to be used as their own controls, in order to assess any hypersensitivity to life events in schizophrenia. Studies using this technique have generally found an increased number of events in periods preceding relapses (Ventura, Nuechterlein, Lukoff & Pederson Hardesty, 1989; Malla, Cortese, Shaw & Ginsberg, 1990). Malla et al. (1990) provided further evidence that even minor events, particularly in the areas of family and interpersonal relationships, have some significance for relapse. The current study aimed to explore this, as well as to further qualify the nature of ‘relapse’, by investigating patterns of certain symptoms (delusions). It was proposed that life events may trigger certain such symptoms, potentially leading to a psychotic relapse.
In Scandinavia, much emphasis is placed on the concept of reactive psychosis, although Van Os, Fahy, Bebbington, Jones et al. (1994) questioned the validity of this concept due to a lack of empirical data. In the investigation of the role of life events in triggering psychosis, Van Os et al. (1994) explored the influence of life events on the subsequent course of psychotic illness. In schizophrenic patients, the event associated episodes had less need of anti-psychotic maintenance medication over follow-up, and these patients tended to have spent more time in remission. There was also an increased morbid risk for schizophrenia in the relatives of the ‘event associated episode’ patients. These results were interpreted as evidence for a ‘triggering’ role of life events in schizophrenia rather than a ‘formative’ role, although it seems likely that sub-types of disorder exist, potentially with different aetiological patterns.

The available research concerning relationships between life events and schizophrenia was considerably expanded by the publication of a large WHO collaborative study (Day, Nielsen, Korten, Ernberg et al., 1987), which was conducted in nine catchment areas from around the world. In all centres, events tended to cluster in the three weeks before onset, and perhaps to a lesser extent, in the three-week period before that. In six out of the nine centres, the effect was significant and in the remaining three centres, there was either a small number of cases or a low event rate and these factors may explain the non-significant results. It seems then that there is accumulating evidence, suggesting that the critical time period for life events is only a few weeks prior to onset/relapse of psychosis. Interestingly, the Day et al. (1987) study suggested differences in the course of schizophrenia between the developed and the developing world. The acute benign psychoses seen in the latter did not appear to
be psychogenic. Such differences may reflect social and environmental influences on
the development and course of illness and symptoms.

Many authors, such as Chung, Langeluddecke & Tennant (1986) have suggested that
the research evidence for a link between life events and psychosis is poor because of
methodological weaknesses. Many studies have assessed life events during a period of
a few months before hospital admission, rather than prior to the initial onset of the
psychosis. Also, many studies have included life events that may have been influenced
or controlled by symptomatic behaviour (i.e. they are not independent). In an attempt
to address such methodological problems, Bebbington & Kuipers (1992a) proposed a
set of requirements that should be adhered to:

Requirements for life event studies in schizophrenia (Bebbington & Kuipers, 1992a)

* Standardised method of symptomatic assessment
* Standardised method of case definition
* Limitation to cases where it is possible to date onset accurately
* Onset defined as move from effectively symptom-free period before onset
* Precise dating of events to identify the salient period of effect
* Objective ratings of the impact of events
* Objective rating of the degree to which events are independent of actions of
  the subject that might have been due to emerging illness
* An appropriate control group
In a study aiming to address the methodological problems of previous studies, Bebbington et al. (1993) found a significant excess of life events, particularly in the three months prior to the onset of psychosis, when compared to a psychiatrically healthy sample from the local general population. This effect remained even when events were restricted to independent events. This effect was apparent for up to six months prior to the onset of psychosis. This contrasts with many of the other studies described, which indicate that the critical period for an increase in life events lies only three weeks before the onset of psychosis. However, consistent with previous research, the excess of events was not restricted to the more severe events, being evident also in events rated mildly threatening or unpleasant.

Birley & Brown (1970) conducted the first study of the influence of life events upon different stages of schizophrenic illness. They investigated the influence of life events on first episode schizophrenia, relapsed schizophrenia, and on the exacerbation of psychotic symptoms. The proportion of patients experiencing any event in the three weeks prior to admission was very similar in both the ‘first episode’ and ‘relapse’ groups. This study also considered the role of stopping phenothiazine medication in the onset of psychosis. 45 per cent of the 20 patients who had not experienced an event in the past three weeks, gave a history of stopping or reducing their drugs, compared to only 13 per cent of the 30 patients who had experienced any event. Hirsch et al. (1996) also investigated the effects of life events and medication in the aetiology of schizophrenic relapse. Again, the risk of relapse increased in proportion to the number of life events, but no interaction between medication status and life events could be detected. However, patients who continued on regular medication
had 80% less risk of relapse than those who had withdrawn from it by choice, indicating that both medication and life events play distinct but significant roles in relapse.

A recent investigation of the relationship between life events and episodes of schizophrenic illness was conducted by Castine et al. (1998). In contrast to the Birley & Brown (1970) study, recent life events were negatively correlated with the number of previous episodes. This suggests that initial or early episodes of schizophrenic illness are more likely to be associated with antecedent life events than are later episodes. This may partially explain the contradictory findings in the literature, particularly as patients at different stages of illness have often been included in research studies. The current study only used participants whose first episode was under five years prior to interview, in order to ensure that the group were homogeneous in this respect. The research indicating that early episodes are more likely to be associated with life events suggests that using 'early stage' participants should optimise any relationship between life events and psychotic relapse.

Norman and Malla’s (1993) review of the literature on life events and schizophrenia concluded that comparative studies have generally failed to convincingly demonstrate the role of stressful life events in the onset of schizophrenia, although the review did not include the more recent studies of Bebbington et al. (1993) or Castine et al. (1998). It was, however suggested that there may be a relationship between events and changes in the symptoms. This review recommended that future research should examine life events and their influence on the symptoms of schizophrenia/psychosis.
Regarding symptom focused models, one of the earliest proponents of ‘continuum’ theories of schizophrenia (Khouri, 1977) argued that the division of theories of schizophrenia into those emphasising genetic and those emphasising environmental factors overlooks similarities between certain genetic and environmental models. It was proposed that arranging such theories according to the concept of a continuum of disorder allows for factors such as aetiology, symptom presentation, outcome and prognosis to be viewed from a multi-factorial perspective. Such developments form part of the background for the current project, which aimed to investigate links between life events, delusional themes, and relapse in psychosis.

More recently, Bentall, Jackson & Pilgrim (1988a, 1988b) have argued that after more than 90 years of research, little of certainty has been found about the aetiology of schizophrenia, although Wing (1988) suggested that absence of evidence is not evidence of absence. Reviewing data from published research, Bentall et al. (1988a) cast doubt upon i) the reliability, ii) the construct validity, iii) the predictive validity and iv) the aetiological specificity of the schizophrenia diagnosis. Two alternative strategies to investigating the aetiology of schizophrenia have been proposed (Bentall et al., 1988a); the development of empirical methods of psychiatric classification, and the study of individual symptoms. Advantages of the symptom approach include contributions to the development of psychological theory linking clinical phenomena to underlying mechanisms, and contributions to the refinement of systems of diagnostic classification (Persons, 1986).
In the light of symptom focused models, one study (Perry, 1988) investigated the relationship between life events and particular symptoms. Three clinical groups—borderline personality disorder, antisocial personality and bipolar affective disorder were used in the study of life events, defences, psychotic symptoms and depression. There was no demonstrable temporal relationship between life events and subsequent exacerbations in psychotic symptoms. However, defensive adaptation to life events over the follow-up did correlate with the prevalence of psychotic symptoms. It was proposed that these results are in accordance with the vulnerability model of psychosis, with life events playing a triggering role in those predisposed to psychotic symptoms (Zubin, 1986). However, the participants in Perry’s (1988) study did not all have psychotic diagnoses. It may be that psychotic symptoms, defensive adaptations and life events may have very different inter-relationships, depending upon symptom patterns or diagnoses. The present study investigated relationships between particular symptoms (delusions), relapse and life events, in participants who had experienced the first onset of psychosis during the past five years. The hypothesis was that particular types of life events, would be related, both to the fact of, and nature of relapse (i.e. symptom patterns such as delusional themes).

In terms of particular types of life events, Gift et al. (1988) have suggested that events with a sexual content may be particularly troublesome for schizophrenic patients, although only fragmentary evidence has been provided for this hypothesis (Brown & Harris, 1989). Secondly, Harris (1987) has suggested that life events with intrusive elements e.g. assaults, burglaries or threats from landlords, might be of significance in schizophrenia. A re-analysis of Brown & Birley’s (1968) data indicated that events
involving intrusions by outsiders were 20 times as common in the 7 days before schizophrenic onset as they were in the seven days before interview in a comparison group. Indeed, Harris (1987) suggested that intrusive events were intuitively identifiable as possessing a paranoia-stimulating quality, although links between paranoid delusions and intrusive events have yet to be experimentally demonstrated. Brown & Birley (1968) also found that events focused on the self reduced with age.

There has been a dearth of research investigating the differential effects of events focused on the self, or on others, particularly in psychosis. The current research aimed to investigate aspects of life events, including their focus and their association with themes of loss, danger, intrusion and humiliation, in relation to themes of delusional ideation and relapse of illness.

Measurement issues in life events research

In the study of life events, there have been two general strategies for eliciting the experiences of research participants. The first of these originated from the work of Holmes & Rahe (1967), and consists of a fixed inventory of events that is presented to participants (Tennant & Andrews, 1976). The second procedure, developed by Brown and Harris (1978) involves a semi-structured interview with probing questions designed to elicit and rate a diverse range of life events. This approach allows the decision about what is regarded as an event to be made after the history is elicited. It also increases the likelihood that events of aetiological significance are identified, as there is no limit to the events that could be considered to be relevant. The interview takes between one and two hours, and ‘consensus meetings’ with other people trained
in the measure can be used in the early stages of using the measure, and to rate particularly unusual or idiosyncratic events. The Brown & Harris (1978) instrument has been updated to form the Life Events and Difficulties Schedule: LEDS-2 (Bifulco et al., 1989). In addition to subjective, reported threat, events are rated according to a contextual judgement of likely short and long-term threat. Threat is used in the sense of overall unpleasantness, not in its more restricted sense of danger. A whole range of contextual measures reflecting the likely psychological meaning of events and difficulties can be rated. Such ratings include the event themes of loss, danger, humiliation and intrusiveness. The measure will be described in more detail in the method chapter.

Bebbington et al. (1984) compared the two procedures described above. It was found that the rubric of the Tennant & Andrews (1976) inventory failed to describe five per cent of ‘marked’ events and twenty-one per cent of ‘moderate’ events. Moreover, less than a quarter of the Tennant & Andrews (1976) events fell into the top two categories of the Brown & Harris (1978) threat ratings (marked or moderate). Bebbington et al. (1984) suggested that despite the financial costs of training, and the increased time required to administer the semi-structured interview, the advantages of this approach over the inventory method were substantial. The Brown & Harris (1978) method provides a much more comprehensive and psychologically meaningful account of specific life events.

Brugha, Bebbington, Tennant & Hurry (1985) found that 82.5 per cent of all LEDS events collected were covered by the Tennant & Andrews’ inventory. It was
proposed that the failure to cover the remaining 17.5 per cent of events corresponded to difficulties during field work and life event rating sessions, and in fitting some events that had been gathered by means of a semi-structured interview, into the inventory categories. 12 of the 67 LEDS-2 event categories accounted for 77 per cent of life events with aetiologically significant ratings of marked or moderate long-term threat. Using this data, Brugha et al. (1985) developed a new inventory method: ‘The list of threatening experiences’ as a means to assessing life events in the face of practical and economic constraints. Although more comprehensive than the Tennant & Andrews (1976) inventory, this newer scale still lacks the complex and rich detail of life events, which can be gleaned from the Brown & Harris (1978) method.

The Brown & Harris (1978) method extends to the investigation of life difficulties as well as events. Difficulties are defined as problematic situations that last a minimum of four weeks; they coexist in time with events and no effort is made to keep apart the impact of events from any ongoing difficulties although the details of relevant events are absorbed into the difficulty rating. Difficulties are categorised in a more general way compared to life events as, by their nature, difficulties often involve a great variety of different aspects and dimensions. Marked difficulties are defined as those difficulties rated either ‘marked’ or ‘high moderate’ on long-term contextual threat. There is little research into the impact of ‘difficulties’ on psychological/psychiatric conditions, although it seems likely that their effects could be comparable to those of the more discrete ‘life events’. However, this project did not assess ‘difficulties’ but explored life events in some detail, in order that viable comparisons with previous
research findings, (which have provided more detailed information regarding events) could be conducted.

Delusional beliefs: conceptual issues

Continuum theorists of psychosis have made recent proposals regarding the investigation of life events in terms of relationships with particular symptoms, rather than diagnoses. Such developments have formed part of the background to this current study, which proposed to explore relationships between life events, delusional beliefs and relapse in psychosis.

Strauss (1991) questioned the fact that the reliable rating of positive symptoms such as delusions makes them appear relatively discrete and simple. He suggested that this type of approach is inadequate in isolation, as people are active constructors of their mental world, and do not act as input-throughput-output devices. People have characteristics like intentionality, feelings and meaning, which are involved in the constant building of a mental world. Detailed studies of individual patients were proposed, using longitudinal methodology to investigate factors associated with change in order to gain further insight into such processes. By contrast, conventional classifications of delusions such as DSM III (American Psychiatric Association, 1987) originate from the work of Karl Jaspers (1913) who maintained that delusions 1) are held with extraordinary conviction, with an incomparable, subjective certainty; 2) there is an imperviousness to other experiences and to compelling counter-argument
and 3) their content is impossible. A less absolute DSM IV diagnosis of delusions (American Psychiatric Association, 1994) appears to have reflected the shift in emphasis over the past 20 years away from discontinuity to continuity (Chadwick, Birchwood & Trower, 1996). It has also been suggested that the continuous nature of unusual beliefs renders them very difficult to classify in terms of odd beliefs versus full delusions, brief/transient versus persistent delusions, and bizarre versus non-bizarre delusions (Gladis, Levinson & Mowry, 1994).

There is also growing evidence of schizotypal traits, such as delusional ideation in the normal population. Peters, Joseph & Garety (in press) designed the Peters et al. Delusions Inventory (PDI) to measure such phenomena. The multidimensionality of delusions was incorporated, with measures of distress, preoccupation and conviction. Although psychotic in-patients were found to have significantly higher scores, 10 per cent of the normal sample, none of whom had a psychiatric history, had scores that exceeded the mean of a psychotic in-patient group. This is consistent with the continuity view of delusional ideation.

One of the first accounts of evidence counter to the ‘all-or-nothing’ conventional delusions was provided by Garety (1985), who measured fixity and intensity of delusions in two subjects over a 10 week period. This was achieved using a modified form of Shapiro’s Personal Questionnaire (PQ) (Shapiro, 1961), which is a technique for measuring psychological changes specific to individual psychiatric patients. Moderate fluctuations in the measurements were demonstrated over time. Further evidence of fluctuations in delusional characteristics was provided by Brett-Jones,
Garety and Hemsley (1987), who found that seven out of nine subjects fluctuated in the conviction and preoccupation of beliefs over a 15 week period. Only one subject showed the ‘all or nothing’ pattern of belief. This work was elaborated by Garety and Hemsley (1987) who examined 11 characteristics of delusions in 55 subjects on a self-rating scale: conviction, preoccupation, interference, resistance, dismissibility, absurdity, self-evidentness, reassurance seeking, worry, unhappiness and pervasiveness. Considerable inter-subject variability was found on all characteristics apart from conviction, where scores were generally high. A principal components analysis indicated four components: distress, belief strength, obtrusiveness and concern.

Regarding the continuity of symptoms within subjects, persistence of delusional content among psychotics over consecutive episodes was measured by Sinha & Chaturvedi (1989). Only one-third of delusions persisted in subsequent episodes of psychosis. Differences were found in the persistence of different types of delusion with persecutory and grandiose delusions showing above 80 per cent persistence, whilst reference, control and other delusions had below 50 per cent persistence. It was suggested that both cultural and psychological factors may contribute to the complex phenomenon of delusional persistence, although this study did not attempt to investigate the mechanisms of such relationships. The current study explored the hypothesis that if delusions can fluctuate in terms of content, conviction, and other dimensions, then it is possible that certain themes of life experience may have qualitative relationships with the development and maintenance of certain delusional themes, and with the overall nature of the ‘relapse’ triggered.
Winters and Neale (1983) reviewed the literature concerning theoretical explanations of delusions, and two major themes of investigation were proposed. The first theme was referred to as **motivational**. Such theories postulate that delusions arise due to a motivation by the individual, for certain psychological reasons. The second theme involves explanations that delusions are a sign of some **underlying defect** (usually cognitive-attentional). It is with the motivational theme that most of the links with life event influences will be made. For instance, 'relief from aversion' theories (Winters and Neale, 1983) propose that delusional thinking acts to reduce, remove or provide relief from stressful, uncomfortable states. Therefore, the distress associated with particular life events may influence the development of certain delusional themes, thus promoting initial onset, or later relapse of the illness. In particular, 'delusion as defence' theories of paranoia will be discussed in relation to the potential influence of life events on the development of paranoid delusions.

**The 'Delusion as defence' theories of paranoia**

Early psychoanalytic theories of paranoia have described paranoia as a defensive projection of unfulfilled need, desire or wish. The most prominent of such positions is Freud’s (1915) theory of paranoia and grandiosity, which proposed that these delusional states result from repressed homosexual impulses. More recently, Sullivan (1965) postulated a humiliation theory of paranoia. He proposed that paranoia occurs when the individual transfers the blame for personal inferiority, onto others. Colby
(1975) also proposed a shame-humiliation theory, arguing that paranoia develops from the effects of a predisposition to make inferences that imply that the self is inadequate or defective. Blame is thus transferred to others in attempt to avoid such humiliation.

These early 'delusion as defence' models lacked empirical evidence but have recently received renewed interest, particularly in the investigation of paranoia. The possibility that paranoia persists because it defends against depression has been refuted, as individuals with paranoid delusions are typically depressed, and depressives with characteristically low self-esteem rarely become paranoid (Bentall, 1994). However, there is substantial evidence for the possibility that paranoia persists because it defends against low self-esteem. Bentall, Kinderman & Kaney (1994) have developed this idea, suggesting that persecutory beliefs result from individuals minimising discrepancies between how they view themselves and how they ideally aim to be. This process is facilitated by making external personal attributions for negative events i.e. blaming other people rather than the situation or themselves. Such a self-serving bias has been consistently demonstrated in normal, control subjects in comparison with depressed subjects (Alloy & Abramson, 1979).

Consistent with Bentall et al.'s (1994) model of paranoid ideation, Kinderman & Bentall (1997) found that depressed patients made more internal causal attributions for negative events than either paranoid or non-patient participants. In contrast, both the paranoid and non-patient participants showed evidence of a robust self-serving bias, attributing positive events more often to internal causes than negative events.
Lyon, Kaney & Bentall (1994) also found that subjects with paranoid delusions attributed negative outcomes to external causes in a transparent (obvious) test of attributional style. However, these subjects attributed negative outcomes to internal causes in a more opaque (unobvious) test of attributional style. Interpreted in terms of explicit versus implicit judgements, this finding supports the hypothesis that delusions serve as a defence against underlying feelings of low self-esteem, perhaps representing a form of "camouflaged depression" (Zigler & Glick, 1988). Evidence of such cognitive biases has extended to the types of frequency judgements paranoid patients make for events likely to happen to themselves and others (Kaney, Bowen-Jones, Dewey & Bentall, 1997). Like depressed patients, paranoid patients rated negative events as occurring more frequently to themselves in comparison to normal controls. In relation to the current project, life events presenting challenges to self-esteem (such as humiliating events), may therefore play some role in the formation or maintenance of paranoid delusions. The current study will investigate two elements of paranoia; delusions of persecution (e.g. conspiracy), and delusions of reference (e.g. being spied on), in relation to potential relationships with life event themes.

Rooke & Birchwood (1998) investigated the development of depression in a schizophrenic sample. It was found that the appraisal of psychosis (specifically humiliation and entrapment) was closely related to the development of depression. Therefore, life events that might objectively be expected to result in feelings of humiliation and entrapment may also relate to the development of depressive delusions. In addition to persecutory, reference and depressive delusions, the present...
study will also investigate grandiose delusions in relation to themes of life events, although the available literature has not led to specific predictions in this case.

In one of the largest studies in this field to date, Freeman et al. (1998) conducted a controlled trial of cognitive therapy for psychosis. The authors aimed to investigate both the 'delusions-as defence' account of persecution, as well as the alternative account that self-esteem in individuals with persecutory delusions is subject to similar processes to those studied in people with depression (the 'normal emotional processes' account). The former account predicted normal self-esteem, whereas the latter account predicted low self-esteem (as in depression). In their sample of drug-resistant psychotic patients, almost three-quarters of participants with persecutory delusions reported low self-esteem, indicating that persecutory delusions were not likely to be serving as any efficient defence against low self-esteem. From the analysis of their cross-sectional and longitudinal data, it was concluded that in most cases, low self-esteem in this group can best be understood in terms of normal emotional processes. However, there were indications of a sub-group of individuals with normal self-esteem, where delusional conviction appeared to be positively related to one aspect of self-esteem (the 'value of existence'). However, this study included many variables and multiple comparisons, and some of the comparisons involved sub-samples that were very small. No protection was made against an increase in Type I errors, which reduces the power of the analysis. The possibility of sub-groups with differing aetiologies was raised.
Chapter One: Introduction

The ‘ABC’ model of delusions and a delusion as defence’ model of 2 types of paranoia

In the past 10 years, symptom focused models of psychosis have led to enormous developments in cognitive theories and treatments for such symptoms. Chadwick, Birchwood & Trower (1996) have adapted and developed Ellis’ (1962) cognitive ‘ABC’ model to account for psychotic phenomena. A stands for Activating event, B stands for Belief about the Activating event, and C stands for the emotional or behavioural Consequence that follows from the B, given A. The beliefs at B include a range of cognitions such as Images, Inferences, Evaluations and Dysfunctional assumptions. The authors of this model argued that such core beliefs arise from early experiences of relationships, a conclusion that has been an essential feature of many cognitive theories over many years (Beck, 1976). However, later events and experiences may influence the persistence of such cognitions and associated beliefs.

The cognitive model clarifies how delusions may relate to other important beliefs, and to distress and disturbance. For example, with the reference delusion outlined below, the client infers that the doctor is passing a message to him by the way he walks, and that the doctor sees the client as totally inferior. The client’s emotional experience of shame is a result of the combination of this belief and the client’s negative evaluative thinking, i.e. his own implicit acceptance of what he felt was the doctor’s correct evaluation of him.
A cognitive ABC analysis of delusions (Chadwick, Birchwood & Trower, 1996)

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<th>Delusion</th>
<th>Antecedent</th>
<th>Belief</th>
<th>Consequences</th>
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<tr>
<td>Reference</td>
<td>Doctor walks past window, head held high</td>
<td>He thinks he’s better than me, he’s letting me know</td>
<td>Shame Moves away from window</td>
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The cognitive model of psychosis was further developed by Chadwick, Birchwood & Trower (1996) who proposed two sub-groups of paranoia; persecution (bad me) paranoia and punishment (bad me) paranoia. The background of this model included the work of Zigler & Glick (1988) who suggested a connection between paranoia and depression. It was proposed that paranoia serves as a defence against low self-esteem and that certain forms of paranoid schizophrenia might be a defended depression. This theory could account for how paranoia either emerges or persists. Although core evaluative beliefs may arise from early experiences, later experiences (including life events) may influence the maintenance of certain delusional beliefs and the development of new ones. The current project aimed to explore such influences.

The paranoid belief of ‘poor me’ or persecution paranoia is characterised by a tendency to blame others and a tendency to see the self as a victim. Such beliefs are proposed to arise when the person receives some perceived injustice, such as being ignored, rejected or not being appreciated. A person with such beliefs is disposed to
experience the self as insecure. ‘Poor me’ beliefs result from the search of recognition of a grandiose self by the other. Social difficulties such as a lack of social support, or life events associated with specific psychological consequences, could therefore be proposed to relate to such beliefs. However, the issue of independence of life events from the dependent variable (the delusion) is extremely important here. For instance, the reduced personal responsibility associated with blaming others for one’s own lack of success, may be associated with certain negative life events, due at least partly to the behaviour of the individual.

‘Bad me’, punishment paranoia is associated with a tendency to blame the self and a view that others are justifiably punishing the sufferer. ‘Bad me’ paranoia and associated beliefs of worthlessness come from ego disturbances, in which the person receives disapproval or criticism. The fear is not of an absent other, but of an intrusive and controlling one. Related experiences may therefore include life events perceived to be humiliating or intrusive. Although this current project did not explore these two proposed models of paranoia, specific life events were investigated in relation to two elements of paranoia; delusions of persecution (e.g. conspiracy) and delusions of reference (e.g. being spied on), with these models in mind. Delusions of persecution were explored in the more general sense, regardless of the evaluative beliefs associated with the more specific ‘poor me’ persecution paranoia described by Chadwick, Birchwood & Trower (1996).
Evidence of the stress-delusional theme link

This present study investigating the stress-delusional theme link via the investigation of life events, delusions, and relapse of psychosis, is supported by studies demonstrating matches between individual experience, and certain delusional themes. Some of these accounts are likely to reflect links between enduring cognitive styles, personality characteristics, cultural factors and delusional themes. Others appear to demonstrate specific links between objective experiences and themes of delusional ideation. These appear to suggest some mechanism whereby delusions are transmitted socially.

Ey (1955, cited in Arthur, 1964) suggests that salient themes of delusions reflect common themes of subjective experience. Forgus & DeWolfe (1974) provided evidence that dominant themes contained in delusions match dominant themes used in the construction of that person’s reality. This study categorised delusions in terms of 4 themes; self, competence, sex and interpersonal. These 4 themes could be either positive or negative and either motive (personal definition of goals) or ‘press’ (perception of environmental forces related to goal). For instance, an example of a ‘positive self-press’ delusional theme would be “The Lord told me that I was going all over the world doing his work”. In addition, the ‘Logical Consequences Test’ was administered in order to obtain indices of the subjects’ perception of causality that was independent of the spontaneously expressed delusions. The reality constructs obtained on the Logical Consequences Test were significantly correlated with the dominant delusional themes, supporting the notion of cognitive congruence.
However, there were some methodological problems with this study regarding the reliability of the scoring and categorisation procedures.

Mirowsky (1985) conducted a questionnaire survey in companion cities on opposite sides of the border separating Mexico and the United States. Social and cross-cultural psychiatric research had suggested two components of mental illness: a) an organic dysfunction producing manifestations similar in all human groups; and b) thematic aspects reflecting conditions of life and cultural orientations of a particular group, thus producing variation across groups. The survey, of random residents of the two cities, sought to investigate any relationship between these components. Relationships between psychotic symptoms such as thought problems, hallucinations and delusions (presumed to be universal manifestations of underlying organic dysfunction) and mistrust (presumed to be a thematic element of group culture) were assessed. The results found were consistent with the hypothesis that mistrust interacts with thought problems and hallucinations in the development of paranoid beliefs. Although this research suggested an influence of cultural conditions on the nature of psychotic symptoms, it is feasible that the researchers’ assessment of ‘mistrust’ merely reflected mild paranoid delusional ideation, confounding with the paranoid beliefs they were shown to be associated with.

Both Forgus & DeWolfe (1974) and Mirowsky (1985) have provided evidence of a relationship between enduring cognitive styles and delusional content. Such evidence appears to weaken the argument proposed in the current study, concerning links between recent life experiences and the development, or maintenance of delusional
themes. However, over a period of time, life experiences may influence such cognitive patterns, although Mirowsky's (1985) discussion of cultural factors suggests that changes of any magnitude may be extremely limited, even over many years.

Evidence of the impact of recent life experiences on delusional themes was provided by Kaffman (1981) who investigated the 'core of truth behind the delusional system' in a group of 34 patients with paranoid disorder. Without exception, during the course of therapy, the existence of clear realistic connections between the paranoid premises and facts and events in past and present objective experience were revealed. It was suggested that patients may well react to events relevant to their paranoid system with focused attention, sensitisation, distortion, and misinterpretation, but that this does not contradict the irrefutable fact of an objective basis to their claims. While this paper appears to indicate striking connections between delusional ideation and life experiences, the conclusions were drawn entirely from observation of clinical material. The current project aims to investigate these connections, using a well controlled, systematic research design.

A parallel study by Beighley, Brown & Thompson (1992) investigated the rare discharge diagnosis of 'Brief reactive psychosis' in a large population of young Air Force recruits. The authors stated that: 'trainees are constantly watched and are afforded minimal privacy. The development of paranoid symptoms in this context is not surprising and may say little about brief reactive psychosis as a diagnostic entity'. This congruence between objective reality and delusional ideation again suggests a
social element in the development of particular symptoms (namely paranoia). Such brief and reactive conditions may be associated with different aetiological patterns when compared with more ‘chronic’ disorders such as schizophrenia, although there is a dearth of research in this area. Given the potential influence of the social environment on symptom patterns, the symptom-focused approach to life events research is an interesting one.

More recently, Yorston (1997) described an account of depressive delusions following the landslide general election defeat of the Conservative Party in 1997. He began to believe that because of the Labour victory, his investments were worthless and his business was going to fail. He believed his wife and daughter should kill themselves to avoid the shame of penury. This account indicates that a particular event (a change of government) was appraised in a certain way (presumably dread and disappointment relating to political beliefs). The subsequent development of particular delusional beliefs appears to relate thematically with the initial appraisal of the event itself. However, the LEDS-2 life event schedule would be unlikely to include a change of government as a contextually threatening life event unless there were particular demonstrable circumstances involving real or potential objective threat.

In summary, there is evidence of thematic links between delusions and both enduring traits, as well as more recent experiences. However, this evidence is scarce and has often taken the form of individual case studies. This current study investigating links
between themes of life events, themes of delusions, and relapse of psychosis, aimed to
explore this area further.

Treatment implications of the present study

Kingdon & Turkington (1991) proposed that conceptualisations of psychotic
symptoms in terms of a continuum from normality may have the effect of
‘normalising’ interpretations of psychotic symptoms. For example, making links
between culturally acceptable beliefs and delusional beliefs explicit, may destigmatise
the psychotic beliefs to patients and their families. Normalising psychopathology by
showing the role of stress (including life events) in the onset of symptoms has been
demonstrated to be helpful therapeutically.

The work by Chadwick, Birchwood & Trower (1996) suggesting that paranoia can be
associated with either ‘punishment’ or ‘persecution’ evaluations has promoted the
development of a specific mode of cognitive therapy for ‘punishment paranoia’
(Chadwick and Trower, 1996). This study reported a reduction, following cognitive
therapy, in the conviction of two specific paranoid delusions held by one patient. This
paper stressed the therapeutic importance of addressing a person’s low self-esteem or
negative self-evaluation. Clearly, careful assessment of how delusional ideation may
be associated with evaluations of the self and others should aid this process. Social
factors such as life events, social support and expressed emotion may provide further
evidence regarding the origin and maintenance of such beliefs.
Summary

Recent symptom focused models of psychosis would suggest that the next logical step in life events research is to investigate the relationship between life events and certain types of symptoms. These ideas, along with evidence suggesting stress-delusional theme links, and evidence of a quantitative relationships between life events and psychosis, have formed the basis of this research, which aimed to investigate relationships between life events, themes of delusions, and relapse.

Aims of the present study

The aim of this study was to explore potential inter-relationships between life events, delusional themes, and relapse of psychosis. The new areas of research that were examined were the multidimensional aspects of delusional ideation and the symptom focused approach to life events research. It was proposed that life events may be one factor in relapse, where symptoms such as delusions are triggered, possibly resulting in relapse of illness. The specific research hypotheses addressed by this study were as follows:
Research hypotheses

1. Life events and relapse

The types and frequency of life events in the year prior to psychotic relapse in individuals who had relapsed, were compared with those life events in the year before interview, in participants who had not relapsed. It was predicted that there would be a greater frequency of life events prior to relapse, than during corresponding time periods in individuals who had not relapsed. Furthermore, this hypothesis should hold true when only independent events (events unlikely to be influenced by the individual’s behaviour) were investigated. In terms of types of life events, it was also predicted that events associated with the psychologically threatening themes of loss, danger, humiliation/entrapment and intrusion would be more common in the relapsed group. The groups were also compared in terms of the contextual threat ratings of events. Although higher frequencies of life events were predicted in the relapsed group, in comparative terms, no differences were expected between the groups regarding threat ratings, as research suggests that psychosis is vulnerable to even mildly threatening events. Finally, the focus of events (e.g. focused on the self, or on another) was explored. This part of the analysis was exploratory and prior predictions were not made.
2.  *Relapse and delusions*

This section focused on the question of whether relapsed and non-relapsed participants could be differentiated in terms of the presence, or absence of delusional themes. Further, the groups were compared on multidimensional measures of delusional beliefs, such as life-time occurrence of particular beliefs and their *current* associated conviction, preoccupation and distress. Such ‘symptom focused’ investigation may further elucidate the nature of, or meaningfulness of the concept of ‘relapse’ in psychosis, in the face of evidence for the continuum of psychotic symptoms.

3.  *Life events and delusions*

Specific relationships between different themes of life events (such as those associated with humiliation, loss, danger, or intrusion) and persecutory, grandiose, reference and depressive delusions were explored. The proposed pathway was that life events ‘trigger’ delusions (and other symptoms), perhaps resulting in relapse of psychosis. It was expected that individuals experiencing life events associated with negative psychological consequences would be more likely to have delusions and would therefore be more likely to relapse. This section was exploratory and no predictions were made. However, it was expected that there would be thematic links between delusions and life events. This preliminary qualitative investigation also attempted to
categorise delusions and life events that may be of particular significance. This may provide information for the future development of a more complex causal model.
CHAPTER TWO: METHOD

Overview

The aim of this study was to explore relationships between types of life events, delusional beliefs and psychotic relapse. Participants had experienced at least one psychotic episode during the period of between one and five years prior to interview. All participants were classified into one of two groups, according to whether they had suffered from a psychotic relapse during the year prior to interview. Later analyses classified participants according to the presence or absence of certain delusional themes. In order to investigate potential antecedent life events, those participants who had relapsed in the previous year were asked about life events in the year prior to relapse. The control group, i.e. those participants who were in the non-relapsed group, were asked about life events in the year prior to interview. Similarly, relapsed participants were asked about delusional beliefs during their relapse, whilst the control group were asked about delusional beliefs at the time of interview. A measure of the life-time occurrence delusional ideas and current multidimensional aspects of these beliefs was administered to all participants at the time of interview.

Design

This study was cross sectional in design, investigating relationships between life events, delusional beliefs and relapse of psychosis. Sub-groups of participants were identified in terms of relapse, or in terms of the presence or absence of certain delusional themes. These groups were compared in terms of frequencies and types of
certain life events. The independent variables were the grouping variables (relapsed/non-relapsed, presence/absence of certain delusional themes). The dependent variables were the presence and the frequency of certain life events.

Participants

The inclusion criteria were:

1) Evidence of a first psychotic episode with the presence of delusions during the period of between one to five years prior to interview.

2) Aged between 16 and 65.

The exclusion criteria were:

1) Evidence (either from medical notes or interview) of gross organic pathology.

2) Moderate or severe learning disability, or severe thought or language disorder preventing assessment.

The sample were recruited from 2 sites: the Bethlem & Maudsley Hospital Trust and from St Mary’s Hospital, Paddington, London. The Bethlem & Maudsley sample were recruited from 48 participants initially recruited to a research PhD project, which was set up to investigate life events and delusions in first onset psychosis. At the time of interviewing for this project, these participants had experienced their first psychotic
episode between two and four years prior to interview. Due to a high attrition rate at follow-up in this sample, participants were additionally recruited from St Mary’s.

Attempts were made to select a random group of participants from St Mary’s. However, considering the specificity of the inclusion criteria, which excluded people with a history of psychosis longer than five years, such attempts were unsuccessful. This sample was therefore recruited by asking clinicians for referrals. Provided that they fulfilled the inclusion criteria, patients were approached unless clinicians had advised against making contact.

For both sites, local ethical approval was obtained (see appendix 1). Consultant Psychiatrists’ written approval to approach potential participants was obtained. Key-workers of patients were then contacted in order to ask about the advisability and most appropriate way of approaching specific patients. Two other researchers who had interviewed the Maudsley & Bethlem sample were also asked for any information relevant to potential interviews.

**Grouping participants and dating psychotic episodes**

The first decision to be made with each participant was whether the person had suffered a ‘relapse’ of psychosis with delusions at any point during the year prior to interview. This decision was reached using an adapted ‘relapse schedule’ (Bebbington, personal communication) (see appendix 4). The first four items on the relapse schedule were used, with the additional criterion that delusions were required
to be part of the identified relapse. The relapse items included hospitalisation due to worsening of psychotic symptoms and the re-emergence of florid psychotic symptoms lasting seven days or more. Factors such as social impairment and changes in management strategies such as medication were also explored in order to aid the decision. Information regarding relapse factors was obtained by speaking with clinicians and by reviewing the medical notes prior to interview, and by questioning the participant about these factors at the beginning of each interview.

Birley & Brown (1970) defined three types of change in symptoms: 1) from 'normality' and 2) from non-schizophrenic symptoms, and 3) from 'mild' to 'severe' schizophrenic symptoms. The determination of onset of psychosis is not simple and Bebbington et al. (1993), proposed two alternatives; 1) dating from the emergence of psychotic symptoms or 2) dating from the development of neurotic symptoms. It was suggested that the former neglects the possibility that prodromal neurotic symptoms are part of the psychotic process and the latter assumes uncritically that they are. The Bebbington et al. (1993) first onset study chose the former procedure and the same procedure is used in this project. The main interest in this study was the development or exacerbation of psychotic symptoms (namely delusions) and the life events preceding them. In this group of patients who had already suffered from at least one psychotic episode, it was felt that to use the strict criteria of the emergence of psychotic symptoms from a state of no psychotic symptoms would yield a very small proportion of 'relapsed' patients, and in any case, the continuum of such symptoms would make such decisions almost impossible to make in many cases.
In practice, many subjects were unable to recall the type and severity of symptoms in detail and clinical judgements were made, which may have reduced the validity of the groupings. Patients who appeared to display consistently high levels of psychotic symptoms during the past year ('chronic' cases) were excluded due to the difficulty in establishing antecedent life events in these cases. When the dating of relapse could not be made accurately by within one month, these cases were also excluded due to the resulting difficulties when assessing antecedent life events. The following method was used for grouping participants:

'Relapsed' group

When patients had fulfilled the criteria for relapse on more than one discrete occasion during the previous year, the first relapse was used. This was in order to ensure that the 'relapsed' group were as homogeneous as possible in terms of the stage in their illness.

'Non-relapsed' group

Patients who did not fulfil the criteria for relapse during the past year made up this group.
Response rate

In total, 74 people were identified as potentially suitable for the study and were invited to take part. Of these, 2 (2.7 per cent) were excluded after discussions with key-workers, as they had displayed high levels of psychotic symptoms during the past year. This would have caused difficulties in the assessment of antecedent life events. 17 (23.0 per cent) could not be successfully contacted, 12 (16.2 per cent) refused, 4 (5.4 per cent) did not attend previously arranged appointments, 2 (2.7 per cent) had moved out the area, and in 4 cases (5.4 per cent), the professionals involved advised against contacting these individuals, as they were very unwell during the interviewing period. Of the target sample of 74, only 33 (44.6 per cent) individuals were successfully interviewed. There were no significant differences between those who participated and those who did not, in terms of age (t=0.236, d.f.=72, n.s.) or gender ($\chi^2=0.20$, d.f.=1, n.s.).

Socio-demographic data

The Life Events and Difficulties (LEDS-2) semi-structured interview was used to collect this information (see appendix 5). Variables included age, marital status, accommodation and living arrangements, ethnicity, religious denomination, family history, living arrangements and ratings of intimate, confiding relationships.

Of the total number of participants in this study (n=33), 21 (63.6 per cent) were male and 12 (36.4 per cent) were female. Table 1 shows that 20 of the participants (60.6
per cent) had relapsed in the previous year, whereas 13 (39.4 per cent) had not, making up two experimental groups. In the relapsed group, the relapse had occurred between 2 and 40 weeks prior to interview with a mean of 18.6 weeks and a standard deviation of 11.70. The mean age of the total sample was 32.39 (SD=11.06, range 19-60). The mean age of the relapsed group was 32.15 (SD=11.86) and the mean age of the non-relapsed group was 32.77 (SD=10.22). This difference was not significant (t=0.155, d.f.=31, n.s.). 15 of the relapsed group (75.0 per cent) were male, whereas only 6 of the non-relapsed group (46.2 per cent) were male. This gender difference was not significant ($\chi^2=2.83$, d.f.=1, n.s.).

Table 1 displays data on ethnic origin, marital status, religion and living status. The largest ethnic group represented was white European. 3 participants did not belong to the major ethnic groups described, and these mainly consisted of participants with mixed ethnicity. There were no significant differences between relapsed and non-relapsed groups regarding ethnic origin ($\chi^2=9.27$, d.f.=4, n.s.).

The majority of participants were single, with the remainder being married, divorced or separated. Differences between the groups on marital status were not significant ($\chi^2=3.64$, d.f.=3, n.s.). Additionally, there was no significant difference between the groups regarding living status ($\chi^2=6.35$, d.f.=4, n.s.). There was a broad representation of religious denominations. The largest group was Roman Catholic, but 8 participants did not classify themselves as belonging to any religious group. Differences between the groups regarding religion approached significance ($\chi^2=8.99$, d.f.=4, P<.07), probably because there were a greater proportion of Roman Catholics
in the relapsed group and a greater proportion of the non-relapsed group did not belong to any religious group. However, these comparisons included small numbers, resulting in very low statistical power. The small numbers in many of the cells involved in these comparisons, resulted in very low statistical power. Therefore, although it seems unlikely that the groups differed significantly on socio-demographic variables, interpretations of these statistical comparisons must be treated with caution.

In terms of DSM IV diagnosis, two-thirds of participants were diagnosed with schizophrenia. Other diagnoses represented were bi-polar affective disorder, schizo-affective disorder and psychotic depression. 4 participants had no recorded diagnosis. Often in these cases, participants had a very short and recent psychiatric history, with only one previous psychotic episode. There was no significant difference between relapsed and non-relapsed participants regarding diagnosis ($\chi^2=1.91$, d.f.=4, n.s.).
Table 1: Socio-demographic characteristics of the total sample

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<th>Relapsed</th>
<th>Non-relapsed</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td><strong>Ethnic Origin</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White UK/Irish</td>
<td>14 (70.0%)</td>
<td>7 (53.8%)</td>
<td>21 (63.6%)</td>
</tr>
<tr>
<td>Black Afro-Caribbean</td>
<td>4 (20.0%)</td>
<td>0 (0%)</td>
<td>4 (12.1%)</td>
</tr>
<tr>
<td>Black British</td>
<td>0 (0%)</td>
<td>1 (7.7%)</td>
<td>1 (3.0%)</td>
</tr>
<tr>
<td>Asian</td>
<td>2 (10%)</td>
<td>2 (15.4%)</td>
<td>4 (12.1%)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0%)</td>
<td>3 (23.1%)</td>
<td>3 (9.1%)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>2 (10.0%)</td>
<td>0 (0%)</td>
<td>2 (6.1%)</td>
</tr>
<tr>
<td>Divorced</td>
<td>1 (5.0%)</td>
<td>3 (23.1%)</td>
<td>4 (12.1%)</td>
</tr>
<tr>
<td>Separated</td>
<td>1 (5.0%)</td>
<td>1 (7.7%)</td>
<td>2 (6.1%)</td>
</tr>
<tr>
<td>Single</td>
<td>16 (80.0%)</td>
<td>9 (69.2%)</td>
<td>25 (75.8%)</td>
</tr>
<tr>
<td><strong>Living Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alone</td>
<td>8 (40.0%)</td>
<td>3 (23.1%)</td>
<td>11 (33.3%)</td>
</tr>
<tr>
<td>Partner and/or children</td>
<td>2 (10.0%)</td>
<td>3 (23.1%)</td>
<td>5 (15.2%)</td>
</tr>
<tr>
<td>Parents</td>
<td>8 (40.0%)</td>
<td>3 (23.1%)</td>
<td>11 (33.3%)</td>
</tr>
<tr>
<td>Friend/s</td>
<td>1 (5.0%)</td>
<td>0 (0%)</td>
<td>1 (3.0%)</td>
</tr>
<tr>
<td>Hostel/ temporary</td>
<td>1 (5.0%)</td>
<td>4 (30.8%)</td>
<td>5 (15.2%)</td>
</tr>
<tr>
<td>accommodation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Church of England</td>
<td>4 (20.0%)</td>
<td>2 (15.4%)</td>
<td>6 (18.2%)</td>
</tr>
<tr>
<td>Roman Catholic</td>
<td>9 (45.0%)</td>
<td>1 (7.7%)</td>
<td>10 (30.3%)</td>
</tr>
<tr>
<td>Muslim</td>
<td>1 (5.0%)</td>
<td>2 (15.4%)</td>
<td>3 (9.1%)</td>
</tr>
<tr>
<td>Other</td>
<td>4 (20.0%)</td>
<td>2 (15.4%)</td>
<td>6 (18.2%)</td>
</tr>
<tr>
<td>None</td>
<td>2 (10.0%)</td>
<td>6 (46.2%)</td>
<td>8 (24.2%)</td>
</tr>
</tbody>
</table>
Chapter Two: Method

Measures

*Bedford College Life Events and Difficulties Schedule (LEDS-2)*

The LEDS-2 is a semi-structured interview method used to elicit, record and date the occurrence of life events and difficulties (Bifulco *et al*., 1989). This method has been demonstrated to be reliable and valid. Inter-rater reliability of the LEDS-2 is estimated at 80 per cent and is acceptable even after brief training of raters (Tennant *et al*., 1979). Furthermore, 81 per cent agreement between schizophrenic patients and their relatives has been reported for whether or not particular life events took place (Brown & Birley, 1968). This suggests that the measure is appropriate and reliable for use with psychotic populations and that external confirmation of events should not be a priority. This project will investigate life events only and will make no attempt to explore longer term difficulties.

Life events were assessed for the year previous to relapse in the ‘relapsed’ group, and in the year prior to interview in the ‘non-relapsed’ group. This period was used because the literature on psychosis and life events (Bebbington *et al*., 1993, Brown *et al*., 1973) suggests that in first onset, six months easily covers the time before onset in which events might have causal relevance. One year was used to allow for the potential effect of a longer time scale being relevant in later psychotic episodes. Where dating was not immediately clear, an attempt to relate events to anchor dates such as public holidays and birthdays was often helpful. Where there was still doubt about the dating of events, a range of uncertainty was recorded and the midpoint was taken (Brown *et al*., 1973).
After the history of events was elicited, ratings were then made according to the technique developed by Brown & Harris (1978). I had previously been trained by the original authors in the reliable use of the rating system. For purposes of reliability, the early event ratings made following training, and unusual or idiosyncratic events were presented to other researchers trained in the method, at monthly ‘consensus’ meetings at Bedford College.

It is possible that patients may exaggerate the significance of events as a means of explaining the illness. Bartlett (1932) called this tendency ‘effort after meaning’ and if not controlled, it may increase the number of events reported. Bell (1971) pointed out that the recall of ‘hard facts’ is far better than attitudinal material and that inaccuracies tend to consist of omissions rather than fabrications or confabulations. However, Brown et al. (1973) suggested that the ‘attitudinal’ or emotional component should not be underestimated. The method aims to reduce the distortion of such factors by the rating of ‘contextual threat’; criteria are used that are based on a judgement that the event would be emotionally important for most people. This method therefore provides a minimal estimate of the role of events in the onset and development of psychiatric conditions. Evidence of a recall bias in subjects suffering from persecutory delusions, towards threatening material (Kaney et al., 1992) should however be considered.

Changes happening to the participant failing to reach the inclusion threshold for events are termed ‘incidents’. Some of these are occurrences that are simply not considered serious enough (e.g. illness of a pet), others are serious, but happen to
people outside the strict close network identified in the LEDS-2 (e.g. grandparents who are not household members). Life events elicited by the LEDS-2 were rated on the following scales (see appendix 6):

1) Date of event
2) Event classification (education, work, housing etc.)
3) Temporal status of event (actual change, decisions, forecasts of change, revelations)
4) Illness related status of event (from current or previous psychotic episodes)
5) Independence of event (from hypothetical disorder)
6) Focus of event (subject, other etc.)
7) Threat (contextual and reported as well as short-term and long-term)

A four-point scale (Brown & Harris, 1978) was used to rate the threat the average person would see in the event (contextual threat): 1, marked threat; 2, moderate; 3, mild; and 4, no threat. The threat was rated in the short-term (first few days after event) and long-term (10-14 days after start of event). Reported threat was also rated as a means to recording the participants actual response to the event and style of reporting it.

The degree to which events were 'independent' from illness related behaviour was rated using two scales designed to help deal with the possibility of 'prodromal' influences. The first, 'illness-related' scale, concerns whether the event is known to be related to the actual illness i.e. the psychotic episode. For instance, one participant
had an argument with his parents after he began to believe that they were untrustworthy and had been lying to him. He then refused to speak to them for a few weeks. This was clearly related to the emergence of persecutory beliefs that were associated with a psychotic episode and a subsequent hospital admission. After discharge from hospital, he again began talking to his parents and was much less certain of the prior beliefs that lead to the original argument. This event was rated ‘definitely illness related, current episode’. Such events, as well as those definitely related to previous episodes will be excluded from analysis in this study.

The second independence scale is more subtle and concerns ‘independence’ of a hypothetical disorder. This scale assumes that every subject is psychotic before the occurrence of every event. This rating of independence is designed to judge the likelihood of the event being independent of the influence of such a hypothetical disorder. For instance, one participant’s brother fell off a ladder and broke his arm. The LEDS-2 manual argues that accidents may not be as completely independent as they seem when occurring to others in the household. This argument followed an association found between accidents to children even outside the mother’s immediate care and recent previous onset of depression in the mother (Brown & Davidson, 1978). The above example would therefore be rated as ‘possible influence from S, but unlikely’. This rigorous technique allows for the possibility that illness-related behaviour could bring about certain life events. Independent and possibly independent events will be considered separately in the analysis.
Additional scales were used to further classify events in terms of their likely psychological impact. These scales can only be used for those events rated ‘1-marked’ or ‘2-moderate’ on long-term contextual threat. These scales were loss (e.g. deaths, separations, loss of employment or health), danger (e.g. potential loss by death, separation or health), humiliation/entrapment (e.g. put downs) and intrusiveness (e.g. interference and attempted control of the participant by others).

Schedules for Clinical Assessment in Neuropsychiatry (SCAN): Delusions scale

Delusions were measured using the ‘delusions’ scale of the SCAN (Wing et al., 1990). I was trained to use this scale appropriately by a Psychiatrist who had been comprehensively trained to administer the tool. The SCAN has proved to be both reliable and valid for a wide range of psychiatric conditions (Wing, 1996). The ‘relapsed’ group were asked about their beliefs during the identified relapse, and the ‘non-relapsed’ group were asked about their beliefs currently, at the time of interview. Themes of delusions assessed were: persecutory, reference, grandiose and depressive (i.e. delusions of guilt or catastrophe in context of depression). These delusional themes were chosen as they are common themes of delusional experience. Also, many of the theories about the development of delusional beliefs concern these themes. Ratings of severity were as follows:

0  Positive rating of absence.

1  Symptom definitely occurred but probably uncommon or transitory.

2  Symptom definitely present, on multiple occasions or for part of the time.

3  Symptom present more or less continuously.
8 Unsure whether symptom is present or absent.
9 Information needed to rate is incomplete

*The Peters et al. Delusions Inventory (PDI)*

In order to investigate delusional beliefs in all participants, the Peters *et al.* Delusions Inventory (Peters *et al.*, in press) (see appendix 7) was also administered at interview. The inventory was used as a semi-structured interview, rather than as a self-rating questionnaire. Questions regarding the occurrence of particular delusional ideas were introduced by asking 'have you ever...', for instance ‘Have you ever felt as if someone is deliberately trying to harm you’. This was in order to assess the *lifetime* occurrence of delusional beliefs, regardless of whether participants had relapsed in the past year, and regardless of current mental state. The inventory also measures the degree of delusional ideation in terms of conviction, preoccupation and distress. These scales were used in order to determine multi-dimensional aspects of *current* delusional ideation, e.g. “how distressed does that make you feel now?”.

**Procedures**

Prior to contacting potential participants, medical notes were reviewed in order to assess whether the person had experienced a psychotic relapse within the previous year. Key-workers were also asked about this in order to gain further information.
Chapter Two: Method

The first contact with potential participants was by letter, or via key-workers or other professionals. Interviews were arranged by letter or telephone. Most participants were interviewed in service settings such as clinics, day centres or in-patient units, although a small proportion were interviewed in their own homes. Each interview was between 60 and 90 minutes long. The purpose of the study was explained, the information sheet was presented (see appendix 2) and participants were given the opportunity to ask questions. Individuals were then invited to give written consent to participate (see appendix 3).

Firstly, participants were interviewed regarding socio-demographic information. They were then asked about their mental health, and level of professional input from services during the previous year, in order to clarify whether they had fulfilled the criteria for relapse during this time. Using this information in addition to information collected previously regarding relapse, they were then interviewed about life events in either the year prior to interview (non-relapsed group) or the year prior to relapse (relapsed group). They were then asked about delusional beliefs (using the SCAN), either during relapse (relapsed group) or currently (non-relapsed group). Finally, the PDI questionnaire assessing the life-time occurrence of delusional beliefs and current multidimensional aspects of these was administered to all participants.
CHAPTER THREE: RESULTS

Overview

This chapter will report the main findings of this study with regard to the research questions. Firstly, I will present descriptive data for the total sample relating to 1) life events, 2) intimacy context ratings and 3) delusional beliefs. Secondly, I will report the main statistical analysis relating to the three main research questions.

Descriptive data: total sample

1) LIFE EVENTS: The Life Events and Difficulties Schedule (LEDS-2)

*Reported (subjective) and contextual (objective) threat ratings*

Of the total 116 life events reported by participants in this study, in only seven cases (6 per cent) was there a discrepancy between the reported short-term (subjective) threat and the contextual (objective) threat. ‘Short-term’ threat refers to the peak threat in the first few days after the start of the event. In four cases, (3.4 per cent), the contextual threat was higher than the reported threat, whereas in three cases (2.6 per cent) the reported threat was higher. The agreement between contextual and reported ratings of threat was highly significant (kappa >.9, p<.001). All further analysis of life events will therefore concern contextual ratings only.
Life event frequencies

Table 2 displays the mean frequencies of all life events and all independent life events (those unlikely to be influenced by hypothetical disorder) reported for the 0-12 months prior to relapse/interview. Mean frequencies of events and independent events reported for the 0-3, and 4-6 month periods prior to relapse/interview are also displayed. Finally, the mean frequency of events associated with short-term marked or moderate threat during the 0-12 month period is shown.

The total number of life events for the 0-3 month period and the total number of short term (ST) marked/moderate events for the 0-12 month period were the only continuous life event variables considered here that conformed to the normal distribution. The other variables were negatively skewed, with the majority of participants reporting fewer than two events in each category. These skewed variables were transformed by using square-root values to normalise them before any statistical analyses were performed.
Table 2: Life event frequencies

<table>
<thead>
<tr>
<th>Event Type</th>
<th>M (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample: N=33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All life events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-12 months</td>
<td>3.51 (2.61)</td>
<td>0-12</td>
</tr>
<tr>
<td>0-3 months</td>
<td>1.45 (1.39)</td>
<td>0-5</td>
</tr>
<tr>
<td>4-6 months</td>
<td>0.758 (1.00)</td>
<td>0-4</td>
</tr>
<tr>
<td>0-12 months: marked/mod ST threat</td>
<td>1.52 (1.50)</td>
<td>0-5</td>
</tr>
<tr>
<td>Independent life events</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-12 months</td>
<td>2.21 (2.10)</td>
<td>0-9</td>
</tr>
<tr>
<td>0-3 months</td>
<td>1.09 (1.18)</td>
<td>0-4</td>
</tr>
<tr>
<td>4-6 months</td>
<td>0.333 (0.646)</td>
<td>0-3</td>
</tr>
</tbody>
</table>

^ Variable does not conform to the normal distribution

Table 3 shows the proportions of the total sample reporting at least one life event for different time periods. The majority of participants (90.9 per cent) reported at least one event and at least one independent event (81.8 per cent) during the 0-12 month period. Approximately two-thirds of all participants reported at least one event/one independent event for the 0-3 month period. Life events for the 4-6 month period were reported at lower frequencies, with less than one-half of all participants reporting an event during this period and less than one-third reporting an independent event for the same time period. These proportions reflect the low frequencies of events reported for this time period (displayed in table 2).

Table 3: Proportions of participants reporting life events

<table>
<thead>
<tr>
<th>Event Type</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample: N=33</td>
<td></td>
</tr>
<tr>
<td>&gt;1 event (0-12 months)</td>
<td>30/33 (90.9%)</td>
</tr>
<tr>
<td>&gt;1 independent event (0-12 months)</td>
<td>27/33 (81.8%)</td>
</tr>
<tr>
<td>&gt;1 event (0-3 months)</td>
<td>23/33 (69.7%)</td>
</tr>
<tr>
<td>&gt;1 independent event (0-3 months)</td>
<td>20/33 (60.6%)</td>
</tr>
<tr>
<td>&gt;1 event (4-6 months)</td>
<td>16/33 (48.5%)</td>
</tr>
<tr>
<td>&gt;1 independent event (4-6 months)</td>
<td>9/33 (27.3%)</td>
</tr>
</tbody>
</table>
Themes of life events

Table 4 shows proportions of the total sample who reported life events associated with themes of loss, danger, humiliation/entrapment and intrusion. Using the Brown & Harris (1978) method, these life event dimensions can only be rated for events that are associated with marked or moderate contextual threat in the long-term (10-14 days after event). The least common type of life event was associated with humiliation or entrapment, with only two participants reporting such an event. Only six participants described an intrusive event. Events associated with ‘loss’ and ‘danger’ were more frequently reported, with approximately one-third of participants reporting each of these event themes. Proportions of participants reporting independent events (those unlikely to be influenced by hypothetical disorder) associated with these themes were lower, but reflected a similar pattern to that described above.

<table>
<thead>
<tr>
<th>Life event theme</th>
<th>Total sample: N=33 All events</th>
<th>Independent events only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss</td>
<td>11/33 (33.3%)</td>
<td>7/33 (21.2%)</td>
</tr>
<tr>
<td>Humiliating/entrapping</td>
<td>2/33 (6.1%)</td>
<td>1/33 (3.0%)</td>
</tr>
<tr>
<td>Intrusive</td>
<td>6/33 (18.2%)</td>
<td>4/33 (12.1%)</td>
</tr>
<tr>
<td>Danger</td>
<td>10/33 (30.3%)</td>
<td>6/33 (18.2%)</td>
</tr>
</tbody>
</table>
Life event domains

Table 5 shows the domain classifications of all events reported by the total sample. The most commonly reported event domain category was that of ‘other relationships’. This domain concerns all relationships other than those related to partners/spouses. 22 of these events were reported and over 40 per cent of participants reported at least one such event. Other frequently reported events included those related to housing, health and marital/partner relationships. The least commonly reported event domain was that of education, with only five of these events reported. Less than 10 per cent of the sample reported an event in this domain category.
Table 5: Life event domains

<table>
<thead>
<tr>
<th>Event domain</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>30/33 (90.9%)</td>
<td>2/33 (6.1%)</td>
<td>0/33 (0%)</td>
<td>1/33 (3.0%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>5</td>
</tr>
<tr>
<td>Work</td>
<td>26/33 (78.8%)</td>
<td>5/33 (15.2%)</td>
<td>1/33 (3.0%)</td>
<td>0/33 (0%)</td>
<td>1/33 (3.0%)</td>
<td>0/33 (0%)</td>
<td>11</td>
</tr>
<tr>
<td>Reproduction</td>
<td>27/33 (81.8%)</td>
<td>5/33 (15.2%)</td>
<td>1/33 (3.0%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>7</td>
</tr>
<tr>
<td>Housing</td>
<td>23/33 (69.7%)</td>
<td>7/33 (21.2%)</td>
<td>2/33 (6.1%)</td>
<td>1/33 (3.0%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>14</td>
</tr>
<tr>
<td>Money/possessions</td>
<td>30/33 (90.9%)</td>
<td>2/33 (6.1%)</td>
<td>1/33 (3.0%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>4</td>
</tr>
<tr>
<td>Crime/legal</td>
<td>27/33 (81.8%)</td>
<td>4/33 (12.1%)</td>
<td>2/33 (6.1%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>8</td>
</tr>
<tr>
<td>Health</td>
<td>20/33 (60.6%)</td>
<td>10/33 (30.3%)</td>
<td>2/33 (6.1%)</td>
<td>0/33 (0%)</td>
<td>1/33 (3.0%)</td>
<td>0/33 (0%)</td>
<td>18</td>
</tr>
<tr>
<td>Marital/partner relationship</td>
<td>24/33 (72.7%)</td>
<td>3/33 (9.1%)</td>
<td>2/33 (6.1%)</td>
<td>1/33 (3.0%)</td>
<td>0/33 (0%)</td>
<td>1/33 (3.0%)</td>
<td>15</td>
</tr>
<tr>
<td>Other relationships</td>
<td>19/33 (57.6%)</td>
<td>6/33 (18.2%)</td>
<td>4/33 (12.1%)</td>
<td>1/33 (3.0%)</td>
<td>0/33 (0%)</td>
<td>1/33 (3.0%)</td>
<td>22</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>25/33 (75.8%)</td>
<td>5/33 (15.2%)</td>
<td>3/33 (9.1%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>0/33 (0%)</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>116</td>
</tr>
</tbody>
</table>
**Examples of life events reported**

A selection of life events reported by the total sample will be described, along with threat and independence ratings, in order to provide wide ranging examples of how the life events were rated on the LEDS-2 measure.

1) Participant heard news that his brother had been murdered. This was in the context of the participant having sought political asylum in England 2 years previously and having lost contact with all of his family back home (including this brother) despite great efforts to contact them.

   Illness related status: 0 (not illness related)  
   Independence: 1 (totally independent)  
   Short term threat: 1 (marked)  
   Long term threat: 1 (marked)  

Although the threat rating is usually 2 (moderate) for deaths of relatives not seen frequently, murders and suicides are usually rated ‘1-marked’. This was also rated as an event associated with ‘loss’.

2) Grandmother in her late 80’s died after being ill for many months. Participant had had a very close relationship with her and had visited her almost every day over the past few months.

   Illness related status: 0 (not illness related)  
   Independence: 1 (totally independent)  
   Short term threat: 2 (moderate)  
   Long term threat: 2 (moderate)  

Deaths of grandparents are normally only included where the subject is personally involved e.g. while staying with them. However, in this case the relationship and frequency of contact warranted inclusion. However, the threat rating is only ‘2-moderate’ because of the age of the grandmother and the fact that the grandmother was not a ‘close tie’ (household member, parent, child, sibling). This also was rated as a ‘loss’ event.
3) Brother fell off ladder outside house and was taken to hospital with his mother, in an ambulance. The family were all concerned that he was seriously hurt but after 2-3 hours in Accident and Emergency, the participant was telephoned by his mother and told that his brother had only broken his arm.

Illness related status: 0 (not illness related)  Independence: 3 (possible influence by Subject but unlikely)
Short term threat: 2 (moderate)  Long term threat: 4 (little-no)

This event is rated '3- possible influence by Subject but unlikely' on hypothetical independence from disorder due to the possibility that accidents to household members may not be completely independent of psychiatric disorder in the Subject.

4) Participant received a letter from a solicitor regarding her ex-partner’s wish for access rights to their child. This was the first contact with her ex-partner since the child was born two years previously. She did not respond to the letter and two weeks later there had been no further contact from solicitor or ex-partner.

Illness related status: 0 (not illness related)  Independence: 10 (possibly independent- Subject’s love/sex events)
Short term threat: 1 (marked)  Long term threat: 2 (moderate)

Events associated with romantic partners (love/sex events) can not be rated ‘independent’ due to the subject’s potential control and choice over such events.
5) Participant decided to visit his girlfriend 400 miles away one weekend, despite previously arranging to celebrate his best friend’s birthday with him. On his return, his best friend (and main confidant) was extremely angry with the participant. They had a huge argument and did not begin to speak again for 2-3 weeks.

Illness related status- 1 (possibly illness related- no actual evidence) Independence- 8 (possibly independent- arguments/tension))
Short term threat- 3 (some) Long term threat- 3 (some)

This event was rated ‘possibly illness related’ as it occurred just a few weeks before the participant relapsed and it was possible that prodromal features of his illness were affecting his behaviour although there was no clear evidence that this was the case.

6) Participant started a new relationship with somebody who she met in a bar. The relationship had not presented any particular problems and was largely a positive event.

Illness related status- 0 (not illness related) Independence- 10 (possibly independent- Subject’s love/sex events)
Short term threat- 4 (little-no) Long term threat- 4 (little-no)

7) Participant had separated from her husband and was living with her mother. A few weeks after the separation, her husband came round to her mother’s house late at night. He had been drinking heavily and kicked the front door down. He threatened to kill the participant and their children who were also in the house. The police were called and he left relatively peacefully. The participant had not heard from him again two weeks after the incident.

Illness related status- 0 (not illness related) Independence- 10 (possibly independent- love/sex events)
Short term threat- 1 (marked) Long term threat- 2 (moderate)

This event was also rated as ‘intrusive’
2) INTIMACY CONTEXT: Life Events and Difficulties Schedule (LEDS-2)

Table 6 displays participant’s responses to the LEDS-2 intimacy context measure (see socio-demographic form: appendix 5). Only one participant described a truly intimate relationship with a partner, and one participant described a 'humdrum' relationship with a partner. Both of these participants belonged to the non-relapsed group. Four of the relapsed group (20 per cent) and three of the non-relapsed group (23.1 per cent) did not appear to have any current, truly confiding relationship. The remainder of the sample had confiding relationships with someone other than a partner, with varying degrees of face-to-face contact. Obtained frequencies in many of these categories were too small for statistical analysis to be valid. Amalgamating categories would be unlikely to produce homogenous groups for meaningful comparisons.

Table 6: LEDS-2 intimacy context ratings

<table>
<thead>
<tr>
<th>Intimacy rating</th>
<th>Relapsed N=20</th>
<th>Non-relapsed N=13</th>
<th>Total N=33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truly intimate relationship with partner</td>
<td>0 (0%)</td>
<td>1 (7.7%)</td>
<td>1 (3.0%)</td>
</tr>
<tr>
<td>'Humdrum' relationship + other confidant</td>
<td>0 (0%)</td>
<td>1 (7.7%)</td>
<td>1 (3.0%)</td>
</tr>
<tr>
<td>Other confiding rel: contact &gt;4x week</td>
<td>8 (40%)</td>
<td>3 (23.1%)</td>
<td>11 (33.3%)</td>
</tr>
<tr>
<td>Other confiding rel: contact &gt;1x week</td>
<td>6 (30%)</td>
<td>3 (23.1%)</td>
<td>9 (27.3%)</td>
</tr>
<tr>
<td>Other confiding rel: contact &lt;1x week</td>
<td>2 (10%)</td>
<td>2 (15.4%)</td>
<td>4 (12.1%)</td>
</tr>
<tr>
<td>No confidant</td>
<td>4 (20%)</td>
<td>3 (23.1%)</td>
<td>7 (21.2%)</td>
</tr>
</tbody>
</table>
3) DELUSIONAL BELIEFS: Schedules for Clinical Assessment in Neuropsychiatry (SCAN) and the Peters et al. Delusions Inventory (PDI)

Table 7 displays the proportions of the total sample who demonstrated evidence of four types of delusional theme assessed by the SCAN. The relapsed group had been asked about beliefs during relapse whereas the non-relapsed group were asked about current beliefs. Differences between the groups will be considered later. Overall, persecutory and reference delusions were the most common delusions, with over one-half of all participants presenting evidence of each of these delusional themes during the period assessed. Grandiose and depressive delusions were less common, with less than one-third of participants displaying evidence of each of these belief themes.

<table>
<thead>
<tr>
<th>Delusional theme</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grandiose</td>
<td>9/33 (27.3%)</td>
</tr>
<tr>
<td>Depressive</td>
<td>9/33 (27.3%)</td>
</tr>
<tr>
<td>Persecutory</td>
<td>18/33 (54.5%)</td>
</tr>
<tr>
<td>Reference</td>
<td>18/33 (54.5%)</td>
</tr>
</tbody>
</table>

Table 8 reports mean scores on the Peters et al. Delusions Inventory (in press) for the total sample. The mean number of items endorsed (life-time occurrence of delusional beliefs) was 11.84, with a range of 1-24, where the maximum possible score was 40. Distress, preoccupation and conviction ratings concerned current multidimensional aspects of these endorsed items. Mean scores for these sub-scales were all around 30.
Chapter Three: Results

The maximum possible score for each of these sub-scales is 200, as each of the 40 items is associated with a possible range of 1 to 5 for these dimensions i.e. 1= not at all distressing, 5= very distressing.

Table 8: Scores on the PDI

<table>
<thead>
<tr>
<th>PDI scores</th>
<th>M (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>11.84 (6.58)</td>
<td>1-24</td>
</tr>
<tr>
<td>Distress</td>
<td>30.34 (21.05)</td>
<td>1-72</td>
</tr>
<tr>
<td>Preoccupation</td>
<td>26.66 (17.86)</td>
<td>1-67</td>
</tr>
<tr>
<td>Conviction</td>
<td>30.91 (19.61)</td>
<td>5-81</td>
</tr>
</tbody>
</table>
Question One: Life events and relapse

*Event frequencies*

Table 9 shows that the mean frequency of total life events reported for the 0-12 months prior to interview was higher in the non-relapsed group, when compared with the 0-12 months prior to relapse in the relapsed group. This difference was not significant. However, there was a significantly higher frequency of all life events in the non-relapsed group for the 0-3 month period, compared with the relapsed group. There were also more *independent* events in the non-relapsed group, compared with the relapsed group, and this difference was significant for the 0-12 month period, but not for the 0-3 month period.

<table>
<thead>
<tr>
<th></th>
<th>Relapsed N=20</th>
<th>Non-relapsed N=13</th>
<th>t-value (d.f.)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All events</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-12 months</td>
<td>2.80 (1.82)</td>
<td>4.62 (3.28)</td>
<td>1.61 (31)</td>
<td>n.s.</td>
</tr>
<tr>
<td>0-3 months</td>
<td>1.20 (1.15)</td>
<td>1.85 (1.68)</td>
<td>2.05 (31)</td>
<td>*</td>
</tr>
</tbody>
</table>

|                |               |                    |                |      |
| **Independent events** |               |                    |                |      |
| 0-12 months    | 1.30 (1.17)   | 3.62 (2.47)        | 3.27 (31)      | *    |
| 0-3 months     | 0.75 (0.85)   | 1.62 (1.45)        | 1.67 (31)      | n.s. |

aData not normally distributed- transformed using square roots for analyses
*p <.05*
**Events associated with short-term and long-term threat**

The LEDS-2 measure allows all included life events to be rated in terms of short-term and long-term contextual threat. Short-term contextual threat rates the peak of threat/ unpleasantness associated with the event during the first few days after the start of the event. Long-term contextual threat rates the peak threat/ unpleasantness during the period of 10-14 days after the start of the event.

Table 10 shows that for the 0-12 month period, there was a higher mean frequency of events associated with little/no short-term threat in the non-relapsed group, when compared with the relapsed group, although the difference was not significant. The mean frequency of events associated with marked/moderate short-term threat was very similar for the relapsed and non-relapsed groups. Although the frequency of events associated with little/no long-term threat was higher in the non-relapsed group, the frequency of events associated with marked/moderate long-term threat was slightly higher in the relapsed group. None of these differences were statistically significant.
Table 10: Frequencies of life events associated with short term (ST) little/no threat and marked/moderate threat for the 0-12 month period

<table>
<thead>
<tr>
<th></th>
<th>Relapsed N=20</th>
<th>Non-relapsed N=13</th>
<th>t-value (d.f.)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Little/no ST threat</strong>&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.65 (0.93)</td>
<td>1.62 (2.10)</td>
<td>1.22 (18.9)</td>
<td>n.s.</td>
</tr>
<tr>
<td><strong>Marked/ mod ST threat</strong></td>
<td>1.45 (1.57)</td>
<td>1.62 (1.45)</td>
<td>0.305 (31)</td>
<td>n.s.</td>
</tr>
<tr>
<td><strong>Little/ no LT threat</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.35 (1.57)</td>
<td>2.08 (2.06)</td>
<td>0.950 (31)</td>
<td>n.s.</td>
</tr>
<tr>
<td><strong>Marked/ mod LT threat</strong>&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.05 (1.36)</td>
<td>0.769 (1.09)</td>
<td>0.726 (31)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

<sup>a</sup> Data not normally distributed- square root transformations used for analysis.
<sup>b</sup> Unequal variances figure reported

Proportions of participants reporting life events

Tables 11 and 12 show that in general, proportions of participants reporting of at least one event associated with various degrees of threat during different time periods, were similar in the relapsed and non-relapsed groups. Table 11 includes all events, whereas Table 12 displays the data pertaining to independent events only. Despite the increased frequencies of life events in the non-relapsed group (reported previously), there were few differences in terms of the reporting of at least one event in different threat and time categories. The only type of life event reported significantly more often in the non-relapsed group, was the category of events associated with little/no
long-term threat in the 0-3 month period prior to interview/relapse. However, this significant effect was not apparent when only independent events were included in the analysis (table 12).

Frequencies were very small within some of these comparisons and interpretations must be made extremely cautiously, given the reduced statistical power. However it seems that despite larger frequencies of life events in the non-relapsed group for the 0-12 and 0-3 month periods, the likelihood of experiencing at least one event associated with marked/moderate, some or little/no threat was approximately equal in these groups for these time periods. In particular, marked/moderate events were present at similar rates between the groups, whereas events with fewer threatening implications tended to be more common in the non-relapsed group.

Tables 11 and 12 also show percentages of participants reporting events rated marked/moderate and some threat during the 0-3 month and 4-6 month periods prior to schizophrenic relapse in the Bebbington et al. (1993) study. In general, the figures indicate that proportions of relapsed participants reporting events in the present study were similar to those reported in this previous study. However, there appears to be a reduced proportion of events associated with 'some short-term threat’ during the 0-3 month and 4-6 month periods. Proportions of the event categories reported by the non-relapsed group were also very similar to those of Bebbington et al.'s relapsed group.
Table 11: Distribution of participants reporting events associated with short-term (ST) and long-term (LT) threat ratings

| Total sample: N=33 | Relapsed N=20 | Non-relapsed N=13 | \( \chi^2 \) (d.f.) |  \\
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>( n ) (%)</td>
<td>( n ) (%)</td>
<td>( \chi^2 ) (d.f.)</td>
<td>\text{Bebbington et al. (1993)}</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>-----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>Marked/mod ST threat (0-3 months)</strong></td>
<td>10/ 20 (50%)</td>
<td>7/ 13 (53.8%) 0.047 (1) n.s.</td>
<td>27 (51.9%)</td>
<td></td>
</tr>
<tr>
<td><strong>Marked/mod LT threat (0-3 months)</strong></td>
<td>8/ 20 (40%)</td>
<td>4/ 13 (30.8%) 0.290 (1) n.s.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Some ST threat (0-3 months)</strong></td>
<td>5/ 20 (25%)</td>
<td>5/ 13 (38.5%) 0.676 (1) n.s.</td>
<td>24 (46.2%)</td>
<td></td>
</tr>
<tr>
<td><strong>Some LT threat (0-3 months)</strong></td>
<td>8/ 20 (40%)</td>
<td>7/ 13 (53.8%) 0.609 (1) n.s.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Little/no ST threat (0-3 months)</strong></td>
<td>3/ 20 (15%)</td>
<td>3/ 13 (23.1%) 0.346 (1) n.s.</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Little/no LT threat (0-3 months)</strong></td>
<td>3/ 20 (15%)</td>
<td>6/ 13 (46.2%) 3.86 (1) p&lt;.05</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Marked/mod ST threat (4-6 months)</strong></td>
<td>6/ 20 (30%)</td>
<td>3/ 13 (23.1%) 0.190 (1) n.s.</td>
<td>14 (26.9%)</td>
<td></td>
</tr>
<tr>
<td><strong>Some ST threat (4-6 months)</strong></td>
<td>3/ 20 (15%)</td>
<td>3/ 13 (23.1%) 0.346 (1) n.s.</td>
<td>18 (34.6%)</td>
<td></td>
</tr>
</tbody>
</table>
Table 12: Distribution of participants reporting *independent* events associated with short-term (ST) and long-term (LT) threat ratings

| Total sample: | Relapsed N=20 | Non-relapsed N=13 |  |  |
|---------------|---------------|-------------------|  |  |
|               | n (%)         | n (%)             | \( \chi^2 \) (d.f.) | Bebbington et al. (1993) |
| Marked/mod ST threat (0-3 months) | 7/20 (35%) | 7/13 (53.8%) | 1.15 (1) n.s. | 18 (34.6%) |
| Marked/mod LT threat (0-3 months) | 5/20 (25%) | 4/13 (30.8%) | 0.132 (1) n.s. | - |
| Some ST threat (0-3 months) | 3/20 (15%) | 4/13 (30.8%) | 1.17 (1) n.s. | 14 (26.9%) |
| Some LT threat (0-3 months) | 7/20 (35%) | 6/13 (46.2%) | 0.411 (1) n.s. | - |
| Little/no ST threat (0-3 months) | 2/20 (10%) | 3/13 (23.1%) | 1.05 (1) n.s. | - |
| Little/no LT threat (0-3 months) | 3/20 (15%) | 2/13 (15.4%) | 1.03 (1) n.s. | - |
| Marked/mod ST threat (4-6 months) | 1/20 (5%) | 2/13 (15.4%) | 1.03 (1) n.s. | 10 (19.2%) |
| Some ST threat (4-6 months) | 1/20 (5%) | 3/13 (23.1%) | 2.42 (1) n.s. | 10 (19.2%) |

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Focus of events

The focus of life events shown in table 13 demonstrates that in the relapsed group, the greatest proportion of events were focused on the subject. By contrast, the greater proportion of events in the non-relapsed group were focused on another person, possession or pet. Events focused jointly on the subject and others were represented approximately equally within the relapsed and non-relapsed groups. The differences between the groups regarding focus of events were significant at the p<.01 level.

However, table 14 shows that the groups did not differ significantly when only independent events were included. When possibly independent events were excluded, there was a vast reduction of 'subject focused' events in the relapsed group. There was also a reduction of 'joint focused' events, although this phenomenon was equally apparent in both groups. Events focused on others were not markedly reduced, indicating that the majority of these events were rated as independent.

Table 13: Focus of life events reported for the 0-12 month period

<table>
<thead>
<tr>
<th>Focus of event</th>
<th>Relapsed</th>
<th>Non-relapsed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=56</td>
<td>N=60</td>
<td>N=116</td>
</tr>
<tr>
<td>Subject focused</td>
<td>23 (41.1%)</td>
<td>13 (21.7%)</td>
<td>36 (31.0%)</td>
</tr>
<tr>
<td>Jointly focused with other</td>
<td>22 (39.3%)</td>
<td>19 (31.7%)</td>
<td>41 (35.3%)</td>
</tr>
<tr>
<td>Focused on another person/possession/ pet</td>
<td>11 (19.6%)</td>
<td>28 (46.7%)</td>
<td>39 (65%)</td>
</tr>
<tr>
<td>Total</td>
<td>56 (100%)</td>
<td>60 (100%)</td>
<td>116 (100%)</td>
</tr>
</tbody>
</table>

χ²=10.28, d.f.=2, p<.01.
Table 14: Focus of life events reported for the 0-12 month period: independent events only

<table>
<thead>
<tr>
<th></th>
<th>Relapsed N=27</th>
<th>Non-relapsed N=47</th>
<th>Total N=74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus of event</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Subject focused</td>
<td>6 (22.2%)</td>
<td>11 (23.4%)</td>
<td>17 (23.0%)</td>
</tr>
<tr>
<td>Jointly focused with other</td>
<td>10 (37.0%)</td>
<td>10 (21.3%)</td>
<td>20 (27.0%)</td>
</tr>
<tr>
<td>Focused on another person/possession/pet</td>
<td>11 (40.7%)</td>
<td>26 (55.3%)</td>
<td>37 (50%)</td>
</tr>
<tr>
<td>Total</td>
<td>27 (100%)</td>
<td>47 (100%)</td>
<td>74 (100%)</td>
</tr>
</tbody>
</table>

$\chi^2=2.32$, d.f.=2, n.s.

**Life events themes**

Proportions of participants reporting events associated with themes of loss, danger, humiliation/entrapment and intrusion, for the 0-12 month period prior to relapse/interview are displayed in table 15. This classification of events can only be made when events are associated with long term (10-14 days after event) marked or moderate contextual threat. Table 15 shows that each of these event themes was evident in fewer than 40 per cent of participants. Referring back to table 4, even smaller proportions of participants reported *independent* events associated with these themes. To optimise statistical power, all events were therefore included in this
analysis, although events that were rated as associated with *actual* illness behaviour were excluded from any analysis in this project.

No significant differences were detected between the relapsed and non-relapsed groups regarding the proportions of participants reporting these four event types, although these event themes were generally more common in the relapsed group. The only exception to this trend concerned humiliating/entrapping events, which were reported by only one participant in each group. Therefore, despite higher frequencies of events in the non-relapsed group, events associated with particular psychologically threatening consequences appear to be more prevalent in the relapsed group.

**Table 15:** Proportions of participants reporting events associated with loss, humiliation, intrusion and danger for the 12 month period

<table>
<thead>
<tr>
<th>Event theme</th>
<th>Relapsed</th>
<th>Non-relapsed</th>
<th>$\chi^2$ (d.f.)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N=20$</td>
<td>$N=13$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss</td>
<td>7/20 (35%)</td>
<td>4/13 (30.1%)</td>
<td>0.063 (1)</td>
<td>n.s.</td>
</tr>
<tr>
<td>Humiliation/entrapment</td>
<td>1/20 (5%)</td>
<td>1/13 (7.7%)</td>
<td>0.100 (1)</td>
<td>n.s.</td>
</tr>
<tr>
<td>Intrusion</td>
<td>5/20 (25%)</td>
<td>1/13 (7.7%)</td>
<td>1.59 (1)</td>
<td>n.s.</td>
</tr>
<tr>
<td>Danger</td>
<td>8/20 (40%)</td>
<td>2/13 (15.4%)</td>
<td>2.26 (1)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>
Chapter Three: Results

Question Two: Relapse and delusions

The SCAN delusions scale

Table 16 shows proportions of participants displaying evidence of four themes of delusion from the SCAN. Delusions were assessed currently, at the time of interview in the non-relapsed group, and for the period of relapse in the relapsed group. Table 16 shows that each type of delusion is significantly more prevalent in the relapsed group, with few delusional beliefs in the non-relapsed group, at the time of interview. In the relapsed group, the most common delusions were persecutory (75 per cent) and reference (80 per cent). Grandiose and depressive delusions were less common, being apparent in 40 per cent and 45 per cent of the relapsed group respectively.

Table 16: Delusional themes identified by the SCAN: relapsed and non-relapsed groups

<table>
<thead>
<tr>
<th>Delusional theme</th>
<th>Relapsed N=20</th>
<th>Non-relapsed N=13</th>
<th>$\chi^2$ (d.f.)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grandiose</td>
<td>8/20 (40%)</td>
<td>1/13 (7.7%)</td>
<td>4.15 (1)</td>
<td>*</td>
</tr>
<tr>
<td>Depressive</td>
<td>9/20 (45%)</td>
<td>0/13 (0%)</td>
<td>8.04 (1)</td>
<td>**</td>
</tr>
<tr>
<td>Persecutory</td>
<td>15/20 (75%)</td>
<td>3/13 (23.1%)</td>
<td>8.57 (1)</td>
<td>**</td>
</tr>
<tr>
<td>Reference</td>
<td>16/20 (80%)</td>
<td>2/13 (15.4%)</td>
<td>13.27 (1)</td>
<td>***</td>
</tr>
</tbody>
</table>

* $p<.05$  ** $p<.01$  *** $p<.001$
Chapter Three: Results

The PDI assessment of multi-dimensional aspects of delusions

Scores on the Peters *et al.* Delusions Inventory (PDI), for the relapsed and non-relapsed groups are displayed in table 17. These can be contrasted with scores from ‘normal’ and ‘deluded’ populations from the study by Peters *et al.* (in press). The total delusion score for life-time occurrence of a range of delusions, ranged from 1 to 24, with a possible range of 0 to 40. The current distress associated with these delusions ranged from 1 to 72, the conviction score ranged from 5 to 81 and the preoccupation score, from 1 to 67. These three sub-scales each have a possible maximum of 200. The relapsed group’s scores appear to fall somewhere between those of Peters *et al.*’s ‘normal’ and ‘deluded’ groups. The total delusion score for the relapsed group was at about the mid-point between Peters et al.’s normal and deluded groups. This score assessed *life-time* occurrence of beliefs rather than purely *current* beliefs. However, the preoccupation, conviction and distress scores for the relapsed group were actually closer to those of Peters *et al.*’s ‘normal’ group than the ‘deluded’ group. This is likely to reflect the fact that the relapsed group had relapsed between 2 and 40 weeks prior to interview and these dimensions were assessed *currently*, for *life-time* beliefs that had been endorsed. It is likely that many of the participants were less convinced of, distressed by and preoccupied by delusional beliefs some weeks after relapse, probably having received treatment. By contrast, the non-relapsed group’s scores on all scales (including the total delusion score) were actually slightly lower than Peters *et al.*’s ‘normal’ group.
Table 17: PDI scores for relapsed and non-relapsed groups and those obtained by Peters et al. (in press), from normal and deluded groups

<table>
<thead>
<tr>
<th></th>
<th>Current study</th>
<th>Peters et al. (in press)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Relapsed N=20</td>
<td>Non-relapsed N=13</td>
</tr>
<tr>
<td>PDI scores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total PDI score</td>
<td>14.05 (6.44)</td>
<td>8.62 (5.53)</td>
</tr>
<tr>
<td>(life-time occurrence)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distress score</td>
<td>38.68 (20.55)</td>
<td>18.15 (15.50)</td>
</tr>
<tr>
<td>Preoccupation score</td>
<td>31.26 (20.55)</td>
<td>18.15 (15.50)</td>
</tr>
<tr>
<td>Conviction score</td>
<td>35.32 (18.92)</td>
<td>24.46 (19.51)</td>
</tr>
</tbody>
</table>

Table 18 displays differences between the relapsed and non-relapsed groups regarding PDI scores. The relapsed group had a higher mean total PDI score than the non-relapsed group and this difference was significant at the p<.05 level. The mean distress score was significantly higher in the relapsed group at the p<.01 level. The mean preoccupation score was higher in the relapsed group and this difference approached significance at the p<.05 level. Although the mean conviction score was also higher in the relapsed group, this difference was not significant.
**Table 18:** PDI scores for relapsed and non-relapsed groups: Independent samples T test

<table>
<thead>
<tr>
<th>PDI scores</th>
<th>Relapsed N=20</th>
<th>Non-relapsed N=13</th>
<th>t value (d.f.)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total PDI score</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(life-time occurrence)</td>
<td>14.05 (6.44)</td>
<td>8.62 (5.53)</td>
<td>2.48 (30)</td>
<td>*</td>
</tr>
<tr>
<td>Distress score</td>
<td>38.68 (20.55)</td>
<td>18.15 (15.50)</td>
<td>3.05 (30)</td>
<td>**</td>
</tr>
<tr>
<td>Preoccupation score</td>
<td>31.26 (20.55)</td>
<td>18.15 (15.50)</td>
<td>1.83 (30)</td>
<td>p&lt;.08</td>
</tr>
<tr>
<td>Conviction score</td>
<td>35.32 (18.92)</td>
<td>24.46 (19.51)</td>
<td>1.57 (30)</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

* p < .05  *p < .01
Chapter Three: Results

Question Three: Life events and delusions

*Relationships between life event and delusional themes*

Tables 7 and 16 show that grandiose delusions and depressive delusions were each evident in only nine participants (27.3 per cent of the total sample). Comparisons between groups concerning relationships between these delusional themes and life event themes would therefore involve very small sub-groups. Results obtained could not therefore be very meaningful or statistically convincing. Therefore, for this part of the analysis, only the more common persecutory and reference delusions will be considered. Similarly, Tables 4 and 15 demonstrate that humiliating/entrapping, and intrusive events were reported at very low frequencies. Therefore, only the more frequently reported event themes of loss and danger will be explored, in relation to potential links with delusions of persecution and reference. Events rated as independent were even less commonly reported and so all events were included in these analyses (although events rated as associated with *actual* illness behaviour were of course excluded).

Tables 19-22 demonstrate that those participants with persecutory and reference delusions were more likely to have reported events associated with loss or danger during the 0-12 months prior to interview/relapse. However, the only significant difference concerned the relationship between delusions of reference and events associated with danger. Those participants with delusions of reference were
significantly more likely (at the p<.01 level) to have reported an event associated with danger, than those participants without delusions of reference.

An example of a participant who reported an event associated with danger, in addition to delusions of reference, concerns a 27 year old man whose girlfriend moved 400 miles away to start University. The participant described this as his first serious relationship. The couple had been together for around six months and the girlfriend was his main confidant. The couple intended to continue the relationship, despite the long distance between them. The danger element of the relationship refers to the potential future loss of the relationship due to the separation. The independence rating of this event, like all events associated with romantic relationships was 'possibly independent'. Two months after this event, the participant had a psychotic relapse. Delusions of reference included beliefs that events had 'double meanings' and that puzzles were being set to 'trip him up'. He also believed that he could predict winners of horse races, by 'de-coding' certain things that people said.

### Table 19: Persecutory delusions and loss events

<table>
<thead>
<tr>
<th></th>
<th>Persecutory delusions</th>
<th>No persecutory delusions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=18</td>
<td>N=15</td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Loss event</td>
<td>7/18 (38.9%)</td>
<td>4/15 (26.7%)</td>
</tr>
<tr>
<td>No loss event</td>
<td>11/18 (61.1%)</td>
<td>11/15 (73.3%)</td>
</tr>
</tbody>
</table>

χ² = 0.55, d.f.=1, n.s.
### Table 20: Persecutory delusions and danger events

<table>
<thead>
<tr>
<th>Total sample:</th>
<th>Persecutory delusions</th>
<th>No persecutory delusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=33</td>
<td>N=18</td>
<td>N=15</td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Danger event</td>
<td>7/18 (38.9%)</td>
<td>3/15 (20%)</td>
</tr>
<tr>
<td>No danger event</td>
<td>11/18 (61.1%)</td>
<td>12/15 (80%)</td>
</tr>
</tbody>
</table>

$\chi^2 = 1.38$, d.f.=1, n.s.

### Table 21: Reference delusions and loss events

<table>
<thead>
<tr>
<th>Total sample:</th>
<th>Reference delusions</th>
<th>No reference delusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=33</td>
<td>N=18</td>
<td>N=15</td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Loss event</td>
<td>7/18 (38.9%)</td>
<td>4/15 (26.7%)</td>
</tr>
<tr>
<td>No loss event</td>
<td>11/18 (61.1%)</td>
<td>11/15 (73.3%)</td>
</tr>
</tbody>
</table>

$\chi^2 = 0.55$, d.f.=1, n.s.

### Table 22: Reference delusions and danger events

<table>
<thead>
<tr>
<th>Total sample:</th>
<th>Reference delusions</th>
<th>No reference delusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=33</td>
<td>N=18</td>
<td>N=15</td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Danger event</td>
<td>9/18 (50%)</td>
<td>1/15 (6.3%)</td>
</tr>
<tr>
<td>No danger event</td>
<td>9/18 (50%)</td>
<td>14/15 (93.3%)</td>
</tr>
</tbody>
</table>

$\chi^2 = 7.27$, d.f.=1, p<.01
Chapter Three: Results

*Patterns of life event themes and delusional themes*

Tables 23 displays patterns of delusions evident in the total sample. In some participants, there was evidence of more than one delusional theme. Referring back to Table 7, persecutory and reference delusions were much more common than depressive and grandiose delusions. Therefore, expected frequencies of co-existing delusions are shown in brackets in Table 23.

Numbers in this table were small, precluding statistical analysis. This was a purely exploratory exercise. Almost one-third of participants did not display evidence of any of the four delusional themes (these were mostly non-relapsed participants). When individuals did hold delusional beliefs, the different delusional themes co-existed more frequently than would be expected from chance. This indicates that different themes of delusion are frequently concurrent. Only four participants (12.1 per cent) demonstrated evidence of only one theme of delusion. However, the data does not suggest any specific relationships between different delusional themes.
Table 23  Patterns of delusional themes shown by the total sample

<table>
<thead>
<tr>
<th></th>
<th>Persecutory</th>
<th>Reference</th>
<th>Depressive</th>
<th>Grandiose</th>
<th>One theme only</th>
<th>No delusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persecutory</td>
<td>-</td>
<td>14</td>
<td>6</td>
<td>7</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(9.82)</td>
<td>(4.91)</td>
<td>(4.91)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference</td>
<td>-</td>
<td>-</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(4.91)</td>
<td>(4.91)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressive</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2.45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grandiose</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>One theme only</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No delusions</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 24 shows patterns of life event themes reported by the total sample. Like delusional themes, life event themes were not represented equally within the sample (see table 4). Therefore, expected frequencies of co-existing themes are again shown in brackets. Again, the frequencies involved in this table are very small, especially as 51.5 per cent of the sample did not report life events associated with any of these themes. However, it can be seen that where one theme was present, another theme was evident more frequently than would be expected by chance, although there is no evidence of specific relationships. It is likely that these life event themes are inter-related to some extent. However, this analysis did not investigate the distribution of themes belonging to the same, or to different life events.
Table 24: Patterns of life event themes shown by the total sample

<table>
<thead>
<tr>
<th></th>
<th>Loss</th>
<th>Danger</th>
<th>Humiliation/entrapment</th>
<th>Intrusion</th>
<th>One theme only</th>
<th>No life event themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss</td>
<td>-</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(3.33)</td>
<td>(0.67)</td>
<td>(2.0)</td>
<td></td>
</tr>
<tr>
<td>Danger</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1.82)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humiliation/entrapment</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.36)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrusion</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>One theme only</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>17</td>
</tr>
</tbody>
</table>
CHAPTER FOUR: DISCUSSION

Overview

This chapter will discuss findings of the current study in relation to other, associated literature. Each research question will be considered in turn, followed by sections concerning the limitations of the study, implications of the study and suggestions for future research.

Interpretation of research findings

1. Life events and relapse

This section of the study compared a relapsed group ($N=20$) with a non-relapsed group ($N=13$). Both groups consisted of individuals with psychotic diagnoses. To detect a medium difference between two independent sample mean would require $N=64$ in each group at $p<.05$ or $N=95$ in each group at $p<.01$ (Cohen, 1992). Therefore, the study is underpowered and interpretations can not be convincingly made. The study can be viewed as a preliminary investigation to provide information for further exploration.

Despite the small numbers involved in much of the analysis, one of the most striking findings in this study was the significantly elevated frequency of total life events and
independent life events in the non-relapsed group, when compared with the relapsed group. This is in direct contrast to previous studies, which have suggested that the experience of even minor life events is elevated in the weeks leading to psychotic relapse (Malla et al., 1990, Bebbington et al., 1993). Much of the literature has indicated a relatively short antecedent period of between 3 weeks and 3 months prior to relapse, when life event rates are elevated. At times not preceding onset, events should be experienced at a more constant rate, similar to normal, control groups. In the current study, there were greater frequencies of life events in the non-relapsed group, compared with the relapsed group. This difference was significant for the potentially aetiologically significant 0-3 month period, but was not significant for the 12 month period. However, independent events were significantly higher in the non-relapsed group for the 12 month period, but not for the 3 month period. One reason for these finding could be that the shortest interval assessed (3 months) was too large and may have obscured a real increase in frequency in the weeks immediately before relapse (as has been suggested regarding similar findings in the Jacobs & Myers (1976) study). However, the Bebbington et al. (1993) study found elevated life event rates up to six months prior to psychotic relapse, although their sample was much larger. The small sample size and relatively low event rates in the current study precluded more detailed analysis of antecedent time periods.

Ventura et al. (1989) found significantly more life events in the one month period prior to relapse, compared with the one month period prior to interview in the non-relapsed group. However, in contrast with the Bebbington et al. (1993) study, there were no significant differences for any time periods longer than one month prior to
relapse/ interview. When Ventura et al.'s (1989) data is compared with that of the current study for the 0-3 month period, the non-relapsed group's independent life event frequencies seem to be elevated in the current study (current study $M=1.62$, Ventura et al.'s $M=0.49$). By contrast, independent event frequencies for the current relapsed group were slightly lower than those of Ventura et al.'s relapsed group (current study $M=0.75$, Ventura et al.'s $M=1.09$). Brown & Birley (1968) also reported independent life event frequencies for the 0-12 month period for a non-relapsed group that were far lower than those found in the non-relapsed group of the current study (Brown & Birley, $M=0.71$, current study $M=3.62$). It therefore seems likely that the current results reflect artificially high life event rates in the non-relapsed group, compared with previous research. The reduced rate of life events in the relapsed group, (compared with previous research) appears to be of a lesser magnitude. Potential explanations for such phenomena will be discussed.

It is possible that the two groups in the current study differed in some way not otherwise detected, leading to a discrepancy in life event rates that was in direct contrast to prior predictions. Such differences could involve social, personality or clinical factors. Both groups were characterised by the recency of their first psychotic episode (within the past five years). The non-relapsed group included participants who had only ever had one psychotic episode. Such people may be clinically very different from those in the relapsed group, who had all had at least one more subsequent relapse. For instance, the relapsed group may have included participants with more chronic and enduring psychotic conditions, and the non-relapsed group may have included individuals with more transient conditions. There were, however,
no significant differences between the groups regarding diagnosis. An example of how such clinical discrepancies may affect life event rates is the view that negative symptoms of schizophrenia may be a strategy for avoiding stress (Wing & Brown, 1970). Such a phenomenon would be expected to reduce the rate of events in psychotic subjects and may be more common in more chronic conditions, although this does not explain elevated life event frequencies in the non-relapsed group. The possibility of sub-groups of patients with differing aetiological patterns is likely and requires further investigation.

The participants in the current study had all had an initial psychotic episode within the five year period prior to interview. Castine et al. (1998) found that recent life events were negatively correlated with number of previous episodes, suggesting that early episodes are more likely to be associated with life events than later episodes. If this is the case, the current study was likely to have demonstrated a reasonably strong relationship between life events and relapse, although this did not prove to be the case. However, Birley & Brown (1970) found no association between life events and stage of illness. There is a dearth of available research in this area and the current literature remains inconclusive.

Bebbington et al. (1993) suggested that the mere fact of having been ill once, or of having the sort of personality associated with an increased likelihood of psychotic breakdown, might lead to a lifestyle that renders the experience of apparently independent events more likely. Such phenomena may have had some effect on the non-relapsed group, if it is surmised that the this group had an artificially high event
rate, although why such a phenomenon should only affect the non-relapsed group is unclear. This study highlights potential differences in the early stages of psychosis, in terms of aetiology, prognosis and course of illness. Such variables may be functionally related, although the mechanisms behind such relationships are currently unclear.

Related to clinical and constitutional factors, differences between reported and contextual threat ratings were investigated in order to explore whether participants displayed any bias towards reporting events as either more, or as less threatening than the contextual ratings might indicate. When rating contextual threat, the rater has to bear in mind the likely emotional impact of the event on the ‘average’ person with a similar biography to the interviewee. Reported threat ratings however, are based upon the participant’s account of how the event was actually experienced. In the current study, agreement between contextual and reported threat ratings was very high, suggesting a lack of any bias in the reporting of events. In only six per cent of events was there a discrepancy between contextual and reported threat.

Although the Brown & Harris (1978) method attempts to control for influences of attitudinal or emotional components on the reporting of life events by the use of contextual threat ratings, it is possible that undetected biases in the style of reporting events may have led to the exclusion of events, due to participants either not mentioning them, or providing insufficient detail. Conversely, individuals may exaggerate event details, potentially resulting in misleading, elevated threat ratings. Personality or clinical variables such as stress or coping styles relate to such
phenomena. Indeed, it seems likely that the subjective, reported distress associated with certain events would correlate more strongly with the psychological consequences of such an event, than the contextual threat rating of the same event. Future life events research might incorporate measures of stress and coping in order to explore the possible confounds of such variables (Cooper, 1988). Biases in memory for events may also occur. Indeed, Kaney et al. (1992) found that deluded subjects preferentially recall threat-related material. However, the relapsed group of the current study generally had more current and previous delusional beliefs than the non-relapsed group, yet the non-relapsed group reported more life events.

This study did not attempt to externally confirm life events by interviewing an independent person (family/ close friend) who knew the participant well. It is possible that a participant in a deluded state may not give an entirely accurate report of their life events. However, the original study of life events and schizophrenia by Brown & Birley (1968) tested the validity of the LEDS-2 instrument by asking patients and relatives about life events for the patient during the previous 3 months. There was 81 per cent agreement between patients and relatives, for whether or not particular life events took place. Similarly high agreement (79 per cent) was found in a sub-set of 50 patients and carers in the original Brown & Harris (1978) Camberwell study of depressed women. This high level of consistency, along with practical and time constraints, led to the decision in this study not to seek external confirmation of life events. However, as has been already suggested, there may be a tendency for certain sub-groups of participants to under, or over report life events and it is possible that symptoms such as delusions may also distort memory for these events, which may
then impact not only upon reported (subjective) threat ratings, but also upon contextual ratings.

In addition to participant biases, there is a possibility of experimenter bias when the researcher who elicits the life events is the same person who gathers the clinical data (as in the current study). In Brown, Ni Bhrolchain & Harris’s (1979) study of psychotic and neurotic depression, the clinical data and the data on life events and difficulties were obtained by different interviewers. The psychiatrist had no knowledge of the data on these events and difficulties, the other interviewers no knowledge of the psychotic-neurotic diagnosis of the patient. This reduces the chance of experimenter bias, which may occur in studies such as this one, where the information is obtained by the same interviewer. For instance, the interviewer may be inadvertently more attentive to reports of life events from certain clinical groups, according to prior hypotheses. However, it is unlikely that the current study was afflicted by such bias, as the inflated life event frequencies in the non-relapsed group was counter to prior predictions.

Despite the methodological problems regarding small sample sizes, the increased frequency of life events in the non-relapsed group was felt to be worthy of further investigation, in order to explore possible differences in the types of events reported by the different groups. The only significant difference between the groups regarding reports of at least one event with certain threat ratings, concerned events with little/no long-term threat. These events were significantly more common in the non-relapsed group. However, despite elevated frequencies of life events in the non-
relapsed group, proportions of relapsed and non-relapsed participants reporting at least one event associated with marked/ moderate and some threat, for different time periods were approximately equal. There is a possibility that the specific experience of a contextually distressing life event may be related to relapse in some of the relapsed participants, despite the fact that, in general, life event frequencies were lower in this group. It is likely that the increased frequency of life events in the non-relapsed group was a spurious result due to a few members of this group reporting a great number of events, particularly those with few threatening implications.

These results regarding mildly threatening events contrast with previous research (Brown & Birley, 1968, Bebbington et al., 1993), which has indicated that events with little or no threatening associations are implicated in the onset of psychosis. More severely threatening events have, however, found to be of central aetiological significance in depression (Brown & Harris, 1978). One explanation for the excess of events with few threatening implications, in the non-relapsed group of the current study, is merely that a small section of this group experienced many of these events, therefore producing a spurious result. However, it is also possible that the effect of these more mildly threatening events is subtler, and that severely threatening events may have a more powerful effect on relapse.

It is possible that the greater frequency of life events in the non-relapsed group reflects life-style or other social differences between the groups. Interestingly, there was a significant difference between the groups for the focus of events, with a greater proportion of life events focused on another person, possession or pet in the non-
relapsed group, and a greater proportion of events focused on the self in the relapsed group. One explanation for this could be that the non-relapsed group had broader social networks and contacts, increasing the likelihood of life events associated with other people. Furthermore, it is possible that an inflated frequency of ‘other-focused’ events in the non-relapsed group (or a deficit of these events in the relapsed group) may partially account for the overall increased frequency of life events in the non-relapsed group, although this is speculative. This effect was not significant when only independent events were included however. Excluding possibly independent events had the main effect of markedly reducing ‘subject focused’ events, particularly in the relapsed group. It therefore seems that the non-relapsed group were characterised by an excess of (mainly independent) events focused on others, whereas the relapsed group were characterised by a comparative excess of possibly independent events (such as those involving relationships). It is important to note that the power of this analysis was poor, due to small sample sizes and to the fact that three types of events were being compared (self focused, joint focused and other focused). For valid $\chi^2$ tests with two degrees of freedom, Cohen (1992) calculated that for a medium effect size, a sample of 107 in each group is necessary for a significance level of $p<.05$, or 154 in each group for a significance level of $p<.01$. When considering the focus of life events in this study, there were only 56 and 60 life events in each respective group. This was reduced to only 27 and 47 life events when ‘possibly independent’ events were compared.

Brown & Birley (1968) found that events reduced with age for those focused on the self. It was suggested that younger people may seek more variety and put themselves
in more situations where more events can occur. The authors also found an increase in independent events not focused on the self, with increasing size of household. It was suggested that this merely reflected the greater number of people at home who were potentially at risk. There was no significant difference between the groups in the current study regarding age, and size of household was not explored. The only variable regarding social networks assessed in the current study was the intimacy rating of participants' main confidant. No notable differences between the groups were apparent on this measure but it was interesting that so few participants from either group described an intimate relationship with a partner (none of the relapsed group and only one (7.7 per cent) of the non relapsed group). However, in the context of life events focused on other people, it is likely that quantity as well as quality of social contacts would impact upon the frequency and types of life events reported. Despite the significantly elevated frequency of events in the non-relapsed group, there was actually a higher frequency of life events focused on the self in the relapsed group compared with the non-relapsed group. It is possible that the psychological consequences of events focused on the self may differ qualitatively or quantitatively from those events focused on another person. It may be that events focused on the self have particular aetiological significance in the relapse of psychosis. Aside from the Brown & Birley (1968) study, no other life events research has indicated that the focus of events is a significant factor in the development of psychological conditions. This is a potential area for future investigation.

Proportions of the two groups reporting events rated according to the specific likely psychological consequences of loss, danger, humiliation and intrusion were not
significantly different between the two groups. However, greater proportions of the relapsed group reported event/s associated with loss, intrusion and danger than the non-relapsed group. Only two participants from the total sample reported events associated with humiliation/entrapment. Numbers were very small within some of the comparisons and there were no statistically significant effects. However, despite greater frequencies of life events in the non-relapsed group, these events associated with specific psychological implications, were generally more common in the relapsed group. It is possible that these types of events have particular relevance in the mechanism whereby relapse is ‘triggered’ although this remains speculative at this stage. Research indicating the particular importance of intrusive events in psychosis, (Harris, 1987) is not supported by this study. Events associated with loss and with danger were actually reported at higher frequencies than intrusive events.

2. **Relapse and delusions**

The four delusional themes assessed by the SCAN (grandiose, depressive, persecutory and reference) were all present in significantly higher frequencies in the relapsed group, compared with the non-relapsed group. This is not surprising, as participants in this group were asked about their beliefs during the relapse. The non-relapsed group were asked about current beliefs. This confirms that during relapse, these delusions were more common, and supports the concept of relapse and its associated symptomotology. In particular, persecutory and reference delusions were evident in 75 and 80 per cent of the relapsed group respectively.
In the current study, scores on the Peters et al. Delusions Inventory (PDI) (Peters et al., in press) were compared with those cited by the authors of the original study, from normal and deluded populations. The non-relapsed group in this study had noticeably lower mean scores on all dimensions of this measure, compared with corresponding mean scores from Peters et al.'s normal group. One possible explanation for this finding involves the fact that the non-relapsed group had experienced at least one psychotic episode, up to five years ago, but had remained well for at least the year prior to interview. There may be a tendency for such people to deny or to under-state unusual or delusional beliefs, (including previous beliefs) to a greater degree than people who have never experienced a psychotic episode. In addition to this finding, mean scores in the current study for the relapsed group were noticeably lower than those of the 'deluded' group in the Peters et al. study, although they were higher than those of the 'normal' group. This could be related to the fact that the current sample were in the early stages of illness and were interviewed when relatively well, some weeks following relapse. By contrast, Peters et al. (in press) used patients on an acute admission ward, and only patients rated 'moderate' on a delusion scale were included. These interpretations are clearly speculative and the mechanisms behind such sample and response biases are unclear. Also, the PDI was designed for use with 'normal' populations and further research could usefully explore its use in clinical populations.

The relapsed group contained participants who had suffered a psychotic relapse dated between 2 and 38 weeks prior to interview. No attempt was made to date 'remission'
as it was assumed that this would often be a gradual process, governed by multiple
and inter-related variables. However, responses on the PDI questionnaire showed
that all mean PDI sub-scale scores were higher in the relapsed group, compared with
the non-relapsed group, and that these differences were significant for the total PDI
scores and distress scores. The preoccupation scores were also higher in the relapsed
group, and this difference approached significance. Conviction scores were higher in
the relapsed group but not significantly so. Interestingly, Peters et al. (1999) found
that it was the distress and preoccupation scores (not the conviction or PDI item
scores) that differentiated deluded and religious cult groups. This was consistent with
Jones & Watson (1997) who found that one of the distinguishing factors between
religious and delusional beliefs was preoccupation, but not conviction or
‘truthfulness’. It is possible that relapse is particularly associated with increases in
distress, and in preoccupation with beliefs, but is less related to the conviction in these
beliefs. The fact that the total PDI score (for life-time occurrence of beliefs) was
significantly greater in the relapsed group, suggests that the two groups may differ in
terms of the extent and breadth of delusional beliefs. Generally, the elevated PDI
scores in the relapsed group were likely to be associated with the fact that the
participants in this group were more likely to be suffering from psychotic symptoms,
following a recent relapse. This highlights the continuum of such symptoms and
suggests that the investigation of ‘relapse’ alone, in studies such as this one, is
insufficient. However, as the entire sample were in the early stages of illness, the
groups may have differed in some way other than in the presence or absence of recent
relapse. One possibility is that the relapsed group were generally more symptomatic,
suggesting more chronic disorder. The PDI may be very useful in the longitudinal
assessment of delusions over time, which would aid in outcome assessments of treatment, and in the exploration of the different course and prognosis of delusional disorders.

3. **Life events and delusions**

The LEDS-2 measure only allows the rating of the themes of loss, danger, humiliation/entrapment and intrusion, when events are rated ‘marked/ moderate’ on long-term contextual threat. In the current study, where samples were initially small, the number of participants reporting these event themes was low, reducing the numbers for comparison even further. Events associated with humiliation and intrusion were reported at very low frequencies, and interpretations of comparisons using these events would have been impossible to make. Similarly, depressive and grandiose delusions were evident in only a small proportion of participants. Therefore, comparisons investigated, involved only persecutory and reference delusions, and events associated with loss and danger. These comparisons all involved two groups of 15 and 18 participants respectively. Cohen (1992) states that for a medium effect size, $\chi^2$ tests with one degree of freedom require 87 participants in each group for sufficient power at the significance level of $p<.05$, or 130 participants in each group at the significance level of $p<.01$. Therefore, it is clear that the sample sizes involved within these comparisons suffer from extremely low statistical power. Interpretations must be made cautiously and the data should be considered as exploratory.
The comparisons indicated that those participants with delusions of reference or persecution were more likely to have reported events associated with loss and/or danger. Therefore, such threatening events may have some significance in the aetiology or maintenance of such delusional beliefs. However, both independent and possibly independent events were included due to the fact that to include only independent events would have reduced cell frequencies even further. However, although many possibly independent events involve some element of control by the individual (such as relationship events), events rated as associated with actual illness behaviour were excluded from all analysis in this project. A possibility remains though, that some participants with delusions had life-styles that were particularly prone to the sort of emotionally threatening experiences that were to some degree within their control. It must be noted however, that for these analyses, both relapsed and non-relapsed participants were included. Therefore, while the event themes in the relapsed group related to events prior to relapse, the event themes in the non-relapsed group concerned events prior to interview. In the non-relapsed group, the relationship between event themes and delusional themes is less likely to reflect aetiological factors, as the events did not necessarily pre-date the delusions. However, only a minority of the non-relapsed group were classified on the SCAN as having delusions at interview, and so the effect of this factor was likely to be minimal.

The only significant association found in this section was between delusions of reference and danger events. Danger events are characterised by the threat of future loss (of life, health, relationships, material possessions etc.). Chadwick et al. (1996)
describe an ‘ABC’ analysis of delusions, whereby delusional beliefs are interpretations
of events which involve explicit *inferences* and implicit *evaluations*. It is suggested
that underlying evaluative beliefs critically underlie delusional ideas. Such evaluative
beliefs typically involve negative self-evaluations. In terms of delusions of reference,
examples of explicit inferences that may be made could be that strangers in the street
are criticising the individual. If the individual believes that the criticism is unjustified,
he/she may disregard this inference. Therefore, emotional distress is only likely to
result when the inference is combined with negative evaluative beliefs towards the
self, e.g. feelings of inferiority. Events associated with danger (threat of loss) may
have some specific causal relationship with delusions of reference. In the example
cited in the results section, the individual’s girlfriend moved 400 miles away,
potentially threatening their relationship. The delusions of reference did not appear to
directly relate to this event but were more general, e.g. double meanings and a belief
that he could de-code speech to predict results of horse races. Clearly this has
elements of grandiosity, demonstrating the multiplicity of delusional beliefs. An
inference regarding the life event may have been ‘She doesn’t love me anymore’.
Underlying self-evaluations may include ‘nobody cares about me- I’m a nobody’.
Delusions of reference may result as a way of making sense of this confusion, and as a
way to feel noticed and important. Zigler & Glick (1988) spoke of this psychological
motivation as a means to protect the individual’s sense of self, although Chadwick *et
al.* (1996) considered that certain delusions (such as delusions of reference) were
more strongly influenced by activating events, whereas others (grandiosity and
persecution) seemed much more to reflect such psychological motivation. Intuitively,
it seems likely that triggering events and psychological motivations (or defences), are inextricably connected in complex and multi-factorial ways.

Some other potential links between life event and delusional themes may be drawn from the available literature. For instance, an association between depressive delusions and the experiences of loss, humiliation and entrapment could be postulated, considering evidence of links between depression and these event themes (Brown & Moran, 1997). However, with the small samples involved, concerning these events and delusions, analysis of these comparisons was not possible. Further research could attempt to replicate this study using larger samples, in order to investigate these theme links further. The effects of certain life events on wider symptom patterns could be investigated by including other clinical variables, such as affective components, thought disorder and hallucinations.

The exploration of patterns of life events and delusions in this study indicated that where one theme of life event was present, another was also likely. The same was found with delusional themes, which also co-existed more frequently than would be expected by chance. Therefore, it is likely that thematic relationships between life events and delusions are complex and multi-factorial. Delusions of reference and delusions of persecution were twice as frequent as depressive and grandiose delusions. Future studies could isolate the more common delusions for investigation. Similarly, events associated with loss and danger were reported more than twice as often as those associated with humiliation/entrapment or intrusion. Whether these findings are associated with psychosis, with relapse of psychosis, or with certain
symptoms is unclear. Comparisons with other clinical groups may further elucidate such relationships.

Limitations of the study

The main limitation of this study was the small sample size, largely related to the difficulties inherent in follow-up studies. The entire study was exploratory in nature, and the lack of statistical power associated with small samples meant that it was never possible to entirely reject the null hypothesis. The initial sample were participants in a study of first onset psychosis at the Bethlem & Maudsley Hospital Trust, recruited around two years prior to the current study. Even when participants were additionally recruited from North West London Mental Health Trust, the overall response rate was just under 50 per cent. The geographical catchment area for the study was very large, and participants were under the care of 15 community teams. Some participants could not be located, some were not in contact with services at the time of recruitment, and many did not respond to letters or phone calls. Over 40 per cent of potential participants refused to take part, were not successfully contacted, or did not attend appointments. Time and practical constraints meant that further recruitment was not possible, although maximum effort was made to contact potential participants.

Unfortunately, due to limited statistical power, detailed analysis of the relationships between themes of life events (loss, danger, humiliation and intrusion) and themes of
delusion (persecutory, reference, grandiose and depressive) could not be conducted, although some preliminary analyses have provided some information. The limitations on these analyses were due to a combination of the small sample size, and the infrequency of participants reporting certain events and delusions. Similarly, no analysis of longer-term ‘difficulties’ was conducted, due to time and practical constraints on the project. Difficulties rated ‘marked contextual threat’ appear to be of critical aetiological importance in depression (Brown & Harris, 1978). There is a dearth of research investigating the impact of ‘difficulties’ on psychotic disorders. Additionally, factors other than life events potentially related to relapse were not considered. Such factors include medication adherence, and other social factors such as expressed emotion and social support. The relationships of such factors to relapse and to symptoms of psychosis could be usefully explored in future studies.

One important limitation of this study regards the combination of the small sample size, and the relatively large number of statistical comparisons made. It is possible that some of the significant results found, were randomly obtained ‘Type I’ errors. A decision was taken not to make corrections for potential Type I errors, as these would inevitably result in further losses of statistical power. Interpretations of results should therefore be considered very carefully.
Implications and conclusions

Despite the cautions highlighted regarding statistical power, this study did reveal some interesting significant results and trends, particularly regarding discrepancies in the types of life events reported by relapsed and non-relapsed groups. For instance, despite a generally higher frequency of events in the non-relapsed group, the relapsed group were more likely to report events focused on the self, and were less likely to report events focused on others. Such information may be pertinent to clinical formulations of psychosis and is likely to be very useful in planning therapeutic strategies for this client group. For instance, events focused on the self, and the likely psychological consequences and attributions made regarding such events, may have more direct relevance to the formation and maintenance of certain delusional beliefs and other symptoms, than events focused on other people. In addition, despite higher frequencies of events in the non-relapsed group, the relapsed group were more likely to have reported events associated with themes of loss, danger and intrusion, although these effects were not significant. Similarly, those participants with persecutory or reference delusions were more likely to have reported events associated with themes of loss or danger. There was a significant positive association between delusions of reference and events associated with danger. These results suggest that the development of *qualitative* models of the relationship between life events and psychosis may be the next logical step. Although detailed and comprehensive testing of specific hypotheses was beyond the scope of this project, the exploration of the research questions provoked many interesting questions, and thus provides a good basis for future research.
Chapter Four: Discussion

The results of this study indicate that the relationship between life events and psychosis is likely to be a highly complex and multifactorial one. Further study of the impact of certain types of life events on symptoms (such as delusions) may help to untangle some of the confusing and conflicting research evidence. In particular, this study has conceptualised psychotic symptoms in terms of a continuum. This approach could be used and expanded in future investigations of the psychological correlates of life events and difficulties.

Suggestions for future research

The results of this study have generated many questions regarding the relationship between life events and psychosis. Despite the abundance of available research indicating that life events play an aetiological role in the onset and relapse of psychotic disorders, the mechanisms and specific form of such relationships remain unclear. For example, the literature investigating aetiologically significant time periods for relevant life events remains inconclusive and the differential effects of life events on first onset and subsequent psychotic episodes is also a potential area for future research.

In psychosis research, there has been an increasing trend towards ‘symptom focused’ approaches, conceptualising such symptoms in terms of a continuum. This current project has linked this symptom approach with the investigation of life events and psychosis. Future life events research could utilise this approach by exploring potential relationships between types and themes of life events, and specific types of
symptoms. Tools such as the Peters et al. Delusions Inventory provide innovative means to assess continuous features of psychological symptoms that could be used in such studies. The inclusion of a wide variety of clinical, personality and social variables may further elucidate such relationships.
REFERENCES


References


References


References


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Gower Street, London  
WC1E 6BT

Dear Ms Shipley

98/X0051 An investigation of the influence of life events on delusions
R & D NUMBER MUST BE USED IN ALL COMMUNICATIONS THROUGHOUT THE HOSPITAL REFERRING TO THIS RESEARCH

On behalf of the members I am pleased to say that the documents detailed at the end of this letter, for the above project have now been approved by the St Marys’ LREC. This approval is given on the understanding that the research team will observe strict confidentiality over the medical and personal records of the participants. It is suggested that this be achieved by avoidance of the subject’s name or initials in the communication data. In the case of hospital patients, which can be done by using the hospital record number and in general practice, the National Insurance number or a code agreed with the relevant GP.

It should be noted:

• The LREC decision does not cover any resource implications which may be involved in your project.

• The LREC should be informed of any untoward development, amendments or changes in protocol that may occur during the course of your investigations. Please quote the above R&D number in any correspondence.
22 September, 1998

Prof D Hemsley
Dept of Clinical Psychology
Institute of Psychiatry

Dear Prof Hemsley

Re: An investigation of the influence of life events on delusions (066/98)

At its meeting on 18 September 1998, the Ethical Committee (Research) considered and confirmed Chair's action to approve the Study No. 066/98 from an ethical point of view.

Yours sincerely

Margaret M Chambers
Research Ethics Coordinator

cc Katherine Shipley
INFORMATION SHEET

Title of project

When do people experience mental health problems?

You are being asked to participate in a research project. The statement below explains what you are being asked to do and what we hope to learn as a result of you participating.

You do not have to take part in this study if you do not want to. If you do decide to take part you may withdraw at any time without having to give a reason. Your decision whether to take part or not will not affect your care, or your relationship with your doctor or any other member of the health service.

Explanation

We are interested in what happens just before people are admitted to hospital with mental health problems. We believe that this study will help us to better understand mental health problems leading to psychological treatments.

If you agree to participate you will be asked questions about the previous year to two years. You will also be asked some questions about any special experiences or unusual beliefs you may hold. The entire procedure should take no longer than 1 1/2 hours, and you will be offered the opportunity to stop at any time and complete it another day.

We assure you that complete confidentiality will be maintained and information will only be available to professional staff involved in the project. Any information you reveal which may be used in the write up of the study will not contain anything which may identify you, such as your name.

The local Research Ethics Committee has reviewed the above statement. If you are willing to participate in this study, please sign the consent form.

Katharine Shipley
Trainee Clinical Psychologist
University College London.
CONSENT FORM

Title of Project

When do people experience mental health problems?

Participant consent:

I ........................................................................... of .................................................. hereby agree to participate in this study.

Signed ................................................................. Date. ..........................

Witnessed ........................................................... Date. ............................

Katharine Shipley
Trainee Clinical Psychologist
University College London
Relapse

Did the patient relapse according to any of the following definitions during the last 6 months?

<table>
<thead>
<tr>
<th>Definition</th>
<th>If yes, Date of onset (month, year)</th>
<th>No</th>
<th>Unknown</th>
</tr>
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<tbody>
<tr>
<td>Hospitalisation due to worsening of psychotic symptoms.</td>
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<td>Unequivocal worsening of psychotic symptoms of such magnitude that hospitalisation appeared imminent.</td>
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<tr>
<td>Unequivocal clinical deterioration of such magnitude that hospitalisation appeared imminent.</td>
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<td>Re-emerge of florid psychotic symptoms such as delusions, hallucinations, bizarre behaviour or thought disorder lasting 7 days or more.</td>
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<td>Relapse due to exacerbation of non psychotic symptoms only.</td>
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<td>Social impairment:</td>
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<td>- Reduced social role function,</td>
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<td>- Behavioural disturbance,</td>
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<td>- Social crisis.</td>
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<td>Significant change in management strategy or needs.</td>
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<td>- Admission to inpatient service,</td>
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<td>- Acute day care,</td>
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<tr>
<td>- Increase/change in antipsychotic agent,</td>
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<td>- Increased/more intensive staff input in community,</td>
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<td>- Significant change in accommodation,</td>
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<tr>
<td>Suicide Attempt</td>
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</table>

Date, End of Relapse (month, year): [ ] [ ] [ ] [ ] Not Applicable [ ]

Date, Start of Full Remission (month, year): [ ] [ ] [ ] [ ] Not Applicable [ ]

Remission

Was the patient in remission during the last 6 months?
- The patient has a history of schizophrenia, but currently does not present any signs of the disease (whether on medication or not). Yes [ ] No [ ] Unknown [ ]
DEMOGRAPHIC QUESTIONS

(This schedule has been designed to use as a form that is filled in by the interviewer while asking the questions.)

ID

1. How old are you? AGE

MARITAL STATUS

2a) Are you married, living with someone? Since when?
   (Record if single married cohabiting)

   If single: Do you have a boy/girlfriend? How long have you known them for?

b) Have you ever been divorced/separated or widowed?

c) Or lived with anyone (else) in the past? How long for?
   (Record if widowed divorced/sep from spouse ever separated from a cohabitee)

3. a) Do you have children? If yes - how many?
   (Record number of children)

b) Have you ever lost a child? How? When? What ages (were they)?
   (Record ages and reason for loss)

4. Do you work?
   What is your job?
   (Record type of job)

   How many hours a week do you work?
   (Distinguish especially 30+hrs (full-time)

   Record number of hours
How long have you had that job?

Record length of present job

5. Does your spouse/partner work?

What is his/her job?
(if self-employed find out number of employees.)
(Find out whether manager/supervisor.)

Record type of job

HOUSEHOLD MEMBERS

6. How many people are living in the present household?

Who is that? (List household members)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Age</th>
<th>Name</th>
<th>Occupation/type school</th>
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</table>

SOCIAL CONTACTS

7. Do you see any other relatives?

How often?

What about in-laws? (list)

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Approx. frequency of contact</th>
<th>Visual</th>
<th>Non-visual</th>
<th>Location</th>
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<tbody>
<tr>
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</table>

122
3. Can you tell me about the friends and acquaintances you see regularly? What about neighbours? Work associates?

Approx. frequency of contact

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Visual</th>
<th>Non-visual</th>
<th>Location</th>
</tr>
</thead>
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INTIMACY CONTEXT

9a. If you had a problem of some sort who would be the first person you would want to discuss it with? (If not mentioned -

i) what about your husband/wife?

ii) Anyone else? What about .......... and ..........?

(Identify of "main friend" can be established if no confiding but frequent contact.)

Name & frequency of contact

__________________________

__________________________

__________________________

__________________________

9b. If you had been asked this question a year ago would there have been anyone else you might have mentioned then? Anybody you wouldn't have mentioned then?

(Again, probe about main friend if no confidant.)

__________________________

__________________________

__________________________

__________________________
CHILDBOOD

10. a) Where were you born? If relevant: When did you come here?

b) Do you have brothers and sisters? No.
What position are you in the family?
(Only, eldest, middle, youngest)

Have any of your brothers or sisters died? When was that?

c) Are both your parents alive?
If so - What age are they?
Mother's age_______ Father's age_______

If not - What age were you when they died?
S's age at mother's death_______
S's age at father's death_______
d) Have your parents ever been separated?
If yes - when was that?
S's age when parents separated_______
e) Were you ever separated from your mother before age 17?
If yes:
How old were you?_______

How long was it for?_______
(Was it for more than a year?)

What was the reason for the separation?(e.g. work, ill health, marital separation)

f) Were you ever separated from your father before age 17?

How old were you?_______

How long for?_______

What was the reason for separation? (e.g. work, ill health, wartime, marital separation)

g) So who brought you up for most of your childhood?
(Ask about surrogate parents)
**DEMOGRAPHIC QUESTIONS - CORISOL PROJECT**

**SO WHO BROUGHT YOU UP FOR MOST OF YOUR CHILDHOOD?** (Natural parents, surrogate parents, step-parents etc.)

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>S'S AGE</th>
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<tr>
<td>1st</td>
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<td>3rd</td>
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<td>4th</td>
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<td>5th</td>
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</table>

**SO HOW OLD WERE YOU WHEN YOU CAME TO LEAVE HOME?**

(Probe for different reasons for leaving)

**WHAT RELIGION WERE YOU BROUGHT UP IN?**

Do you still belong to that church/ denomination? YES/NO

**HOW OLD WERE YOU WHEN YOU LEFT SCHOOL?**

**DID YOU HAVE ANY POST-SCHOOL TRAINING?**
| CLASSIFICATION | A |
| EVENT NO. | E2a |
| DATE OF EVENT | DD MM |
| ID | |
| SUBJECT ID | |

**LIFE EVENTS SCHEDULE: E RECORD**

**Summary description & threat**

### CLASSIFICATION - 0

#### EDUCATION

- 0 Selection interviews
- 1 Starting/leaving school/ university/ courses
- 2 Exams/results
- 3 Other crises (excl. conduct probs & referrals)

#### WORK

- 10 Job interviews/rejectns
- 11 Start job (1st/new/resume)
- 12 Time off sick/ maternity/ strikes >4 wks
- 13 Promotion/demotion/ structural change or prob
- 14 Work relationship crises
- 15 Redundancy/dismissal
- 16 Retirement/giving up wk
- 17 Solicitor/court/ tribunal re work

#### REPRODUCTN (TO 2 WKS AFTER BIRTH)

- 18 Infertility
- 19 Pregnancy
- 20 Complications preg
- 21 Miscarriage
- 22 Induced abortion
- 23 Birth
- 24 Stillbirth
- 25 Birth
- 26 Suicide attempt
- 27 Psycholog referral/ substance misuse/ child guidance/psychiat disorder
- 28 Hospital discharge
- 29 Solicitor re health

#### MARITAL/PARTNER RELATIONSHP

- 30 1st sexual intercourse
- 31 New reln./resuming one
- 32 Engagement/marriage
- 33 Start cohabitation
- 34 Increase/decrease interaction
- 35 Crisis/breakdown in reln
- 36 Violence/rape - partner
- 37 Separation/divorce
- 38 Solicitor-divorce/custody
- 39 OTHER RELNHS INCL CHILD

#### OTHER RELNHS INCL CHILD

- 40 Increase/dec interaction/ arrival/depart houshold
- 41 Engagement/marriage/cohab divorce of other
- 42 Child conduct/ truancy/ delinquency
- 43 Crisis breakdown reln
- 44 Break bad news/close tie
- 45 Violence/pestering by relative/key tie
- 46 Contact police/solicitor social worker re above

#### MISCELLANEOUS (INCL PETS)

- 47 Meeting key person/ learn ing key fact about past
- 48 Ceremonies
- 49 Pet events
- 50 Other miscall crises
- 51 Death/bereavement

**RANGE OF UNCERTAINTY OF DURATION**

(total period in weeks)

- 52 1
- 53 2
- 54 3
- 55 4
- 56 5
- 57 6
- 58 7
- 59 8
- 60 9
- 61 0

**SUBJECT ID**

**EVENT NO.**

**DATE OF EVENT**

**ID**

**RANGE OF UNCERTAINTY OF DURATION**

(total period in weeks)
CLASSIFICATION - B

TEMPORAL STATUS OF EVENT
Whether the event involves actual change/occurrence of event or is of a more cognitive nature and prior (as with decisions or forecast) or later in time (as with news, revelation or disclosure).

0. Decision by S to do something
1. Forecast of change to come
2. News that change has happened
3. Revelation (by other to S)
4. Disclosure (by S to other)
5. Actual change (none of above)

ILLNESS RELATED STATUS OF EVENT
Extent to which event is related to actual episode of depression (or relevant dependent variable).
All events rated 1-3 should be excluded from onset analyses

0. Not illness related (most events)
1. Possibly illness related (no actual evidence)
2. Definitely illness related, but to previous episode
3. Definitely illness related, current episode

INDEPENDENCE OF EVENT
Extent to which the occurrence of the event is likely to be independent of any hypothetical presence of disorder.

Independent
[1. Totally independent
[2. Nearly totally independent
[3. Possible influence from S, but unlikely
[4. Independent, involves S's physical illness
[5. Compliance of S with external situation

Possibly Independent
[6. Intentional act by S
[7. Probable negligence/carelessness on S’s part
[8. Arguments/tension, end contact
[9. End contact, no argument
[10. S’s love/sex events
[11. Partner’s love/sex events

FOCUS
Extent to which the event is focussed on S or on others

S focussed
[1. Subject focussed
[2. Joint focussed with other(s)

O focussed
[3. Focussed on a possession or pet
[4. Focussed on another person(s)
THREAT/UNPLEASANTNESS OF EVENT

The degree of unpleasantness i.e. ongoing negative feelings associated with the event, and threat i.e. uncertainty and anticipation of difficult consequences associated with the event.

1. Marked threat/unpleasantness
2. Moderate threat/unpleasantness
3. Some threat/unpleasantness
4. Little/no threat/unpleasantness

A. SHORT-TERM
Threat/unpleasantness, rate peak in first few days after start of event

CONTEXTUAL
Interviewer judgment based on all relevant factual information

REPORTED
S's response to event and style of reporting it

B. LONG-TERM
Threat/unpleasantness, rate peak in 10-14 days after start of event

CONTEXTUAL

REPORTED

NEW CLASSIFICATION OF THREAT (a/b)
If event is 2 on long-term contextual threat and S or J focussed, then rate 'a' or 'b':

1. Upper moderate threat (a)
2. Lower moderate threat (b)
-1. Not a 2S or J event

CONTAMINATION OF THREAT BY S's COPING
The extent to which S's immediate reactions had an impact on the long-term contextual threat

0. No contamination
1. Possibly } S reduced the threat (from '1' or '2'
2. Probably } to '3' or below),
3. Possibly } S increased the threat (from '3'or '4'
4. Probably } to '2' or above)
**DATE OF NEUTRALISATION OF EVENT**

Give date at which severe event is neutralised/reduced in threat to 3 or 4.

-1 N/A: event never severe, or not neutralised

<table>
<thead>
<tr>
<th>E12</th>
<th>DD MM YY</th>
</tr>
</thead>
</table>

**RELATIONSHIP BEFORE EVENT**

(of other to S)

-1. No other involved
  0. Parent
  1. Child
  2. Spouse/cohabitee
  3. Girl/boyfriend
  4. Sibling
  5. Other relative/spouse's relatives
  6. Confidant (if not above)
  7. Ex-partner
  8. Other friend/neighbour/workmate
  9. Causal acquaintance/stranger
  10. Key person from past

**RATE OF CONTACT BEFORE EVENT**

-1 Only S. involved
  0. Household member
  1. Seen daily/weekdays
  2. Seen weekly or more
  3. Seen two-weekly or more
  4. Seen monthly or more
  5. Seen 6 monthly or more
  6. Seen once per year
  7. Seen less than once per year/never before

**Fresh Start complex**

0. None
  1. Delogjamming but not 2 or 3.
  2. Potential Fresh Start
  3. Fresh Start
  4. Fresh-start - Reconciliation
  5. Rewarding status change only.

**Intrusiveness of event**

1. Marked
  2. Moderate
  3. Slight
  4. Little or none

**Is the event externally confirmed? (Or could it be a delusion/hallucination?)**

0. Not confirmed so could be a symptom.
  1. Yes, confirmed

**Discrepancy with information from key informant?**

0. No 1. Yes
ADDITIONAL EVENT DIMENSIONS - SEVERE EVENTS OR 2-OTHER FOCUSED EVENTS ONLY

Rate these scales for events rated '1-marked' or '2-moderate' on long-term contextual threat.

Most scales:
1: marked
2: moderate
3: Some
4: Little/none

1. **Loss**
The amount of loss for S involved in the event (e.g. by death or separation from other, or material possessions, employment or loss of 'cherished idea').

2. **Irreversibility of loss**
The possibility that the loss (recorded above) can be regained.

1. No loss rated
2. Irreversible loss (e.g. deaths, definite loss of cherished idea)
3. Less irreversible loss
4. Distinct possibility of lost object being restored.

3. **DANGER**

a) Potential future loss
The degree of unpleasantness of a specific future crisis that might seem very likely to occur as part of the aftermath of the event, and the likelihood of such a crisis (e.g. potential loss by death or separation, potential loss of employment, material possessions, health or miscellaneous potential losses).

1. Inevitability of danger
This scale reflects whether the danger recorded in the scales above is inevitable or not.

1. No danger rated
2. The anticipated event is almost certainly inevitable.
3. Anticipated outcome less inevitable.
BEFRIENDING PROJECT

5. Matching 'D' event
Does the event match a prior difficulty of 1-3 level of severity (excluding purely health difficulties) present for 6 months continuously

If yes: give difficulty number:
If no: rate -1
difficulty no. E19A
difficulty no. E19B

6. Humiliation/entrapment
1. Humiliation: separation
2. Humiliation - other's delinquency
3. Humiliation: put down
4. Entrapment
5. Death
6. Separation - subject initiated
7. Other key loss
8. Lesser loss
9. Danger alone*
   Optional 3 extra points
10. Humiliation: separation/
    trapped = 1+4
11. Humiliation: other's delinquency/trapped
    = 2 + 4
12. Humiliation: put down/
    trapped = 3+4

OPTIONAL H/E SUBSCALES
6B SEVERITY OF HUMILIATION/ENTRAPMENT
1. Marked
2. Moderate

FOR EVENTS RATED 1 OR 6 ON E20
6C Degree to which subject was 'forced' to act
1. Not 'forced' - ie if rated 1 on E20, Other initiated.
   If rated 6 on E20, clearly decided by subject or mutual decision.
2. Subject 'forced' to act.

7. Links
For severe events only, if event is 'linked' to an earlier severe event, rate event no: (scale E1) of the earliest event in the period with which it is linked. If not linked, or not severe, rate -1.
P. D. I.

This questionnaire is designed to measure beliefs and vivid mental experiences. We believe that they are much more common than has previously been supposed, and that most people have had some such experiences during their lives. Please answer the following questions as honestly as you can. There are no right or wrong answers, and there are no trick questions. Please note that we are NOT interested in experiences people may have had when under the influence of drugs.

**IT IS IMPORTANT THAT YOU ANSWER ALL QUESTIONS.**

For the questions you answer YES to, we are interested in: (a) how distressing these beliefs or experiences are; (b) how often you think about them; and (c) how true you believe them to be. On the right hand side of the page we would like you to circle the number which corresponds most closely to how distressing this belief is, how often you think about it, and how much you believe that it is true.

<table>
<thead>
<tr>
<th>SEX</th>
<th>ETHNIC BACKGROUND</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELIGION</td>
<td>PROFESSION</td>
<td>DATE</td>
</tr>
</tbody>
</table>

**Examples:**

<table>
<thead>
<tr>
<th>Do you ever feel as if people are your mind? (please circle)</th>
<th>Not at all distressing</th>
<th>Hardly ever think about it</th>
<th>Somewhat distressing</th>
<th>Think about it all the time</th>
<th>Absolutely true</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you ever feel as if you can read other people's minds? (please circle)</th>
<th>Not at all distressing</th>
<th>Hardly ever think about it</th>
<th>Somewhat distressing</th>
<th>Think about it all the time</th>
<th>Absolutely true</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

132
### Delusions Inventory

#### 1. Do you ever feel as if you are under the control of some force or power other than yourself?

*Please circle*

- **No**
- **Yes**

<table>
<thead>
<tr>
<th>Not at all distressing</th>
<th>Strongly distressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
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<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 2. Do you ever feel as if you are a robot or zombie without a will of your own?

*Please circle*

- **No**
- **Yes**

<table>
<thead>
<tr>
<th>Not at all distressing</th>
<th>Strongly distressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
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<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 3. Do you ever feel as if you are possessed by someone or something else?

*Please circle*

- **No**
- **Yes**

<table>
<thead>
<tr>
<th>Not at all distressing</th>
<th>Strongly distressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
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<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 4. Do you ever feel as if your feelings or actions are not under your control?

*Please circle*

- **No**
- **Yes**

<table>
<thead>
<tr>
<th>Not at all distressing</th>
<th>Strongly distressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
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<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 5. Do you ever feel as if someone or something is playing games with your mind?

*Please circle*

- **No**
- **Yes**

<table>
<thead>
<tr>
<th>Not at all distressing</th>
<th>Strongly distressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
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<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
### Appendix 7: The Peters et al. Delusional Inventory

#### Please circle if answered YES

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at all distressing</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>(6) Do you ever feel as if people seem to drop hints about you or say things with a double meaning?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
<tr>
<td>(7) Do you ever feel as if things in magazines or on TV were written especially for you?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
<tr>
<td>(8) Do you ever think that everyone is gossiping about you?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
<tr>
<td>(9) Do you ever feel as if some people are not what they seem to be?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
<tr>
<td>(10) Do things around you ever feel unreal, as though it was all part of an experiment?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
</tbody>
</table>

**Please circle the corresponding number (1-5) for each statement according to the severity of your experience:**

- 1 = Not at all distressing
- 2 = Hardly ever think about it
- 3 = Don't believe it's true
- 4 = Sometimes think about it
- 5 = Absolutely true
Appendix 7: The Peters et al. Delusions Inventory

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all distressing</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>(11) Do you ever feel as if someone is deliberately trying to harm you?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No  Yes -------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(12) Do you ever feel as if you are being persecuted in some way?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No  Yes -------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(13) Do you ever feel as if there is a conspiracy against you?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No  Yes -------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(14) Do you ever feel as if some organisation or institution has it in for you?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No  Yes -------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(15) Do you ever feel as if someone or something is watching you?</td>
<td>1 2 3 4</td>
<td>5</td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No  Yes -------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(11) Do you ever feel as if someone is deliberately trying to harm you?

- Not at all distressing: 1, 2, 3, 4
- Very distressing: 5

(12) Do you ever feel as if you are being persecuted in some way?

- Not at all distressing: 1, 2, 3, 4
- Very distressing: 5

(13) Do you ever feel as if there is a conspiracy against you?

- Not at all distressing: 1, 2, 3, 4
- Very distressing: 5

(14) Do you ever feel as if some organisation or institution has it in for you?

- Not at all distressing: 1, 2, 3, 4
- Very distressing: 5

(15) Do you ever feel as if someone or something is watching you?

- Not at all distressing: 1, 2, 3, 4
- Very distressing: 5
<table>
<thead>
<tr>
<th>Question</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>(16) Do you ever feel as if you have special abilities or powers?</td>
<td>Not at all distressing 1 2 3 4 5 Hardly ever think about it 1 2 3 4 5 Don't believe it's true 1 2 3 4 5</td>
</tr>
<tr>
<td>(17) Do you ever feel as if there is a special purpose or mission to your life?</td>
<td>Not at all distressing 1 2 3 4 5 Hardly ever think about it 1 2 3 4 5 Don't believe it's true 1 2 3 4 5</td>
</tr>
<tr>
<td>(18) Do you ever feel as if there is a mysterious power working for the good of the world?</td>
<td>Not at all distressing 1 2 3 4 5 Hardly ever think about it 1 2 3 4 5 Don't believe it's true 1 2 3 4 5</td>
</tr>
<tr>
<td>(19) Do you ever feel as if you are or destined to be someone very important?</td>
<td>Not at all distressing 1 2 3 4 5 Hardly ever think about it 1 2 3 4 5 Don't believe it's true 1 2 3 4 5</td>
</tr>
<tr>
<td>(20) Do you ever feel that you are a very special or unusual person?</td>
<td>Not at all distressing 1 2 3 4 5 Hardly ever think about it 1 2 3 4 5 Don't believe it's true 1 2 3 4 5</td>
</tr>
</tbody>
</table>
### Appendix 7: The Peters et al. Delusions Inventory

#### (21) Do you ever feel that you are especially close to God?

**Please circle if answered YES**

<table>
<thead>
<tr>
<th></th>
<th>Not at all distressing</th>
<th>Hardly ever think about it</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

#### (22) Do you ever think that people can communicate telepathically?

**Please circle if answered YES**

<table>
<thead>
<tr>
<th></th>
<th>Not at all distressing</th>
<th>Hardly ever think about it</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

#### (23) Do you ever feel as if electrical devices such as computers can influence the way you think?

**Please circle if answered YES**

<table>
<thead>
<tr>
<th></th>
<th>Not at all distressing</th>
<th>Hardly ever think about it</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

#### (24) Do you ever feel as if there are forces around you which affect you in strange ways?

**Please circle if answered YES**

<table>
<thead>
<tr>
<th></th>
<th>Not at all distressing</th>
<th>Hardly ever think about it</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

#### (25) Do you ever feel as if you have been chosen by God in some way?

**Please circle if answered YES**

<table>
<thead>
<tr>
<th></th>
<th>Not at all distressing</th>
<th>Hardly ever think about it</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 7: The Peters et al. Delusions Inventory

#### (26) Do you believe in the power of witchcraft, voodoo or the occult?

<table>
<thead>
<tr>
<th>Please circle if answered YES</th>
<th>Not at all distracting</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1          2  3  4</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### (27) Are you often worried that your partner may be unfaithful?

<table>
<thead>
<tr>
<th>Please circle if answered YES</th>
<th>Not at all distracting</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1          2  3  4</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### (28) Do you ever think that you smell very unusual to other people?

<table>
<thead>
<tr>
<th>Please circle if answered YES</th>
<th>Not at all distracting</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1          2  3  4</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### (29) Do you ever feel as if your body is changing in a peculiar way?

<table>
<thead>
<tr>
<th>Please circle if answered YES</th>
<th>Not at all distracting</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1          2  3  4</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### (30) Do you ever think that strangers want to have sex with you?

<table>
<thead>
<tr>
<th>Please circle if answered YES</th>
<th>Not at all distracting</th>
<th>Very distressing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1          2  3  4</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 7: The Peters et al. Delusions Inventory

<table>
<thead>
<tr>
<th>Question</th>
<th>Response Options</th>
<th>Not at all distressing</th>
<th>Hardly ever think about it</th>
<th>Don't believe it's true</th>
<th>Very distressing</th>
<th>Please circle if answered YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>(31) Do you ever feel that you have sinned more than the average person?</td>
<td>(please circle)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>(32) Do you ever feel that people look at you oddly because of your appearance?</td>
<td>(please circle)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>(33) Do you ever feel as if you had no thoughts in your head at all?</td>
<td>(please circle)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>(34) Do you ever feel as if your insides might be rotting?</td>
<td>(please circle)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>(35) Do you ever feel as if the world is about to end?</td>
<td>(please circle)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
### Appendix 7: The Peters *et al.* Delusions Inventory

<table>
<thead>
<tr>
<th>Question</th>
<th>Please circle if answered YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>(36) Do your thoughts ever feel alien to you in some way?</td>
<td></td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
</tr>
<tr>
<td>No  Yes -------&gt;</td>
<td></td>
</tr>
<tr>
<td><em>(37) Have your thoughts ever been so vivid that you were worried other people would hear them?</em></td>
<td></td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
</tr>
<tr>
<td>No  Yes -------&gt;</td>
<td></td>
</tr>
<tr>
<td><em>(38) Do you ever feel as if your own thoughts were being echoed back to you?</em></td>
<td></td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
</tr>
<tr>
<td>No  Yes -------&gt;</td>
<td></td>
</tr>
<tr>
<td><em>(39) Do you ever feel as if your thoughts were blocked by someone or something else?</em></td>
<td></td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
</tr>
<tr>
<td>No  Yes -------&gt;</td>
<td></td>
</tr>
<tr>
<td><em>(40) Do you ever feel as if other people can read your mind?</em></td>
<td></td>
</tr>
<tr>
<td>(please circle)</td>
<td></td>
</tr>
<tr>
<td>No  Yes -------&gt;</td>
<td></td>
</tr>
</tbody>
</table>

**Scoring:**
- **Not at all distressing:** 1 2 3 4
- **Hardly ever think about it:** 1 2 3 4
- **Don’t believe it’s true:** 1 2 3 4
- **Very distressing:** 5
- **Think about it all the time:** 5
- **Believe it is absolutely true:** 5

Not at all distressing: 1 2 3 4
Hardly ever think about it: 1 2 3 4
Don’t believe it’s true: 1 2 3 4
Very distressing: 5
Think about it all the time: 5
Believe it is absolutely true: 5

Not at all distressing: 1 2 3 4
Hardly ever think about it: 1 2 3 4
Don’t believe it’s true: 1 2 3 4
Very distressing: 5
Think about it all the time: 5
Believe it is absolutely true: 5

Not at all distressing: 1 2 3 4
Hardly ever think about it: 1 2 3 4
Don’t believe it’s true: 1 2 3 4
Very distressing: 5
Think about it all the time: 5
Believe it is absolutely true: 5

Not at all distressing: 1 2 3 4
Hardly ever think about it: 1 2 3 4
Don’t believe it’s true: 1 2 3 4
Very distressing: 5
Think about it all the time: 5
Believe it is absolutely true: 5

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