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**Anomalous Experiences,
Trauma & Social Support**

Anna Prescott

D.Clin.Psy thesis (Volume 1), 2007

University College London

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Overview

Psychotic experiences are widely believed to lie on a continuum of severity, endorsed by individuals with psychotic disorders who are considered in need of care through to otherwise healthy individuals from the general population. Cognitive models of the positive symptoms of psychosis propose that it is the appraisals individuals form to make sense of their experiences which determine the transition from anomalous experience to psychotic symptom, with externalising and personalising appraisals of particular significance. Early traumatic and interpersonal experiences are considered important in the development of negative schematic models, which may fuel these externalising appraisals of anomalous experiences and lead to paranoia. This thesis presents a literature review of the evidence for the continuity of psychotic experiences in the general population and evaluates some of the hypotheses proposed by cognitive models. An empirical study is then presented which attempted to examine these assumptions to determine need for care with two groups of participants who endorse psychosis-like experiences (clinical and non-clinical). The relationships between anomalous experiences, distress, appraisals, trauma and social support were analysed. There were differences and similarities in the experiences endorsed and how they were appraised. There were no substantial differences between the groups on trauma, but some forms of trauma did predict maladaptive appraisals. There was evidence to support the cognitive models of psychosis and to suggest that trauma may relate to the development of maladaptive appraisals of anomalous experiences, but other contextual factors could be significant in the transition to psychotic disorders. The findings and reflections on the research process are further evaluated in a critical appraisal.

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Acknowledgments

I would like to express my greatest thanks to Emmanuelle Peters and Caroline Brett for their inspiration and support in designing this thesis, and for Emmanuelle and Oliver Mason's consistent guidance and encouragement throughout the whole process. I am really thankful for the support, time and generosity of everyone who took part in my study. I would also like to thank the College of Psychic Studies, the Spiritualist Association of Great Britain, the Psychology department at University College London, the Psychological Interventions Clinic for Outpatients with Psychosis (PICuP) and all of the staff at the inpatient wards at the Bethlem and Maudsley Hospitals for their help in finding the people to make this research possible. I am very grateful for the invaluable advice from Liz Andrew and Vaughan Bell and to Mirium Fornells-Ambrojo for her generous help. Finally, I am also most appreciative of the continuous support from my partner, family and friends.

Part 1: Literature Review

The Continuum of Psychotic Experiences: What Determines Need for Care?

Abstract

It has become widely recognised that the traditional view of psychosis as a dichotomous entity is inadequate. This review aims to consider research in the context of a continuum model of psychosis, and to ask what determines whether anomalous or psychotic experiences lead to some individuals requiring care from mental health services and others not. Quantitative and qualitative differences in psychotic experiences and distress have been found that may help to answer this important question. There is evidence that appraisals may mediate development of psychosis and need for care. How these appraisals are formed is explored. Trauma has been implicated in the development of psychosis and maladaptive appraisals but the evidence is controversial. Social support and understanding is also considered and may be protective against the transition to psychosis and development of delusions. There is a need for further research to look at whether and how anomalous experiences and maladaptive appraisals are associated with traumatic early and current life events and social environment.

Introduction

In clinical practice, psychosis has been generally viewed as a clear-cut entity, defined by symptoms that individuals either have or do not have. There is however, increasing evidence for the occurrence of psychotic experiences in many individuals in the general population who have never had contact with mental health services (e.g. Romme and Escher 1989). In a move away from a dichotomous definition it has been hypothesised that within the general population psychosis is distributed along a continuum of severity (van Os, Hanssen, Bijl and Ravelli, 2000). This is thought to span between individuals within a clinical population in need of care at the most severe end, through to individuals not in need of care within the wider population. This model proposes that psychosis could be distributed similarly to anxiety, depression or blood pressure, varying between lower-level symptoms widely present within the general community to the extreme end of experiences in the context of, anxiety disorders, major depressive disorders, hypertension, or severe psychotic disorders. Understanding the similarities and differences in experiences along the continuum may offer a valuable contribution to understanding why these experiences lead to a need for care in some people but not others, and what psychological, social factors and life events might determine these different outcomes.

Methodology

Literature searches were conducted using a number of databases and search engines. These included Web of Science, Psych-Info and Medline. A number of search terms were used to cover and combine the areas of psychosis and anomalous experiences ('psychosis/psychotic', 'anomalous experience', 'hallucination', 'first

rank symptoms', 'psychic experiences' and 'voices'), the continuum of psychotic experiences ('continuum', 'continuity'), appraisals of experiences ('appraisal', 'belief', 'interpretation', and 'understanding'), trauma ('trauma', 'traumatic', 'abuse', 'discrimination' and 'victimisation') and social support ('social support', 'social environment', 'peer support', and 'relationships'). From the searches 127 articles were identified, and through also identifying studies from the reference lists of key articles, 124 papers were then considered in detail.

The Continuum of Psychotic Experiences in the General Population

General population samples have shown that a large proportion of people report psychotic experiences, such as hallucinations and delusions which resemble those observed in clinical cases of psychosis (for example, Van Os, Hanssen, Bijl and Ravelli, 2000; Kendler et al 1996). The magnitude of endorsement of these experiences varies between large population studies which have been replicated across a number of countries. These include the Netherlands Mental Health Survey and Incidence Study (NEMESIS), a large prospective population study over three years (Bijl et al 1998). Using the Composite Diagnostic Interview (CIDI, WHO 1993) it was found that 17.5% of participants reported experiences which resembled clinical psychosis (Van Os et al, 2000). Across all states of Australia, the 1997 National Survey of Mental Health and Wellbeing also used the CIDI and found that 11.7% of the population studied endorsed one or more of the psychosis screening items (Scott, Chant, Andrews and McGrath, 2006). Similarly, as part of the National Comorbidity Survey (NCS) in the United States, Shevlin, Murphy, Dorahy and Adamson (2007) found prevalence rates for different psychosis items of up to 12.9% (for items relating to the feeling of being spied on or followed). The British National

Survey of Psychiatric Morbidity found 10.9% of participants endorsed at least one psychosis symptom at baseline (Wiles, Zammit, Bebbington, Singelton, Meltzer and Lewis, 2006). The rates of endorsement of psychotic experiences vary very little between these studies. The equivalence of these findings may however be limited due to methodological differences in the assessments used, differences in how psychotic experiences have been defined, whether estimates are based on endorsement of single or multiple items, differences in the populations studied and period of recall (Wiles et al 2006). Despite these methodological differences, there appears to be consistent evidence to support the occurrence of psychotic experiences within the general population.

Such studies have shown that a higher number of people endorse psychosis screening items than meet criteria for clinical diagnoses. For example, Kendler et al (1996) in the US National Comorbidity Survey found that 28% of respondents endorsed psychosis screening items, but when clinicians applied criteria of clinical relevance only 0.7% met diagnoses of broadly defined psychoses. In the Netherlands Mental Health Survey and Incidence Study (NEMESIS), although 17.5% of respondents reported experiences which resembled clinical psychosis only 4.2% of the general population showed evidence of delusional ideas or hallucinations as rated by psychiatrists. In addition only 2% had received a diagnosis of non-affective psychosis (Van Os, Hanssen, Bijl and Ravelli, 2000). These studies suggest that clinician defined cases of psychotic disorders represent only a very small part or extreme end of the total phenotypic continuum of the characteristics of psychosis and anomalous experiences. It is suggested therefore that this continuum does not inevitably imply a continuum of disorder (Johns and van Os, 2001) as individuals can have these experiences without clinical consequences. It is also suggested that

sub-clinical experiences of psychosis may represent a risk factor for disorder (Claridge, 1994, 1997b) and may potentially have similar underlying causes. It follows then to ask what differentiates those individuals within the clinical range of the continuum from those within the general population, not in need of care.

Similarities and Differences in Experiences along the Continuum

One possibility in differentiating individuals at different points along the continuum is to consider whether differences exist between the psychosis-like experiences themselves. There is evidence for the occurrence of both hallucinations and delusions along the continuum of severity (for review see, Johns and van Os 2001). Differences in individual symptoms have been examined in terms of both quantitative variation, referring to the frequency or duration of psychotic symptoms, and also qualitative variation, regarding the form and types of experiences and beliefs about them.

These differences have been examined specifically in relation to voice hearing. For example, Honig et al (1998) compared the form and content of chronic auditory hallucinations in patients with schizophrenia, patients with dissociative disorder and non-patient voice-hearers. They found that the form and perceived location of the voices was similar across the three groups, but there were significant differences in the content, emotional quality and locus of control of the voices experienced. The non-patient group were able to keep their voices under control, possibly as they were predominantly positive and non-threatening. Significantly more patients reported hearing voices daily and continuously suggesting that there were both qualitative and quantitative differences along the continuum. Their

sample size was however relatively small and so the generalisability of the findings is limited.

Brett (2004, unpublished PhD thesis), looked at experiences along the continuum of psychosis-like experiences in three groups. She included an 'undiagnosed group' who were a self-selecting sample of individuals from the general population who reported having these experiences, but who had never received a diagnosis of a psychotic disorder nor been treated or sought help, a 'clinical group' who were diagnosed with psychosis and in receipt of care and a group of help-seeking individuals considered to be 'at-risk' of developing psychosis. Using a newly developed, detailed semi-structured interview (the Appraisals of Anomalous Experiences interview, AANEX, Brett, Peters, Johns, Tabraham, Valmaggia and McGuire, In Press), quantitative and qualitative dimensions of psychotic-like experiences were assessed. Qualitative differences were seen in the types of experiences endorsed. The diagnosed group only scored higher than the non-clinical group on the 'Cognitive-Attention' factor items, such as language disturbance, thought blockages, lost automatic skills, and distractibility. This was the same for comparison with the at-risk group. These findings were unexpected, suggesting that the difference between the groups lies in the 'cognitive apparatus' rather than the actual anomalous experiences, including hallucinations and first rank symptoms. The undiagnosed group however, experienced more 'Paranormal-Hallucination' experiences, such as visual and somatic anomalies, passivity and magical and precognitive experiences, than the diagnosed and at-risk groups. The non-clinical group also endorsed more 'Meaning-Reference' experiences (including ideas of reference, a sense of having insights, and elation) than the at-risk group. Quantitative differences between the diagnosed and undiagnosed groups were found

in the frequency of anomalous experiences. The diagnosed group reported significantly more frequent first rank symptoms (including voices, thought transmission and insertion and 'made' emotions) and 'Meaning-Reference' experiences. Quantitative similarities were also found as over one third of the undiagnosed group indicated that they had periods of continuous or very frequent anomalous experiences, similar to florid psychotic states. It appears therefore that there were both differences and striking similarities between the groups.

There were a number of limitations with Brett et al's research. The sample sizes were small and the undiagnosed group were not randomly sampled from the general population. In addition the undiagnosed group were less likely to come from non-white ethnic backgrounds, and had a higher than average estimated IQ relative to the clinical groups. These factors limit the potential generalisability of the findings and so they should be interpreted with caution. Despite these limitations there is encouraging evidence for both quantitative and qualitative variation in anomalies or psychosis-like experiences and their importance in the continuum of vulnerability to psychotic disorder. Although there was much overlap in the frequency and types of experiences between these populations, there were also clear differences with clinical groups reporting more cognitive and attentional anomalies and more frequent auditory hallucinations, and fewer paranormal and other types of hallucinatory experience, than the non-clinical group.

Shevlin, Murphy, Dorahy and Adamson (2007) also explored the distribution of psychosis-like experiences in the general population. In contrast to Brett et al, they used latent-class analysis on data from a large epidemiological study of a stratified, multi-stage, area probability sample covering 48 states of America (part of the National Comorbidity Survey, NCS), thus increasing the potential

generalisability of the findings. They identified 4 classes from the general population data on endorsement of psychosis items which they labelled; 'psychosis', 'hallucinatory', 'intermediate' and 'normative' classes. Between these classes there were quantitative and qualitative differences in the endorsement of psychosis items. The 'psychosis' class showed the highest probability of endorsing all items and in particular, hallucinatory items. There was a similar pattern of endorsement across all items in the 'intermediate' class, but of less magnitude than the 'psychosis' class. The 'normative' class reported little or no psychotic experiences, but where they did endorse items this followed a similar pattern to the 'intermediate' and 'psychosis' classes suggesting quantitative differences across these 3 classes. In contrast, the pattern of endorsement of items in the 'hallucinatory' class differed qualitatively. They had higher probabilities for hallucination items only and there were a greater number of females in this group. There appears to be some evidence for a continuum of psychotic experiences in the general population, but possibly an underlying skewed distribution (Johns and van Os 2001). Shevlin et al suggest the 'hallucinatory' class may represent a predominantly female, sub-clinical psychosis group, or alternatively they suggest the findings could represent evidence of transition towards clinical psychosis. As the recency of hallucinations was not assessed this could not be determined.

In both Brett et al's and Shevlin et al's research there were some methodological limitations. The use of self-reports introduces potential biases as participants may deny the presence of psychotic experiences due to perceived stigma or omit experiences they do not see as relevant. On the other hand, participants may misunderstand the questions and so over-report (Shevlin et al 2007). In Brett's research however, the undiagnosed group was self-selecting and so it could be

assumed that they were willing and comfortable to be open about their experiences; individuals more likely to deny the presence of experiences may not have volunteered to participate. Furthermore individuals' reports about their experiences were elicited using a semi-structured interview, where ratings were found to show good inter-rater reliability. Using an interview may have enabled further clarification of responses and further probe questions to be asked where there was any uncertainty about responses. Overall it seems that the limitations of self-report measures are difficult to overcome, particularly in assessing a non-clinical population as there are inherently no case-notes or medical records to refer to for corroboration. Despite these limitations it does appear that within the general population there may be both quantitative and qualitative variation between psychotic experiences in individuals at different positions along the continuum. It seems that these variations do not follow a clear pattern, but there may be sub-groups or characteristic presentations among different groups. These variations may offer some explanation for differences in need for care.

Spiritual Experiences and Psychosis

In exploring the continuum of psychosis it is worth considering the parallels and distinctions with a range of spiritual beliefs and experiences. Common phenomena in both spiritual and psychotic experiences have been recognised for a long time as they both involve altered states. Beliefs about the paranormal and parapsychological phenomena, such as ghosts, telepathy, and aliens, are at present widely held in society. Grof and Grof (1989, 1993 and 2000) describe various forms of 'spiritual emergency' which describe psychosis-like experiences in periods of 'psychospiritual' crises and 'transformation'. They summarised that these states

were triggered by traumatic experiences, the use of drugs, or intense spiritual practice. They suggested it may be impossible to differentiate these states from psychosis as both involve similar features, including hallucinations, visions, somatic anomalies, and altered cognitive and emotional states. Many of the states described also appear inherently distressing, involving crises, for example, alien abduction experiences and possession states. Grof and Grof did not draw a firm distinction but suggested that in spiritual emergency the affected individual recognises that their experiences are due to internal processes, and they are able to describe them in a coherent and articulate way. They went further to suggest that impairment of memory, problems with orientation, poor coordination, confusion, disorganisation and defective intellectual functioning, indicate a need for a medical approach. These findings concur with Brett et al's findings that the clinical sample reported a significantly wider range of experiences than the non-clinical sample only within the 'Cognitive-Attentional' factor. Although these accounts are largely based on clinical observations rather than empirical findings, this approach complements the research on benign and non-pathological psychotic-like phenomena described above.

Jackson and Fulford (1997) similarly suggested that psychotic phenomena can occur in the context of benign spiritual experiences. They examined accounts of intense spiritual experiences where there was no psychiatric involvement, and reported on three individuals interviewed about their experiences. They could not distinguish spiritual experiences from psychotic experiences on the basis of form or content, or using pathological or descriptive definitions of mental illness. Instead they suggested distinction lies in how they are embedded in the structure of each individual's values and beliefs. They proposed a 'Cognitive-Problem Solving Model' which suggests that psychotic phenomena are part of an adaptive problem-

solving process in response to intense stress or existential crises. They suggest that non-pathological experiences lead to a paradigm shift in the individual's assumptions, providing an 'insight' which is used to solve the stress and triggering crises. However in psychosis they suggest that this process fails and becomes self-limiting. They emphasise the importance of the individual's beliefs and values in determining whether the experiences are pathological or not. Their ideas are based on a small number of detailed accounts which have the same limitations of self-report and implications for generalisability as discussed earlier. In these cases individuals may have minimised or denied any limiting or disabling features or consequences of their experiences to avoid being pathologised. However, this does not appear to have been the case as Jackson and Fulford found that the experiences described were similar in their general form and characteristics to psychotic symptoms, and could not be discriminated using traditional definitions of psychopathology. Therefore the findings from both quantitative and qualitative research seem to converge in offering support for similarities between pathological and non-pathological psychosis-like experiences in types of experience, their form, content, and frequency, but also differences in endorsement of cognitive, attentional memory and orientation disturbances, and in terms of the beliefs held about them. These ideas, although developed largely from accounts of non-pathological phenomena, show some consistency with those put forward in psychological models of the positive symptoms of psychosis discussed in more detail in later sections.

Does Need for Care Equal Greater Distress?

The research reviewed so far considers differences along the continuum of psychosis in the experiences themselves and how these relate to need for care, to

distinguish clinical from non-clinical populations. The question of whether these experiences are more distressing for individuals in contact with mental health services, and whether distress parallels a need for care seems relevant. The evidence suggests that experiences can be differentiated from the emotional response they provoke. Distress often appears associated with clinical status but this relationship is not always consistent. Within clinical populations psychotic experiences are frequently experienced as more distressing. For example, Peters, Day, McKenna and Orbach (1999) found that individuals from new religious movements endorsed similar numbers of delusional items and levels of conviction on the Peters Delusions Inventory (PDI), to psychotic patients. However, they were significantly less distressed and preoccupied by their experiences. This research would suggest that instead of features of the experiences themselves, it is the emotional response which determines whether there is a need for care or not.

Brett et al (In Press) compared the emotional response to anomalous experiences in diagnosed, at risk and undiagnosed groups. They found that the diagnosed and at-risk groups reported greater distress and less positive emotional response to their anomalies than the undiagnosed group. There was however, no difference in arousal elicited by the experiences between the groups. The diagnosed and at-risk groups indicated higher levels of anxiety in response to their anomalies, but the undiagnosed group had higher levels of excitement. It appears that there were differences in emotional response to psychosis-like experiences, but in both clinical and non-clinical groups these experiences are arousing. There is support for increased distress and more negative affect within individuals at the clinical end of the continuum of psychosis.

Evidence suggests that psychotic disorders are continuous with mood disorders. Hanssen, Peeters, Krabbendam, Radstake, Verdoux and van Os (2003), as part of the Continuum of Mental Disorders Study (COMED study) in the Netherlands, compared dimensions of psychosis across the continuum in non-patients in the general population and different patient groups within a community mental health service, including those with anxiety disorder, mood disorder and psychotic disorder. Hanssen et al found that the frequency of symptoms mediated the level of distress caused by them. Comparing the patient and general populations however, they found that patient status did contribute to the level of distress independent of symptom frequency.

On the other hand even within clinical populations, experiences are not always necessarily distressing. Sanjuan, Gonzalez, Aguilar, Leal and van Os (2004) assessed the frequency of pleasurable auditory hallucinations in a psychotic patient population. They found that 26% of patients perceived voices as pleasurable at least occasionally and in 10 of 106 outpatients, pleasurable experiences were reported to be very frequent and the norm. These patients reported less anxiety and distress, and more perceived control over their voices. Sanjuan et al also found that the presence of pleasurable voices was associated with chronicity and other types of hallucinations, which they interpreted to possibly suggest poorer outcome. They also suggested that these findings may be understood as a positive adjustment to the experiences, possibly via reappraisal processes which could have implications for therapy. Similarly Roberts (1991) found that chronically deluded patients had a high level of perceived purpose and meaning in life and low levels of depression and suicidal inclination, comparable to a group of Anglican Ordinands. They suggest that such benefits may be due to the presence of a structured belief system and not

due to the content of it. It again appears that psychotic experiences are not necessarily distressing and there may be some satisfaction and adaptive benefits from having these experiences.

It appears therefore that distress associated with the experience of symptoms is an important but not absolute factor in determining need for care and clinical disorder (Freeman and Garety, 1999; Garety et al, 2001). So why are some experiences more distressing than others? It seems that the relationship between the psychotic or psychosis-like experiences and affective response is more complex and possibly mediated by other variables including appraisals of experiences.

Aetiological Continuum of Psychosis

Verdoux and van Os (2002) suggest that research looking at the continuum of psychosis-like experiences in the general population can make a valuable contribution to understanding the risks for psychosis by exploring factors that influence the expression of these experiences and the impact on the individual. Research has considered an aetiological continuum of psychosis, looking at various background factors and their possible role in the aetiology of psychosis-like experiences and related distress. Myin-Germeys, Krabbendam and van Os (2003) reviewed the evidence and concluded that the same aetiological influences are related to psychosis and psychotic-like experiences along the continuum, including environmental, demographic, personality, genetic, neurocognitive and psychophysiological risk factors.

In reviewing the literature on the continuum of psychosis questions remain regarding the aetiology of psychotic experiences, such as the role of traumatic and early life events and social development and support. It is also important to consider

how these factors may be associated with the appraisals individuals make of their experiences. Garety et al (2001) suggest experiencing adverse environments, life events, deprivation, severe childhood trauma and social adversity, may create an enduring cognitive vulnerability, developing negative schematic models which may fuel anomalous experiences, external attributions and low self-esteem. It is also suggested that traumatic events may create faulty self and social knowledge and the potentially psychotic nature of interpretations in psychosis (Morrison, Frame and Larkin, 2003). Cognitive models of psychosis and empirical support for these suggestions is examined.

Cognitive Models of Psychosis

Psychological theories about the development and maintenance of psychotic disorders suggest that appraisals of experiences are of key significance. Garety, Kuipers, Fowler, Freeman and Bebbington (2001) propose a theoretical cognitive model of the positive symptoms of psychosis. They suggest two proximal routes to the development of positive symptoms. In the first route a triggering event leads to cognitive changes producing anomalous experiences, which are then appraised in a particular way and accompanied by a particular emotional response. The second route is thought to proceed through affective changes alone, which influence the particular appraisal made. They agree that psychosis occurs in people with a bio-psychosocial vulnerability, which can be triggered by a life event, exposure to adverse environments, periods of isolation or illicit drug use. The triggering event is thought to produce a disruption in cognitive processes, for example heightened perception, racing thoughts, experiencing actions as unintended or thoughts being experienced as voices. To the individual these experiences feel unfamiliar,

uncontrollable and so externally generated and potentially threatening. Emotional changes follow, such as heightened arousal, which feed into this processing of anomalies and can alter their content. When these experiences are puzzling and seem personally significant the individual is triggered to search for an explanation and cause (Maher 1988). Biases and expectations are reflected in the appraisal given, and it is the development of an externalising and personally significant appraisal which is considered to define the transition to a positive symptom of psychosis. In the second route there is no disruption to information processing; instead the disturbed affect evoked by triggering events directly activates biased appraisal processes leading to an externalising evaluation (i.e. a delusion independent of hallucinations). Garety et al propose that reasoning and cognitive styles, dysfunctional schema and adverse social environments, the presence of emotional distress and appraisals of illness all serve to maintain the psychotic appraisal. They also suggest that some people who have anomalous experiences may reject external attributions, and so be protected in some way from developing full-blown psychotic symptoms such as delusions. These may be those individuals in the non-clinical dimensions of the continuum model.

Similarly in a cognitive model of voices, Chadwick and Birchwood (1994) emphasise the central role of the beliefs formed about voices in eliciting behavioural and emotional consequences. Morrison (2001) also proposes a similar psychological model, suggesting that intrusions into awareness are misinterpreted and viewed as psychotic phenomena. Misinterpretations are thought to be determined by individuals' beliefs, experience and knowledge, and are subsequently maintained by ongoing cognitive and emotional processes, which create distress. Morrison suggests that anomalies are 'normal' psychological phenomena, and that there is a top-down

cognitive vulnerability to psychotic appraisals, i.e. the role of metacognitive beliefs. All of these models clearly emphasise the role of appraisals in determining the clinical status of an anomalous experience. There also appear to be similarities with Jackson and Fulford's (1997) cognitive model, suggesting that individuals, who have psychosis-like experiences but do not require care, will have different appraisals, values and beliefs to those individuals who do require care.

Appraisals and the Continuum of Psychosis

Appraisals and psychosis-like experiences have been studied in depth by Brett et al (In Press) in their research on the continuum of psychosis-like experiences. They found that individuals could appraise psychosis-like experiences in a non-distressing way. There were significant differences between the groups in their styles of appraisals, consistent with cognitive models of psychosis. The diagnosed group appraised their experiences more negatively, as more dangerous, external and personally caused than the undiagnosed group. However when the types of anomalies were controlled for the significant difference for externalising appraisals vanished, suggesting that certain types of anomaly may show a tendency to elicit externalising appraisals rather than the other way round. The key difference was that the diagnosed group made more 'other people' (i.e. paranoid/conspiracy interpretations) appraisals. Although medical appraisals (i.e. in terms of illness, disorder or any material internal cause) were also more frequent in the diagnosed group this was likely to be due to contact with services. In contrast the undiagnosed group made more psychological, normalising (as part of the natural range of human experiences) and spiritual appraisals (i.e. interpreted in terms of spiritual or religious processes). However, similarly to externalising appraisals, spiritual appraisals

seemed to be associated with particular anomalies. The undiagnosed group also felt they had greater controllability over their anomalies. Therefore, consistent with Garety et al's model appraisals appear relevant to the transition from anomalous experience to clinically relevant symptom. Brett et al's research indicates that some appraisals are more adaptive than others (specifically normalising and psychological interpretations versus 'other people' being involved in causing the experiences), and may differentiate psychotic symptoms from psychosis-like experiences within the general population. Brett et al conclude however, that their patterns of findings suggest the situation is more complex than externalising appraisals being the key to the transition from anomalous experiences to psychotic symptoms, as proposed by the current cognitive models of psychosis.

Morrison and Peterson (2003) looked at the role of metacognitive beliefs about thoughts and voices, and found that positive beliefs about voices and metacognitive beliefs (negative beliefs about the controllability and danger of thoughts and cognitive confidence) were associated with predisposition to auditory hallucinations. How anomalies are appraised is thought to be influenced by core cognitive schemata, which are believed to be related to an individual's past and current life experiences and interpersonal relationships (Garety et al, 2001; Morrison, 2001). These areas will be explored in further detail next.

Trauma and Psychosis

Research has considered what interpersonal experiences and traumas may be relevant in the aetiology of psychosis. The complex and multiple relationships between trauma and psychosis are an area attracting a wealth of research and debate. Many studies focus on the link between different traumas, post-traumatic

symptomatology and psychosis within clinical populations. High rates of trauma across the lifetime, particularly childhood sexual abuse have been seen in individuals with psychosis (Mueser et al, 1998, or for a review see Morrison, Frame and Larkin, 2003). It has been suggested that psychosis, and particularly Schneiderian first rank symptoms, may emerge as a reaction to trauma (e.g. Ellason and Ross, 1997; Ross and Joshi, 1992), or an event triggering a memory of trauma (e.g. Honig et al 1998). A similar relationship between trauma and hallucinations has also emerged in individuals with bipolar affective disorder (Hammersley, Dias, Todd, Bowen-Jones, Reilly and Bentall, 2003). Different types of traumatic event have been studied considering their associations with psychosis and specific psychosis-like experiences, particularly positive symptoms. The prevalence of experiences involving a quality of intrusiveness, including sexual abuse, bullying, violence in the home, being taken into care, and being victim of serious illness, injury or assault, have all been found to be highest in individuals with psychosis compared to other psychiatric disorders (Bebbington, Bhugra, Brugha, Singleton, Farrell, Jenkins, Lewis and Meltzer, 2004). Evidence is also indicating that many individuals with psychosis may meet diagnostic criteria for PTSD, but this rarely gets diagnosed (Kilcommons and Morrison 2005).

Research considering the association between psychosis and trauma is widespread and much has focused on clinical populations. There is however also evidence for a link between traumatic life events, particularly in childhood, and psychotic-like experiences in individuals not in need of care across the continuum of psychosis (e.g. Ross and Joshi 1992). Romme and Escher (1989) found that 70% of voice hearers, who were from both clinical and non-clinical populations, said their voices began following a traumatic event. Population studies have also found these

relationships in individuals who have later developed psychotic symptoms (e.g. Janssen, Krabbendam, Bak, Hanssen, Vollebergh, de Graaf and van Os, 2004, Shevlin, Dorahy and Adamson 2007). Similar to research with clinical populations, various traumatic and victimisation experiences have been associated with psychosis and psychosis-like experiences in the general population.

These associations have also been found in individuals with high schizotypy/high predisposition to psychosis symptoms (e.g. Startup 1999). Like research on clinical and non-clinical populations, these studies have similarly considered how particular types of trauma relate to predisposition to particular symptoms. For example, among undergraduates and warehouse operatives, those who had experienced bullying had higher scores for predisposition to visual hallucinations. Those who had experienced bereavement and multiple traumas showed higher scores for predisposition to auditory hallucinations (Morrison and Peterson, 2003).

These findings suggest that there is evidence for associations between trauma and psychosis, psychotic-like experiences within the general population and also with individuals predisposed to psychotic experiences. Relationships between particular types of trauma and psychosis symptoms are also evident in all three groups. These findings offer support for an aetiological continuum of psychosis. Research along the continuum of psychosis, focusing on individuals from the general population, will be looked at in further detail next.

General Population Studies

Many studies have been correlational and therefore little can be inferred about the causal relationships between trauma and psychosis-like experiences, and

the possibility that other factors may account for the relationships found cannot be ruled out (Read, van Os, Morrison and Ross, 2005). There have been a number of more recent studies involving larger sample sizes and more complex methodology. These have produced mixed results. In a large prospective study, Spataro, Mullen, Burgess, Wells and Moss (2004) followed up a community sample of 1612 cases of reported child sexual abuse in Australia. They examined relationships with rates of treatment within mental health services on a psychiatric case register, compared to a similar aged control population. Nearly 4 times as many cases in the sexual abuse group had received later treatment for mental health problems, including anxiety disorders, major affective disorders and personality disorders. There was however, in contrast to numerous other findings, no significant relationship between childhood sexual abuse and later treatment for schizophrenia. They concluded that there was no evidence to support an association between child sexual abuse and psychosis. This was a good study as it was prospective, had a very large sample size and used documented cases of abuse which reduces the potential biases of retrospective self-reports. These conclusions have however been challenged, and a number of methodological limitations of this study have been noted. For instance using only reported cases of sexual abuse in childhood limits the sample to those who presumably received help and were potentially removed from the risk of ongoing abuse, and thereby excludes those individuals victim to more severe and prolonged abuse (Read et al, 2005). The study was also limited to detecting mental health problems only in individuals who sought help, and the average age at follow-up was in the 20's and so may be too young for cases of schizophrenia to have emerged and be detected.

Janssen, Krabbendam, Bak, Hanssen, Vollebergh, de Graaf and van Os (2004), looked at adults' retrospective reports of past traumatic experience. In a general population sample they followed individuals with no history of psychosis or psychosis-like experiences over 3 years and looked at who developed psychotic symptoms. They found that pathological psychosis (defined by the presence of severity and functional impairment on unusual thought content and/or hallucinations), psychosis needing mental health care (of greater severity, judged by clinicians) and sub-clinical psychotic experiences in adulthood, were all predicted by reported child abuse after controlling for a range of demographic variables. There was also a 'dose-response' relationship as the more severe the abuse reported, the more severe the psychosis. In another large, longitudinal study with adolescents and young adults, Spauwen, Krabbendam, Lieb, Wittchen and van Os (2006) found self-reported trauma at baseline was associated prospectively with the onset of psychotic symptoms at follow-up. Like Janssen et al, they also found evidence for a 'dose-response' relationship, and these findings were significant after controlling for a number of possible confounders. These relationships were specific to psychosis (no relationships were found between trauma and bipolar affective disorder or major depression). In individuals with a pre-existing vulnerability to psychosis, these associations were even stronger. They suggest that exposure to trauma in childhood might modify the trajectory and outcome of psychosis proneness, altering the risk of psychosis in these individuals and therefore implying causality.

In a prospective study Escher, Romme, Buiks, Delespaul and van Os (2002a, 2002b) and Escher, Morris, Buiks, Delespaul, van Os, and Romme (2004) followed children who were hearing voices over three years, half of whom were in need of care and half of whom were not. At the onset of hearing voices around 75% of

children had experienced traumatic events or circumstances beyond their control e.g. grief; problems in the home situation, such as divorce, moving, tension between parents, problematic relations with siblings; problems at school, such as peer bullying and problems with teachers; sexual abuse; long-term physical illness, needing hospitalisation; birth trauma; and abortion. It seemed that hearing voices may have been a reaction to events with which they had difficulty coping and where they felt powerless. Over time as many of these issues resolved lots of children ceased hearing voices. However when the onset of voices related to divorce, physical illness or sexual abuse, fewer children stopped hearing voices and more showed negative development, such as starting to take medication. It appears again that traumatic experiences may be very influential in the onset of psychosis-like experiences and consistent with a 'dose-response' relationship; the greater the incidence and impact of trauma, the worse the outcome appears to be with some experiences having a more potent impact than others.

In a large Australian community sample it was again found that endorsement of any psychosis screening item was significantly more likely in individuals who had been exposed to a traumatic event in their lifetime, even after adjustment for various potential confounding factors (Scott, Chant, Andrews, Martin and McGrath, in press). Shevlin, Dorahy and Adamson (2007) looked at the relationships between different traumas and different hallucinatory experiences. Their large community sample revealed that neglect, rape, molestation and physical abuse were all related to an increased likelihood of experiencing visual hallucinations. Auditory hallucinations were only related to childhood sexual traumas, and both physical and sexual abuse were associated with tactile hallucinations. They also found evidence for a 'dose-response' relationship with the experience of multiple traumas increasing

the likelihood of auditory and visual hallucinations, but after a certain number of traumas this relationship appeared to plateau.

Janssen, Hanssen, Bak, Bijl, De Graaf, Vollebergh, McKenzie and van Os (2003) considered whether perceived discrimination was associated with the onset of psychosis. In a 3 year prospective study following general population samples with no history of psychosis they found an association between perceived discrimination at baseline and delusional ideation at follow-up, and this was independent of ethnic group. It has been suggested that experiencing chronic discrimination may impact on the attributions made about daily events (Gilvarry et al 1999), which in turn could lead to a paranoid attributional style (Sharpley and Peters 1999), which links with cognitive models of psychosis.

In looking explicitly at the comparisons between clinical and non-clinical groups of voice hearers, Andrew and Gray (unpublished) looked at the relationship between trauma and beliefs about voices in mediums sampled from the general population and psychiatric voice-hearers. Mediums were recruited as previous research had suggested that they are one of a number of identifiable groups who show elevated scores on 'positive symptom measures', including hearing voices (Tobert, 2001). In terms of trauma experienced mediums had generally experienced as much trauma as psychiatric voice-hearers, but a greater proportion of the psychiatric voice-hearers reported experiencing sexual assault by a known individual in childhood. They found that mediums showed significantly fewer persistent trauma symptoms such as hyper arousal, intrusions and avoidance, and a greater number of the psychiatric voice-hearers met criteria for PTSD. From these findings it appears that severe forms of abuse, presumably those harder to resolve and the presence of ongoing trauma-related symptoms, seem important in predicting need for

care. It appears that experiencing trauma may be a vulnerability factor for developing psychosis-like experiences, but the nature of the trauma and the degree to which it remains unresolved may play a crucial role in determining distress and need for care.

It therefore appears that there is fairly convincing evidence that traumatic interpersonal experiences may lead to an increased likelihood of psychosis and psychosis-like experiences in both clinical and non-clinical populations. There seems to be evidence to suggest a significant role for sexual abuse in determining more severe psychotic presentations. There is also evidence for an association between different types of trauma and victimisation experiences and particular psychotic symptoms, namely hallucinations.

There are however a number of methodological limitations in many of the studies. Morgan and Fisher (2007) have reviewed a number of these studies and conclude that it is difficult to draw firm conclusions from and across these findings as the studies often included diagnostically heterogeneous, small samples of individuals who experienced psychotic symptoms. The definition, assessment and severity of the psychosis varied across the studies, making it difficult to compare them. In addition they conclude that comparisons across these studies are further hampered by the use of different measures of trauma, which are often simplified to single questions and do not assess the severity or response to traumas. They frequently rely on retrospective self reports or case-notes, where the accuracy of these accounts is hard to verify. Self-reports of trauma have however been found to be reliable (Meyer et al 1996, Goodman et al 1999). Associations between trauma and psychosis have been consistently found using different measures in spite of the widely held view that psychiatric patients are more likely to under-report rather than

over-report abuse (for further discussion see Read et al 2005). These issues with using self-report are however, difficult to ethically overcome in research. In view of these findings, different possible mechanisms for these associations have also been proposed and discussed.

Mechanisms for the Association between Trauma and Psychosis

A number of possible mechanisms for the association between trauma and psychosis have been suggested. One suggestion is that trauma may create a biological vulnerability for psychosis by causing neurodevelopmental disturbances that may then contribute to the dopaminergic abnormalities thought to underlie psychosis (Read et al 2001). Some of the psychological research suggests that traumatic experiences may be connected to the development of maladaptive appraisals, in line with the hypotheses of cognitive models of the positive symptoms of psychosis (e.g. Garety et al, 2001, Morrison, 2001). This explanation suggests that early traumatic experiences could create an enduring cognitive vulnerability in which negative or faulty schematic models of the self as vulnerable to threat, and the social world or others as dangerous, develop and facilitate an external attributional style characteristic of psychosis (Morrison, 2001, Garety et al, 2001, Morrison, Frame and Larkin, 2003). Morrison, Frame and Larkin (2003), and Kilcommons and Morrison (2005) consider the similarities between symptoms of PTSD and psychosis, particularly intrusions, interpretations of intrusions, avoidance and negative symptoms. They suggest that the cognitive and behavioural consequences of trauma may make a person vulnerable to psychosis. They argue that many psychotic symptoms are actually intrusions that are accompanied by culturally unacceptable interpretations. Externalising interpretations and positive beliefs about psychotic

experiences are thought to determine an increased likelihood of psychosis rather than PTSD (Morrison, Frame and Larkin, 2003).

The Role of Appraisals in the Trauma-Psychosis Relationship

A number of studies offer support for these hypotheses. Escher, Romme, Buiks, Delespaul and van Os (2002a, 2002b) and Escher, Morris, Buiks, Delespaul, van Os, and Romme (2004) found that development of delusions in children hearing voices was associated with higher baseline levels of reported life events, anxiety/depression and disorganisation, but also specific voice appraisals and attributions, such as emotional tone of voice, including being variably friendly and hostile, and the voices resembling those of parents. Bak, Krabbendam, Janssen, de Graaf, Vollebergh and van Os (2005) found that exposure to early trauma predisposed individuals to suffer from more emotional distress associated with psychotic experiences, and less perceived control over these experiences, after controlling for severity of psychosis, compared to those without a trauma history. Andrew and Gray (unpublished) also looked at the relationship between trauma and beliefs about voices in their study involving mediums sampled from the general population, and psychiatric voice-hearers. Psychiatric voice-hearers interpreted their voices as significantly more malevolent and omnipotent, and experienced significantly more severe depression and anxiety in association with the voices. Trauma was found to predict these appraisals.

The evidence for the role of appraisals in explaining how trauma may increase vulnerability to psychosis remains rather limited (Morrison 2005). Shevlin, Murphy, Dorahy and Adamson (2007) conclude that there is a need for further research to examine similarities and differences in appraisals of psychotic

experiences across the continuum of psychosis, and how relational and non-relational traumas differ across these individuals and are related to cognitive factors. How appraisals, trauma and different psychotic experiences are related and maintained is also unclear. It seems important to consider which additional social and psychological factors may be relevant in the aetiology of psychosis. In addition, it seems important to determine how such factors may be protective from distress and prevent individuals from needing care from mental health services.

Social Support

Research has looked at the role of social support, social networks and different social experiences in the aetiology of psychosis. Social support is widely thought to show a strong relationship with mental health outcomes, possibly by diminishing the effects of stressful experiences and reducing their occurrence (Vihjalmsson 1993). Research has compared social networks and support in individuals with psychosis with control groups. MacDonald, Hayes and Baglioni Jr (2000) found no difference in perceived social support, but the psychosis group had smaller networks, fewer friends, fewer people to turn to in a crisis and a higher likelihood of service-providers being members of their networks. Research looking at the predictive relationship between social support and 5 year outcome in first episode psychosis and affective psychosis found that a higher number of supportive non-family members in the network, at or around the time of illness onset, predicted a more adaptive 5 year outcome (Erikson, Beiser and Iacono, 1998). In a large study in Australia, Evert, Harvey, Trauer and Herrman (2003) found that the presence of both friends and family within a person's social network was associated with better self care and employment in individuals with schizophrenia and affective psychosis.

These findings indicate a possible protective or buffering role for social networks comprising both friends and family, and support the value of a larger network. These studies were however cross-sectional and so causal relationships cannot be determined.

General population samples have also been studied, considering which individuals developed psychotic illness and the social factors that may mediate this. Boydell, van Os, McKenzie, Allardyce, Goel, McCreadie and Murray (2001) in an ecological, retrospective study, found that as the proportion of non-white ethnic minorities decreased in an area, the incidence of schizophrenia in these populations increased. Boydell et al suggest that when social networks are smaller, the stresses faced by ethnic minority populations may occur increasingly, or individuals may be less protected from them. It appears again therefore that larger social networks and increased social support, particularly in close proximity, could offer some protection against the risk of developing psychotic illness.

There also appears to be a role for the benefits of a validating social network in protecting against detrimental consequences of psychotic experiences. Krabbendam et al (2004) suggest that if an individual's peer group does not understand psychotic experiences, such as hearing voices, this may lead to social isolation which could subsequently fuel paranoia and development of delusions, and therefore a need for care. Brett et al (In Press) assessed perceived social support/understanding relating to psychotic-like experiences in individuals across the continuum, and found that feeling that friends might understand or had gone through similar experiences themselves, seemed to be protective against anomaly related distress and need for care. These findings and suggestions again appear consistent with some of the hypotheses in cognitive models of psychosis. Garety et al (2001)

suggest that adverse social environments may maintain psychotic appraisals and so could impact on distress.

Social and environmental factors have been proposed as mediators of the relationships between trauma and psychosis. What individuals do during and after trauma, including the use of social supports, may influence later symptomatology (Morrison, Frame and Larkin, 2003). Early traumatic experiences may significantly impact on a person's ability to trust and form attachments with others, which would lead to greater emotional difficulty in intimate relationships and social functioning (Liem and Boudewyn, 1999). There appears, however, to be very little empirical data investigating these specific hypotheses. Research examining social networks and the quality of social support in individuals along the continuum of psychosis, both in clinical and non-clinical samples, is also very limited, and these areas have not been studied in depth.

Conclusions and Implications for Future Research

This review has attempted to examine research exploring the continuum model of psychosis. Evidence for the continuum model is well established and recent research has identified both similarities and differences in the psychotic or anomalous experiences of those in need of care within clinical populations, and those who continue to function within the general population. Cognitive models of psychosis (e.g. Garety et al 2001; Morrison, 2001; Chadwick and Birchwood, 1994) have proposed a number of factors that may be involved in leading to a need for care, such as how psychotic experiences are appraised, traumatic childhood experiences, and social support at the time of onset of anomalous experiences. However, the mechanisms by which trauma and psychosis are associated remain unclear, and there

is little research looking at the potential buffering effect of social support. Suggestions that trauma may impact on the appraisals individuals make of an anomalous experience have received little research attention. Much of the research on social support and psychosis has been with clinical populations, making it difficult to disentangle how features of social networks and perceived social support may be important in how individuals respond to anomalous experiences, and subsequent distress. In addition, without looking at non-clinical populations it is difficult to determine how social support may be protective against the development of psychotic illness and the associated detrimental consequences such as distress, isolation, paranoia and delusions.

There are clearly complex and multi-factorial relationships between these factors and further research is required to examine them in individuals along the continuum of psychosis. This project will attempt to address these gaps by looking at individuals from clinical and non-clinical populations who have psychotic or anomalous experiences, considering similarities and differences in their experiences, how they appraise their experiences, their experience of traumatic life events, social support currently and at the onset of anomalies, and distress.

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Part 2: Empirical Paper

Anomalous Experiences, Trauma and Social Support

Abstract

The role of traumatic life events and social support in the aetiology of anomalous experiences, and particularly appraisals of experiences, remains controversial. This project looked at their potential contribution to the development of need for care from health services. Two groups reporting psychotic-like experiences with and without a need for care were compared on types of anomalous experiences, appraisals of these experiences, distress, social support and traumatic experiences. The clinical group endorsed more 'other people' and personalising appraisals whereas the non-clinical group reported more normalising appraisals of their experiences. The clinical group were also more distressed in general and in response to their anomalies than the non-clinical group. There were no significant differences in rates of traumas between the groups, but some forms of severe trauma predicted maladaptive appraisals of anomalies. At the onset of experiences the groups reported similar levels of social support, but at the time of the study the non-clinical group endorsed greater social support and understanding. Therefore there was no evidence to support previous suggestions that severe trauma relates to need for care, but it appeared that in support of cognitive models of psychosis, appraisals, distress and current social support differentiated the two groups, and trauma predicted maladaptive appraisals of experiences.

Introduction

There is increasing evidence that the traditional view of psychosis as a dichotomous entity that individuals either have or do not have, is inadequate. Instead, there is growing support for a continuum model which proposes that psychotic experiences are distributed within the general population along a continuum of severity, which ranges from the extreme end of clinical psychotic disorders, to individuals within the general population who report having psychotic-like experiences but have no need for care from services. In a number of large population studies, rates of psychotic-like experiences range from 10.9 to 17.5% and these findings have been replicated across a number of countries and using different measures (e.g. van Os et al, 2000; Kendler et al, 1996; Johns et al 2006; Scott et al, 2006; Wiles et al 2006; Shevlin et al 2007). Verdoux and van Os (2002) suggest that research looking at the continuum of psychosis-like experiences in the general population can make a valuable contribution to understanding the risks for psychosis by exploring factors that influence the expression of these experiences and the impact on the individual. Myin-Germeys, Krabbendam and van Os (2003) also conclude from their review that the same aetiological influences are related to psychosis and psychotic-like experiences along the continuum, including neurocognitive, psychophysiological, personality, environmental, demographic, and genetic risk factors.

Cognitive Models of Psychosis

What determines whether or not an individual develops a psychotic disorder or need for care? In their cognitive model of the positive symptoms of psychosis, Garety, Kuipers, Fowler, Freeman and Bebbington (2001) suggest that psychosocial

vulnerabilities, such as experiencing adverse environments, life events, deprivation, severe childhood trauma and social adversity, may play a role in the development of psychosis. They suggest that these experiences may create an enduring cognitive vulnerability, developing negative schematic models which may fuel anomalous experiences, external attributions and low self-esteem. Appraisals are therefore thought to play a significant role in determining the transition from anomalous experiences reported in individuals requiring no contact with mental health services, to clinical psychosis (Garety et al, 2001; Morrison, 2001; Chadwick and Birchwood, 1994). Externalising and personalising appraisals are considered of particular significance. Garety et al also suggest that some people who have anomalous experiences may reject external attributions and so be protected in some way from developing full-blown psychotic symptoms such as delusions.

Appraisals and the continuum of psychotic experiences have been studied in depth by Brett et al (In Press). They developed a new measure to assess anomalous experiences and individuals' responses to them, including their appraisals. They compared a clinical sample of individuals with schizophrenia spectrum disorders with otherwise healthy individuals from the general population reporting a range of psychotic-like experiences. They found that the clinical sample appraised their experiences as more negative, more dangerous, more likely to be external and personally caused, and made more paranoid/conspiracy interpretations. In contrast, the non-clinical sample made more psychological, spiritual and normalising appraisals, were less distressed by their anomalous experiences, and felt they had greater controllability over them. However, when the types of anomalous experiences were controlled for, the group differences in external and spiritual appraisals disappeared, suggesting that some experiences may be more likely to elicit

specific types of appraisals. These findings provide some support for cognitive models of psychosis, since the two groups could be differentiated by their appraisals, but they also suggest that the relationships between the anomalous experiences and their appraisals are complex. Replication and extension of these results was a primary aim of this research.

The Role of Trauma

Cognitive models of psychosis also identify adverse past and current life experiences as potential vulnerability factors for the development of psychosis. Specifically, the relationship between trauma and psychosis has attracted a wealth of research and debate. Many studies suggest that there are high rates of trauma in individuals with psychotic disorders (e.g. Mueser et al 1998; Morrison, Frame and Larkin, 2003; Ellason and Ross, 1997; Ross and Joshi, 1992). Similarly, experiencing traumatic events has been associated with psychotic-like experiences in individuals not in need of care (e.g. Romme and Escher, 1989), in those who go on to develop psychotic experiences (Janssen et al 2004; Shevlin et al 2007), and in those predisposed to psychotic experiences (Startup, 1999). Great emphasis has been placed on childhood sexual abuse in particular, but associations with psychosis have also been found for a range of traumatic and victimising experiences, including physical abuse, neglect, family break-ups, serious illness, bereavement and bullying (Bebbington et al 2004; Janssen et al 2003; Morrison and Peterson, 2003). A number of studies also suggest that different types of trauma may be related to different types of psychotic experiences, with the most robust link appearing to be between abuse and hallucinations specifically (Shevlin, Dorahy and Adamson, 2007; Morrison and Peterson, 2003).

More recently, support for these relationships has come from large, prospective, general population studies. Janssen et al (2004) found that child abuse predicted pathology-level psychosis (defined by the presence of severity and functional impairment on unusual thought content and/or hallucinations), psychosis needing mental health care (of greater severity, judged by clinicians) and sub-clinical psychotic experiences (endorsement of unusual thought content or hallucinations), after controlling for a range of demographic factors. They found evidence of a 'dose-response' relationship, where the more severe the trauma, the more severe the psychosis. Other researchers also report a similar relationship and suggest this 'dose-response' pattern may be specific to psychosis (for example, Spauwen et al 2006). A causal relationship has also been implied, suggesting that trauma may alter the trajectory and outcome of psychosis proneness in vulnerable individuals, conceptualised as a trauma-induced psychosis sub-type (Spauwen et al, 2006). There may be a threshold for trauma though, as after a certain amount of trauma the severity of the psychosis plateaus (Shevlin et al 2007). Evidence from a recent small-scale project, comparing psychiatric and non-psychiatric voice-hearers, suggests that experiencing trauma can make an individual vulnerable to developing psychosis-like experiences, but it is the nature of the trauma and the degree to which it remains unresolved which may be significant in determining need for care and distress (Andrew and Gray, unpublished).

Various pathways have been proposed to explain the link between trauma and psychosis. Read et al (2001) evaluate a number of studies linking trauma and biological 'abnormalities' and propose a Traumagenic Neurodevelopmental model, suggesting that trauma may trigger the biological disturbances that underlie psychosis. Other authors have also suggested that the cognitive and behavioural

consequences of trauma, including dissociation and PTSD symptomatology, may increase vulnerability to psychosis (Morrison, Frame and Larkin, 2003; Kilcommons and Morrison, 2005). Cognitive mechanisms have attracted interest, focusing on the role of trauma in the development of psychotic appraisals. It is suggested that early trauma may create an enduring cognitive vulnerability which leads to negative or faulty schematic models of the self as vulnerable to threat and others as dangerous, which could facilitate an externalising attributional style (Garety et al 2001; Morrison, 2001). Gracie et al (2007) found support for the proposal that negative schematic beliefs about others may mediate the relationship between trauma and psychosis, in a non-clinical sample. They found that paranoia was strongly associated with victimising traumas, and it was the number of traumas rather than the type of trauma that was a key factor. They suggested two possible pathways from trauma to positive symptoms of psychosis which may interact: via negative schematic beliefs and via PTSD re-experiencing symptoms (the psychological consequences of trauma).

Despite numerous studies, the relationship between trauma and psychosis remains controversial. Many studies face methodological limitations and findings have been inconsistent, with some studies reporting no relationship at all between trauma and psychosis (e.g. Spataro et al, 2004). Morgan and Fisher (2007) suggest that despite a significant number of studies showing high rates of abuse in psychotic populations, there is no substantial evidence to support a causal connection between trauma and psychosis. Further research examining the possible mechanisms linking trauma and psychosis is needed, specifically the role of appraisals. The present study included measurement of the retrospective recall of abuse as a possible factor distinguishing need for care.

Social Support

The role of social support in the aetiology and maintenance of psychosis has also been considered in cognitive models of psychosis. Social support is widely thought to have a strong relationship with mental health outcomes (Vihjalmsson, 1993). Evidence with clinical samples suggests that social support may have a buffering or protective effect, particularly when networks are larger and comprise of both friends and family (Erikson, Beiser and Iacano, 1998; Evert, Harvey, Trauer and Herrman, 2003). Validating social networks are thought to be protective against the detrimental consequences of psychosis (Krabbendam et al, 2004; Brett et al, In Press). There are also some suggestions that a lack of social support and isolation may increase the risk of developing psychosis. Poor social support and the experience of discrimination may impact on appraisals of psychotic-like experiences, leading to a paranoid attributional style (Sharpley and Peters, 1999). If people in an individual's social network do not understand their experiences, this is thought to fuel isolation, lead to paranoia and to the development of delusions (Krabbendam et al, 2004). In comparison to the role of trauma, the pattern of social support in individuals along the continuum of psychosis appears to have received little research interest, and the majority of research in this area has been with clinical samples. This has made it difficult to understand how features of social networks and support may be important in protecting from the detrimental consequences of psychotic-like experiences. One exception is the study by Brett et al (In Press), who found that feeling that friends might understand or had gone through similar experiences themselves appeared protective against distress and need for care. It has further been suggested that there may be some mediating role of social support in the relationship between trauma and psychosis (Morrison, Frame and Larkin, 2003). Morrison et al

suggest that response to trauma in terms of social support may impact on how individuals respond to any psychotic experiences that emerge. There are clearly complex and multi-factorial relationships between these factors and further research is required to examine them in detail in individuals along the continuum of psychosis. Both past and present levels of social support were measured in the current study.

Aims of the Current Study

This study aimed to test out some of predictions made by cognitive models of psychosis. Specifically, the role of appraisals, trauma and social support in determining need for care was investigated by comparing clinical and non-clinical samples of individuals experiencing psychotic-like experiences. It was hypothesised that the clinical group would make more maladaptive appraisals of their anomalous experiences, would report more experiences of severe interpersonal trauma, both during childhood and adulthood, and less social support and understanding both currently and at the initial onset of their experiences, than their non-clinical counterparts. It was further predicted that trauma and lack of social support would be associated with greater distress, irrespective of diagnostic status, and that severe forms of trauma would predict more maladaptive, and fewer adaptive, current appraisals of psychosis-like experiences.

Hypotheses

The following hypotheses were made:

- 1) The clinical group will report more cognitive and attentional disturbances, than the non-clinical group, as found in Brett et al's study.

- 2) The clinical group will make more maladaptive appraisals of their anomalous experiences, i.e. appraise them as more externally caused, personally significant (as caused by some agency), as caused by ‘other people’, more dangerous and negative and make fewer adaptive appraisals, i.e. psychological/normalising appraisals, than the non-clinical group.
- 3) The clinical group will report significantly more experiences of severe trauma, particularly sexual abuse, than the non-clinical group, both during childhood and adulthood. These severe forms of trauma will be significantly associated with greater current anomaly-related distress, and general distress, irrespective of diagnostic status.
- 4) Experiencing severe forms of trauma will be a significant predictor of more maladaptive current appraisals of psychosis-like experiences, (as dangerous, externalised, personalised (‘agency’), and ‘other people’ appraisals) and fewer adaptive appraisals (normalising and psychological), irrespective of diagnostic status.
- 5) The non-clinical group will have significantly greater social support and understanding both at the onset of their psychosis-like experiences and at the time of the study, than the non-clinical group.
- 6) Greater satisfaction with current social networks will be associated with less current anomaly-related and general distress, irrespective of diagnosis.

Method

Participants

The sample consisted of two groups of participants, both reporting anomalous experiences associated with psychosis: a clinical sample of individuals with a DSM-

IV diagnosis of psychotic disorder or clinical disorders with psychotic features, including affective and non-affective schizophrenia spectrum disorders (n = 27), and a non-clinical sample of individuals who had never been diagnosed nor had contact with services for psychosis (n = 27). The 'non-clinical group' were like Brett et al's 'undiagnosed' group, but different terminology was used in the current study, to be clear that these individuals had never had contact with mental health services. All participants were aged 18 years or above. They were all screened using the same tool (see Appendix A) before participation to confirm that they reported having at least 'occasional' Schneiderian first-rank symptoms within the last month in the absence of any drug use and in clear consciousness, and spoke English fluently. Exclusion criteria included the presence of organic and drug-induced psychosis, and where anomalous experiences only occurred in the context of substance use or unclear consciousness.

The clinical group were self-selecting and comprised 10 people recruited through a specialist tertiary service providing psychological interventions for outpatients with psychosis (PICuP, Psychological Interventions Clinic for outpatients with Psychosis). A further 17 people were recruited from a number of adult acute inpatient wards, all within the South London and Maudsley NHS Trust (SLaM), UK. Suitable potential participants were identified by the ward teams and were only included if they could give fully informed consent.

The non-clinical group were also self-selecting, recruited through advertisements placed in a specialist college (The College of Psychic Studies), a spiritualist association (The Spiritualist Association of Great Britain), and University College London. A snowballing method was used, encouraging participants to pass on information about the study to contacts whom they considered appropriate.

Participants were screened via telephone and email to ensure that they met the inclusion criteria. To determine with confidence that these individuals were not at risk of developing psychotic disorder in the near future, participants whose anomalous experiences commenced less than two years prior to participation were excluded, based on findings that most of those 'at risk' of developing psychosis do so within the first 24 months (Yung, Phillips, McGorry, McFarlane, Francey, Harrigan, Patton, and Jackson, 1998). Some considerations were taken when recruiting this group of individuals, due to understandable concerns they might have about discussing their experiences with mental health professionals. A number of spiritualist events were attended to become familiar with alternative frames of reference, and care was taken to avoid the use of pathologising language when describing experiences.

The clinical group consisted of 18 males and 9 females, with a mean age of 36.7 years ($sd=9.48$). The non-clinical group consisted of 9 males and 18 females, with a mean age of 41.4 years ($sd=10.22$). There was no significant difference in age ($t(52)=-1.767$, $p=.083$) but there was a significant difference between the two groups on gender ($\chi^2(1)=6$, $p=.014$). There was a significant difference in employment status ($\chi^2(3)=25.86$, $p<0.001$), with 81% of the non-clinical group, compared to 15% of the clinical group, being either employed or in training. The non-clinical group also had a significantly higher mean IQ (103.37, $sd=14.60$) than the clinical group (90.63, $sd=13.99$), as estimated by the Quick Test of Intelligence ($t(51.91)=-3.274$, $p=.002$). The mean age of onset of anomalous experiences was 21.04 years ($sd = 10.49$) for the clinical group and this did not significantly differ from the non-clinical group (mean age of onset=16.88 years, $sd=13.13$). Of the clinical group, 23 were taking prescribed medication at the time of interview (all 17 ward-based and 7 of the

PICuP participants), predominantly antipsychotics (n=22), sedatives (n=17) and mood stabilisers (n=8). None of the non-clinical group was taking prescribed medication for their experiences. There were no significant differences between the groups on ethnicity, marital status, children, nor religious affiliation, and ratings on these variables are shown in table 1 below.

Table 1: Group ratings (n) for ethnicity, marital status, children and religious affiliation.

Group (n)	Clinical (27)	Non-clinical (27)
Ethnicity		
White	14	21
Black	8	3
Other	5	3
Marital Status		
Married/living with partner	3	9
Single	20	12
Divorced	2	3
Other	2	3
Children	8	11
Religious affiliation		
Traditional religion	12	6
Non-traditional religion	1	4
Other religion/spirituality	5	9
None	9	8

Power Calculations

Due to the lack of studies in the literature using the proposed measures with similar populations, only limited power analyses could be done. Therefore the sample size required was estimated. Previous research by Andrew and Gray (unpublished) found significant differences in trauma between clinical and non-clinical groups using sample sizes of 22 and 21 participants, but they used a different measure to the current study (see details below). Brett's (2004, unpublished thesis) and Brett et al's (In Press) data looked at the appraisals individuals made of their anomalous experiences and were collected from similar populations. Using Brett's data a sample size of 9 in each group would be needed to find a difference between the clinical and non-clinical groups on normalising appraisals with 90% power at $p < 0.05$; 13 in each group for personalising appraisals; and 26 in each group for externalising appraisals. In light of these calculations a target sample size of 26 in each group was decided on the basis that this would enable detection at the weakest level of relationship seen in the most similar previous study.

Ethical Approval

Ethical approval was obtained from the Joint South London and the Maudsley and The Institute of Psychiatry NHS (SLaM/IOP) Research Ethics Committee for the use of mental health service-users as participants (Ref: 06/Q0706/23). Ethical approval for the use of non-clinical participants was also obtained from the UCL Research Ethics Committee (Ref: 0636/001). Copies of approval letters can be seen in Appendix B.

Measures

Quick Test of Intelligence (Ammons and Ammons, 1962)

This is a 50 item, brief test to give an estimate of intellectual ability, requiring participants to match appropriate drawings to words that are defined verbally. This measure has been used extensively in the psychosis literature and was used to check for any confounding differences in IQ between the groups.

The Appraisals of Anomalous Experiences Interview (AANEX) – Shortened Form.

The Appraisals of Anomalous Experiences Interview (AANEX) is a semi-structured interview developed by Brett et al (In Press) to assess phenomenological, psychological and contextual factors surrounding the experience of psychotic-like anomalies. The AANEX has demonstrated good reliability and construct validity (Brett et al, In Press). It can be used in full, or specific sections can be administered in isolation. In the current study a shortened version was used to reduce time taken for completion. The AANEX-Inventory section, which rates the types of anomalies individuals have experienced across their lifespan, was shortened from 40 to 17 items. It was shortened by choosing the 3 items that had the highest item-factor correlations with each of the 5 factors reported in Brett et al's study, namely 'Meaning-Reference', 'Paranormal-Hallucinatory', 'Cognitive-Attention', 'Dissociative-Perceptual', and 'First-Rank Symptoms'. In addition, two further items were added (one for the 'Meaning-Reference' factor and one for the 'First-Rank Symptoms' factor) as they were highly endorsed in at least one of the groups in Brett et al's study. Each experience was rated as either 'not present', 'unclear' or 'present', giving a score of 1-3 respectively. The shortened AANEX Inventory can be seen in Appendix C.

The AANEX-CAR (context, appraisals and response) section was shortened to assess only current appraisals made about anomalies, ratings of current distress associated with anomalies, and ratings of perceived social support and understanding. Fewer categories of appraisals were included, selected on the basis of endorsement rates and predictive validity in Brett et al's study. The categories of appraisals selected included; 'other people', 'spiritual', 'normalising/psychological' and 'medical'. These were rated as 'not present', 'unclear' or 'present', giving a score of 1-3 respectively. Further dimensional ratings of appraisals remained the same as the original AANEX-CAR ('valence', 'dangerous', 'externality' and 'agency') scored using ordinal likert scales, ranging from 1-5. The shortened AANEX-CAR also included items to assess emotional responses to anomalies, namely 'positive', 'negative', 'neutral', 'unengaged', 'anxious' and 'excited' emotional responses to anomalies. Emotional response was rated on 5-point likert scales where 5 indicated the strongest emotional response. Perceived social support and understanding was also assessed, both at the time of onset of anomalous experiences and currently, again rated on 5-point likert scales, where 5 indicates the greatest level of social support/understanding. The shortened version of the AANEX-CAR can be seen in Appendix D.

Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith (1983))

This scale measures general distress, detecting the presence and severity depression and anxiety. It has been extensively used with this population and consists of 7 depression items and 7 anxiety items, rated on 4-point likert scales scored from 0-3 for each item. This gives a total score in the range of 0 to 42, and anxiety and depression sub-scale scores of 0 to 21.

Trauma History Questionnaire (THQ) (Green, 1996)

The Trauma History Questionnaire (THQ) was administered as an interview to evaluate lifetime exposure to traumatic events. The THQ identifies the presence or absence of a wide range of stressful events (15 types of event) scored 1 or 0 respectively, and the age at which they occurred. For each event, the interviewer identifies whether the individual had experienced actual or threatened serious injury or death, or a threat to their physical integrity, and extreme fear or helplessness, in accordance with Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) PTSD criterion A1/A2. Physical injury and intense fear during the event are also rated as present or absent, each scored 1 or 0 respectively. These scores enable group comparisons of the presence or absence of each type of event, and PTSD criterion A1/A2 for each event separately, and also comparison of the total number of events endorsed overall, and in both adulthood and childhood (giving scores ranging from 0-15).

The Significant Others (SOS) Scale (Power, Champion and Aris, 1988) – Shortened Form

This is a scale designed to measure social support by sampling a subset of significant relationships in which an individual engages. In the original version, 11 potential role relationships that the average person might be expected to engage in are rated, such as spouse, best friend, mother, father, and work colleague. Participants rate six aspects of both practical and emotional support, indicating the actual social support they receive and their ideal amount on 7-point scales. The discrepancy between actual and ideal support scores gives a derived score for the satisfaction felt with social support in each relationship. This scale has been shown

to have satisfactory reliability and validity (Power et al, 1988) and has been previously used in samples of psychiatric patients with diagnoses of psychotic disorders (Cresswell, Kuipers and Power, 1992; Neeleman and Power, 1994). A shortened version of the original scale was used in the current study, to reduce the length of time taken to complete and also to minimise the repetition of questions. Five potential role relationships were rated: spouse/partner, family, close neighbour/close friend, professional, and faith community/spiritual support group. These roles were chosen as it was felt that some of the 11 original roles could be merged and that a faith community category was likely to be a relevant relationship for non-clinical participants in particular. This scale has previously been shortened to three role relationships (Power and Champion, 1992), showing reliability and validity. In addition, the number of questions to assess emotional and practical support was reduced to one question asking directly about each. These questions included a definition of emotional and practical support using the wording from the original six questions. This shortened version of the SOS generated scores for actual and ideal emotional and practical support, and a satisfaction score was derived from the discrepancy between actual and ideal support ratings. Scores for each of the 5 roles were calculated, as well as an average across roles to give an overall score (all ranging from 1 to 7). All roles were rated for current support as well as support at the onset of anomalous experiences, giving two sets of these scores. Changes in support network since onset of experiences were also examined. The shortened version of the SOS is appended in Appendix E.

Procedure

All participants were required to give written informed consent (see Appendix I for three versions of the Participant Information Sheets and two versions of the Informed Consent forms, for PICuP, ward-based, and non-clinical participants), and completed a brief demographic questionnaire (see Appendix J). Some participants were contacted by letter (see appendix K) and others responded to adverts (see Appendix L) via phone or email. Participants completed all measures, and their administration was counter-balanced across participants. Some restrictions on ordering were placed, including; administering the AANEX interviews first to verify participants' suitability for the study, and the Trauma History Questionnaire was never administered last, due to the potential for the questions being asked to cause distress. To prevent any potential biases in responses, the Hospital Anxiety and Depression Scale never directly followed the Trauma History Questionnaire. Interviews generally took place over one session, but for a small number of participants, this was divided over two sessions. All interviews were audio taped. Participants were all paid £10 to remunerate them for their time, and where applicable their travel expenses were also reimbursed. Completion of the questionnaires typically took one hour. A sub-sample (n=10) of AANEX interviews, were rated by a second researcher, to check for inter-rater reliability.

Statistical Analyses

Data analysis was carried out using SPSS for Windows (version 11.0, 2003). Chi-square, Mann Whitney *U*, or independent t-tests were used for group comparisons of experiences, distress, types of trauma experienced during childhood and adulthood, and social support at the onset of experiences and currently. Scores

for general distress (HADS) were normally distributed and so analysed using t-tests. Mann Whitney *U* tests were used to analyse data that were not normally distributed (anomalous experiences ratings from the AANEX-inventory, total types of trauma experienced, social support from the Significant Others Scale). Non-parametric (i.e., Spearman's) correlations (2-tailed) were used to examine whether anomalous experiences and greater experiences of trauma were associated with distress (general and anomaly-related), and whether social support was associated with less distress. These correlations were used to determine which traumatic events to enter into a series of linear regressions to examine the predictive relationships between trauma and distress. Data from the AANEX-CAR were ordinal (either rated between 1-3 or 1-5). Due to the small sample size however (empty and small cell sizes), ordinal logistic regression was not appropriate for analysing these data. Therefore, these scores were condensed into binary scores (0-1). Binary logistic regression analyses were then used to examine differences between the groups in appraisals after controlling for types of experiences. Binary logistic regression analyses were also used to examine whether experiencing severe traumas was predictive of greater anomaly-related distress and more maladaptive appraisals, and whether greater social support was associated with less anomaly-related distress. Gender differences for all variables predicted in these binary logistic regressions (i.e. appraisals, emotional response to anomalies, and anomaly-related social support) were assessed to determine whether to control for gender in these analyses. The only significant gender difference was on ratings of social support and understanding at the time of the study ($\chi^2(1)=10.681, p=.001$), and so gender was controlled for in this regression only. The significance level was reduced to $p=.01$ when multiple comparisons were made to reduce the risk of Type 1 errors.

Results

Anomalous Experiences

Group differences in factor scores were analysed to examine whether the clinical group endorsed more ‘cognitive-attention’ items than the non-clinical group (table 2).

Table 2: AANEX-Inventory factor scores and group differences

Factor	Group	Mean score (standard deviation)
Meaning-reference	Clinical	9.30 (2.51)
	Non-clinical	9.96 (2.53)
Paranormal-hallucinatory	Clinical	7.56 (2.03)
	Non-clinical	7.44 (1.95)
Cognitive-attention	Clinical	6.81 (2.48)
	Non-clinical	4.63 (2.00) *
Dissociation-perceptual	Clinical	7.00 (2.15)
	Non-clinical	6.11 (2.24)
First-rank symptoms	Clinical	10.41 (2.24)
	Non-clinical	9.00 (1.92) *
Total score	Clinical	41.07 (8.39)
	Non-clinical	37.15 (8.01)

(* Significant difference between the 2 groups at $p < .01$)

There was a trend towards the clinical group endorsing a higher number of anomalous experiences, as measured by total score on the AANEX-Inventory ($U=248$, $p=.044$). As predicted, a significant difference was found for ‘cognitive-attention’ factor items ($U=188.5$, $p=.002$); an unexpected significant difference was also found for ‘first rank symptoms’ ($U=203.5$, $p=.004$), with the clinical group scoring higher on both. No differences were found on the other three factors.

Scores on the 'cognitive-attention' factor correlated with depression scores ($r_s=.377$, $p=.005$), and showed a trend towards correlating with total distress ($r_s=.32$, $p=.018$) measured by the HADS, suggesting that greater scores on this factor were related to greater distress. 'Dissociation-perceptual' factor scores also showed a trend towards being positively correlated with anxiety ($r_s=0.31$, $p=.02$). None of the other factor scores were correlated with distress. The hypothesis was therefore partially supported, as the clinical group scored higher on the 'cognitive-attention' factor items and these experiences were associated with greater depression. However the clinical group also scored higher on the first rank symptoms factor, although scores on this factor were not related to distress.

Appraisals of Anomalous Experiences

Inter-rater Reliability

Inter-rater reliability of ratings of the AANEX-CAR was assessed for a subsample of 10 interviews. Ratings from the principal researcher were compared with those of one of two independent raters (each rated 5 interviews); a consultant clinical psychologist who was involved in developing the original scale, and a trainee clinical psychologist with experience in assessing psychosis, both clinically and for research purposes. The raters scored the interviews using audio-recordings and followed the written scoring manual developed by Brett et al (In Press). The degree of agreement between the ratings was evaluated pairwise using weighted Kappa. This is a suitable method to use with ordinal data, as it accounts for meaningful differences between raters' scores, taking into account the rating scale and the intervals between points on the scale.

The average kappa for all 17 appraisal ratings (excluding context ratings) was 0.87, which can be interpreted as almost perfect agreement. 17.6% of these ratings had substantial agreement (>0.61), 64.7% had almost perfect agreement (>0.81), and 17.6% had perfect agreement (1). Ratings of the context in which experiences occurred gave 10 further scores. Of these, 2 (religious/spiritual practice and feelings) could not be evaluated for agreement, as they were endorsed by such a small number of participants. The average kappa for the remaining 8 context ratings was 0.90, indicating almost perfect agreement. 25% showed substantial agreement, 25% showed almost perfect agreement and 50% showed perfect agreement. There is therefore strong evidence for good inter-rater reliability of this shortened version of the AANEX-CAR. The data reported in this paper were ratings made by the principal researcher only.

Analysis of appraisals

A series of backward stepwise, block entry, binary logistic regression analyses were conducted to examine whether group predicted each of the appraisals, after controlling for type of anomalous experience. The non-clinical group was entered as the reference category. Group was entered into block one to examine its independent effect, and then the five factor scores from the AANEX-Inventory were entered into block two to determine whether group remained a significant predictor after types of anomalous experiences were controlled for.

Categories of Appraisal

As predicted, group was a significant predictor of 'other people' appraisals ($\text{Exp}(B)=21.25$, $p<.001$), and remained significant after factor scores were entered.

In addition to group, the best fitting model included ‘paranormal-hallucinatory’ factor scores as the only factor score which showed a trend towards higher scores significantly predicting more ‘other people’ appraisals. The clinical group was therefore more likely to make ‘other people’ appraisals, after controlling for types of anomaly. The results can be seen in table 3 below.

Table 3: Logistic regression model predicting ‘other people’ appraisals from group controlling for types of anomalous experiences

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp	
							Lower	Upper
Included								
Group	3.774	.995	14.389	1	.000	43.553	6.196	306.126
Paranormal-hallucinatory	.961	.387	6.173	1	.013	2.614	1.225	5.578
Constant	-10.559	3.492	9.142	1	.002	.000		

Note: Model $\chi^2(2)=31.71$, $p<.001$

There was a weak trend towards the clinical group making fewer ‘spiritual’ appraisals ($\text{Exp}(B)=.325$, $p=.054$), but when types of experiences were entered into the model, the significance of group as a predictor reduced. Group did not significantly predict ‘medical’ appraisals.

Group was a significant predictor of ‘normalising/psychological’ appraisals and remained significant after experiences were entered into the model, with the clinical group making fewer ‘normalising/psychological’ appraisals than the non-

clinical group. None of the factor scores were significant predictors, and so were not included in the best fitting model (see Table 4 below).

Table 4: Logistic regression model predicting ‘normalising/psychological’ appraisals from group, controlling for types of anomalous experiences

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for	
							Exp (B)	
Included							Lower	Upper
Group	-2.614	.686	14.506	1	.000	.073	.019	.281
Constant	1.749	.542	10.426	1	.001	5.750		

Note: Model $\chi^2(1)=18.20$, $p<.001$

Dimensions of Appraisal

There was a significant effect of group on ‘danger’ appraisals ($\text{Exp}(B)=7$, $p=.002$), indicating that the clinical group appraised their experiences as more dangerous than the non-clinical group. However, when types of experiences were entered into the model, the group effect reduced to a weak trend ($\text{Exp}(B)=4.031$, $p=.052$). The factor scores were also not significant predictors of ‘danger’ appraisals, but ‘cognitive-attention’ ($\text{Exp}(B)=1.65$, $p=.019$) and ‘dissociation-perceptual’ ($\text{Exp}(B)=.572$, $p=.023$) factors had stronger predictive effects than group. Greater scores on ‘cognitive-attention’ items were associated with a trend towards making more ‘danger’ appraisals whereas endorsement of more ‘dissociation-perception’ items was associated with making fewer ‘danger’ appraisals.

There were also significant effects of group on the appraised valence of anomalies. The clinical group reported significantly fewer ‘positive’ appraisals than

the non- clinical group (Exp(B)=.08, p<.001). This effect remained after types of experience were entered into the model (Table 5), none of which was a significant predictor.

Table 5: Logistic regression model predicting positive valence appraisals from group controlling for types of anomalous experiences

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for	
							Lower	Upper
Included								
Group	-2.531	.662	14.620	1	.000	.080	.022	.291
Constant	1.482	.495	8.943	1	.003	4.400		

Note: Model $\chi^2(1)=17.785, p<.001$

Group was a significant predictor of ‘externalising’ dimensional appraisals (Exp(B)=6.4, p=.003), with the clinical group making more ‘externalising’ appraisals of experiences. However this effect was reduced to a trend when factor scores were entered (Exp(B)=4.507, p=.032). ‘First-rank symptoms’ and ‘paranormal-hallucinations’ factor scores were also included in the best fitting model, with greater scores for ‘first-rank symptoms’ significantly predicting more ‘externalising’ appraisals (Exp(B)=1.812, p=.006). Higher endorsement of ‘paranormal-hallucinatory’ factor items showed a trend to predict fewer ‘externalising’ appraisals (Exp(B)=.614, p=.025).

Group also showed a strong trend towards being a significant predictor of appraisals of experiences as being caused by some ‘agency’ (personalising), rather than an impersonal cause (Exp(B)=5.339, p=.012). When types of anomalous

experiences were entered into the model, group became a significant predictor, indicating that the clinical group made more ‘personalising’ appraisals of their experiences than the non-clinical group. ‘Paranormal-hallucinatory’ and ‘dissociation-perceptual’ factor scores were also significant predictors of these appraisals (see Table 6).

Table 6: Logistic regression model predicting ‘agency’ appraisals from group, controlling for anomalous experiences

Included	B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I. for	
							Exp(B)	Lower Upper
Group	3.079	1.008	9.323	1	.002	21.736	3.012	156.861
Paranormal-hallucinatory	1.002	.329	9.276	1	.002	2.723	1.429	5.188
Dissociation-perceptual	-.832	.278	8.964	1	.003	.435	.252	.750
Constant	-2.363	1.623	2.120	1	.145	.094		

Note: Model $\chi^2(3)=26.16, p<.001$

In summary, there was consistent support for the predictions as the clinical group were significantly more likely to report making ‘other people’ appraisals and less likely to report making ‘normalising/psychological’ appraisals. In addition they were more likely to appraise their anomalous experiences as less ‘positive’ and more likely to be caused by some personal ‘agency’, than the non-clinical group, after types of anomalous experiences were controlled for. The clinical group also showed

trends towards appraising their experiences as more ‘externally caused’, more ‘dangerous’, and to make fewer ‘spiritual’ appraisals. In many of the logistic regression models subtypes of anomalous experiences were also significant predictors of these appraisals, showing independent effects to group.

Distress

From scores on the HADS, the clinical group was significantly more distressed overall than the non-clinical group ($t(52)=4.83, p<.001$). Clinical individuals were also significantly more anxious ($t(52)=3.37, p=.001$) and depressed ($t(42.66)=5.24, p<.001$).

Anomaly-related distress data from the AANEX-CAR was analysed using the same procedures as for appraisals. Group was a significant predictor of ‘negative emotional response’ to anomalies, with the clinical group reporting significantly more negative emotional responses to their experiences than the non-clinical group. Group remained the only significant predictor after factor scores were entered into the model (see Table 7).

Table 7: Logistic regression analysis predicting negative emotional response to anomalous experiences from group, controlling for type of anomalies

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95.% C.I. for Exp(B)	
							Lower	Upper
Group	2.799	.697	16.109	1	.000	16.429	4.188	64.448
Constant	-1.050	.439	5.715	1	.017	.350		

Note: Model $\chi^2(1)=20.637, p<.001$

Group significantly predicted ‘anxious emotional responses’ to experiences (Exp(B)=35.714, $p < .001$), with the clinical group reporting significantly greater anxiety in response to their anomalous experiences than the non-clinical group. Group remained significant when types of experiences were controlled for. Of the experiences factors, only ‘cognitive-attention’ scores were included in the model of best fit, showing a trend towards having a significant independent effect (see Table 8).

Table 8: Logistic regression model predicting anxiety in response to anomalies from group, controlling for types of anomalous experiences

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for	
							EXP(B)	
Included							Lower	Upper
Group	3.308	.932	12.592	1	.000	27.342	4.398	169.994
Cognitive-attention	.513	.211	5.898	1	.015	1.671	1.104	2.528
Constant	-3.630	1.229	8.727	1	.003	.027		

Note: Model $\chi^2(2)=35.219$, $p < .001$

Group was a significant predictor of engagement with experiences (Exp(B)=32.5, $p = .001$), with the clinical group being significantly more likely to ‘engage’ with their experiences. Group remained significant when types of anomalies were entered into the model. ‘First rank symptoms’ also had a significant independent effect, with engagement with experiences being significantly more likely in those who endorsed more of these experiences. ‘Cognitive-attention’ scores

showed a trend towards significance, with higher scores on this factor being associated with a greater likelihood of not engaging with experiences (see Table 9).

Table 9: Logistic regression model predicting engagement with experiences from group, controlling for types of experience

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp	
							Lower	Upper
Group	5.012	1.658	9.139	1	.003	150.219	5.828	3872.238
Cognitive-attention	-.548	.266	4.246	1	.039	.578	.343	.974
First rank symptoms	.712	.273	6.802	1	.009	2.038	1.193	3.479
Constant	-4.136	2.001	4.273	1	.039	.016		

Note: Model $\chi^2(3)=29.76, p<.001$

No significant independent effects of group were found for ‘neutral’ or ‘excited’ emotional response. In summary, the clinical group reported more general distress as well as more anomaly-related distress: specifically more negative emotions, anxiety, and greater engagement with their experiences.

Trauma

Two male clinical participants did not complete the Trauma History Questionnaire and so the data reported are for the remaining 52 participants. For regression analyses these two cases were excluded. Separate analyses were

performed for the genders together and separately due to the unequal balance between the two groups (see Table 10 for the prevalence of trauma).

Table 10: Prevalence of traumatic experiences

Trauma	Clinicals (%)			Non-clinicals (%)		
	Males	Females	Total	Males	Females	Total
Military combat experience or served in a war zone	0 (0)	0 (0)	0 (0)	1 (11.1)	0 (0)	1 (3.7)
Serious accident	6 (37.5)	3 (33.3)	9 (36)	3 (33.3)	5 (27.8)	8 (29.6)
Natural disaster	3 (18.8)	1 (11.1)	4 (16)	4 (44.4)	2 (11.1)	6 (22.2)
Physical illness	3 (18.8)	1 (11.1)	4 (16)	4 (44.4)	4 (22.2)	8 (29.6)
Childhood sexual abuse (before 13 years old)	4 (25)	4 (44.4)	8 (32)	3 (33.3)	5 (27.8)	8 (29.6)
Childhood sexual abuse involving penetration	2 (12.5)	2 (22.2)	4 (16)	1 (11.1)	1 (5.6)	2 (7.4)
Teenage sexual abuse (13-18 years old)	5 (31.3)	3 (33.3)	8 (32)	0 (0)	6 (33.3)	6 (22.2)
Teenage sexual abuse involving penetration	2 (12.5)	2 (22.2)	4 (16)	0 (0)	2 (11.1)	2 (7.4)
Adult sexual abuse	5 (31.3)	3 (33.3)	8 (32)	0 (0)	7 (38.9)	7 (25.9)
Adult sexual abuse involving penetration	3 (18.8)	1 (11.1)	4 (16)	0 (0)	7 (38.9)	7 (25.9)
Attack with a weapon	8 (50)	3 (33.3)	11 (44)	6 (66.7)	5 (27.8)	11 (40.7)
Attack without a weapon	13 (81.3)	4 (44.4)	17 (68)	5 (55.6)	10 (55.6)	15 (55.6)

Other situation where physically injured	7 (43.8)	2 (22.2)	9 (36)	4 (44.4)	5 (27.8)	9 (33.3)
Other situation where experienced intense fear	4 (25)	1 (11.1)	5 (20)	5 (55.6)	10 (55.6)	15 (55.6) *
Witnessed someone being killed or seriously injured	8 (50)	2 (22.2)	10 (40)	5 (55.6)	7 (38.9)	12 (44.4)
Experienced another extraordinarily stressful situation	8 (50)	7 (77.8)	15 (60)	7 (77.8)	14 (77.8)	21 (77.8)
Friend or family member deliberately killed, murdered or killed by a drunk driver	5 (31.3)	1 (11.1)	6 (24)	0 (0)	2 (11.1)	2 (7.4)
Bullied	10 (62.5)	7 (77.8)	17 (68)	7 (77.8)	12 (66.7)	19 (70.4)

Note: *p<.001

The incidence of situations where participants had felt intense fear was significantly greater in the non-clinical group ($\chi^2(1)=6.93$, $p=.008$). This group difference was present across both genders together but there was also a trend toward this difference being specifically among female participants ($\chi^2(1)=4.91$, $p=.027$). There were also trends towards significantly more of the non-clinical group who had experienced adult sexual abuse reporting that this abuse involved penetration ($\chi^2(1)=4.78$, $p=.029$), and specifically among female participants ($\chi^2(1)=5.83$, $p=.016$), suggesting that females may be accounting for the difference. No other significant differences between the groups were found.

There were also no significant differences between the groups (both genders together and separately) on total number of types of trauma across the lifespan, in childhood, or adulthood. There was only a trend towards a significant difference between the groups in total number of types of adulthood traumas for female participants ($U=41$, $p=.035$), indicating that the non-clinical group reported a greater incidence of traumas during this time period (see Table 11 below).

Table 11: Mean numbers (standard deviation) of types of trauma endorsed

Total trauma	Clinicals			Non-clinicals		
	Males	Females	Total	Males	Females	Total
Total number of types of traumatic event	5.56 (2.48)	4.67 (2.92)	5.24 (2.62)	6 (2.5)	5.17 (2.55)	5.44 (2.52)
Total number of types of traumatic event in childhood	2.81 (2.29)	2.89 (2.20)	2.84 (2.21)	3.44 (2.13)	2.83 (1.89)	3.04 (1.95)
Total types of traumatic event in adulthood	3.69 (2.24)	1.89 (1.05)	3.04 (2.07)	3.89 (2.03)	3.28 * (1.81)	3.48 (1.87)
Total number of types of events involving extreme fear	2.56 (2.25)	2.33 (1.58)	2.48 (2.00)	2.78 (2.11)	2.67 (2.28)	2.70 (2.18)
Total number of types of events involving physical injury	1.88 (1.86)	0.67 (0.87)	1.44 (1.66)	1.56 (1.83)	1.83 (1.72)	1.74 (1.58)

Note: * $p<.05$

There was therefore no convincing support for the hypothesis that the clinical group as a whole experienced more severe trauma in childhood and adulthood. In fact there were trends towards the non-clinical group reporting significantly more adulthood penetrative sexual abuse across the sample and in females only, and reporting significantly more events involving intense fear than the clinical group.

Trauma and Distress

No significant correlations were found between trauma (total types of trauma, total types of trauma in childhood and adulthood, sexual traumas, total number of traumas involving intense fear or physical injury) and general distress (HADS scores), across the sample as a whole, or within the clinical and non-clinical groups separately. No linear regression analyses were therefore performed. Using binary logistic regression analysis, there were no significant predictive relationships between these trauma measures (total types of trauma, total types of trauma in childhood and adulthood, sexual traumas, total number of traumas involving intense fear or physical injury) and anomaly-related distress ('negative emotional response' on the AANEX-CAR). Therefore there was no support for the hypothesised association between severe trauma and greater distress.

Trauma and Appraisals of Experiences

A series of backwards stepwise binary logistic regressions were used to analyse the predictive relationships between different types of traumas and appraisals of anomalous experiences. Where possible traumatic events were entered as conceptually meaningful clusters (categorised as 'sexual abuse', 'physical abuse', 'physical injury', and 'stressful experiences'), into separate models for each type of

appraisal to find the best fitting models. Traumatic events which could not be grouped into meaningful clusters were entered separately (i.e. experiences of ‘military combat’, ‘natural disaster’, ‘physical illnesses’, and being ‘bullied’). This was to reduce the number of comparisons and to ensure that there were not large numbers of predictors in the models. Only significant predictive relationships and trends are reported.

Child, teenage and adult sexual abuse were entered together forming a ‘sexual abuse’ cluster. To predict ‘other people’ appraisals, the best fitting model only included childhood sexual abuse, which showed a trend towards having a significant independent effect (Table 12). Experiencing childhood sexual abuse therefore showed a trend towards predicting a greater likelihood of making ‘other people’ appraisals.

Table 12: Best fitting model predicting ‘other people’ appraisals from sexual traumas

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp(B)	
							Lower	Upper
Childhood sexual abuse	1.504	.644	5.455	1	.020	4.500	1.274	15.898
Constant	-1.253	.401	9.765	1	.002	.286		

Note: Model $\chi^2(1)=5.657, p=.017$

To predict ‘normalising/psychological’ appraisals, teenage sexual abuse was the only category of sexual abuse that was included in the model of best fit. Therefore experiencing sexual abuse in teenage years showed a trend towards predicting fewer ‘normalising/psychological’ appraisals (Table 13).

Table 13: Model of best fit predicting ‘normalising/psychological’ appraisals from sexual abuse

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp(B)	
							Lower	Upper
Teenage sexual abuse	-1.361	.658	4.279	1	.039	.256	.071	.931
Constant	.773	.349	4.908	1	.027	2.167		

Note: Model $\chi^2(1)=4.505$, $p=.034$

Being physically attacked with and without a weapon were entered together to examine the effects of ‘physical abuse’. Physical abuse significantly predicted ‘spiritual’ appraisals. Being ‘attacked without a weapon’ significantly predicted an increased likelihood of making ‘spiritual’ appraisals, but being ‘attacked with a weapon’ showed a trend towards making fewer ‘spiritual’ appraisals (Table 14).

Table 14: Model of best fit predicting ‘spiritual’ appraisals from physical abuse

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp(B)	
							Lower	Upper
Attack with a weapon	-.856	.419	4.171	1	.041	.425	.187	.966
Attack without a weapon	1.079	.420	6.599	1	.010	2.942	1.291	6.703
Constant	.086	.480	.032	1	.858	1.089		

Note: Model $\chi^2(2)=9.978$, $p=.007$

Being ‘attacked without a weapon’ also showed a trend towards predicting appraisals of experiences as more ‘dangerous’ (Table 15), and was the only predictor in the model of best fit.

Table 15: Model of best fit predicting ‘dangerous’ appraisals from physical abuse

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp(B)	
							Lower	Upper
Attack without a weapon	1.350	.627	4.629	1	.031	3.857	1.128	13.192
Constant	-1.099	.516	4.526	1	.033	.333		

Note: Model $\chi^2(1)=5.040$, $p=.025$

‘Accidents’ and ‘events involving physical injury’ were entered together to examine the effect of ‘physical injury’. Experiencing physical injury showed a trend towards predicting fewer ‘positive’ appraisals of anomalies (Table 16).

Table 16: Model of best fit predicting ‘positive’ appraisals from physical injury

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp(B)	
							Lower	Upper
Event involving physical injury	-1.299	.615	4.457	1	.035	.273	.082	.911
Constant	.606	.359	2.853	1	.091	1.833		

Note: Model $\chi^2(1)=4.716$, $p=.03$

Stressful experiences were entered with ‘events involving fear of physical injury’ and experiencing a ‘close friend or family member being deliberately killed, murdered or killed by a drunk driver’ to examine the effect of the ‘stressful experiences’ cluster. Stressful experiences were a significant predictor of fewer ‘other people’ appraisals, whereas experiencing a close friend or family member being deliberately killed or murdered showed a trend towards predicting more ‘other people’ appraisals (Table 17).

Table 17: Model of best fit predicting ‘other people’ appraisals from stressful experiences

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp(B)	
							Lower	Upper
Stressful experience	-2.259	.740	9.326	1	.002	.104	.024	.445
Friend/family member murdered	2.036	.920	4.898	1	.027	7.657	1.262	46.453
Constant	.338	.532	.403	1	.525	1.402		

Note: Model $\chi^2(2)=14.333$, $p=.001$

Stressful experiences also significantly predicted more ‘normalising/psychological’ appraisals, and were the only predictor in the model of best fit (Table 18). No other significant relationships between trauma and appraisals were found.

Table 18: Model of best fit predicting ‘normalising/psychological’ appraisals from stressful experiences

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp(B)	
							Lower	Upper
Stressful experience	1.744	.655	7.083	1	.008	5.720	1.584	20.661
Constant	-.788	.539	2.137	1	.144	.455		

Note: Model $\chi^2(1)=7.737, p=.005$

In summary, there was some evidence to support the hypothesis that experiencing severe forms of trauma would predict more maladaptive and fewer adaptive appraisals of anomalous experiences. Experiencing childhood sexual abuse, or a ‘close friend/family member being deliberately killed, murdered or killed by a drunk driver’ showed trends towards predicting more ‘other people’ appraisals, whereas stressful experiences significantly predicted fewer of these appraisals. There was a trend towards having been ‘attacked without a weapon’ predicting appraising experiences as ‘dangerous’, but also of making more ‘spiritual’ appraisals. In contrast, being ‘attacked with a weapon’ showed a trend towards predicting fewer ‘spiritual’ appraisals. Experiencing physical injury predicted fewer ‘positive’ appraisals. There was also a trend towards teenage sexual abuse predicting fewer ‘normalising/psychological’ appraisals, but extraordinarily stressful experiences predicted a greater likelihood of making these appraisals.

Social Support

Anomaly-related social support

Perceived social support and understanding items from the AANEX-CAR were analysed using binary logistic regression to assess group differences both at the onset of anomalous experiences and at the time of the study. The non-clinical group was set as the reference category, and the significance level was set at $p=.05$ since there were only two anomaly-related social support scores. As there was a significant difference between males and females on ratings of social support and understanding at the time of the study ($\chi^2(1)=10.681, p=.001$), gender was controlled for in the relevant regression. There was no significant effect of group on perceived social support at the onset of anomalous experiences, but at the time of the study, being in the clinical group significantly predicted less perceived social support and understanding than in the non-clinical group (Table 19). Gender also significantly predicted social support and understanding, indicating that at the time of the study, females reported greater support and understanding in relation to their anomalous experiences than males.

Table 19: Logistic regression model predicting perceived social support and understanding at the time of the study from group, controlling for gender

Included	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for Exp(B)	
							Lower	Upper
Group	-1.613	.651	6.142	1	.013	.199	-1.613	.651
Gender	1.613	.651	6.142	1	.013	5.019	1.613	.651
Constant	-.105	.573	.034	1	.854	.900	-.105	.573

Note: Model $\chi^2(2)=17.497, p<.001$

General social support at the onset of anomalous experiences

Mann Whitney *U* tests were used to analyse group differences on ratings of perceived social support from the Significant Others Scale, at the time of the study and at the onset of anomalous experiences, with the significance level set at $p=.01$. At the onset of anomalous experiences, there were trends towards the clinical group rating themselves to have more emotional and practical support from professionals ($U=82.5$, $p=.026$; $U=84.5$, $p=.031$ respectively) than the non-clinical group. In contrast, the non-clinical group reported a trend towards significantly more dissatisfaction with perceived practical support from faith community/spiritual support groups ($U= 200.5$, $p=.038$), indicating that they ideally would have liked more support from these relationships.

Social support at the time of the study

At the time of the study there was a trend for the clinical group to perceive themselves to be more dissatisfied than the non-clinical group with the emotional support they received overall ($U=246$, $p=.04$). The non-clinical group reported significantly more perceived social support from close friends/neighbours than the clinical group ($U=174.5$, $p=.007$), and were more satisfied with this support from friends ($U=161.5$, $p=.002$). The clinical group also showed a trend to report more dissatisfaction with perceived support from professionals ($U=200.5$, $p=.038$), suggesting that they would have ideally liked more support from these relationships.

Change in social support

Change in social support since the onset of anomalous experiences was calculated by subtracting ratings of support at the onset of anomalies from those at the time of the study. Group differences in these change scores were then analysed

using Mann Whitney U tests. The non-clinical group showed a trend to report a greater increase in emotional support ($U=234$, $p=.037$) and practical support ($U=211.5$, $p=.013$) from their social relationships overall. The non-clinical group also indicated a significantly greater increase in emotional support from friends ($U=135.5$, $p=.004$), a trend towards greater increase in emotional support from professionals ($U=72.5$, $p=.031$) and faith communities/spiritual support groups ($U=29$, $p=.023$), compared to the clinical group. Regarding practical support, the non-clinical group reported a strong trend towards a greater increase in practical support from professionals ($U=62$, $p=.011$). The non-clinical group reported a trend towards greater satisfaction with emotional support ($U=31$, $p=.032$) and significantly greater satisfaction with practical support ($U=14.5$, $p=.001$) from faith communities/spiritual support groups over time than the clinical group.

In summary, there was very little evidence to support any group differences in social support at the onset of experiences, but there was some evidence to support the hypotheses that the clinical group would report less social support at the time of the study. In addition the non-clinical group did report trends towards greater increases in emotional and practical support over time, particularly more emotional support from friends, professionals and faith communities, more practical support from professionals, and a greater increase in satisfaction with support from faith communities.

Social Support and Distress

There were significant negative correlations between overall emotional support at the time of the study and general distress (total HADS score) ($r_s=-.367$, $p=.006$), depression ($r_s=-.390$, $p=.004$) and a trend towards a correlation with anxiety

($r_s = -.289$, $p = .034$), indicating that greater emotional support was associated with less general distress.

Binary logistic regressions were used to analyse whether social support predicted anomaly-related distress. The only relationship found was a trend towards dissatisfaction with emotional support from spouse at the time of the study being associated with more anomaly-related distress (Table 20).

Table 20: Binary logistic regression predicting negative emotional response to anomalies from dissatisfaction with emotional support from spouse

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for	
							Lower	Upper
Included								
Dissatisfaction with emotional support from spouse	.834	.306	4.923	1	.027	2.303	1.102	4.811
Constant	-.758	.585	1.682	1	.195	.468		

Note: Model $\chi^2(1) = 7.781$, $p = .005$

Therefore, there was partial support for the hypotheses that greater social support would be associated with less distress. There was evidence for this relationship for general distress only, but very little evidence to support social support being associated with less anomaly-related distress.

Discussion

Summary of Main Findings

This study aimed to examine some of the predictions made by cognitive models of psychosis (e.g. Garety et al, 2001) in determining need for care in individuals who report psychotic experiences: specifically the role of appraisals, trauma and social support. The two groups did not significantly differ in overall experiences, but distinct types of experiences, appraisals and responses to experiences characterised each group. The clinical group reported a greater incidence of ‘cognitive-attention’ factor items and ‘first rank symptoms’ than the non-clinical group. Cognitive and attentional disturbances were the only experiences to be associated with distress. Clinical individuals reported greater general and anomaly-related distress, and were more likely to have made personalising and paranoid (as other people having caused their experiences) appraisals of their experiences. In contrast, the non-clinical group was more likely to evaluate their experiences positively and report more normalising or psychological appraisals. Overall, there was no evidence for the clinical group having experienced more traumatic life events, although there were trend level relationships between experiencing severe forms of trauma and having more maladaptive, and fewer adaptive, appraisals of anomalous experiences. There was little evidence to support any group differences in social support at the onset of experiences, although the clinical group reported less current support and understanding. Over time the non-clinical group tended to develop more emotional support, particularly from peers, which appeared protective against distress.

Anomalous experiences and appraisals

The two groups did not significantly differ in overall experiences, although there was a trend towards the clinical group endorsing a greater number of anomalies. The clinical group reported a greater incidence of ‘cognitive-attention’ factor items (including language disturbance, thought blockages, lost automatic skills, and distractibility), and also more ‘first-rank symptoms’ (including, voices, thought transmission and insertion, and ‘made’ emotions) than the non-clinical group. Cognitive and attentional disturbances were also associated with greater distress, suggesting that these experiences are significant in leading to detrimental consequences, such as a need for care. These findings are consistent with Brett (unpublished thesis 2004), who found that cognitive and attentional difficulties was the main factor differentiating her clinical groups from her non-clinical group, and in predicting distress. Brett also found that first rank symptoms were more severe in her clinical groups, although they were not more prevalent.

In Brett’s study, the non-clinical group also reported more ‘paranormal-hallucinatory’ experiences than the clinical group, a finding which was not replicated in the current study. This discrepancy may have been due to using a shortened version of the AANEX-Inventory: there appeared to be a tendency for ceiling effects since all participants scored highly on these items, and so some of the sensitivity of the measure may have been lost. Alternatively, sampling differences may also have accounted for this discrepancy; for example the effects of approaching different organisations to advertise for participants to those approached in Brett’s research, and using a snowballing sampling procedure.

Similarly to Brett et al (In Press), the clinical group reported greater general and anomaly-related distress. The clinical group reported greater general overall

distress, anxiety and depression than the non-clinical group, more negative emotions and anxiety in response to their experiences, and greater engagement with their anomalies.

The results provide some support for cognitive models of psychosis (Garety et al, 2001, Chadwick and Birchwood, 1994, Morrison, 2001), with specific differences being found between the groups in appraisals. The strongest differences between the groups were for higher personalising ('agency') and paranoid ('other people') appraisals in the clinical group and higher normalising or psychological and positive appraisals in the non-clinical group. The clinical group also reported trends towards appraising their experiences as more externally caused and dangerous than their non-clinical counterparts. Individuals could therefore appraise anomalous experiences in non-distressing ways. Appraising experiences as part of the normal range of human experiences appeared to be most adaptive, whereas making personalising and paranoid appraisals seemed particularly related to need for care.

Group effects were still evident for personalised, paranoid, normalising and positive appraisals after controlling for type of anomalous experiences. Interestingly, the differences for personalising appraisals became stronger, but weakened for danger, externalising and spiritual appraisals (like in Brett et al's research), when anomalies were controlled. Like Brett et al, it appeared that there were complex and interacting relationships between the types of experiences and appraisals, more so than proposed by cognitive models, and it seems that some types of anomalies may tend elicit particular appraisals. Higher endorsement of 'First rank symptoms' predicted more externalising appraisals. Higher endorsement of 'paranormal-hallucinatory' items was associated with more personalising ('agency'), paranoid ('other people') and fewer externalising appraisals of experiences. Experiencing

more 'cognitive-attention' factor items predicted making more danger appraisals, whereas experiencing more 'dissociation-perceptual' anomalies predicted fewer danger and personalising appraisals of experiences. These findings also add support to the use of the AANEX interview (Brett et al, In Press) in assessing the components of anomalous experiences along the continuum of psychosis.

Trauma

Overall, there was no evidence of the clinical group reporting a greater incidence of severe traumas (including sexual abuse) than the non-clinical group. There were also no differences between the groups in the number of traumatic life events, in either childhood or adulthood, or in endorsement of most types of traumatic event. In fact the only significant differences found indicated greater trauma in non-clinical females (in events involving intense fear and adult penetrative sexual abuse). These findings are controversial in light of the many previous studies that have suggested that there is a greater incidence of trauma, particularly severe interpersonal trauma, in individuals with psychosis, than the general 'healthy' population (e.g. Mueser et al, 1998; Read et al 2005). In the current study the non-clinical group endorsed a very high level of trauma (for example, 29.6% experiencing childhood sexual abuse, to 70.4% having experienced bullying), greater than is typically reported in the general population, where rates of trauma tend to be substantially lower than in the psychiatric population. Sachs-Ericsson, Blazer, Ashby Plant, and Arnow, (2005) for example, found 9.5% of a population sample reported a history of childhood physical or sexual abuse, and in relatively recent general population studies the incidence of sexual trauma varies from 2 to 5.4% and physical trauma from 4.4 to 11.4% (e.g. Mol, Dinant, Vilters-van Monfort,

Metsemakers, van den Akker, Arntz, Knottnerus, 2002; Breslau, Kessler, Chilcoat, Schultz, Davis and Andreski, 1998). In contrast, among patients with severe mental illness, 34 to 53% report childhood sexual or physical abuse (Greenfield, Strakowski, Tohen, Batson and Kolbrener, 1994; Ross, Anderson and Clark, 1994). These rates are comparable to those reported by both the clinical and non-clinical participants in the current study, and are somewhat similar to Andrew and Gray's (unpublished) findings that overall non-psychiatric voice-hearers endorsed as much trauma as psychiatric voice-hearers. However, unlike the current study, Andrew and Gray did find significantly greater sexual traumas specifically in psychiatric voice-hearers.

It appears that there is no substantial evidence to support a relationship between trauma and clinical psychosis. Instead these findings may offer support for an association between trauma and anomalous experiences, and support previous suggestions that psychosis and particularly Schneiderian first-rank symptoms may emerge as a reaction to trauma (Ellason and Ross, 1997; Ross and Joshi, 1992). This also supports the findings of a number of large population studies which have found an association between trauma and psychotic-like experiences in individuals not in need of care (e.g. Janssen et al, 2004; Spauwen et al, 2006; Shevlin et al, 2007). Trauma may therefore increase the risk for developing anomalous experiences, but questions remain over what determines the transition to clinical psychosis. Additional cognitive, social, contextual or biological factors may therefore determine whether an individual develops a need for care, and further research is needed. Andrew and Gray (unpublished) suggest that the nature of the trauma and the degree to which it remains unresolved (the psychological effects of trauma) are significant in determining need for care and distress. Similarly, the severity of the trauma may be significant, as there is increasing evidence for a 'dose-response' relationship,

where more severe trauma relates to more severe psychosis (e.g. Janssen et al, 2004; Shevlin et al 2007). In the current study neither of these factors (severity of trauma or response to trauma) were adequately assessed. Therefore it cannot be determined whether the clinical group had experienced more severe trauma or been less able to overcome and resolve their experiences. The suggestion that the impact of trauma and post-traumatic symptomatology may increase vulnerability to clinical psychosis (Morrison, Frame and Larkin, 2003; Kilcommons and Morrison, 2005) warrants further research. In addition, without having a matched control group who do not report psychotic-like experiences for comparison, it is very difficult to draw conclusions about the trauma-psychosis relationship.

Trauma and Appraisals

The current study also attempted to examine whether there was a cognitive pathway linking trauma and psychosis through the development of maladaptive appraisals. There was some evidence to support the hypothesis that experiencing severe forms of trauma would predict more maladaptive, and fewer adaptive, appraisals of anomalous experiences, although a number of these findings were at trend level ($p < .05$) only. Those who experienced childhood sexual abuse, or a close friend or family member being deliberately killed or murdered, showed trends towards being more likely to appraise experiences as having been caused by 'other people'. Having an experience of being attacked without a weapon was associated with appraising experiences as dangerous, and physical injury was associated with appraising experiences as less positive. Experiencing teenage sexual abuse also showed a trend towards being associated with making fewer normalising appraisals. Other findings were difficult to interpret, for instance some types of traumatic

experiences (including stressful experiences) were associated with making more adaptive appraisals, possibly because the prevalence rates for this type of trauma were extremely high (60% of clinical individuals and 77.8% of non-clinical individuals). It appears however that there is initial evidence that experiencing more severe trauma may be related to more maladaptive appraisals, possibly through creating an enduring cognitive vulnerability, which could later facilitate more maladaptive appraisals of anomalous experiences, as dangerous and caused by other people, in line with proposals in cognitive models of psychosis (Garety et al, 2001; Morrison, 2001). Childhood sexual abuse and experiences of physical abuse seem particularly relevant, but further research is needed, again considering how the nature of these traumas relates to appraisals. How the trauma itself is appraised and processed could be relevant.

Social Support

The potentially buffering role of social support in protecting from need for care was also examined. Surprisingly, there was little evidence to support any group differences in social support at the onset of experiences. However the clinical group reported significantly less perceived social support and understanding in relation to their anomalies currently. The clinical group were also more dissatisfied with the emotional support they received generally, and specifically they endorsed less emotional support from peers and were more dissatisfied with support from professionals, than the non-clinical group. It also seemed that over time the non-clinical group had developed more emotional and practical support, and in particular more emotional support from peers, and more practical support from professionals, which may have been protective against distress. In support of Brett et al's findings,

feeling that people understood or who had gone through similar experiences themselves appeared to also be protective against distress and the need for care, but only currently. It is suggested that having support specifically in relation to anomalies, may be protective against the development of delusions (Krabbendam et al, 2004) and help to prevent psychotic appraisals from being formed or maintained (Garety et al, 2001). Group differences in the current study however, were only found for current social support, not at the onset of anomalies, and so there is no clear evidence to support these proposals. Developing this support over time may have been significant, and finding that the non-clinical group were more likely to evaluate their experiences positively and report more normalising or psychological appraisals, may relate as Brett et al suggest, to having more support and understanding from social groups who have had similar experiences themselves. Without assessing appraisals of experiences at their onset, it is difficult to draw conclusions about the potential protective role of social support in the development of a need for care.

Limitations and Directions for Future Research

There were a number of limitations in the current study affecting the generalisability of the findings. The non-clinical group were self-selecting, which may bias the representativeness of the sample. The adverts for participants were placed to appeal to specialist populations thought to experience high levels of anomalous experiences and it is unknown how many people were potentially interested in participating, but then declined. This may have also led to sampling only a small, select sub-group of the general population who endorse anomalous experiences. The self-selection was however also true of the psychotic sample. To

recruit a more representative sample, large numbers of people would need to be screened and this was not feasible in the current study.

Endorsement of psychosis screening items in the non-clinical group could reflect a range of more mundane and understandable circumstances, for example due to religious and cultural beliefs, or due to misunderstanding the questions (Scott et al 2006; Shevlin et al, 2007). Individuals' reports about their experiences were however elicited using a semi-structured interview, which has been found to have good reliability and validity, and there was good inter-rater reliability in the current study. Unlike other studies (e.g. Brett et al, In Press; Janssen et al, 2004) quantitative differences in the frequency or intensity of anomalous experiences were not rated, and it could not be determined whether they were repeated or just one-off occurrences, which could have further differentiated the groups. The content of anomalies was also not assessed, which in previous research has enabled relationships between the content of psychosis, life histories and social environment to be determined (e.g. Hardy et al, 2005).

The study was retrospective and cross-sectional, and therefore inferences about mediating, temporal or causal relationships cannot be made. It is possible that psychosis and, specifically, appraisals and beliefs, may have had a confounding effect on the report and perception of past events of trauma and social support (Morgan and Fisher, 2007), and so the results should therefore be interpreted with caution. In addition, using self-reports also raises questions about the accuracy of reports of previous events, but these methods have been found to be reliable (Meyer et al, 1996; Goodman et al, 1999). It is also very difficult to disentangle anomalous experiences from their appraisals using self-report. The severity, experience of and reaction to traumatic events was another area not covered in the current study. There

may have been group differences in response to trauma, for example whether it was reported and stopped, which could have a significant impact on the longer term consequences of these experiences. Further to this, the psychological impact of the traumas was not assessed, specifically symptoms of post-traumatic stress disorder such as re-experiencing or dissociation, which are proposed to mediate the relationship between trauma and psychotic symptoms (e.g. Gracie et al, 2007).

There appeared to be a number of limitations with the shortened version of the Significant Others Scale, which may have made it less sensitive to detect group differences in social support. Condensing ratings of practical and emotional support into broad categories may have biased participants understanding and reliability of the ratings.

The generalisability of these findings is somewhat limited due to differences between the samples. There were significant gender and IQ differences, which may be relevant to individuals' styles of appraisal, social context and experience of trauma. Efforts were made to control for these variables where significant. In addition, due to the large number of variables, a high number of analyses were performed on a relatively small data-set; increasing vulnerability to making both type 1 and 2 errors.

Clinical Implications

These findings raise implications for clinical practice. Finding that the groups could be differentiated by their appraisals of experiences adds support to the use of cognitive therapy for psychosis, and in particular distressing psychosis. Helping individuals to develop understanding and supportive relationships with peers, family and professionals, where they can talk openly about their experiences

may also be a useful clinical strategy to protect against distress. Previous research suggests that clinicians are less likely to ask individuals with a diagnosis of 'schizophrenia' about history of abuse (Read and Fraser, 1998a) or offer an adequate response if abuse is disclosed (Agar and Read, 2002). The implications for severe trauma leading to the development of maladaptive appraisals suggest that this may be an important factor to consider and ask about in working with individuals who report anomalous experiences, at assessment, formulation and intervention.

Conclusions

Despite these limitations, overall the study provides some support for the cognitive model of psychosis, which suggests that appraisals of anomalous experiences are central in determining the progression to a psychotic symptom, resulting in distress and need for care. Anomalous experiences do not automatically lead to a need for care, and individuals could appraise their experiences in a non-distressing way. Qualitative differences in anomalies were found, and the presence of cognitive and attentional disturbances seemed of particular significance in determining distress. There were no differences in severe trauma between the groups, suggesting that trauma may relate to the occurrence of anomalous experiences, rather than clinical psychosis. There was encouraging evidence for a link between severe trauma and the development of maladaptive appraisals of experiences, and further research examining these relationships is required. No evidence was found for a protective or buffering effect of social support at the onset of experiences, but developing greater emotional support appeared to serve some protective role and was associated with general but not anomaly-related distress.

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Part 3: Critical Appraisal

Introduction

This project was inspired by a PhD research project by Caroline Brett, who examined anomalous experiences reported by a number of clinical groups and also healthy individuals from the general population, to evaluate how their experiences were both similar and different. She found that individuals could experience high levels of anomalous experiences and yet experience them positively, and appraise them in non-distressing ways, thereby never coming into contact with psychiatric services. I was drawn to researching this area as from my own clinical experiences I had met individuals under the care of mental health services who had been given diagnoses of psychotic disorders, yet who reported their experiences to be pleasurable, meaningful and inspiring and given the choice they did not want them to be taken away or ‘muffled’ by antipsychotic medication. This raised questions for me about the assumptions that are held within a medical model that the presence of anomalous experiences must equate with distress and a need for care. In contrast to these assumptions research like Brett’s is increasingly finding evidence for the presence of anomalous experiences within otherwise ‘healthy’ members of the general population which are comparable to those reported by individuals who receive diagnoses of ‘schizophrenia’, or ‘schizoaffective disorder’ or other psychotic disorders. These findings are conceptualised as a continuum model, suggesting that psychotic-like experiences are distributed within the population along a continuum of severity, spanning those who are deemed in need of professional care and help, to those who live relatively ‘normal’, ‘healthy’ lives (van Os et al, 2000; Kendler et al, 1996; Scott et al, 2006; Wiles et al, 2006; Shevlin et al, 2007).

This research aimed to understand more about the factors that could determine which pathway an individual’s anomalous experiences take them on;

specifically the roles of traumatic life events, social support and appraisals of the experiences themselves. This paper is a reflection of the research process, thoughts and questions that were raised as the research evolved. This also gives space to reflect on my observations of the comments and richness of the interviews with participants, details which are lost in the ratings for analysis.

Recruiting Participants

One of the first obstacles to arise in conducting this research was where to recruit participants. Where to find individuals who report having anomalous experiences yet who have not come into contact with mental health services, and who would be willing to talk about their experiences to someone from the very services that are regarded to interpret such experiences as signs of ‘madness’. From speaking to other researchers who have tackled this issue, I was given some invaluable advice. Previous studies have found that there are certain identifiable groups who endorse ‘positive symptom measures’, including those who believe in the paranormal (Thalbourne, 1994), members of new religious movements (Day and Peters, 1999), and those who have out-of-body experiences (McCreery and Claridge, 1995). People who report these experiences and beliefs are often referred to as ‘mediums’ or ‘psychics’ (Tobert, 2000). I went to a number of mystical arts events to hear people describe their experiences and to find out more about potential societies, organisations and centres to approach for help to advertise and recruit participants. I was able to advertise with a specialist organisation and a college of psychic studies and was very surprised at the magnitude of interest in my study. These events were a fascinating experience to see line after line of stall holders, all who claim to be able to ‘communicate with spirit’, offer spiritual healing,

demonstrate telepathic powers or predict the future, amongst numerous mystical skills and abilities. This gave me vital awareness of a very different frame of reference so as to avoid pathologising experiences. In light of this, a number of considerations were taken. Care was taken in the language used to describe anomalous experiences, for example understanding and where appropriate using the terms, 'clairaudience' (hearing the voices of spirits), 'clairsentience' (sensing the characteristics of the communicating spirit), and 'clairvoyance' (seeing visions, people, or objects not visible to other people). The language used to approach people was very important as I had to ensure that I gave a full rationale for what I was investigating, but also make sure that people did not end up thinking that I was going to make them look 'mad'. I also tried to remain very neutral, invited questions or concerns to be raised and was flexible about making arrangements for meeting up to complete the measures, i.e., not inviting them to a psychiatric institute/hospital for testing. Many people commented positively on someone from a health services background being interested in their experiences.

Methodological Issues

Through conducting the interviews, a number of issues arose with the measures used in the study. Using a shortened version of the AANEX-Inventory (Brett et al, In Press) reduced the number of types of experiences asked about. Some participants commented that they had other anomalous experiences which were not assessed by this measure, which could have potentially differentiated the groups further. The results suggested that many participants from both the clinical and non-clinical groups scored highly, endorsing a similar amount of experiences. It was however unclear whether they had these experiences frequently or just occasionally,

how intense they were, or what the duration or content of their experiences were. Using the full version of the measure, Brett et al (In Press) were able to assess quantitative and qualitative features of experiences including their frequency and intensity, but due to time constraints in the current study this richness was sacrificed. More specific differences and similarities between the groups were therefore potentially missed. Assessing the content of anomalous experiences, such as hallucinations, may have enabled comparison and similarities with actual life experiences to be assessed. For example, Hardy et al (2005) found that 30.6% of their total sample of participants with non-affective psychosis had at least one type of phenomenological (thematic) association between their hallucinations and traumatic experiences, and a small proportion (6.7%) showed direct content associations.

A number of the non-clinical participants commented on the wording of some questions in the AANEX-Inventory being ambivalent, suggesting that many of the experiences assessed could be interpreted as descriptions of everyday experiences, and not necessarily something unusual or anomalous. It seemed very subjective how each individual interpreted the questions, and even if more concrete language were used, self-report is still vulnerable to these issues. The questions were administered as an interview and so where participants or interviewer were uncertain, this could be clarified. Many participants also gave detailed descriptions of examples of their experiences, which further assisted ratings. Inter-rater reliability was assessed, and indicated good consistency. The raters were however, not blind to the grouping of participants which could have impacted in their ratings. In future research, blind ratings would be preferable.

Using a verbal measure of IQ raised questions over the reliability of these scores. A number of participants spoke English fluently, but as a second language

and so this may therefore have led to them potentially scoring lower than their actual IQ. Brett et al found that their non-clinical group had a significantly higher IQ than their clinical groups, as was found in this research. They additionally found however, that they also had a higher than average IQ, which Brett et al suggest may act as a protective factor, impacting on appraisals and response to experiences. I did not find this and it is possible that this was also the case for participants in the current study, but was not detected due to the constraints of the Quick Test of Intelligence. In future research, using non-verbal measures or more robust assessments might provide a more reliable estimate of IQ.

The Significant Others Scale also seemed somewhat limited. The shortened version reduced the number of relationships rated and so the size of a person's network could no longer be accurately determined. In addition ambiguities arose over some of the categories of relationship rated, particularly that of 'professional', as it appeared that the clinical participants were rating the support they received from mental health professionals, whereas the non-clinical group may have interpreted this category in a number of different ways, such as G.P., help from professional healers or private therapists, or as occupational support at work. In future research these discrepancies would need to be addressed and there may be advantages to using a longer, more detailed version of the measure. The items from the AANEX-CAR which assessed social support and understanding specifically in relation to anomalies could also be expanded to determine who this support was from and the quality of the support received.

Statistical Analyses

On the whole the statistical analyses ran smoothly, but some issues did arise when analysing the appraisals data. The AANEX-CAR rated appraisals on either three or five point likert scales (from 0-2, or 1-5). Ideally, these scores would be analysed using ordinal logistic regression, a statistical method suitable for predicting ordinal outcomes with two or more categories. Unfortunately, due to the sample size and distribution of scores (too many cells with zero frequencies) this analysis was not suitable for the data. The decision was made to condense the data into binary (0-1) scores to enable binary logistic regression analyses to be performed. These changes to the ratings may have resulted in loss of some of the richness of the data, and it is unknown whether more subtle similarities and differences between the two groups would have emerged if it were possible to analyse the original ratings. In future research, a larger sample size is probably required to enable the data produced by the AANEX-CAR to be analysed more accurately.

Further Discussion of Findings and Questions Raised

Psychosis versus anomalous experiences

Finding that many people report experiencing anomalous or psychosis-like experiences but experience them as non-distressing, raises questions over what factors differentiate the groups and in turn, distinguish 'psychotic' experiences from 'anomalous' experiences. There were group differences in some of the types of experiences, suggesting that cognitive and attentional disturbances and first-rank symptoms were of particular significance in determining distress and need for care. Something about these types of experiences could mean that they are innately distressing, or they could impact on reasoning and interpretation of experiences,

leading to distress. Cognitive models of psychosis propose that it is the appraisals that individuals form which determines the transition to psychosis, emphasising the significance of appraising experiences as externally caused and personally significant. This framework has opened the option of psychological therapy for people with psychosis and has been taken further to focus therapy on the distress associated with these experiences (Chadwick, Birchwood and Trower, 1996). Appraisals certainly did discriminate the clinical and non-clinical groups, but it seemed that there were complex relationships between the experiences themselves and appraisals formed to make sense of them, and methodologically it is very difficult to disentangle experiences from their appraisals.

Being able to compare first hand the descriptions of anomalous experiences of clinical and non-clinical participants also raises the issue of the broader frame of reference. For example, being told by someone that they are able to read other people's thoughts and can have their thoughts read by other people, may be interpreted as 'thought withdrawal' or 'thought insertion' and be regarded as positive symptoms of psychosis. Alternatively, these experiences could be appraised as examples of 'telepathy' or 'spiritual connections'. It seems to depend where the observer's interest lies; whether looking through a spiritual/mystical lens, or through a psychiatric/medical lens.

Response to anomalies

It can also be asked whether it is really distress that differentiates these experiences. It seemed that on the whole, the non-clinical group were less distressed by their experiences, but responses varied, and some people described how different experiences evoke different emotional responses. The non-clinical group appeared to

be more accepting of their anomalies, did not engage with them and spoke of being in control of them, allowing them to come and go at times that suited them. I wondered whether as a group, the non-clinical participants were more mindful than the clinical group, who appeared to engage with their experiences, experience them more negatively and possibly be more resistant to their occurrence. Mindfulness-based interventions are being developed and used with individuals with psychosis and being integrated with cognitive therapy (Chadwick, 2006). These approaches focus on decentering awareness and accepting whatever is present with the absence of reaction, and also on reflective learning about the nature of experience. It may be that individuals in the non-clinical group had these mindfulness skills already and were utilising them in the face of their anomalies. Many talked about practising meditation regularly, 'opening' themselves up to experiences, and being accepting of their occurrence, which sounds not dissimilar to strategies used when practising mindfulness. Measures are being developed to assess mindfulness and this may be an area to consider in future research with the continuum of psychosis, which could add further support to the benefits of mindfulness training being offered to those with distressing psychosis.

Social factors

Many of the participants in the non-clinical group described being cautious about whom they talked to about their experiences. Some had found a social network where these experiences were 'normal', accepted and in some cases highly regarded, but this was not the situation for everyone. Others described moving away from particular geographical areas, or social groups that they found stressful and appeared to live relatively isolated lives. This could be regarded in some ways as an

effective coping strategy. In addition there were participants in the clinical group who described their experiences as pleasurable and positive. Many also rated themselves to have good social support from a number of different contacts. It appears that the relationships between anomalous experiences, distress, need for care and interpretation, are not straight-forward and there is great variation, possibly partly due to contextual factors.

The trauma-psychosis debate

In the cognitive models of psychosis, it is proposed that negative schematic models of the world develop through early adverse experiences to create an enduring cognitive vulnerability, which leads to schematic models of the self as vulnerable and others as dangerous, which facilitate externalising appraisals and low self-esteem. Self-esteem is an area that was not assessed in this study and may be interesting to examine along the continuum of psychotic experiences. Early experiences of trauma were explored and unexpectedly no differences between the clinical and non-clinical groups were found for severe interpersonal traumas. This may be due in part to using a self-selected sampling, where individuals either opted in or opted out. Individuals' choice to participate may have been influenced by whether they felt comfortable to disclose past traumas and may have had a different effect on the two groups. The finding of high levels of trauma in the non-clinical group may have been because people with trauma in their background felt the content of the study was relevant to them, and so on this basis chose to participate. In contrast, potential clinical participants invited to take part who had experienced significant trauma, may have been put off participating to avoid talking about their experiences. The only two people who declined to complete the trauma history questionnaire were in the

clinical group, possibly because they did not want to discuss distressing personal experiences, and it is unknown how many potential participants were approached and declined to take part on this basis.

It is also possible that people who did participate may have denied the presence of trauma when it actually did exist resulting in underestimates of the prevalence of trauma. Alternatively, individuals may have misunderstood the questions. Prevalence rates of various types of traumatic events and abuse are difficult to generalise across studies for comparison, due to the lack of a consensus on the definitions of these experiences and the use of different measures, but it appeared that the non-clinical group were endorsing a high amount of trauma in comparison to rates observed in the general population. In the current study, the categories of traumatic event may have been too broad or non-specific, grouping together a number of different sub-types of trauma categories which vary in severity, thus losing the sensitivity to determine potential qualitative differences between people's experiences. It may however, be that there is no clear association between trauma and psychotic disorders, or this relationship only exists for a subgroup of individuals, and this remains a controversial debate. Alternatively, it may also be that trauma is related to the presence of anomalous experiences and not their appraisals or need for care, as the rates of trauma were much higher in the non-clinical group than the general population.

Experiencing some severe forms of trauma did relate to the presence of a number of maladaptive appraisals of experiences, offering support for the proposals made in cognitive models of psychosis. There may also have been differences between the groups in how they responded to and appraised their traumatic experiences, and how they integrated them into their views of themselves and the

world. These factors may also be predictors of appraisals and further research is needed to examine these relationships. The non-clinical participants who had experienced severe traumas may represent a group of survivors, those who are able to move on from such abusive experiences and be resilient against negative consequences. Some participants who had experienced frequent abuse spoke about how their anomalous experiences became a form of escape, a coping strategy, a way to survive, or an 'alternate reality' that they could enter where they felt safe and happy. This appears to show some parallels with the earlier concept of 'fantasy proneness', a personality construct describing the tendency to often fantasise and be absorbed in or fully experience what is fantasised, which is thought to correlate with paranormal experiences, and has been proposed to develop in childhood as an escape from stressful awareness of an aversive environment (Lynn and Rhue, 1988). Irwin (1992) suggests that paranormal beliefs develop as part of a search for coping strategies, to create an illusion of control over the threat of uncontrollable and inconsistent social relationships and experiences. It seems logical therefore to ask whether for some people anomalous experiences develop in the same way, and are extensions of beliefs in the paranormal and fantasy proneness. Research on the continuity of psychotic experiences in the general population appears to offer some support for this proposal through evidence for an association between traumatic life events and sub-clinical psychotic experiences and schizotypy (e.g. Startup, 1999; Shevlin et al, 2007).

Conclusions and Implications for Clinical Practise

Speaking to individuals who describe experiencing a range of anomalous experiences, 'unusual beliefs' or 'alternate realities' and hearing about how they

have adapted to and live positively with these experiences, raises questions over what strategies can be offered to people who are distressed by their experiences and struggling to cope with them. These individuals may have adapted to their experiences by using coping strategies which fit with their understanding of the meaning of their experiences. Knight has suggested that people need to work creatively with unusual experiences and beliefs, to work with the client's own reality to help them develop coping strategies for situations as they perceive them to be. She describes a number of strategies that may be helpful, drawing on the literature on practical psychic defence, including meditation, strategies traditionally used to repel negative entities and exorcism. These strategies may be contentious, but they may also reflect those strategies that in some ways appear to work for those who fit into the non-clinical group. Further exploration of how these individuals cope with adapt to their experiences may provide helpful insights into strategies that could be incorporated into interventions with those with psychosis.

Overall, it appears that there are a lot of issues still in debate. The relationship between trauma and psychosis remains controversial and further research is needed to examine how trauma relates to anomalous experiences and the appraisals individuals form to attempt to understand these experiences. Trauma, particularly sexual and physical abuse, is an area that has attracted a wealth of research. It appears that other traumatic and difficult social and interpersonal experiences may deserve further attention to examine how they relate to anomalous experiences and their appraisals, such as parental bonding, parental drug and alcohol misuse, peer relationships, and the severity and processing of traumatic experiences. Ideally, this research should be done at a population level, using prospective designs, but it also seems that potentially a lot can be learned from the more qualitative

reports of individuals who endorse anomalous experiences but who live relatively 'normal', 'healthy' lives.

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Appendix A: Screening Tool

Screening Tool

I need to ask you a few questions to find out a little more about you. This will help me to know whether you meet the criteria to take part in this study. Please answer 'yes' or 'no'. You do not need to give go into details.

I'd like to ask you about your unusual/anomalous/spiritual/mystical experiences. The following are some of the experiences that a lot of people have been telling us about. Do any of these apply to you?

(If answers YES to any of the questions in Section 1 go straight to section 2)

SECTION 1

A1 Voice Experiences

- Have you ever had the experience of hearing things, like voices talking, or music playing, when there hasn't been anyone around?
YES NO

A2 Thought Transmission

- Have you had any experience of your thoughts being read or picked up by other people?
- Have you ever had the experience of people reacting to thoughts you have had, so that you wonder if they are aware of what you are thinking?
YES NO

A3 Receptivity

- Have you ever had the experience of feeling emotions or thinking thoughts that were actually those of other people?
- Have you ever thought that other people or agencies were putting thoughts in your head, or making you feel certain things?
- Have you had the experience of picking up on other people's thoughts?
YES NO

A4 Thought Withdrawal

- Have you ever experienced your thoughts being taken out of your mind, blocked or stopped by something or someone else?
YES NO

A5 Controlled Actions

- Have you ever experienced your thought being taken out of your mind, blocked or stopped by something or someone else?
YES NO

A6 Passivity (other)

- Have you ever had an experience of having your thoughts, feelings or movements influenced by other people? Through their thoughts, or gestures alone?
- Have you ever had an experience in which you felt your body moving automatically, or felt urges to move into certain postures or make certain movements, when you didn't seem to be controlling this?
YES NO

A7 Reference experiences

- Have you had experiences in which things you read or heard people say seemed to reflect or resonate with your own thoughts?

- Have you had experiences in which things in the world around you seemed to contain messages or hints, perhaps in a metaphorical or symbolic way?
- Have you had the experience of people seeming to be communicating with you in a special way, like with double meanings or significant words or hints?
- Have you had the experience of feeling as though events in your environment, such as the actions or comments of other people, are in reference to you, or are directed at you, even though you know that this is unlikely?

YES NO

A8 Activity

- Have you had the experience of influencing or controlling people with your thoughts or gesture?
- Have you had the experience of watching something happen and feeling as though you had caused it in your mind?
- Have you had the experience of causing things to happen by thinking about it, when the effect happened some time later?

YES NO

A9 Loud Thoughts

- Have you ever experienced your own thoughts being very loud, so that you could hear them being spoken in your head?

YES NO

SECTION 2

1) Have you had the above experience/s in clear consciousness and in the absence of any drug use?

YES NO

2) Would you say that you have these experiences at least 'occasionally'?

YES NO

3) Have you had an experience within the last month?

YES NO

4) Have you ever had contact with health services regarding your experiences?

YES NO

5) Have you been having these experiences for 2 years or longer?

YES NO

6) Are you aged 18 years or above?

YES NO

7) Are you resident in Greater London?

YES NO

Thank you for taking the time to answer these questions. I can confirm that you DO / DO NOT meet the criteria for this study.

Potential Participant will meet the criteria for this study if they answered YES to any question in Section 1 and YES to questions, 1, 2, 3, 5, 6, and 7 (answering NO to question 4 will meet criteria for non-clinical participants) in Section 2.

Appendix B: SLaM/IOP and UCL Ethical Approval Letters



**The Joint South London and Maudsley and The Institute of Psychiatry NHS
Research Ethics Committee**

PO 06
Institute of Psychiatry
De Crespigny Park
London
SE5 8AF

Telephone: 020 7 848 0533

02 May 2006

Miss Anna T Prescott
Trainee Clinical Psychologist
University College London
Sub-Department of Clinical Health Psychology
University College London, Gower Street,
London WC1E 6BT

Dear Miss Prescott

Full title of study: **An Investigation into the Relationship Between
Anomalous Experiences, Trauma and Social Support**
REC reference number: **06/Q0706/23**

Thank you for your letter of 26 April 2006, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The favourable opinion applies to the research sites listed on the attached form.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Application	2	
Investigator CV		
Protocol		21 October 2005
Covering Letter		21 February 2006
Letter from Sponsor		08 February 2005

Peer Review Research proposal review form		08 November 2005
Interview Schedules/Topic Guides Screening tool	1	15 February 2006
Questionnaire Anomalous experiences inventory - short form	1	21 October 2005
Questionnaire Hospital anxiety and depression scale		
Questionnaire QT		
Questionnaire Trauma History Questionnaire	2	02 April 2006
Questionnaire Significant Others Scale - Earlier relationships	2	02 April 2006
Questionnaire Significant Others Scale - Current relationships	2	02 April 2006
Advertisement for healthy volunteers	1	13 February 2006
Letter of invitation to participant	2	02 April 2006
GP/Consultant Information Sheets Letter to consultants	1	15 February 2006
Participant Information Sheet For Ward Based Participants	2	02 April 2006
Participant Information Sheet For PICuP Participants	2	02 April 2006
Participant Consent Form For PICuP Participants	2	02 April 2006
Participant Consent Form For Ward Based Participants	2	02 April 2006
Response to Request for Further Information		26 April 2006
UCL insurance certificate		
Supervisor's CV		

Research governance approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final research governance approval from the R&D Department for the relevant NHS care organisation.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

06/Q0706/23	Please quote this number on all correspondence
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With the Committee's best wishes for the success of this project

Yours sincerely

Enclosures: *Standard approval conditions*
 Site approval form

Copy to: R&D Department for SLAM NHS Trust

SF1 list of approved sites



Dr Oliver Mason
Sub-Department of Clinical Health Psychology
UCL
4th Floor, 1-19 Torrington Place
London
WC1E 7HB

24 March 2006

Dear Dr Mason

Re: Notification of Ethical Approval

Re: Ethics Application: 0636/001: Anomalous experiences, trauma and social support

I am pleased to confirm that following the review of your application by the UCL Research Ethics Committee the above research has been given ethical approval for the duration of the project. Members made just one minor comment in relation to the participant information sheet. They suggested that the phrase 'I might pathologise unconventional beliefs or experiences' in the third paragraph should be simplified.

Approval is subject to the following conditions:

1. You must seek Chair's approval for proposed amendments to the research for which this approval has been given. Ethical approval is specific to this project and must not be treated as applicable to research of a similar nature. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing the 'Amendment Approval Request Form'.

The form identified above can be accessed by logging on to the ethics website homepage:

<http://www.grad.ucl.ac.uk/ethics/> and clicking on the button marked 'Key Responsibilities of the Researcher Following Approval'.

2. It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. Both non-serious and serious adverse events must be reported.

Reporting Non-Serious Adverse Events.

For non-serious adverse events you will need to inform Ms Helen Dougal, Ethics Committee Administrator (h.dougal@ucl.ac.uk), within ten days of an adverse incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Chair or Vice-Chair of the Ethics Committee will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

Reporting Serious Adverse Events

The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator immediately the incident occurs. Where the adverse incident is unexpected and serious, the Chair or Vice-Chair will decide whether the study should be terminated pending the opinion of an

Letter to Dr Mason 24/3/2006

independent expert. The adverse event will be considered at the next Committee meeting and a decision will be made on the need to change the information leaflet and/or study protocol.

On completion of the research you must submit a brief report (a maximum of two sides of A4) of your findings/concluding comments to the Committee, which includes in particular issues relating to the ethical implications of the research.

Chair of the UCL Research Ethics Committee

Cc: Anna Prescott, Sub-Department of Clinical Health Psychology, UCL

Appendix C: AANEX-Inventory – Short Form

Anomalous Experiences Inventory – Short Form

E1 Receptivity:

- a) Have you had the experience of feeling emotions or thinking thoughts that were actually those of other people?
- b) Have you ever thought that other people or agencies were putting thoughts in your head, or making you feel certain things?
- c) Have you had the experience of picking up on other people's thoughts?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

E2 Thought withdrawal:

- a) Have you ever experienced your thoughts being taken out of your mind, blocked or stopped by something or someone else?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

B1 Passivity (other):

- a) Have you ever had an experience of having your thoughts, feelings or movements influenced by other people? Through their thoughts, or gestures alone?
- b) Have you ever had an experience in which you felt your body moving automatically, or felt urges to move into certain postures or make certain movements, when you didn't seem to be controlling this?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

E3 Voice experiences:

- b) Have you ever had the experience of hearing things, like voices talking, or music playing, when there hasn't been anyone around?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

D1 Depersonalisation:

- a) Have you had the experience of feeling alienated or at a distance from yourself, so that your actions and movements seem impersonal and automatic, or it feels as though you are listening to yourself speaking when you talk?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

D2 Derealisation:

- a) Have you had the experience of the world seeming altered in a strange way, so that it didn't seem as real and familiar as usual, but perhaps looked flat or artificial?
- b) Have you had the experience of the world seeming different or new, so that it seemed less solid, and more perfect or 'glowing' somehow?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

B2 Somatic anomalies:

a) Have you ever had experiences of unusual sensations in your body, not created by any obvious physical cause, for example of heat or cold, energy moving, or something entering or passing through your body?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

C1 Lost automatic skills:

Have you experienced the loss of automatic skills, so that things you could normally do easily and without really thinking suddenly require all your attention and have be taken one step at a time?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

C2 Language Disturbance:

Have you experienced being in a state in which it is difficult to follow a conversation or understand what someone is saying, because the words seem to stand on their own and don't make sense?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

C3 Thought blockages:

Have you noticed ever that your thoughts seem to suddenly stop or fade out, so that you lose your train of thought much more often than usual?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

A1 Insight experiences:

a) Have you had the experience of having 'insights' or sudden revelations come into your mind, for example about the nature of divine or cosmic principles, or the functioning of society, or other fundamental issues?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

A2 Mission experiences:

a) Have you had the experience of some kind of 'mission' or duty being revealed to you, and knowing that you have to fulfil this mission, or feeling compelled to do so?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

A3 Spiritual elation:

Have you ever had an experience like a state of 'grace', in which you felt extremely content and peaceful, or released from all responsibilities, or very light and full of energy and love, which has been unlike your normal fluctuations of mood?

1	2	3
<i>Not present</i>	<i>Unclear</i>	<i>Present</i>

Appendix D: AANEX-CAR – Short Form

Appraisals of Anomalous Experiences Interview – Short Form

Q – How do you make sense of your experiences now?

.....

.....

.....

.....

Appraisal	Present	Maybe Present	Not Present
<i>Personalising</i>	2	1	0
<i>Medical</i>	2	1	0
<i>Normalising/Psychological</i>	2	1	0
<i>Spiritual</i>	2	1	0
<i>Externalising</i>	2	1	0

If information not spontaneously given →

Q Do you think the experience(s) is/are a beneficial or bad sign?

.....

.....

Q Do you think the experience(s) is/are dangerous or harmless?

.....

.....

Q Do you think (this) is/was caused by changes in you, or something outside of you?

.....

.....

Valence:

Strongly positive	Slightly positive	Balance of positive/negative or neutral	Slightly negative	Strongly negative
5	4	3	2	1
Definitely dangerous or harmful	Slightly dangerous or harmful	Neutral balance of harm/harmlessness	Almost completely harmless	Completely harmless
5	4	3	2	1

Internal/external:

Source of experience and source of change external to self	Source external but some relevant internal aspects	Balance of internal and external factors	Predominantly due to internal factors but some external source	Entirely due to internal factors
5	4	3	2	1

Context:

Q – *Is there anything particular about your circumstances which you feel might contribute towards or cause these experiences? (Feelings/situation)*

.....

.....

.....

Agency:

Q – *Does the person view the experience(s) as having been caused by some person or agency, known or unknown, or by some impersonal process or factors?*

Source entirely personal	Source predominantly personal but with some impersonal aspect	Balance of personal (agential) and impersonal factors	Source predominantly impersonal but with some agential aspect	Source entirely impersonal
5	4	3	2	1

Emotional Response

Q – *How do you feel when this happens?*

.....

.....

.....

Neutral:

Q – *Do you feel very surprised, puzzled, or curious?*

No surprise, puzzlement or curiosity	Some degree of any of these (relatively low arousal/ orientation)	Higher degree of ONE of these in the absence of the others (higher orientation)	Higher degree of ALL of these (high orientation/ arousal) PLUS score on neg/pos emotions or 'unengaged'	ONLY uninterpreted arousal and orientation reported
1	2	3	4	5

Negative:

Q – *Do you have any bad feelings, worries or fears?*

No bad feelings	Small mention of negative feelings	Definite degree of negative feelings	High degree of negative feelings	ONLY negative feelings reported
1	2	3	4	5

Positive:

Q – Do you have any good feelings at all?

No good feelings	Small mention of any 'good' feelings	Definite degree of 'good' feelings	High degree of 'good' feelings	ONLY 'good' feelings reported
1	2	3	4	5

Unengaged:

Rate on basis of information derived from the other probes – it represents the opposite pole of the response to the 'arousal' categories. It should reflect the degree to which the individual does not engage with the experience, is accustomed to or emotionally unperturbed by the experience occurring.

Engages	Small mention of unengagement	Definite degree of unengagement	High degree of unengagement	ONLY unengages
1	2	3	4	5

Q – You've told me you felt [feeling]; can I ask you to tell me how anxious you feel? Say from 1 to 5, if 1 is 'not at all' and 5 is 'extremely anxious'?

Not at all	a little	somewhat	rather	extremely
1	2	3	4	5

Q – Could you give me an idea of how excited you are when you experience [that]? From 1 to 5, if 1 is 'not at all excited' and 5 is 'extremely excited'?

Not at all	a little	somewhat	rather	extremely
1	2	3	4	5

Social Support/understanding

Q Do you feel your experience is understood by your social group, or do you feel it would be best to keep quiet about it?

Definitely keep quiet	Best to keep quiet	Unsure	Suspect understand	Definitely understand
1	2	3	4	5

Q When you first started to have these experiences, do you feel that your experience was understood by your social group, or did you feel that it would have been best to have kept quiet about it?

Definitely keep quiet	Best to keep quiet	Unsure	Suspect understand	Definitely understand
1	2	3	4	5

Appendix E: Significant Others Scale – Short Form

**Appendix F: Participant Information Sheets and
Consent Forms
(Versions for PICuP, Ward and Non-clinical Participants)**

**Participant Information Sheet
(PICuP Participants)**

Anomalous Experiences, Trauma and Social Support

My name is Anna Prescott, and I am a trainee clinical psychologist, studying at University College London (UCL). I am interested in speaking to people who have unusual, spiritual or mystical experiences. I will be leading this study and this is a student research project. I am conducting this research with Dr Emmanuelle Peters (Senior Lecturer and Honorary Consultant Clinical Psychologist) based at the Institute of Psychiatry, and Dr Oliver Mason (Lecturer and Clinical Psychologist) based at UCL.

The purpose of the research:

Lots of people describe having unusual experiences such as changes in one's experiences of oneself or the world, extrasensory communications and spiritual-type experiences. These experiences can be pleasant or unpleasant, confusing or inspiring. This research hopes to help us understand the range of unusual experiences different people have and how other factors may relate to them. I am particularly interested in looking at the links between the way people understand their experiences, traumatic life events, social support and how people feel about their experiences.

You may worry that I might view unconventional beliefs or experiences as 'problems' or 'difficulties', however this is *NOT* the aim of the study. The purpose is to assess neutrally those aspects of human experiences that are often positive and enriching and overlooked by psychological research. This study also aims to gain information about the role and development of those experiences in people's lives. It is entirely up to you to decide if you want to take part or not.

What you will have to do:

I will ask to meet with you on one occasion only to complete a set of questionnaires and an interview. This should take about an hour and with your permission it may be taped. We can meet at the Outpatients Department at the Maudsley Hospital and it is hoped that it will be an interesting experience.

I will want to ask questions about your unusual experiences and what you think about them. I will also ask you about life events. You will not be asked to discuss traumatic life events in detail, but will need to tick a box or answer yes or no to show what types of events you have experienced and when in your life they happened. I will ask you about how much support you get from friends and family currently and also the support that you had at the time when you first started to have these experiences. Finally I will also ask you to do a very quick test of verbal reasoning. All participants will follow the same procedure.

With your permission, I will also want to view your medical notes at the PICuP clinic to obtain some additional information regarding how your experiences have been defined from a 'psychiatric' perspective and also any medication that you are currently prescribed.

I am able to reimburse any travel expenses that you incur participating in this study and to offer you £10 to remunerate you for your time.

All information which is collected during the course of the research will be kept strictly confidential. The data will be collected and stored in accordance with the Data Protection Act 1998, secured against unauthorised access. The tapes of the interview will be stored in a locked filing cabinet. You have the right to withdraw from the study at any time without having to give a reason. If you decide to withdraw from the study any information that you have given will be destroyed and you will not be contacted by me again.

Overall results of the study will be available to all participants if they want them, after completion of the study in June 2007. The results of the study will be written up as an internal report that will be submitted as part of an educational qualification. It is also intended that the results of the study will be published in a peer reviewed journal. No individual will be identifiable from the published results.

Who has reviewed the study?

This research study has been reviewed and approved by University College London's Research Ethics Committee and The Joint South London and the Maudsley and the Institute of Psychiatry NHS Research Ethics Committee.

Contact Details:

If you have any questions relating to this research, or concerns about participation, please contact me:

Anna Prescott

Or my supervisor:

Dr Emmanuelle Peters

If you would like to speak to someone to get some independent advice about your rights as a research participant, you can contact the local PALS (Patient Advice and Liaison Service):

PALS Office SLaM
The Maudsley Hospital,
Denmark Hill,
London, SE5 8AZ
Tel: 0800 731 2864

If you wish to make a complaint about the conduct of this study, you can do this through the NHS complaints procedure. You may speak to your care-coordinator, clinic manager or person in charge initially. If you would like to make a formal complaint, you can write to:

The Head of Complaints (Mary O'Donovan) or the Chief Executive for South London and the Maudsley NHS Trust (Stuart Bell) both at:

Trust Headquarters,
9th Floor, The Tower Building,
11 York Road,
London, SE1 7NX.

Thank you for taking the time to read this sheet and considering whether to take part in the research study.

**Participant Information Sheet
(Ward-Based Participants)**

Anomalous Experiences, Trauma and Social Support

My name is Anna Prescott, and I am a trainee clinical psychologist, studying at University College London (UCL). I am interested in speaking to people who have unusual, spiritual or mystical experiences. I will be leading this study and this is a student research project. I am conducting this research with Dr Emmanuelle Peters (Senior Lecturer and Honorary Consultant Clinical Psychologist) based at the Institute of Psychiatry, and Dr Oliver Mason (Lecturer and Clinical Psychologist) based at UCL.

The purpose of the research:

Lots of people describe having unusual experiences such as changes in one's experiences of oneself or the world, extrasensory communications and spiritual-type experiences. These experiences can be pleasant or unpleasant, confusing or inspiring. This research hopes to help us understand the range of unusual experiences different people have and how other factors may relate to them. I am particularly interested in looking at the links between the way people understand their experiences, traumatic life events, social support and how people feel about their experiences.

You may worry that I might view unconventional beliefs or experiences as 'problems' or 'difficulties', however this is *NOT* the aim of the study. The purpose is to assess neutrally those aspects of human experiences that are often positive and enriching and overlooked by psychological research. This study also aims to gain information about the role and development of those experiences in people's lives. It is entirely up to you to decide if you want to take part or not.

What you will have to do:

I will ask to meet with you on one occasion only to complete a set of questionnaires and an interview. This should take about an hour and with your permission it may be taped. We can meet on the ward at a time that is convenient to you and it is hoped that it will be an interesting experience.

I will want to ask questions about your unusual experiences and what you think about them. I will also ask you about life events. You will not be asked to discuss traumatic life events in detail, but will need to tick a box or answer yes or no to show what types of events you have experienced and when in your life they happened. I will ask you about how much support you get from friends and family currently and also the support that you had at the time when you first started to have these experiences. Finally I will also ask you to do a very quick test of verbal reasoning. All participants will follow the same procedure.

With your permission, I will also want to view your medical notes to obtain some additional information regarding how your experiences have been defined from a 'psychiatric' perspective and also any medication that you are currently prescribed.

I am able to reimburse any travel expenses that you incur participating in this study and offer you £10 to remunerate you for your time.

All information which is collected during the course of the research will be kept strictly confidential. The data will be collected and stored in accordance with the Data Protection Act 1998, secured against unauthorised access. The tapes of the interview will be stored in a locked filing cabinet. You have the right to withdraw from the study at any time without having to give a reason. If you decide to withdraw from the study any information that you have given will be destroyed and you will not be contacted by me again.

Overall results of the study will be available to all participants if they want them, after completion of the study in June 2007. The results of the study will be written up as an internal report that will be submitted as part of an educational qualification. It is also intended that the results of the study will be published in a peer reviewed journal. No individual will be identifiable from the published results.

Who has reviewed the study?

This research study has been reviewed and approved by University College London's Research Ethics Committee and The Joint South London and the Maudsley and the Institute of Psychiatry NHS Research Ethics Committee.

Contact Details:

If you have any questions relating to this research, or concerns about participation, please contact me:

Anna Prescott

Or my supervisor:

Dr Emmanuelle Peters

If you would like to speak to someone to get some independent advice about your rights as a research participant, you can contact the local PALS (Patient Advice and Liaison Service):

PALS Office SLaM
The Maudsley Hospital,
Denmark Hill,
London, SE5 8AZ
Tel: 0800 731 2864

If you wish to make a complaint about the conduct of this study, you can do this through the NHS complaints procedure. You may speak to your key nurse, ward manager, or nurse in charge of shift initially. If you would like to make a formal complaint, you can write to:

The Head of Complaints (Mary O'Donovan) or the Chief Executive for South London and the Maudsley NHS Trust (Stuart Bell) both based at:

Trust Headquarters,
9th Floor, The Tower Building,
11 York Road,
London, SE1 7NX.

Thank you for taking the time to read this sheet and considering whether to take part in the research study.

**INFORMED CONSENT FORM
(For PICuP and Ward-Based Participants)**

Title of Project: Anomalous Experiences Trauma and Social support

Name of Researcher: Anna Prescott/Dr Oliver Mason/Dr Emmanuelle Peters

	Yes	No
Have you read the Participant Information Sheet for the above study?		
Have you had the opportunity to ask questions and discuss the study?		
Have you received satisfactory answers to all of your questions?		
Have you received enough information about the study?		
Do you understand that your participation is voluntary and you are free to withdraw at any time, without giving any reason, and without any penalty?		
Do you understand that interviews will be audio-recorded and these recordings will be destroyed after the data is coded? Do you consent to this?		
Do you agree to taking part in the above study?		

Full Name in Capitals:.....

Signed:.....

Date:.....

Full Name of Researcher:.....

Signed:.....

Date:.....

When completed, 1 copy for participant, and 1 copy for research site file.



**Participant Information Sheet
(Non-clinical Participants)**

Anomalous Experiences, Trauma and Social Support

My name is Anna Prescott, and I am a trainee clinical psychologist, studying at University College London (UCL). I am interested in speaking to people who have unusual, spiritual or mystical experiences. I will be leading this study and this is a student research project. I am conducting this research with Dr Emmanuelle Peters (Senior Lecturer and Honorary Consultant Clinical Psychologist) based at the Institute of Psychiatry, and Dr Oliver Mason (Lecturer and Clinical Psychologist) based at UCL.

The purpose of the research:

Lots of people describe having unusual experiences such as changes in one's experiences of oneself or the world, extrasensory communications and spiritual-type experiences. These experiences can be pleasant or unpleasant, confusing or inspiring. This research hopes to help us understand the range of unusual experiences different people have and how other factors may relate to them. I am particularly interested in looking at the links between the way people understand their experiences, traumatic life events, social support and how people feel about their experiences.

You may worry that I might view unconventional beliefs or experiences as 'problems' or 'difficulties', however this is *NOT* the aim of the study. The purpose is to assess neutrally those aspects of human experiences that are often positive and enriching and overlooked by psychological research. This study also aims to gain information about the role and development of those experiences in people's lives. It is entirely up to you to decide if you want to take part or not.

What you will have to do:

I will ask to meet with you on one occasion only to complete a set of questionnaires and an interview. This should take about an hour and with your permission it may be taped. We can meet at University College London (UCL) in central London or at a time and place that is convenient to you and it is hoped that it will be an interesting experience.

I will want to ask questions about your unusual experiences and what you think about them. I will also ask you about life events. You will not be asked to discuss traumatic life events in detail, but will need to tick a box or answer yes or no to show what types of events you have experienced and when in your life they happened. I will ask you about how much support you get from friends and family currently and also the support that you had at the time when you first started to have these experiences. Finally I will also ask you to do a very quick test of verbal reasoning. All participants will follow the same procedure.

I am able to reimburse a contribution towards any travel expenses that you incur participating in this study and can offer you £10 to remunerate you for your time.

All information which is collected during the course of the research will be kept strictly confidential. The data will be collected and stored in accordance with the Data Protection Act 1998, secured against unauthorised access. The tapes of the interview will be stored in a locked filing cabinet. You have the right to withdraw from the study at any time without

having to give a reason. If you decide to withdraw from the study any information that you have given will be destroyed and you will not be contacted by me again.

Overall results of the study will be available to all participants if they want them, after completion of the study in June 2007. The results of the study will be written up as an internal report that will be submitted as part of an educational qualification. It is also intended that the results of the study will be published in a peer reviewed journal. No individual will be identifiable from the published results.

Who has reviewed the study?

This research study has been reviewed and approved by University College London's Research Ethics Committee (ref: 0636/001) and The Joint South London and the Maudsley and the Institute of Psychiatry NHS Research Ethics Committee (ref: 06/Q0706/23).

Contact Details:

If you have any questions relating to this research, or concerns about participation, please contact me:

Anna Prescott

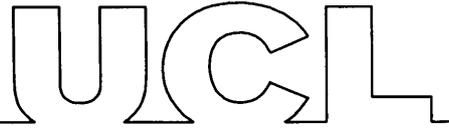
Or my supervisor:
Dr Emmanuelle Peters

If you wish to make a complaint about the conduct of this study, you can do this through the UCL complaints procedure. You can email the Chair of the UCL Research Ethics Committee or send a letter to:

The Graduate School,
North Cloisters,
Wilkins Building,
UCL,
Gower Street,
London, WC1E 6BT

and they will take the complaint forward as necessary.

Thank you for taking the time to read this sheet and considering whether to take part in the research study.



INFORMED CONSENT FORM

Title of Project: Anomalous Experiences Trauma and Social support

Name of Researcher: Anna Prescott/Dr Oliver Mason/Dr Emmanuelle Peters

	Yes	No
Have you read the Participant Information Sheet for the above study?		
Have you had the opportunity to ask questions and discuss the study?		
Have you received satisfactory answers to all of your questions?		
Have you received enough information about the study?		
Do you understand that your participation is voluntary and you are free to withdraw at any time, without giving any reason, and without any penalty?		
Do you understand that interviews will be audio-recorded and these recordings will be destroyed after the data is coded? Do you consent to this?		
Do you agree to taking part in the above study?		

Full Name in Capitals:.....

Signed:.....

Date:.....

Full Name of Researcher:.....

Signed:.....

Date:.....

When completed, 1 copy for participant, and 1 copy for research site file.

Appendix G: Demographics Questionnaire

Background Information

Please can you answer the following questions:

Gender M F
Age

Ethnic Background (Please tick one box):

White:

British

Irish

Any other White background

Mixed:

White and Black Caribbean

White and Black African

White and Asian

Any other Mixed background

Asian or Asian British:

Indian

Pakistani

Bangladeshi

Any other Asian background

Black and Black British:

Caribbean

African

Any other Black background

Chinese or other ethnic group:

Chinese

Any other ethnic group

Age of onset of Unusual/Anomalous/Mystical/Spiritual Experiences

Employment Status (Please tick):

Currently employed

Not employed

In training

Other

Marital Status (Please tick):

Married/Live with partner

Single

Divorced

Other

Children: Yes No

Religious Affiliation (Please tick):

'Traditional' religion Please state

'Non-traditional' religion Please state

Other religion/spirituality Please state

None Please state

Appendix H: Letters of Invitation to Participants

**Institute of
Psychiatry**

at The Maudsley

KING'S
College
LONDON
Founded 1829

University of London

Anna Prescott
Sub-Department of Clinical Health Psychology,
University College London,
Gower Street,
London,
WC1E 6BT

Email:

14th July 2006

Dear

My name is Anna Prescott and I am a Trainee Clinical Psychologist, studying at University College London (UCL). I am writing to invite you to take part in a research study.

I am interested in speaking to people who have unusual, spiritual or mystical experiences, such as changes in your experience of yourself or the world, extrasensory communications, and spiritual-type experiences. Many people describe having different unusual experiences and for some they can be very positive and enriching. Others can find these experiences more distressing and they may need help in coping and understanding them.

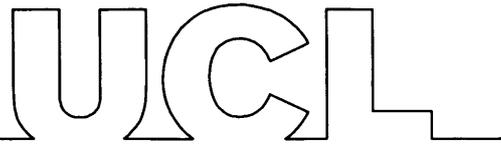
I am interested in trying to understand why people respond differently to their experiences, perhaps related to traumatic events in their lives or support from friends and family. The study will involve completing a set of short questionnaires, a quick test of verbal reasoning and an interview and it should all take about an hour. You will not have to discuss any of your experiences in detail, but just say whether or not you have experienced different things.

Participation is entirely voluntary and you may withdraw from the study at any time without the need to justify your decision. Any information that you provide is confidential and will not be able to be identified by anyone other than myself. I will reimburse any travel expenses that you incur in taking part in the study and can offer you £10 to remunerate you for your time.

I have enclosed a Participant Information Sheet with further details. If you require any further information or would like to take part, please do not hesitate to contact me (see above).

Yours Sincerely,

Anna Prescott
Trainee Clinical Psychologist



Anna Prescott
Sub-Department of Clinical Health Psychology,
University College London,
Gower Street,
London,
WC1E 6BT

Email

14th July 2006

Dear

My name is Anna Prescott and I am a Trainee Clinical Psychologist, studying at University College London (UCL). I am writing to invite you to take part in a research study.

I am interested in speaking to people who have unusual, spiritual or mystical experiences, such as changes in your experience of yourself or the world, extrasensory communications, and spiritual-type experiences. Many people describe having different unusual experiences and for some they can be very positive and enriching. Others can find these experiences more distressing and they may need help in coping and understanding them.

I am interested in trying to understand why people respond differently to their experiences, perhaps related to traumatic events in their lives or support from friends and family. The study will involve completing a set of short questionnaires, a quick test of verbal reasoning and an interview and it should all take about an hour. You will not have to discuss any of your experiences in detail, but just say whether or not you have experienced different things.

Participation is entirely voluntary and you may withdraw from the study at any time without the need to justify your decision. Any information that you provide is confidential and will not be able to be identified by anyone other than myself. I will reimburse any travel expenses that you incur in taking part in the study.

I have enclosed a Participant Information Sheet with further details. If you require any further details or would like to take part, please do not hesitate to contact me (see above).

Yours Sincerely,

Anna Prescott
Trainee Clinical Psychologist

Appendix I: Adverts and Information Leaflets for Participants

Do you have unusual, mystical, or spiritual experiences?

I am looking for individuals who have any of these experiences to take part in my research study with as part of my doctoral training with University College London.

Please take a leaflet below for more information on the study

If you are interested in talking about your experiences as part of a research study, or would like any further information please do not hesitate to contact me or send me a message.

*Anna Prescott
Trainee Clinical Psychologist
Sub-Department of Clinical Health Psychology
University College London
4th Floor, 1-19 Torrington Place,
London,
WC1E 6BT*

Your help is greatly appreciated!

Do You Have Mystical, Spiritual or Unusual Experiences?

My name is Anna Prescott and I am a Trainee Clinical Psychologist, studying at University College London. I am interested in talking to people who have unusual, spiritual or mystical experiences as part of my research study.

The Study:

Many people describe having lots of different unusual experiences and for some people these can be very positive. Other people can find these experiences more distressing and may need support in understanding and coping with them.

I am interested in trying to understand why different people have different responses to their experiences.

I am interested in the links between the way people make sense of their experiences, traumatic life events, support from friends and family, and the way people feel about their experiences.

What will it involve?

If you would like to take part in the study I will arrange to meet with you on one occasion only and complete a set of short questionnaires, an interview about your experiences and a quick test of verbal reasoning. This should take about an hour. You will not have to discuss traumatic events in detail, but indicate whether or not you have had these experiences and when.

All of the information that you give will be strictly confidential and no one other than myself will be able to identify your details.

Participation in the study is entirely voluntary and you may like to take some time to think about it. I can offer you £10 for your time.

If you have any questions or would like to take part in the study, please contact me on: