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SEX DIFFERENCES IN PSYCHOTIC SYMPTOMS:
UNDERSTANDING THE ROLE OF PSYCHOSOCIAL
INFLUENCES

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ABSTRACT

The present study explored gender differences in psychosis and the potential role of psychosocial variables in these differences. A sample of 51 men and women with psychosis completed a questionnaire about clinical variables (age of onset, age of first contact with services, age of first hospitalisation, number of hospitalisations, symptoms, and time taken until symptom disclosure), psychosocial variables (childhood trauma, coping responses with past adverse events, dissociative responses to past adverse events, abuse-related variables, relationship history, substance use, reactions to symptom disclosure and coping with symptoms) and causal explanations.

The aims of the study were to explore sex differences in age of onset, symptoms and psychosocial variables in men and women with psychosis and explore the relevance of psychosocial variables to age of onset and symptomatology. Participants were recruited from first-episode psychosis teams, community mental health teams and Hearing Voices support groups within the Auckland region.

Analyses of the total sample revealed significant associations between psychosocial variables and age of onset. Specifically, coping responses with past adverse events were found to predict age of symptom onset. The experience of childhood trauma, coping responses with past adverse events and aspects of substance use were found to relate to differing symptom types across the total sample. In their causal explanations of psychosis, participants tended to identify multiple factors relevant to the development of psychosis. Rather than differing explanations based on gender, there were many similarities in the explanatory models of men and women with psychosis.

There were no significant gender differences in relation to age of onset and for many of the symptom types. Females were found to experience more negative symptoms than males. Some differences were present for some forms of childhood trauma, aspects of coping and substance use across genders.

Data was also analysed separately for men and women. A major finding was that there was little similarity in terms of the psychosocial variables which were relevant for each sex. This suggests that differing pathways to symptom development and the experience of psychosis may exist for men and women.

This study highlighted the relevance of psychosocial factors in psychosis, including the role of childhood trauma and the importance of adopting integrated bio-psycho-social approaches within both research and clinical domains.

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CHAPTER I

BACKGROUND

Introduction

In anticipation of the release of the Diagnostic and Statistical Manual of Mental Disorders- Version V, Narrow, First, Sirovtka and Reiger (2007) outlined key issues for the research agenda of the field of psychiatry. Their book, entitled “Age and gender considerations in psychiatric diagnosis,” highlighted the need for researchers to re-evaluate the role of gender in mental health. Far from being mere confounds to be controlled, gender effects are an area worthy of research in their own right. However, understandings of the complex relationships between gender, biological processes, life experiences and the development of mental health problems are still within their infancy.

Gender is a particularly significant factor within psychotic disorders. Researchers have found that men and women differ in the age of symptom onset, types of symptoms experienced and subsequent outcomes. However, relatively little is known about the factors which underpin these differences. Furthermore, theories which have been advanced tend to focus on biological perspectives, rather than following a more balanced bio-psycho-social approach.

This thesis, which may best be described as an exploratory study, aims to extend understandings of these important issues, exploring the interplay of gender and psychosocial factors in psychosis. The relevance of key psychosocial factors, including childhood trauma, coping, relationships and substance use, in the development and experience of psychosis are also considered.

In this first chapter, the relevant literature is reviewed and the research study is outlined. In Chapter II, the methodology and design of the study is detailed. Chapter III explores the results of the study, followed by a discussion of these results in Chapter IV. Within the present literature review, a range of topics will be explored. An overview of psychosis will be provided, including a discussion of terminology, incidence and challenges within the field. The subsequent section will discuss etiological theories of psychosis from a range of theoretical orientations. There will be an overview of the pattern of sex differences in psychosis, with the existing theories on their origins introduced. Following this, areas which could be relevant to sex differences from a psychosocial perspective are explored in more detail. Drawing on this body of research, the final section will describe the aims, hypothesis and design of a new study conducted to explore the influence of psychosocial factors on age of symptom onset and symptomatology in psychosis.

It should be noted that the terms ‘sex’ and ‘gender’ are used interchangeably in the current and subsequent chapters. It is acknowledged that some have argued for a clearer differentiation between ‘sex’, a biological term and ‘gender’, a social construction, within academic literature (Deaux, 1985). However, for ease of discussion and research presentation, this convention is not strictly adhered to in the present thesis.

Changes and Trends in the Field of Psychosis

Terminology.

The changing use of terminology over time has led to some ambiguity within the literature on psychosis. The meanings and current usage of the key concepts ‘psychosis’, ‘psychotic disorder’ and ‘schizophrenia’ will be discussed.

‘Psychosis’ is a term which has sometimes been used to describe ‘un-understandable’ psychological experiences (Burgy, 2008; Geekie, 2007). Currently, the concept of psychosis is loosely defined, but is typically used to describe delusions, hallucinations and cognitive disorganisation. These symptoms are referred to as ‘positive symptoms’. A broader definition of psychosis can also include ‘negative symptoms’, which include blunted affect, avolition and alogia (slowed or impoverished speech).

Within the Diagnostic and Statistical Manual (DSM-IV-TR), ‘psychosis’ is represented in the form of ‘psychotic disorders’ (American Psychiatric Association, 2000). There are nine specific types of psychotic disorder listed, including ‘schizophrenia’. Estimates of the prevalence of psychotic disorders are variable, given differing methodology, degree of relative deprivation and cultural membership in areas assessed (Sharpley, Hutchinson, Murray, & McKenzie, 2001; Van Os, Hanssen, Bijl, & Vollebergh, 2001). However, estimates of lifetime prevalence for all types of psychotic disorder range between 3-5% (Jacobi et al., 2004; Perala et al., 2007), with one month prevalence estimated at 4 to 7 per 1000, based on Australian figures (Jablensky et al., 2000). Yet the number of people within the general population that experience symptoms associated with psychosis is much higher; for example, in the US National Comorbidity Survey, more than one in four people endorsed at least one item on a psychosis screening measure (Kendler, Gallagher, Abelson, & Kessler, 1996).

Estimates of annual incidence for schizophrenia range from 5 to 50 per 100,000 (American Psychiatric Association, 2000). In New Zealand, an estimate of the 12 month prevalence rate has been 0.97% for Maori and 0.32% for non-Maori (Kake, Arnold, & Ellis, 2008). The over-representation of people of Māori ethnicity in rates of psychosis is a trend

consistent with other research (Linscott, Marie, Arnott, & Clarke, 2006; Wheeler, Robinson, & Robinson, 2005)

To qualify for a diagnosis of schizophrenia within the DSM-IV-TR, an individual has to have experienced two or more of either delusions, hallucinations, disorganized speech, grossly disorganized (or catatonic behaviour) or negative symptoms (such as affective flattening or avolition) for a significant portion of time during past month. However, only one symptom is needed if the delusions are reportedly ‘bizarre’ or the hallucination involves two voices conversing or one voice keeping a commentary (American Psychiatric Association, 2000).

Challenges and controversies.

As is clear from the preceding discussion, there is conceptual overlap between the terms ‘psychosis’ and ‘schizophrenia.’ However, the specific usage of these terms is controversial. Based on research suggesting poor reliability and validity, the construct of schizophrenia has been challenged over time (Bentall, Jackson, & Pilgrim, 1988; Boyle, 2002; Read, 2013b). The acceptability of the term has also been critiqued, as the historical usage of the term to outline a degenerative condition with a poor outcome has meant that ‘schizophrenia’ has been considered pejorative (British Psychological Society, 2000; Geekie, 2007). For this reason, psychosis has been recommended as a more acceptable alternative (British Psychological Society, 2000).

Another area of contention has been the categorization of psychotic disorders in the DSM-IV-TR. Researchers have noted the high degree of conceptual overlap and poor diagnostic validity for the specific forms of psychotic disorder (Maj, Pirozzi, Formicola, Bartoli, & Bucci, 2000; Van Os, 2009), indicating that the distinctions between psychotic disorders may be artificial.

The wider utility of labelling psychotic experiences as distinct ‘disorders’ has also been questioned. There is growing evidence that psychotic experiences exist on a continuum (Beavan, 2007; Stefanis et al., 2002; Van Os, Hanssen, Bijl, & Ravelli, 2000). Particular support for this contention comes from an extensive meta-analytic review conducted by Linscott and Van Os (2013), which concluded there was both phenomenological and temporal continuity between psychotic experiences and psychotic disorders. Research into hearing voices and personality risk factors within the New Zealand also adds weight to the idea of psychosis as a dimensional construct (Beavan, 2007; Linscott et al., 2006).

In response to these challenges, some researchers have begun to investigate symptoms, as opposed to diagnostic categories; for example, positive and negative symptom dimensions (Andreasen, Flaum, Swayze, Tyrrell, & Arndt, 1990). Others have moved towards researching specific types of symptoms, such as hallucinations, to build a more detailed understanding of the processes involved, based on more reliable constructs (Bentall, 2013). These changing trends will be reflected and acknowledged where possible in the general approach of this thesis.

Understandings of Psychosis

Conceptualisation of schizophrenia.

Early conceptualisations of psychosis began in the 19th century. Doctors such as Phillippe Pinel and Wilhelm Griesinger first documented a progressive deterioration of individuals who were chronically hospitalized, proposing a form of dementia affecting young men (Adityanjee, Theodoridis, & Vieweg, 1999). By the 1870s, German psychiatrists Karl Kahlbaum and Ewald Hecker developed a nosology of ‘degenerative psychoses’: including constructs such as ‘hebephrenia’ and ‘catatonia’ (Stone, 1998). Drawing on these ideas, Emil Kraepelin described ‘dementia praecox’: a condition which had its onset in adolescence, involved cognitive deterioration and appeared to primarily affect young men.

Dementia praecox was reconceptualised as ‘schizophrenia’ by Eugen Bleuler in 1908. Bleuler considered disturbed thought processes and a loosening of associations to be the core feature of schizophrenia. Experiences such as hallucinations and delusions were thought to be secondary to these disturbed cognitive processes (Berrios, Luque, & Villagrán, 2003; Kyziridis, 2005). Aside from some minor revisions, the construct of schizophrenia has largely remained as a central framework for understanding unusual experiences until the present time.

Modern understandings of psychosis.

Biological factors. In the modern era, psychotic experiences have been primarily conceptualized from a biomedical approach. Evidence of this trend within the literature can be seen from the findings of one review (Read, Fink, Rudegeair, Felitti, & Whitfield, 2008), where published research exploring biological factors in etiology outweighed studies considering social and psychological causes by almost 15 to 1. There are numerous biological theories of psychosis, involving genetic, biochemical and neuroanatomical factors.

The role of genetics has been explored using studies of family history, twin studies, adoption studies and research considering gene linkages. Although some insights into the level of heritability may be ascertained from research into family history, twin and adoption studies, there are also some significant limitations in all of these paradigms (Joseph, 2013). Specific research into genetics, although spanning many years, has failed to consistently identify any specific gene linkages associated with psychosis (Hamilton, 2008).

Neurochemistry has also been used in efforts to explain the experience of psychosis. One popular conceptualization has been the dopamine hypothesis. This theory proposes that abnormalities within the dopaminergic system are etiologically relevant in psychosis. Different variants of the dopamine hypothesis have emerged over time. From 1991 to 2009, there were 6700 articles considering the role of dopamine in schizophrenia in differing ways (Howes & Kapur, 2009). A critique by Moncrieff (2009) has highlighted the limitations of the dopamine hypothesis within this body of literature, including the problems of differentiating causality from the effects of medication, the role of confounding factors involved with dopamine release and limitations of the post-mortem research into dopaminergic systems and psychosis.

Neuroanatomical structures have also been researched in order to determine areas of brain pathology. For example, researchers have found enlarged ventricles in the brains of individuals with a diagnosis of schizophrenia (S. Chua & McKenna, 1995; Shenton, Dickey, Frumin, & McCarley, 2001). However, conclusions are limited by a lack of specificity in this finding; increased ventricles may be a generic product of neurological trauma evident in a range of presentations, including those who have experienced childhood neglect (B. Perry & Pollard, 1997). The failure to control for the effects of anti-psychotics in this form of research is another limitation. In a 2002 review, it was found that the potential influence of anti-psychotic medication on dopamine systems was considered in only four out of more than fifty studies (Torrey, 2002).

Life event theories. Some researchers have argued for a role of life events as critical in the development of psychosis. Two areas which have gained research attention have been social adversity and experiences of trauma. There is evidence that social adversity may be relevant to the development of psychosis. One early influential study was that of Hollingshead and Redlich (1953), who found people in the lowest class were eight times more likely to receive a diagnosis of schizophrenia than people of the wealthiest classes. Over time, the direction of this research has shifted towards exploring the influence of relative deprivation and urbanicity (Van Os et al., 2001). Although there is relative consensus

on the status of the urban environment as a risk factor for psychosis, debate still exists over the causal nature of this relationship and the mechanisms involved (Van Os, 2004).

Research has indicated that there is a strong relationship between trauma in childhood, including abuse, neglect, early loss and bullying and the development of psychosis. In a 2008 review, Read and colleagues reported ten out of the eleven population-based studies found an association between the experience of trauma and risk of psychosis (Read et al., 2008). Support for a link between trauma and psychosis was also found in a recent comprehensive meta-analysis by Varese et al. (2012). These authors collated studies from the period of 1980 to 2011 that had explored childhood adversity (including abuse, neglect, parental death and bullying) and risk of psychosis. Across differing study designs, the experience of adversity was found to increase the risk of psychosis by 2.78 times. The authors concluded that if adversity was entirely removed as a risk factor, there would be a 33% reduction in the number of individuals who experienced psychosis.

Family theories of psychosis. Factors relating to the family environment have also been considered in the development of psychosis. One area that is currently receiving research attention is attachment. Attachment is the emotional connection formed to a caregiver in the early stages of life. The emotions, thoughts and patterns of interacting associated with this connection are believed to be enduring and influential in adulthood (Cassidy & Shaver, 1999). Those who have investigated attachment style and psychosis have found positive associations between insecure attachment and psychoticism (Cooper, Shaver, & Collins, 1998; Mickelson, Kessler, & Shaver, 1997; Ponizovsky, Nechamkin, & Rosca, 2007), with one study finding that individuals with a diagnosis of schizophrenia were three times more likely to have an avoidant attachment style than controls (Ponizovsky et al., 2007). Similar patterns have been found in studies of sub-clinical psychotic experiences (Berry, Wearden, Barrowclough, & Liversidge, 2006).

Another element of the family environment explored by researchers has been expressed emotion. Expressed emotion (EE) is a term used to describe an interaction pattern characterised by hostility, criticism and emotional over-involvement. There is evidence to indicate that there is a higher rate of relapse in individuals with psychosis who are exposed to high levels of EE (Kavanagh, 1992; Read & Seymour, 2013). There is also suggestion that the exposure to EE precedes the development of psychotic symptoms. A prospective study of 64 families with 'at risk' adolescents found the rate of schizophrenia was 6% amongst individuals with parents low in EE. For individuals with both parents high in EE, this rate was 73% at follow up (M. Goldstein, 1987).

Psychological theories. Psychological perspectives on the development of psychosis tend to vary based on theoretical approach. One influential approach has been cognitive theory. As Bentall (2013) has discussed, there are a number of core cognitive processes which have been identified as relevant in the development of hallucinations. For example, people who experience hallucinations have been found to have difficulty with ‘source’ or ‘reality’ monitoring, that is, determining the origin (internal or external) of noises and sounds. This may operate as a vulnerability factor for the experience of hallucinations. Given the discussed link between childhood adversity and psychosis (Varese, Smeets, et al., 2012), some researchers have also looked to cognitive mechanisms that may be associated with trauma, such as dissociative processes, which disrupt processes such as memory formation and perception (Dorahy & Green, 2009; Varese, Barkus, & Bentall, 2012). Some key factors have also been explored in the development of delusional beliefs, including a tendency to ‘jump to conclusions’, the influence of attributional biases and issues of theory of mind (Bentall, 2013). These specific pathways identified in cognitive models are complementary to a broader cognitive-behavioural perspective, where the experience of a critical event (past adversity), and the associated thoughts, emotions and behaviours associated with this adversity, are relevant in the development of mental health concerns (Garety, Kuipers, Fowler, Freeman, & Bebbington, 2001).

Integrated models of psychosis. Given the relevance of psychological, social and biological factors in the development of psychosis, some integrated models of understanding have been advanced. One central theory following this approach has been the stress-vulnerability model of Zubin and Spring (1977). These authors theorised that every individual has a particular degree of vulnerability, which could be inherited or acquired. If one has a high degree of vulnerability and experiences stressors, this could precipitate the development of psychotic symptoms.

Read, Perry, Moskowitz and Connelly (2001) have critiqued the application of the stress-vulnerability model within the field of psychosis, arguing that ‘vulnerability’ has been understood through a purely biological lens. In response to this issue, Read and colleagues (2001) proposed the Traumagenic Neurodevelopmental Model of psychosis. Drawing on the psychological, social and biological literature, these authors argue that the early experience of trauma is associated with the neurological findings reported in individuals with psychosis, such as dopamine abnormalities, enlarged ventricles and hypersensitivity of the Hypothalamic-Pituitary-Adrenal (HPA) axis. It is therefore suggested that childhood abuse

and the neurodevelopmental changes linked to trauma could be a mechanism by which ‘vulnerability’ is developed, culminating with the eventual onset of psychotic symptoms.

Psychosis has been conceptualised and reconceptualised in numerous ways over time. Currently, biological factors relevant to the etiology of psychosis are prominent within the literature. However, the research briefly summarised above suggests that psychological and social factors are equally important to consider.

Sex Differences in Psychosis

The relevance of gender in psychosis was first proposed by Emil Kraepelin, who considered dementia praecox to be a disorder of young men. Despite early suggestions of gender effects in psychosis, this topic was overlooked by researchers until the 1980s (Angermeyer & Kühnz, 1988). Since this time, the literature on sex differences in psychosis has developed considerably. The current section reviews the research on gender effects noted in the areas of incidence, ‘premorbid’ functioning, cognitive functioning, age of symptom onset, symptomatology and outcomes.

Incidence of psychosis.

A controversial area of research has been gender differences in incidence rates of psychosis. Despite early research finding relatively equal incidence rates (Wyatt, Alexander, Egan, & Kirch, 1988), more recent studies have suggested that there may be a higher incidence of males relative to females (Aleman, Kahn, & Selten, 2003; Thorup, Waltoft, Pedersen, Mortensen, & Nordentoft, 2007). For example, one study investigated age and sex-specific incidence using data from two Danish cohorts (Thorup, Waltoft, et al., 2007). The cumulative incidence rate (from age 15 to 71 years) was found to be higher for males relative to females, with incidence rates at 1.59% and 1.17%, respectively. This is consistent with the results of two comprehensive meta-analyses. (Kirkbride et al., 2012; McGrath et al., 2004). However, some inconsistent findings have been noted (Bogren, Mattisson, Isberg, Munk-Jørgensen, & Nettelbladt, 2010).

Determining gender influences in incidence rates may be in part related to the criteria used. Using more narrow definitions of psychosis has been associated with higher incidence rates in some research than when broader criterion are adopted (Ochoa, Usall, Cobo, Labad, & Kulkarni, 2012). Others have suggested that there may be diagnostic biases operating, where men with psychotic symptoms are more likely to receive the label of schizophrenia

than women with psychotic symptoms (Beauchamp & Gagnon, 2004). These issues demonstrate the complexity of exploring gender and incidence rates in psychosis.

‘Premorbid’ functioning.

‘Premorbid’ functioning, a term used to define social, relationship, role and other areas of functioning prior to the onset of psychotic symptoms, is another area where gender effects have been noted. There is evidence to suggest that women with schizophrenia have a higher level of premorbid functioning in a range of different domains (Childers & Harding, 1990; J. Goldstein & Lewine, 2000; Leung & Chue, 2000). For example, Larsen and colleagues (1996) found women to perform better in areas of interpersonal, school and employment domains prior to the onset of psychotic symptoms (Larsen, McGlashan, Johannessen, & Vibe-Hansen, 1996). Research by Preston et al. (2002) explored psychotic disorders and found a similar pattern of results, with men showing poorer academic performance, lower levels of social interest and socio-sexual development relative to women of the same age group (Preston, Orr, Date, Nolan, & Castle, 2002). Recent studies of first-episode psychosis have also found poorer levels of functioning in men (Bertani et al., 2012; Segarra et al., 2012).

Cognitive functioning.

The literature on sex differences in cognitive functioning is inconsistent. Some studies have found men to have more areas of impaired cognitive functioning than women (Bora, Yucel, & Pantelis, 2009; Leung & Chue, 2000). For example, Goldstein and colleagues (1998) found female outpatients performed significantly better on tests of verbal memory, executive functions and attention compared with male outpatients with schizophrenia. These findings contrast with the results of Weiser et al. (2000), who retrospectively compared the results of cognitive testing in men and women with a diagnosis of schizophrenia. The authors found men to outperform women in all tests, including verbal abilities, concept formation and in the global cognitive ability score. Other studies have failed to find any differences between men and women (Albus et al., 1997; Goldberg, Gold, Torrey, & Weinberger, 1995). Leung and Chue (2000) suggest that these discrepant findings may be accounted for by methodological factors, such as the use of convenience sampling and the failure to control for differences in cognitive functioning within the general population.

Age of onset.

Differences in age of symptom onset are one of the most researched areas within the field of gender and psychosis. A number of studies have found that men develop symptoms at an earlier age than women (Leung & Chue, 2000). This has been documented in epidemiological research (Häfner, Maurer, Löffler, & Fätkenheuer, 1994; Jablensky et al., 1992) and clinical studies (Bertani et al., 2012; Thorup, Petersen, et al., 2007). Men appear to have an earlier peak onset of between 18-25 years, compared with a peak period of onset of 22-25 years for women (Ochoa et al., 2012; Salem & Kring, 1998).

Estimates of the degree of this age difference are variable. For example, studies have found differences of up to five years (Gureje & Bamidele, 1998), whereas others have noted a smaller discrepancy (Cascio, Cella, Preti, Meneghelli, & Cocchi, 2012; Faraone, Chen, Goldstein, & Tsuang, 1994; Gorwood, Leboyer, Jay, Payan, & Feingold, 1995). Most studies, however, have found that men tend to develop symptoms between three to five years earlier than women (Häfner et al., 1998; Leung & Chue, 2000; Räsänen, Pakaslahti, Syvälahti, Jones, & Isohanni, 2000).

Duration of Untreated Psychosis. Some researchers have considered the role of ‘duration of untreated psychosis’ (DUP) in the context of age of onset research. This is the length of time between the development of symptoms and access to treatment (Cascio et al., 2012). Although some have found men have a longer DUP than women (Thorup, Petersen, et al., 2007), others have found contrasting results (Køster, Lajer, Lindhardt, & Rosenbaum, 2008). A recent meta-analysis by Cascio et al. (2012) did not find any significant differences across studies for DUP in men and women (Cascio et al., 2012).

Reviews on age of onset differences. There have been a number of reviews which have explored gender and age of onset in psychosis (Angermeyer & Kühnz, 1988; Eranti, MacCabe, Bundy, & Murray, 2012; Falkenburg & Tracy, 2012; Leung & Chue, 2000; Ochoa et al., 2012; Räsänen et al., 2000). Although these have provided valuable critiques of the literature, few have adopted a systematic approach to exploring age of onset differences.

This gap within the literature was responded to by a recent comprehensive meta-analysis by Eranti, MacCabe, Bundy and Murray (2012). Using specific search criteria, the authors compiled a list of 46 relevant studies, with data of 29,218 males and 19,402 females from the period of 1987 to 2009. Data was analysed as a whole, as well as separately for different definitions of age of onset (age of first symptom of schizophrenia, age of first positive symptom, age of first consultation and age of first admission), different classification systems (DSM or ICD) and developing or developed countries.

The authors found that ways in which age of onset was defined resulted in variations in the mean difference in age of onset. When the ‘age of first symptom’ was used, there was the greatest weighted mean difference (1.63 years) and with ‘age of first admission’ there was the least amount of difference (1.07 years). ICD-based classifications of schizophrenia were associated with less difference between men and women than DSM-based classifications. When analysis was completed across all definitions of age of onset, men were found to present earlier, with the weighted mean difference 1.49 years between men and women.

Inconsistent findings. Although the robustness of gender differences in age of onset has been commonly stated, some studies have found no differences between men and women. For example, a large scale study of first-episode psychosis was conducted using Danish registry files by Thorup, Petersen and colleagues (2007). These authors found no significant differences between men and women across ‘schizophrenia-spectrum disorders’ or for the ‘schizophrenia only’ subgroup in mean age of onset or age of first contact. These results were similar to those of Morgan, Castle and Jablensky (2008) and those of Kendler and Walsh in the Roscommon Family Study (1995).

Cotton et al. (2009) also considered the role of gender in their study of 661 individuals with first-episode psychosis. Analyses were conducted for the total sample, as well as separately for affective and non-affective psychosis. Females with non-affective psychosis were found to have a significantly earlier age of symptom onset than males with this diagnosis, with a difference of one year. However, when analyses were completed across the diagnostic categories (i.e., for affective and non-affective psychosis combined), there were no gender differences noted in age of onset.

Additional factors.

Cultural influences. Some researchers, such as Gangadhar and colleagues (2002), have questioned the role of culture within gender differences in age of onset (Gangadhar, Panner Selvan, Subbakrishna, & Janakiramaiah, 2002). For example, there is some evidence to indicate that there are smaller differences, or no differences, in age of onset amongst populations from developing countries (Folnegovic & Folnegovic-Smalc, 1994; Murthy, Janakiramaiah, Gangadhar, & Subbakrishna, 1998). Interestingly, some studies of developing nations have found females to have an earlier onset of psychosis than males (Kebede et al., 2003; Venkatesh et al., 2008). However, no clear differences were noted between developing and developed countries when explored by Eranti and colleagues (2012) in the previously discussed meta-analysis.

Family history. There is some evidence to indicate that sex differences in age of onset could be related to family history of psychosis (Leung & Chue, 2000). For example, Pulver and colleagues (1990) found that family history was associated with an earlier age of onset for men but not for women. Other researchers have found consistent findings (Albus & Maier, 1995; Gorwood et al., 1995; V. Morgan et al., 2008), which has been further supported by a meta-analytic study (Esterberg, Trotman, Holtzman, Compton, & Walker, 2010).

Summary of age of onset research. Differences in age of onset between men and women have been found across many studies. However, there have also been some inconsistent findings. It may be that factors such as culture, methodology and definitions of psychosis and family history have a bearing on age of onset differences. Yet understandings of potential mediating factors are currently limited. Further research which explores age of onset and additional influences may clarify these important issues.

Symptoms.

Negative symptoms. Researchers have found sex differences in the types of symptoms experienced in psychosis. There is evidence to suggest that men present with more negative symptoms than women (Falkenburg & Tracy, 2012; Leung & Chue, 2000). For example, in the large Danish study previously discussed by Thorup, Petersen and colleagues (2007), men had a higher number of negative and disorganised symptoms relative to women in the sample. Similar results were also found in an Italian first-episode psychosis study by Bertani et al. (2012), as well as in other research (Chang et al., 2011; Galderisi, Bucci, Üçok, & Peuskens, 2011; Segarra et al., 2012). A greater number of negative symptoms in men has also been found in studies of those considered at ‘ultra-high-risk’ of developing psychosis (Willhite et al., 2008).

When negative symptoms are present, there is some evidence to suggest that these symptoms are more severe in men than in women. For example, Ring et al. (1991) found that negative symptoms were almost twice as severe for men than for women. These results were partly consistent with findings from a study of 700 individuals with first-episode psychosis in Hong Kong (Chang et al., 2011).

Inconsistent findings. Ochoa and colleagues (2012) have emphasised the inconsistencies in research into negative symptoms and gender in their recent article; contrary to the opinions expressed in other reviews (Abel, Drake, & Goldstein, 2010; Leung & Chue, 2000). There are some studies which have not found higher negative symptoms in males. For

example, Häfner and colleagues (1993) found relatively equal distributions of both positive and negative symptoms across genders in the ABC studies of schizophrenia. Similar results have also been found in other small scale studies of individuals with a diagnosis of schizophrenia (Addington, Addington, & Patten, 1996; Lindström & Von Knorring, 1994), inpatient research (Tang et al., 2007) and more comprehensive studies of psychosis (Kendler & Walsh, 1995; McCreadie, Connolly, Williamson, Athawes, & Tilak-Singh, 1994).

Influence of medication. Riechler-Rössler and Hafner (2000) raised the possibility that anti-psychotic medication could act as a confound in the literature on sex differences in negative symptoms. These authors have pointed to the higher rate of neuroleptic prescription in males and the sedating effects of these medications, as part of understanding why men may experience more negative symptoms. Findings from Szymanski et al. (1995) in part supports this contention; these authors found no differences in negative symptoms in their sample of neuroleptically-naïve individuals with a recent diagnosis of schizophrenia. However, more extensive exploration of this hypothesis into this area is difficult within the field, given that anti-psychotic medications are almost universally prescribed as a treatment for psychotic symptoms (McGorry, 2005).

Positive symptoms.

Gender differences in positive symptoms. Research into sex differences for positive symptoms has been mixed. Some studies have found positive symptoms are more commonly experienced by women relative to men. Thorup et al. (2007), for example, found that women in their study scored higher on the psychotic dimension of the Scale for Assessment of Positive Symptoms (SAPS) than men. Similarly, Tang and colleagues (2007) found that women were higher on positive symptoms scores relative to men in their study of 542 Chinese inpatients. One large-scale study found sex differences in positive symptoms, however, these were non-significant when rates of depression were controlled for (Maric, Krabbendam, Vollebergh, de Graaf, & Van Os, 2003).

Other studies have not found differences in positive symptoms. For example, Hambrecht and colleagues (1992) re-analysed the data from the cross-cultural WHO research into schizophrenia, finding no clear differences in positive symptoms overall (Hambrecht, Maurer, Häfner, & Sartorius, 1992). McCreadie et al. (1994) explored patterns of symptoms for a 'neurodevelopmental' subtype of schizophrenia as part of the Nithsdale Schizophrenia Surveys (McCreadie et al., 1994). No significant differences were found between men and women with regards to positive symptoms. A number of other studies have reached similar

conclusions (Chang et al., 2011; Galderisi et al., 2011; Køster et al., 2008; Segarra et al., 2012).

Specific symptoms. Some research has indicated that specific types of positive symptoms are relevant in understanding gender and psychosis. There is evidence that hallucinations may be particularly common in women. Gur, Petty, Turetsky and Gur (1996) explored the influence of age and gender on symptom profiles and severity with a sample of diagnosed with schizophrenia. The authors found that more ‘first rank’ symptoms (including auditory hallucinations and delusions of control) were more common for women than for men for those under 35. In another study of ‘first rank’ symptoms, Marneros (1984) also found an association with gender, which was particularly pronounced for auditory hallucinations; women had a higher rate of auditory hallucinations than men. This is consistent with findings from other studies of clinical populations (Rector & Seeman, 1992; Sharma, Dowd, & Janicak, 1999; Thorup, Petersen, et al., 2007) and from a recent review of studies of voice-hearers in the general population (Beavan, Read, & Cartwright, 2011), although there is some discrepant research (Køster et al., 2008; V. Morgan et al., 2008).

With regards to delusions, there is some indication of differential patterns based on gender. Some studies have found that delusional content varies between men and women. For example, there is some evidence that delusions with persecutory themes are more common in women (J. Goldstein, Santangelo, Simpson, & Tsuang, 1990; Gutiérrez-Lobos, Schmid-Siegel, Bankier, & Walter, 2001; Hambrecht et al., 1992; Read & Beavan, 2013), whereas men may be more likely than women to experience grandiose delusions (Allan & Hafner, 1989; Gutiérrez-Lobos et al., 2001; Suhail, 2003).

Other researchers have not found variation by gender. For example, Wustmann, Pillmann and Marneros (2011) explored gender patterns in individuals with persistent delusional disorder over a 14 year period. No significant gender differences were found in frequency or type of delusions. This is consistent with other research, where no differences in delusional subtypes was noted based on gender (Hsiao, Liu, Yang, & Yeh, 1999; Yamada, Nakajima, & Noguchi, 1998). As Wustmann and colleagues have discussed, the exploration of gender and delusional disorder by researchers has received limited attention. Further studies may address some of the noted discrepancies within the literature.

Affective Symptoms. Sex differences in presence of affective symptoms have also been found. There is a substantial body of research indicating that women with psychosis have a greater rate of depressive symptoms upon first presentation (Bertani et al., 2012; Chang et al., 2011; Cotton et al., 2009; Tang et al., 2007) and prior to the development of

psychotic symptoms (V. Morgan et al., 2008) compared to men. Other research has also suggested higher rates of anxiety in women relative to men with psychosis (Cotton et al., 2009; Szymanski et al., 1995). This may in part may reflect population norms with regards to mood disorders and gender trends (Flor-Henry, 1990).

Summary of symptoms and gender. Research into sex differences in symptoms has generally found males to have more negative symptoms than females. Some studies have not found this difference, leading some researchers to question the potential role of anti-psychotic medication. With regards to positive symptoms, there are mixed findings. It may be that studies of specific positive symptoms and gender effects can clarify inconsistencies.

Recovery and outcome.

Clinical and social outcomes. There is evidence to suggest that men and women with psychosis may have differential outcomes. Studies of recovery and outcome have found females have greater symptom remission relative to men (Cotton et al., 2009; Grossman, Harrow, Rosen, Faull, & Strauss, 2008; Thorup et al., 2013). Rate of hospitalisations and length of hospital stay may also be shorter in women (Angermeyer, Kühn, & Goldstein, 1990; Cotton et al., 2009; Doering et al., 1998).

Other measures of outcome also indicate that women with psychosis fare better than men. Numerous studies have reported better functioning in social domains (Chang et al., 2011; Usall, Haro, Ochoa, Marquez, & Araya, 2002), including having higher rates of marriage (Bardenstein & McGlashan, 1990; Jablensky & Cole, 1997; Thorup et al., 2013) and independent living (Andia et al., 1995; Cook, 1994; Cotton et al., 2009). Occupational functioning and level of educational achievement also appear to be more favourable for females (Beiser et al., 1994; Leung & Chue, 2000).

Some researchers have found a higher rate of suicide for males with psychosis (Heila et al., 1997; Perenyi & Forlano, 2005), consistent with population norms. However, in a recent meta-analysis by Saha and colleagues (2007), no sex differences were found across studies for suicide or other causes of mortality.

Recovery over time. Many studies have found women to have better recovery in the short term (Albert et al., 2011; J. Goldstein, Tsuang, & Faraone, 1989; Salokangas & Stengård, 1990; Sartorius, Jablensky, & Shapiro, 1978) and medium term (Thorup et al., 2013), although longer term differences are less clear (Angermeyer et al., 1990; Leung & Chue, 2000). Grossman et al. (2008) found significantly more favourable outcomes for

women at a 20 year follow-up in their longitudinal study, however, not all studies have produced consistent results (Juola, Miettunen, Veijola, Isohanni, & Jääskeläinen, 2012).

Reviews. A review of 102 studies of schizophrenia (Angermeyer et al., 1990) found that around half of the outcome studies reported better outcomes for women, with no sex differences found for most of the remainder. Only two studies in this review reported better outcomes for men relative to women, one which focused on occupational functioning, and another which measured clinical course.

Questions over gender and outcome in psychosis were recently explored by Jääskeläinen and colleagues (2012). These authors conducted a meta-analysis of outcome research for 50 articles. Contrary to their hypotheses, there was no significant difference in estimates of recovery for men and women. This potentially could relate to the strict definition and exclusion criteria employed within this review; recovery was defined as improvement in both clinical and social domains for a minimum of two years. However, this research suggests that there may be less consistency in the noted pattern of outcomes for men and women than previously thought.

Additional factors. For those who have noted sex differences in outcome from psychosis, various theories have been advanced to account for these gender effects. These include differential treatment compliance, differences in medication dose or prescription, less prevalent substance use and better ‘premorbid’ functioning (Grossman et al., 2008; Ochoa et al., 2012; Räsänen et al., 2000). The growing number of longitudinal studies may be able to develop understandings of sex differences in psychosis.

Summary of sex differences.

Within the literature, sex differences have been explored in the areas of incidence, cognitive functioning, ‘premorbid’ adjustment, age of onset, symptoms and recovery. There is some evidence that men have a higher incidence rate of psychosis relative to women. Some studies show a tendency for poorer ‘premorbid’ and cognitive functioning in males, however, not all have reached these conclusions.

The most consistent findings within the literature are that men present with an earlier age of onset and experience more negative symptoms. Research into positive symptoms is mixed, with some studies finding women are more likely to experience hallucinations relative to men. Affective symptoms in psychosis may also be more common in women, which could in part reflect population trends. Many studies have found that the process of recovery from

psychosis is more favourable in women, particularly in short and medium term in both clinical and social domains.

The exploration of sex differences in psychosis has spanned many decades. However, the literature exploring the mechanisms related to these sex differences is significantly limited. A discussion of the current theories will be reviewed in the following section.

Explanations for Sex Differences

Biological explanations.

Consistent with the dominant paradigm in psychosis research, the majority of perspectives into sex differences are biologically based. The most prominent theory is the ‘estrogen hypothesis.’ This theory proposes that women have a later age of onset and better prognosis due to the organizational and functional effects of estrogen. Proponents of this theory argue that estrogen influences the development of morphological differences in the brain between men and women, leading to differing periods of susceptibility to psychosis (Arnold & Gorski, 1984; Flor-Henry, 1978; Leung & Chue, 2000).

Functional effects are also suggested, with estrogen postulated as a protective factor for neurons. This theory is said to account for the delayed onset in women (where estrogen levels rise with puberty) and the secondary peak age of onset found by some studies in women in their late forties (relating to menopause) (Hafner, Maurer, Löffler, & Riecher-Rössler, 1993; Häfner, Riecher-Rössler, Maurer, Fätkenheuer, & Löffler, 1992).

Researchers have investigated the estrogen hypothesis by exploring symptom fluctuations over the course of the menstrual cycle. Riechler-Rössler et al. (1994) for example, explored symptomatology and estrogen levels, finding a small, significant positive association between estradiol and symptom severity (Riecher-Rössler, Hafner, Stumbaum, Maurer, & Schmidt, 1994). However, as some researchers have noted (Lindamer, Lohr, Harris, & Jeste, 2004), research of this nature is limited by the use of indirect methods to measure the effects of estrogen, which means causal attributions cannot be assumed.

Exploration of the estrogen hypothesis has also been conducted in the form of clinical trials to explore the influence of this hormone on psychotic symptoms. Given a growing number of researchers exploring this possibility, one Cochrane review (W. Chua, Izquierdo de Santiago, Kulkarni, & Mortimer, 2005) investigated the efficacy of estrogen as an adjunctive therapy for schizophrenia; finding that “the majority of results showed no effect, and those that did were too weak to draw firm conclusions from (p.2).”

There is a possibility that hormonal elements may be relevant within the development of sex differences in psychosis. However, the existing literature does not allow for this conclusion to be drawn convincingly. Furthermore, biological processes are tied to psychological, socio-cultural and physical environments. For example, adolescence may be a period of time where estrogen levels rise for females, but it is also a time of considerable change in relationships, family processes, social roles and schooling (Harrop & Trower, 2001). Moreover, if hormonal differences were integral to the process of symptom development in psychosis, one could also logically assume that there should be a similar delay in age of onset for other mental health concerns for women, which does not appear to be the case. These issues indicate there is more to understand in relation to sex differences than an exclusively biological viewpoint can provide.

Psychosocial models: a research vacuum.

The literature on psychological factors which may account for the differences between men and women is very limited. Studies which have considered psychosocial factors, such as marital or socio-economic status, tend to view associations as ‘confounds’ and control for these statistically, as opposed to considering these factors as explanatory or etiological (Häfner et al., 1989; Jablensky & Cole, 1997). This has led to an empirical vacuum of psychosocial variables that may be relevant in understanding the observed sex differences.

It is important to address this gap in the literature for a number of reasons. First, the lack of research limits the degree of understanding which can be developed about sex differences in psychosis, from both a theoretical and practical perspective. Greater research into psychosocial factors is a precursor to any future interventions based around preventing the development of psychosis, or providing better outcomes for those that do develop psychosis.

Furthermore, an exclusive focus on biological models of psychosis may be problematic. Studies have indicated that biomedical explanations of psychotic experiences can have a negative impact on tolerance and social distance imposed by members of the general public (Read & Harré, 2001). Thus there is a clear need to move towards further research into psychosocial factors, which may help to explain sex-related patterns within psychosis. There are several relevant areas that will be outlined in subsequent sections, including the role of childhood trauma, coping, societal attitudes, relationships and substance

use. Literature on these factors will provide a context for a new study exploring psychosocial factors and sex differences.

The Role of Psychosocial Factors: Childhood Trauma and Psychosis

The link between trauma and psychotic experiences has been strongly supported by epidemiological research. As discussed previously, a review by Read et al. (2008) found ten out of eleven studies reported a trauma-psychosis relationship. The highest relative risk was found in research by Shevlin, Dorahy and Adamson (2007), where individuals who had experienced sexual abuse were found to be 15.5 times more likely to have a diagnosable psychotic disorder. Similarly high associations were found for sexual trauma and the presence of delusions (Scott, Chant, Andrews, Martin, & McGrath, 2007).

There is also evidence of a dose-response relationship between trauma and psychosis: with greater experience of trauma, the greater the relative risk of psychotic symptoms. Out of the three studies which investigated a dose-response relationship in the review by Read and colleagues (2008), all three found this association. One study found individuals with 'pathology level psychosis' were eight times more likely than the general population to have experienced mild abuse, but 48 times more likely to have experienced severe abuse (Janssen et al., 2004). This again strengthens the support between a link between trauma and psychosis.

Many studies have documented an association between traumatic experiences and psychosis within clinical populations. Read et al. (2008) reviewed the prevalence of sexual abuse and physical abuse documented in studies of inpatients or outpatients, with at least 50% having a diagnosis of a psychotic disorder. For males, a total of 42 studies were reviewed, with calculated prevalence rates of physical abuse higher than calculated rates of sexual abuse (55% relative to 28.7%). For women, 60 studies were reviewed, with more comparable calculated prevalence rates evident between sexual and physical abuse: 46.9% and 47.2% respectively. More conservative figures have been reported by Morgan and Fisher (2007) in their review of abuse prevalence rates across clinical studies using a stringent exclusionary criteria. These studies demonstrate that the experience of abuse is common for people with psychosis and may constitute one pathway to its development.

The previously discussed meta-analysis by Varese et al. (2012) is a particularly strong line of empirical evidence for an association between trauma and psychosis, with the inclusion of 18 case-control studies, 10 prospective studies and 8 population-based studies in their analysis. As discussed, the association between childhood adversity and psychosis was

demonstrated across these differing study designs, with an overall odds ratio of 2.8. This adds weight to the contention that trauma is potentially of etiological significance in psychosis.

Trauma and age of onset.

The experience of trauma has been found to be specifically relevant to age of symptom development in some studies. For example, Goff et al. (1991) found that childhood sexual or physical abuse was associated with a significantly earlier age of onset in a sample of “chronically psychotic” individuals (Goff, Brotman, Kindlon, Waites, & Amico, 1991). These findings are consistent with research by Álvarez and colleagues (2011), who found that the age of schizophrenia diagnosis was 4.1 years earlier if there had been a past experience of abuse.

Other research exploring age of hospitalisation is consistent with these findings. One study (Rosenberg, Lu, Mueser, Jankowski, & Cournos, 2007) considered the relationships between a history of adverse events and clinical variables in a sample of individuals with a diagnosis on the schizophrenia spectrum. These authors found that the experience of adverse events during childhood resulted in a higher likelihood of hospitalisation before age 22 and greater symptom severity. Similarly, in a study of 40 inpatients, an association was evident between a history of childhood maltreatment and an earlier age of first hospitalisation (Schenkel, Spaulding, DiLillo, & Silverstein, 2005).

A link between proximal stressful life events and the onset of symptoms has long been hypothesised. In the original understanding of the stress-vulnerability model, stress was considered a core part of the timing or onset of symptoms (Zubin & Spring, 1977). Some research has indicated that individuals may experience an excess of life events prior to the development of symptoms (Bebbington et al., 1993; Cullberg, 2003). Similar results have been found within ‘ultra-high risk’ samples (Bechdolf et al., 2010). As the discussed literature indicates, there is some evidence that trauma may be related to age of onset in psychosis. However, further research may clarify the nature of this influence.

Trauma and symptomatology.

One growing area of literature has been the relationships between different types of trauma and types of psychotic symptoms. There is some indication, for example, that there is a particularly strong relationship between sexual abuse and positive symptoms (Bebbington et al., 2004; Spauwen, Krabbendam, Lieb, Wittchen, & Van Os, 2006; Thompson et al., 2013; Üçok & Bikmaz, 2007). However, not all studies have produced consistent results,

with some research identifying physical abuse as a more significant predictor of positive symptoms (Fisher et al., 2009; Shevlin et al., 2007). Others have found almost all forms of trauma are predictive of positive symptoms, such as Varese et al. (2012) in their meta-analysis.

Hallucinations. Consistent with current trends in the field, the specific relationships between trauma and hallucinations have also been explored. Associations between both physical and sexual abuse have been respectively found with hallucinations. Read, van Os, Morrison and Ross (2005) reviewed studies that had explored the relationships between childhood sexual abuse, physical abuse and hallucinations. The authors found that for those studies which had explored either child physical or child sexual abuse, seven out of nine studies reported a significant association between abuse and hallucinations. These results are comparable to those of more recent research (Bentall, Wickham, Shevlin, & Varese, 2012; McCarthy-Jones, 2011; Shevlin et al., 2011).

It may be that there is a specific relationship between sexual abuse and hallucinations. Recent research by Bentall, Wickham, Shevlin and Varese (2012) found that both physical abuse and sexual trauma was associated with auditory hallucinations. However, there was a particularly strong correlation between childhood rape and auditory hallucinations. After controlling for physical abuse, an individual who had experienced childhood rape was six times more likely to have auditory hallucinations than someone who not had this experience. This is consistent with research by Shevlin et al. (2011), who found that childhood rape significantly increased the likelihood of both auditory and visual hallucinations.

Delusions. Research into delusions and specific types of trauma has produced more inconsistent findings. In one large-scale population study (Janssen et al., 2004), delusions were strongly related to childhood trauma (sexual, physical, emotional or psychological abuse). A link between delusional experiences and childhood trauma was also found in the large-scale study by Scott and colleagues (2007), who found evidence of a dose-response relationship. However, other studies have not found a clear association. In the review by Read, Van Os, Morrison and Ross (2005), only one out of eight studies exploring physical abuse and two out of eleven studies exploring sexual abuse found a significant relationship between delusions and child abuse. These results were comparable to those of Üçok and Bikmaz (2007), where no specific relationships between delusions and trauma were found in their sample of people with first-episode psychosis.

It is possible that differentiation between delusional subtypes and trauma subtypes could explain some of this variation. Studies have found evidence that paranoid delusions

may be linked to past victimisation (Arseneault et al., 2011; Janssen et al., 2003). The specific relationships between types of trauma and types of adversity were explored in the previously discussed study by Bentall, Wickham, Shevlin and Varese (2012). It was found that paranoia was significantly associated with both physical abuse and institutional upbringing. Interestingly, no specific link was found between paranoia and bullying in this study. The findings of this research indicate that there may be complex relationships between the experience of types of adversity and the development of delusional beliefs.

Cognitive disorganisation. The literature on trauma and cognitive disorganisation is more limited. One study (Bryer, Nelson, Miller, & Krol, 1987) found a relationship between ‘psychotic thinking’ and sexual abuse, however, this was not robust in the face of statistical corrections. In a study of 100 inpatient files (Read, Agar, Argyle, & Aderhold, 2003) it was found that cognitive disorganisation was not significantly associated with childhood abuse (sexual or physical), however, was linked to adult experiences of victimisation. No significant correlations have been found in other studies of child abuse and cognitive disorganisation (Goff et al., 1991; Read & Argyle, 1999).

Negative symptoms. Studies which have explored the potential associations between trauma and negative symptoms have tended to be less common than those considering positive symptoms. Although some researchers have identified a relationship between trauma and negative symptoms (Burns, Jhazbhay, Esterhuizen, & Emsley, 2011; C. Campbell et al., 2013), others have found no significant associations (Read et al., 2005; Üçok & Bikmaz, 2007).

Trauma has been linked to the experience of negative symptoms in the context of post-traumatic stress responses. Morrison, Frame and Larkin (2003) have discussed the potential overlap between some symptoms of PTSD, such as affective constriction, estrangement from others and detachment, and the negative symptoms of psychosis. Others have argued that the development of psychotic symptoms, as well as the hospitalisation and treatment for these symptoms, can be potentially traumatic events (Mueser, Lu, Rosenberg, & Wolfe, 2010). This has subsequent implications for the differentiation between symptoms of psychosis and a trauma response by professionals within mental health services (Stampfer, 1990).

Trauma and outcomes.

The experience of childhood trauma can have significant implications for adult well-being. Rosenberg and colleagues (2007) found that adverse events in childhood were

associated with a higher likelihood of negative social outcomes, such as homelessness and involvement with the criminal justice system. Less favourable outcomes for people who have experienced trauma were similarly reported in research by Lysaker and LaRocco (2009), where a history of sexual-related trauma was associated with poorer quality of life. Additional research studies have produced consistent findings (Blankertz, Cnaan, & Freedman, 1993; Spence et al., 2006).

Suicidality, a particularly significant measure of outcome, has also been found to be higher for individuals who have experienced trauma. In research by Roy (2005), childhood trauma and past suicide attempts were explored in a sample of people with a schizophrenia diagnosis. The results indicated that the past experience of any form of maltreatment (emotional, sexual and physical abuse or emotional and physical neglect) was associated with past attempted suicide. Similar findings were evident within a larger study of first-episode psychosis (Conus, Cotton, Schimmelmann, McGorry, & Lambert, 2009); those who had experienced sexual or physical abuse were more likely to have attempted suicide historically and were more actively suicidal in the process of treatment. These results indicate the particularly significant influence that trauma may have in outcomes from psychosis.

As is apparent from the discussed literature, the experience of childhood trauma appears significant in the development of psychosis. Trauma is strongly related to the risk of psychosis and may have a bearing on age of onset, symptoms and outcomes. Given this influence on differing aspects of psychosis, it is possible that trauma could also be relevant for the gender variations found by researchers. In the following section, the evidence for the interplay of gender, trauma and psychosis will be reviewed.

Trauma and sex differences.

The existing literature on the relationship between the experience of trauma and patterns of sex differences is limited. The vast majority of studies that have researched trauma in association with clinical variables, such as age of onset, have not analysed data by sex (Barker-Collo & Read, 2011). There is, however, some preliminary support for a link between gender, trauma and psychosis, as reviewed in this section.

Differential risk based on gender. Some have questioned whether the relationship between trauma and the risk of psychosis is sex-specific. In a study by Fisher and colleagues (2009), the prevalence of childhood abuse was compared across a sample of individuals with first-episode psychosis and population controls. The authors found there to be a significantly higher rate of abuse for females with psychosis relative to the female controls. However, this

relationship was not statistically significant for the males in the sample. Fisher et al. emphasised the need for additional research using gender-based analysis to clarify their findings.

Gender, trauma and age of onset. Read (1998) explored potential associations between gender, trauma and age of onset in psychosis. In this research, age of admission data, history of abuse, type of abuse, symptom severity and associations with gender were reviewed in a sample of 100 inpatients. A number of sex-specific relationships were found between abuse history and clinical variables. For males, sexual and physical abuse were both significantly associated with an age of admission before 18 years. However, for females, this relationship was not significant. Suicidality was also found to have a sex-specific relationship with abuse history. For men, the experience of sexual abuse was associated with level of suicidality. However, this relationship again was not significant for women. These findings suggest that there may be gender-based pathways related to abuse and onset of and outcome from psychosis.

An epidemiological study adds further support to the relevance of abuse history in the understanding of sex differences in psychosis. Using data from a large-scale population survey, Shevlin, Dorahy and Adamson (2007) explored the relationships between types of childhood trauma and presence of psychotic symptoms. These researchers found that a past experience of rape was a stronger predictor of psychosis for men relative to women. Shevlin and colleagues theorised that the subversion of cultural roles and norms in the experience of male rape may contribute to a particularly profound impact of this experience for men. It is also possible that societal assumptions and myths around male sexual abuse, particularly male rape, could add to existing distress (Davies, 2002).

The contention that there are sex-specific relationships associated with trauma and psychosis is further supported by a study of Barker-Collo and Read (2011). Using data obtained from members of the public, these authors analysed the relationships between a history of childhood abuse, gender and coping responses and symptomatology. An interaction effect between gender and type of abuse on levels of psychoticism was found. Men who had experienced sexual abuse had significantly increased scores on the psychoticism dimension relative to women who had experienced sexual abuse. Furthermore, when both physical and sexual abuse had been experienced, men also had higher level of psychotic symptoms relative to women in this abuse group.

In line with the results of previous studies (Read, 1998; Shevlin et al., 2007), the findings of Barker-Collo and Read (2011) suggest that an experience of sexual trauma could

relate to the development of psychotic symptoms in a particularly significant way for males. These results have interesting implications when considered in light of the evidence that: a) there is an association between trauma, age of onset and outcomes in psychosis, and b) men tend to develop symptoms of psychosis earlier and experience less favourable outcomes. This raises the possibility that trauma is relevant to the noted sex differences in the literature.

Possible links between trauma and sex differences.

There may be a number of mechanisms by which the experience of childhood trauma could relate to differential pathways in the development of psychosis for men and women. Two potential factors include disclosure and coping responses.

Disclosure. The decision to disclose abuse may be relevant in understanding how trauma may differentially influence onset and outcomes for men and women. There is research to suggest that males are less likely to disclose abuse to others (Alaggia, 2005; DeVoe & Faller, 1999; Lamb & Edgar-Smith, 1994; Ullman & Filipas, 2005) and are more likely to delay disclosure (Sas, Hatch, Malla, Dick, & Hurley, 1993). One qualitative research study (Alaggia, 2005) has explored why there may be differences in disclosure, finding that for men, perceptions of “sexuality and sexual orientation” and a “fear of being viewed as a victim” were relevant to the decision to disclose. This contrasted with the perspectives of the women in the study, where “feelings of responsibility” and the anticipation of “being blamed/or not believed” were central to disclosure.

Potential differences in the disclosure of abuse could have implications for the development of symptoms in men and women. If males are less likely to disclose, there may be less opportunities to access support following abuse experiences, contributing to greater difficulty in responding to this trauma compared with females. Furthermore, there is the possibility that people may react more negatively towards a report of abuse by men (Sleath & Bull, 2010; Ullman, 2003; Ullman & Filipas, 2005), which could facilitate the earlier development of mental health concerns (Ruggiero et al., 2004). Disclosure and reactions to disclosure may therefore be important in understanding sex differences in psychosis.

Coping responses.

Coping with trauma and psychosis. The experience of childhood adversity can have significant cognitive, emotional and behavioural impacts, such as negative beliefs about the self, suspicion and mistrust of others and emotional dysregulation (Deblinger, Cohen, & Mannarino, 2012). These beliefs, emotions and associated coping behaviours are likely to have a significant impact a person’s vulnerability to mental health concerns.

Coping has been operationalised in the form of styles, strategies or as an on-going process (Moos & Holahan, 2003). Endler and Parker (1994) categorised coping styles into ‘task-focused’ (attempting to directly manage the problem), ‘emotion-focused’ (attempts to respond to the emotions associated with the problem) and ‘avoidance-oriented’ (attempts to avoid the problem) coping. Across other measures, differentiation has been made between ‘adaptive’ and ‘maladaptive’ (Moos & Holahan, 2003).

The relevance of coping with trauma to psychiatric symptoms is reflected in a study by Barker-Collo and Read (2003). These authors reviewed key existing models proposing pathways from abuse to mental health concerns. It was found that self-blaming attributions associated with the abuse and emotion-focused coping styles were moderating variables in the relationship between abuse and outcomes; these attributions and coping responses were linked to less favourable outcomes.

Both emotion-focused coping and self-blame associated with trauma have been linked to adverse outcomes in other research studies. Campbell-Sills, Cohan and Stein (2006) explored the experience of trauma, coping, resilience and psychiatric symptoms. The authors found that emotion-oriented coping was related to low resilience, with resilience a moderating variable in the relationship between emotional neglect and psychiatric symptoms in adolescents. This finding was also consistent with the results of another study which explored the pathways from childhood abuse to adult psychological adjustment (Runtz & Schallow, 1997).

Research by Campbell and Morrison (2007) additionally supports the conclusions of Barker-Collo and Read (2003). These authors found that a self-blaming attribution following bullying was associated with a proneness to psychosis in a study of adolescents (M. Campbell & Morrison, 2007). Thus responses to traumatic events may be particularly relevant in understanding how trauma and psychosis may be linked.

One specific response to trauma which has been explored as part of understanding the trauma and psychosis relationship is dissociation. Morrison and Peterson (2003) explored the potential associations between meta-cognitive beliefs, trauma, dissociation and predisposition to hallucinations in a non-clinical sample. The authors found that trauma-related cognitions, such as a self-blaming response, and dissociative experiences were predictors of predisposition to both visual and aural hallucinations. Comparable results were found in a later study using a clinical sample by Kilcommons and Morrison (2005). Significant associations were evident between both negative cognitions about the world in response to trauma, dissociation and positive symptoms. Regression analyses demonstrated that

depersonalisation could predict hallucinations, even when cumulative trauma was controlled for.

A recent study by Varese, Barkus and Bentall (2012) added further support for dissociation as a potential pathway in the development of psychosis. These authors found that dissociation was a mediating variable for the link between trauma and proneness to hallucinations and this relationship was particularly significant for the experience of sexual abuse.

These studies indicate that types of coping responses with trauma may be relevant for the development of psychosis. Some responses, including a self-blaming response, emotion-focused coping and dissociation, could contribute to a greater vulnerability to particular psychotic symptoms and associated distress.

Coping and sex differences in psychosis. It may be that coping responses with trauma are relevant in understanding sex differences in age of onset and symptoms in psychosis. There is some evidence to suggest that males and females adopt differing reactions to traumatic events; where young girls have a tendency towards an internalizing response to trauma and males are more likely to externalise (Spataro, Moss, & Wells, 2001). Internalising is the process by which psychological distress is focused inward, evidenced by the withdrawal from social interaction, depression and internal attributions of blame and shame (Darves-Bornoz, Choquet, Ledoux, Gasquet, & Manfredi, 1998; Putnam, 1995). Externalising refers to the expression of psychological distress through outward behaviours such as running away, becoming aggressive or engaging in anti-social behaviour (Spataro et al., 2001). Darves-Bornoz and colleagues (1998) found that girls who had experienced abuse were more likely to report nightmares, feelings of tearfulness and depressed, as well as various somatic complaints relative to boys. Similarly, Feiring, Taska and Lewis (1999) found girls who had experienced sexual abuse were more likely to experience intrusive thoughts and personal vulnerability relative to boys who had experienced sexual abuse. However, an internalizing response has not been found across all studies, with Garnefski and Diekstra (1997) instead finding complex associations between gender, abuse history and the sequelae of behavioural and emotional difficulties.

Garnefski and Arends (1998) found that sexually abused male adolescents were significantly more likely to use alcohol and drugs, have higher rates of aggressive and criminal behaviour and greater suicidality. These results are consistent with findings from the previously mentioned study by Darves-Bornoz and colleagues (1998), who found that externalizing behaviours, including violent behaviour, use of substances and running away,

were significantly more likely to occur in sexually abused males relative to sexually abused females. Evidence of a greater externalizing response for men has also been found in research by Barker-Collo and Read (2011).

Differential coping responses to trauma may influence the onset of symptoms and outcomes for people with psychosis in numerous ways. One relevant mechanism could be the biological processes associated with trauma. Perry and colleagues (1995) have theorised that greater externalising behaviours in boys could be related to a tendency towards experiencing a “hyper-arousal” response following trauma (B. Perry, Pollard, Blakley, Baker, & Vigilante, 1995). Greater internalising responses in girls may be underpinned by a “dissociative” response. Perry et al. have proposed that these reactions can have differential effects on the neurological processes associated with the regulation of stress. Specifically, links have been found between the dissociative response, abnormalities in the dopaminergic opioid systems and the hyper-arousal response, and a sensitization of the hypothalamic-pituitary axis (B. Perry et al., 1995). Significantly, these biological systems have also been identified as potentially relevant in the experience of psychotic symptoms (Read et al., 2001).

Taken together, these findings suggest that the coping responses of men and women could be related to differential pathways in the development of psychosis; for example, contributing to an earlier age of onset in men and differences in symptomatology. Thus it may not only be the experience of adversity, but the coping responses associated with adversity, which are relevant to sex differences in psychosis.

Another way in which coping with trauma may be relevant to sex differences in psychosis may be access to support. Spataro, Moss and Wells (2001), for example, have argued that an internalizing response in girls is more likely to elicit attention and supportive reactions from others. For males, behaviours consistent with an externalizing response, such as aggression and substance abuse, may invoke negative or punitive reactions. An externalizing response to difficulties may also directly contribute to an earlier onset and poorer recovery in the form of increased substance use (Blanchard, Brown, Horan, & Sherwood, 2000; Veen et al., 2004) and greater risk of physical assault or injury (Nielsen, Mortensen, O’Callaghan, Mors, & Ewald, 2002). Thus coping responses following trauma may indirectly contribute to differential outcomes for men and women in the development and experience of psychosis.

Summary of trauma and sex differences. The experience of childhood abuse appears to be relevant in the onset, symptoms and outcomes of psychosis and may be a key influence in the pattern of observed sex differences in psychotic disorders. Although limited in scope,

the available literature suggests that gender and a history of sexual abuse are related to development and experience of psychosis. Furthermore, in form of reactions to abuse disclosure and coping responses, there are plausible pathways as to how a history of abuse may have a bearing on the earlier age of onset and poorer outcome of males. A research study which can further explore these connections would provide much needed insight on the nature of these relationships.

Although a history of abuse is a common occurrence within populations of people with psychosis, trauma is unlikely to be the sole psychosocial factor relevant in understanding sex differences. In the following sections, research pertaining to additional factors, including coping with symptoms, societal attitudes, the role of relationships and the influence of substance abuse will be considered.

Coping Responses to Psychotic Symptoms

Coping and outcomes in psychosis.

The ways that people respond to psychotic symptoms, once developed, may be an important factor in understanding links between gender and psychosis. Studies have indicated that the ways in which people cope with symptoms may be relevant for recovery in psychosis. Boschi and colleagues (2000), for example, found that the use of active coping strategies in response to psychotic symptoms was associated with a greater level of psychosocial functioning at two year follow up. This was consistent with the results of Jalbrizkowski et al. (2012), where coping responses considered to be adaptive (e.g. seeking emotional support, problem-solving, emotional expression) were linked to better social functioning and less severe symptoms in a group of ‘clinically-high-risk’ individuals.

Conversely, the use of ‘maladaptive’ coping strategies, typically those involving elements of avoidance, denial or self-blame, may have negative impacts on outcome. For example, Cooke and colleagues (2007) found that a ‘preference for mental disengagement’ was associated with greater distress in a group of outpatients with a diagnosis of schizophrenia. In the previously mentioned research by Jalbrizkowski et al., the use of maladaptive coping styles was related to greater symptom severity. Another study exploring subclinical psychotic experiences found that emotion-focused coping was associated with persistence of symptoms over time (Lin et al., 2011). The documented relevance of coping to outcomes have led some to explore the effectiveness of coping skills training for people with psychosis, with some positive results (Vázquez Pérez, Godoy-Izquierdo, & Godoy, 2012).

Coping responses in men and women.

There has been limited exploration of gender and coping with psychosis (L. Phillips, Francey, Edwards, & McMurray, 2009). However, there is some evidence of differences in the ways in which men and women respond to the development of symptoms. For example, Cohen and Berk (1985) found that women were more likely to use prayer or seek medical services in response to psychotic symptoms than men. This is consistent with the results of Fridgin and colleagues (2012), where greater pathways to help-seeking were present for women relative to men in a group of 'at-risk' individuals. Research by Lee, Lieh-Mak and Spinks (1993) has also indicated some sex differences in coping strategies, with seeking social support reportedly more helpful as a strategy for women than for men. However, other research studies have not found sex-specific differences in coping responses (Modestin, Soult, & Malti, 2004; Mulligan & Lavender, 2009).

The potential relationships between gender, coping and psychosis may be complex. Lin and colleagues (2011) explored the role of gender, coping and persistence of psychotic symptoms at multiple time-points in a sub-clinical sample. The authors found that although there was no clear gender patterns in using of task-focused, avoidant or emotion-focused coping, women appeared to use a range of different coping strategies across all time-points, which was less common in men.

Coping and differential outcomes in psychosis.

A consensus on gender variations in coping with psychosis has clearly not been reached within the literature. However, if present, sex differences in coping could potentially contribute to the noted gender effects in recovery from psychosis. For example, if women tended to use more of a range of coping strategies (Lin et al., 2011), they may have greater opportunities to adaptively respond to symptoms, with subsequent influences on recovery. It may be that some of types of coping strategies used by women are more effective in relieving distress associated with symptoms or promoting positive outcomes (Lee et al., 1993). However, only tentative hypotheses can be made on the relationships between gender, coping and outcomes given the existing research. Additional studies which explore the interplay of gender and coping with psychosis would facilitate greater understanding of these issues.

Societal Attitudes

Societal attitudes may be relevant in understanding gender differences in psychosis. Within society, gender influences the types of expectations and attitudes that are placed on

individuals. Traditionally in Western societies, females have been expected to fulfil a “wife-mother” role and are socialized to develop traits such as sensitivity and warmth. For males, there has been the expectation of providing for the family, leading to the valuing of competence and strength in men (Aneshensel & Rosen, 1980; Carli, 2001; Cuddy, Fiske, & Glick, 2004).

Differing gender expectations could influence reactions to people with psychosis. Given expectations of males relate to competence and strength, there may be less tolerance of the symptoms of psychosis for men relative to women. This, in turn, could have significant implications for the level of distress experienced, the age at which symptoms develop and pathways of recovery.

Greater stigma for males.

There is some empirical support for the contention that males experience less favourable reactions with the experience of psychotic symptoms. Early studies (D. Phillips, 1964; Siassi, Spiro, & Crocetti, 1973) highlighted this connection, finding that social distance was more pronounced if the person with schizophrenia was male. Later studies have found similar results (Jorm & Griffiths, 2008; Jorm & Oh, 2009). In research by Jorm and Griffiths (2008), perceived dangerousness and the desire for social distance were rated higher in a case vignette involving a male with psychosis relative to a female case in a survey of Australian adults. Evidence of differential reactions based on gender was also demonstrated in research by Schnittker (2000), where there was greater willingness for social interaction towards females relative to males with psychosis.

However, this pattern has not been observed in all studies. Angermeyer, Matschinger and Holzinger (1998) explored attitudes towards a person with psychotic symptoms in members of the general population, varying the sex of person within the case described. The authors found no difference between reported feelings of anxiety about the person, or desire for social distance based on the sex of the person in the case vignette.

Differential family attitudes.

A small number of studies have specifically investigated the ways in which family members respond to men and women with psychosis. One key study (Haas, Glick, Clarkin, Spencer Jr, & Lewis, 1990) explored family attitudes as part of a trial of a family-based inpatient intervention for schizophrenia. The authors found that families of male patients were more rejecting, arrive late to appointments or cancel appointments compared with the

families of female patients. Further support for the contention that males with psychosis experience greater familial rejection comes from the research of Davis, Goldstein and Nuechterlein (1996). In this study, the relatives of male patients displayed more open criticism and expressed more severe negative affect than the families of female patients.

Goldstein and Kreisman (1988) considered the degree of tolerance that parents of men and women with schizophrenia based on symptomatology using hypothetical case vignettes. Differences were found between attitudes of mothers and fathers, based on the gender of their son or daughter with schizophrenia. Fathers had a lower tolerance of moderate affective symptoms in sons relative to daughters, whereas mothers did not appear to vary in their attitudes based on the sex of the patient. In addition, the responsibility for care was perceived to be greater for daughters than for sons by both mother and father respondents. In this study, sons were also found to be hospitalised more frequently and stayed longer relative to daughters, regardless of the severity of symptoms displayed.

The discussed literature suggests that males may be receiving a greater degree of rejection than females in society and in their family environment. This, in turn, could contribute to an earlier age of onset and poorer recovery. However, given that there are few studies to have explored these possibilities, only tentative hypotheses can be made. Additional research could build a more comprehensive understanding of how gender influences responses to men and women with psychosis.

Relationships and Psychosis

Social support.

There is a substantial body of evidence to indicate that social functioning is relevant in the development of and recovery from psychosis. Recent research by Salokangas et al. (2013) with a sample of those deemed at 'high-risk' found that lack of close relationships was associated with a greater rate of transition to psychosis. This is consistent with prospective research of Dragt and colleagues (2011) with an 'ultra-high-risk' sample, who found social-personal and social-sexual adjustment in adolescence could significantly predict the transition to psychosis.

A recent systematic review by Gayer-Anderson and Morgan (2012) found 38 papers which had explored social networks or social support for individuals with first-episode psychosis. Although some inconsistencies were evident, studies tended to show a reduced social support network and less satisfaction with social support in people with first-episode psychosis relative to those in the general population. There was also some indication that

poor social support preceded the onset of symptoms in studies of first-episode and sub-clinical psychotic experiences (Thorup et al., 2006; Wiles et al., 2006). This research highlights the potential significance of social support and networks within the development of psychosis.

Gender and social functioning. Gayer-Anderson and Morgan (2012) reviewed the literature on gender and social support, with some discrepancies present. Within studies of individuals with psychosis, there is evidence that women to have larger networks of friends, greater close friends and more frequency of contact relative to men (Thorup, Petersen, et al., 2007). In a study by Willhite and colleagues (2008) of people at ‘ultra-high-risk’ of psychosis, women were found to endorse more of the positive social support items than males in the sample. However, other studies have not found any gender differences in network size (Thorup et al., 2006), the likelihood of having a confidant between men and women (Salokangas, 1997) or perceived social support (Pruessner, Iyer, Faridi, Joobar, & Malla, 2011).

It is possible that gender differences in social functioning, if present, could be relevant to the noted variations between men and women in psychosis. With a greater degree of social contacts, confidants or a higher degree of social skills, women who were having unusual experiences could have greater opportunity to seek practical and emotional support. Furthermore, these individuals could also experience more favourable outcomes within the process of treatment, if rapport and relationships with others were easier to establish. These possibilities could be further explored with additional research.

Romantic relationships.

It may be that not only friendships, but also romantic relationships, have a role in the development and experience of psychosis. There is some evidence to suggest that romantic relationships can act as a protective factor in the onset of symptoms. For example, Kasckow et al. (2010) retrospectively explored the association of marital status to age of onset, quality of life and suicidal ideation in an older-age sample of people with psychosis. The authors found that being married or co-habiting were associated with a later onset of first psychotic episode, as well as having higher quality of life relative to those who were single. This is somewhat consistent with the results of Riecher-Rössler and colleagues (1992), where a main effect of marital status on age at first admission was present; although the authors contested the meaning of this finding in their concluding responses (Riecher-Rössler, Fätkenheuer, Löffler, Maurer, & Häfner, 1992).

Romantic relationships, age of onset and sex differences. Some research has indicated an interplay of gender, relationships and age of onset. Jablensky and Cole (1997) analysed data obtained in the WHO ten nation study of schizophrenia. The researchers found marital status was significantly associated with a delayed age of onset. Interestingly, this effect was particularly strong for men. For males, being married delayed age of onset by an estimated 8.35 years, compared with a delay of an estimated 4.95 years for females. Furthermore, marital status was a stronger predictor of age of onset than family history, which has been indicated as a potential mediating variable in the onset of symptoms (Esterberg et al., 2010). The effect of relationship status on age of onset, and the particularly strong influence demonstrated for men has also been found in other studies (Hafner et al., 1993; Malmberg, Lewis, David, & Allebeck, 1998).

Although the research is limited, it is possible that being involved in a romantic relationship may serve to protect against the earlier development of psychotic symptoms. Some researchers have found men are less likely to be in a relationship than women upon presentation to services (Riecher-Rössler et al., 1992), in addition to having less social support (Thorup, Petersen, et al., 2007). Thus relationships could be particularly relevant in understanding an earlier age of onset and less favourable outcomes for men. Future research exploring gender, relationship history and age of onset could explore these possibilities.

Substance Use

Substance use, a variable which can be considered through both a biological and psychosocial lens, is another area which could be relevant to sex differences. Substance use and abuse in people who experience psychosis is a common phenomenon. In a large United States catchment study, approximately 50% of people diagnosed with schizophrenia had some form of substance dependence (Regier et al., 1990). Lifetime prevalence rates of schizophrenia, delusional disorder and schizoaffective disorder and co-morbid substance abuse disorder were found to be approximately 7% in one United Kingdom prevalence study (Farrell et al., 1998) and have been as high as 16% in a study of first-episode schizophrenia (Barnes, Mutsatsa, Hutton, Watt, & Joyce, 2006). The most commonly used substances reported in both UK and US samples are alcohol and cannabis (Gregg, Barrowclough, & Haddock, 2007).

Substance use and earlier age of onset.

The use of substances has been found to be relevant to age of onset and outcome. The majority of the research has focused on the role of cannabis. There is evidence that the use of cannabis is related to an earlier age of onset of the symptoms of psychosis. Large and colleagues (2011) conducted a systematic meta-analysis of studies which had explored age of onset in substance users relative to non-users (Large, Sharma, Compton, Slade, & Nielssen, 2011). The authors found that the mean age of onset was 2.7 years younger for past users of cannabis relative to non-users; 2.0 years younger using a broader measure of substance use. No significant relationship between past alcohol use and age of onset was evident from the results of Large et al.

Substance use and symptoms.

There is some indication that the use of substances may contribute to rates of positive symptoms. Grech et al. (2005) conducted a prospective study of symptoms and cannabis use in a group of individuals with first-episode psychosis (Grech, Van Os, Jones, Lewis, & Murray, 2005). These authors found that people who continued to use cannabis over the subsequent four year period had a greater number of positive (but not negative) symptoms. Similarly, Bersani and colleagues (2002) explored cannabis use and symptoms in 125 males with a diagnosis of schizophrenia. These researchers found that for the group of men who began using prior to the onset of psychotic symptoms, there was a significantly higher rate of hallucinations and delusions relative to the group of men who used cannabis after the development of psychotic symptoms. The findings from this meta-analysis were also consistent with research exploring age of first cannabis use and sub-clinical psychotic experiences in a population-based sample (Schubart et al., 2011).

However, there are some discrepancies within the literature. Compton, Whicker and Hochman (2007), for example, found no association between past cannabis use and positive symptoms, instead, a significant correlation between alcohol use (in the six months prior to episode) and severity of positive symptoms. These results contrast with other studies that indicate alcohol use is less associated with psychosis than other substances (Barnett et al., 2007; Gregg et al., 2007). The presence of some inconsistency in the relationship between cannabis use are reflected in a 2008 review, where a number of longitudinal studies did not find a significant difference in positive symptoms based on cannabis use (Zammit et al., 2008).

Substance use and outcomes.

Substance use has been typically associated with poorer outcomes, such as a higher rate of relapse (Lambert et al., 2005; Malla et al., 2008; Swofford, Kasckow, Scheller-Gilkey, & Inderbitzin, 1996) and higher rates of mortality (Rosen, Kuhn, Greenbaum, & Drescher, 2008). The evidence that cannabis use is specifically predictive of poorer outcomes is less clear. In their review, Zammit and colleagues (2008) found that across the 52 variants of outcome measured across prospective studies, only 14 were poorer for cannabis users, with seven appearing better and 32 showing no difference. These authors noted the failure to control for factors such as baseline symptom severity and comorbid alcohol use is a limitation within these studies.

Substance use, gender and psychosis.

There is some evidence that gender could play a part in the relationship between substance use and psychosis. As in the general population, being male has been consistently found to be a predictor of substance use in populations with psychosis in studies considering substances at first presentation (Archie et al., 2007; Cantwell et al., 1999; Hambrecht & Häfner, 2000; Mastriqt, Addington, & Addington, 2004) and over time (Gregg et al., 2007; Kavanagh et al., 2004; Mueser et al., 1990). Males are also more commonly diagnosed with substance-induced psychosis than women (Perala et al., 2007).

These findings lend support to the possibility that a greater prevalence of cannabis use in men could contribute to an earlier age of onset. However, this hypothesis has not been clearly supported in the literature. For example, Veen et al. (2004) found cannabis use, but not gender, was a significant predictor in the age of first psychotic episode in their population-based research. Similar results were also found in another study exploring comorbid cannabis use disorders in individuals diagnosed with first-episode schizophrenia (Sevy et al., 2010).

Other researchers which have explored the role of gender in the context of substance use and age of onset have found contrasting results. In a study by Rabinowitz and colleagues (1998), there was a significant association between moderate to severe substance use disorders and age of onset only for females with psychosis, with no significant findings for the men in the sample. Evidence for a specific relationship between female substance use and age of onset was also found in research by Compton et al. (2009). The authors found there was evidence of an interaction between gender and pattern of cannabis use; where the progression to daily use appeared to be associated with an earlier age of onset specifically for

females. These studies appear to indicate that the heavy use of substances, although potentially less common in women, may have particular significance in age of onset differences.

There are clearly some inconsistencies in the literature on gender, substance use and the onset and experience of psychosis. It could be that greater substance use in men can predict an earlier age of onset, that significant substance use in women reduces the age of onset difference, or that there are no specific substance use and gender relationships. It is also possible that additional factors are relevant to these relationships. There has been some indication, for example, of an interaction between childhood adversity and substance use in the development of psychosis (Harley et al., 2010; Houston, Murphy, Adamson, Stringer, & Shevlin, 2008). Future research which takes into account substance use and related psychosocial variables could provide valuable insight into sex differences in psychosis.

Client Perspectives on the Causes of Psychosis

From the discussed literature on the interplay of gender, psychosocial factors and psychosis, many interesting hypotheses can be drawn. However, as Geekie (2007) has discussed, only a small number of studies on psychosis have focused on the perspective of the individual who has experienced it. This is an important consideration, given that a failure to explore models of understanding that clients hold can be considered a form of marginalization (Geekie, 2013).

In response to this issue, a growing number of researchers have used qualitative methods to explore personal experiences of psychosis (Beavan, 2007; Humberstone, 2002; Jenkins, 1997; Schulze, 2003) with some valuable findings. For example, Geekie (2007), who explored the subjective experience of psychosis, noted that the clients typically had multi-factorial models of cause and their explanations paralleled scientific understandings of etiology.

Gender and understandings of psychosis.

There may be particular value in exploring understandings of psychosis which men and women respectively hold. As Nasser, Walders and Jenkins (2002) have discussed, people with a diagnosis of schizophrenia may have been traditionally seen through a “gender-less” lens. This could mean that important variations or similarities in perspectives on psychosis have been overlooked by researchers.

A small number of studies have focused on the understandings of psychosis specifically for each gender. For example, in a study by Molvaer, Hantzi and Papadatos (1992), clients' understandings of the cause of their psychotic symptoms were explored. The authors found that there was a gender difference in types of explanations. Women were more likely to consider family and relationships and personal inadequacy as contributing factors. This contrasted with the men, who were more likely to view chance as a cause for psychosis. Other studies have also indicated the role of cultural differences in the relationship between gender and understandings of psychosis (Maher & Kroska, 2002; Saravanan et al., 2007).

Understandings of men with psychosis.

In a 2010 review of qualitative studies on first-episode psychosis, two studies focused on the experiences of young men (Boydell, Stasiulis, Volpe, & Gladstone, 2010). One of these studies was that of B. M. Perry, Taylor and Shaw (2007), who considered the role of hope in first-episode psychosis. One of the three themes was "What's it all about?", which related to the search for meaning in the experience of psychosis. Within this theme, there were some commonalities in causal factors identified, including a role of faith and spirituality, childhood experiences and the types of physical and emotional states experienced prior to the onset of symptoms.

The second study which explored men's understandings of psychosis was by Hirschfeld, Smith, Trower and Griffin (2005). These researchers explored how a group of young men made sense of their experiences. Meeting age-related goals, such as finding employment, developing intimate relationships, and adapting to changes in relationships were identified as relevant to the development of psychosis for these men. Another area which participants in this study highlighted was the use of substances, such as cannabis. Both positive and negative elements were evident in the accounts of participants with relation to substance use; substance use was associated with positive social experiences, but also was felt to precipitate psychotic experiences.

Understandings of women with psychosis.

The literature on women's perspectives of the causes of psychosis appears to be smaller still. In the previously discussed 2010 descriptive review, none of the studies on first-episode psychosis were conducted with an all-female sample. Research which has involved women have primarily focused on psychosis and motherhood, including the experience of post-partum psychosis (Diaz-Caneja & Johnson, 2004; Robertson & Lyons, 2003). Others

have explored women's experience within mental health services (Johnson et al., 2004) and process of recovery from psychosis (Chernomas, Clarke, & Chisholm, 2000; Van Den Tillaart, Kurtz, & Cash, 2009).

One study which has considered causal factors for women is that of Aschebrock (2005), who explored the frames of reference which 11 women used in understanding delusions and hallucinations. The author found five respective frames through which experiences were conceptualised, including "Trauma/Stress", "Spiritual/Religious," "Psychoactive Substances," "Biological" and "Individual Psychology."

The particular relevance of trauma, loss and stress in the development of psychosis is also evident in other research. For example, Repper, Perkins and Owen (1998) explored the life stories of women with on-going mental health issues, many of which had a diagnosis of schizophrenia. The authors discussed how the women in their stories highlighted loss to be central, if not causal, in their development of difficulties: with further losses experienced with the development of symptoms. Similar themes were apparent in research by Padgett and colleagues (2006) with formerly homeless women with substance use and mental health concerns, as well as within a feminist analysis of women's narratives (Padgett, Hawkins, Abrams, & Davis, 2006; Van Den Tillaart et al., 2009).

Although growing, it is clear that the literature regarding men and women's respective understandings of psychosis is currently limited. This is particularly the case for women, where a very small number of qualitative studies on this area are present. It is important to extend this research basis as additional research could generate deeper understandings of gender effects. It may be that men and women have differences in what they identify to be relevant in the development of psychosis. This could help to contextualise the quantitative findings on gender variations in psychosis and highlight future areas for investigation.

Summary of Literature Review

A number of core points can be drawn from the literature reviewed in the preceding sections. Firstly, contributions from different theoretical orientations indicate that no one factor is likely to account for the development of psychosis. Psychological, social and biological factors all have a role in etiology, meaning a monolithic approach within research is limited in its utility.

Sex differences in the development, experience of, and recovery from psychosis have been documented in the literature. Although some gender effects have been noted in regards to 'premorbid' functioning and cognitive abilities, the most consistent differences appear to

be related to age of onset, symptom profiles and outcomes. Many studies find men have an earlier age of symptom onset, more negative symptoms and have been shown to have a less favourable recovery than women. Although biological theories of sex differences have been proposed, there has been very little exploration of how psychosocial influences could be relevant. This is a significant omission within the research, given the noted value in adopting a bio-psycho-social approach.

There may be a number of psychosocial factors which have a bearing on gender effects in psychosis. Childhood trauma may be one such factor, given it has been found to share a strong relationship with the development of psychosis, in epidemiological and clinical studies. Furthermore, there appear to be sex-specific associations between abuse and the onset and experience of psychosis. A history of abuse may be a predictor of psychosis of an early presentation for men, although conclusions are limited by the paucity of studies.

Disclosure and coping responses may be important mechanisms in the relationship between trauma and psychosis. Patterns of sex differences have been found in the degree to which males and females disclose a history of abuse, and the types of reactions that they receive upon disclosure; both of which could influence accessibility of support and the associated impacts on psychological wellbeing. Methods of coping with abuse may also be significant in relation to age of onset and outcomes. However, further research is required to clarify how these variables may interrelate.

Other psychosocial factors may also be relevant in understanding sex differences in psychosis. Societal and familial attitudes, for example, could contribute to differential outcomes. The amount and quality of relationships with others may also have a bearing on age of onset for psychosis for men and women. Differential coping responses when symptoms develop may also contribute to the noted gender effects.

Another key factor is the use of substances. Men use substances more than females, both within the general population and in samples of people with psychosis. Furthermore, a strong relationship between age of onset and use of cannabis has been documented in the literature. Thus it could be that a greater dependency on substances is associated with generally reduced functioning, facilitating, an earlier onset and poorer recovery in psychosis relative to women.

It is necessary to also balance the investigation of factors drawn from the literature with the factors deemed relevant by people who have experienced psychosis. As discussed, client understandings of psychosis are important to explore from both an ethical and clinical perspective (Geekie, 2007). Furthermore, client perspectives may help to contextualize

differing pathways in the development, experience and recovery from psychosis in men and women.

Present Study

Drawing on this varied body of literature, the present study was developed to investigate sex differences in psychosis and potential psychosocial influences. Using a quantitative questionnaire design, the current study retrospectively explored the role of a range of psychosocial variables and their association with age of onset, symptomatology and other clinical variables in a sample of men and women with psychosis.

A number of key psychosocial variables identified from the literature were included. Firstly, childhood trauma was selected based on the substantial body of literature indicating a relationship with psychosis (Varese, Smeets, et al., 2012). Given the existing research on the relevance of coping with adversity and gender (Barker-Collo & Read, 2003; Kilcommons & Morrison, 2005), measures of coping response and peri-traumatic dissociation were also considered. Additional variables related to adverse experiences, such as age of abuse, disclosure of abuse, extent of belief and support following abuse disclosure, relationship of perpetrator were included based on potential relevance suggested by the literature (Tyler, 2002).

Measures of past relationships, substance use, reactions to symptoms and coping with symptoms were other key psychosocial variables identified for inclusion in this study given their potential relevance to sex differences. Finally, participant's perspectives on the causes of psychosis were explored within the questionnaire to further investigate factors which men and women perceived to be significant.

Aims and hypotheses.

The aims of the project were to: a) explore sex differences in age of onset, symptoms and psychosocial variables in men and women with psychosis, and b) explore the relevance of psychosocial variables to age of onset and symptomatology in men and women with psychosis. The central research questions of this study are: a) What factors are associated with age of onset and symptomatology in men? and b) What factors are associated with age of onset and symptomatology in women?

Based on the patterns evident in the literature, a number of specific hypotheses were made. First, it was predicted that there would be sex differences in the age of onset, symptomatology, past relationships, substance use, reactions to symptom disclosure and

coping with psychotic symptoms. Specifically, it was predicted that men would have an earlier age of onset, a greater number of negative symptoms, fewer past relationships, greater substance use, less accepting and supportive reactions following symptom disclosure and adopt less adaptive forms of coping.

A central hypothesis of the study was that the psychosocial factors would predict age of onset for males and females. A history of childhood trauma, less adaptive forms of coping, substance use and a history of few relationships would be associated with an earlier age of onset in both men and women. It was also hypothesized that a history of abuse would be more strongly correlated with an earlier age of onset in men relative to women, based on research by Shevlin et al. (2007) and Read (1998). These aims, research questions and hypotheses were used to frame the direction of this exploratory study, described in detail in the following chapter.

CHAPTER II

METHOD

Study Design

This study used a correlational design in a self-report questionnaire format. A questionnaire design was selected as it represented a practical way to retrospectively access information about a range of variables, with a medium-sized sample.

Participants

The participants for this study were men and women who had experienced one or more of the three positive symptoms of psychosis (hallucinations, delusions or cognitive disorganization) or had a diagnosis of a psychotic disorder. Participants were recruited through Early Intervention psychosis teams in the Auckland District Health Board and the Counties-Manukau District Health Board. Additional participants were recruited from two care and recovery teams within St Lukes Community Mental Health Centre, ADHB Māori Mental Health and participants of the Hearing Voices Support groups at a later stage. Convenience sampling was utilized in this study. This was primarily due to the financial and time constraints associated with the present research.

Inclusion criteria.

To be eligible for the study, clients had to be over 18 years of age, not acutely psychotic, currently hospitalized or being treated under the Mental Health Act. Participants also needed to be deemed appropriate based on the clinical judgment of the team which they were accessing (if under mental health services). Clients being treated under the Mental Health Act were excluded from the research as there was concern that these clients may feel coerced into participating, given they were undergoing compulsory treatment. Exclusion based on clinical judgment was a criterion developed to ensure only clients which were appropriate for the research were approached within mental health services. This criterion was included to ensure client safety and ethical practice.

These exclusion criteria were not applicable for individuals recruited through the Hearing Voices network (aside from age and current hospitalisation) as this organisation was in the public domain and not associated with mental health services. The decision whether or not to participate was therefore the choice of the individual.

Characteristics of the sample.

There were a total of 53 questionnaires that were returned to the researcher, however, two were excluded from analysis due to insufficient completion. Out of the 51 questionnaires, 29 (56.9%) of the respondents were male and 22 (43.1%) were female. The average age of participants was 32 years. The majority of the sample identified as New Zealand European (56.9%); other groups were: Māori (27.5%), Pacific Islander (21.6%), Asian (15.7%) and Other (5.9%). Participants could select more than one ethnicity. Data on ethnicity was not available for one participant.

The majority of participants were from Early Intervention services (56.9%). Other mental health teams involved in the study comprised 23.5% of the sample, with 19.6% of the sample recruited from the Hearing Voices network. There were no significant differences between the number of males and females drawn from the differing teams as assessed by Chi-square analyses.

Questionnaire

A questionnaire was used to collect information on a range of variables (see Appendix A). Pilot testing with members of the general public and cumulative estimates taken from administration time of standardized measures indicated that the questionnaire would take approximately 45 minutes to complete. The clinical variables that were assessed by the questionnaire were age of symptom onset, age of first contact with mental health services, past hospitalisation, age of first hospitalisation, number of hospitalisations, time elapsed before symptom disclosure and symptomatology. The psychosocial variables which were assessed were history of childhood trauma, coping with past adverse experiences, variables associated with the experience of sexual and physical abuse, past relationships, substance use, reactions to symptom disclosure, coping with psychotic symptoms and client casual explanations of psychosis.. Each of these variables is discussed in greater detail below.

Measures.

Age of symptom onset, first contact with services and first hospitalisation. Age of symptom onset was assessed by the question: “What age were you when you first noticed unusual experiences/symptoms related to psychosis?” First contact with services and age of first hospitalization were two other variables also assessed using this question format. Responses were recorded in years.

Symptomatology. The presence of positive and negative symptoms was assessed using a 15 item composite measure. Table 1 presents the items used to screen for symptoms and the source from which these questions were adapted. Twelve of the items assessed the presence of positive symptoms. Three items assessed negative symptoms. For each item, the participant ticked either *Yes*(1) or *No*(0).

There were a smaller number of items for negative symptoms included in the questionnaire relative to positive symptoms. This was because many negative symptoms constitute observable behaviours or are reliant in part on external judgement (e.g. inappropriate affect, idiosyncratic speech), meaning items were difficult to adapt for the self-report format.

Positive symptoms. The presence of aural, visual and olfactory hallucinations, delusions of reference, control and paranoid delusions were assessed using nine items adapted from the Scale for Assessment of Positive Symptoms (SAPS; Andreasen, 1984) and from the Psychoticism subscale of the self-report Symptom Checklist-90 Revised (SCL-90-R; Derogatis, 1994). Tactile hallucinations were not assessed given the difficulty of separating hallucinatory sensations from other physical sensations using a self-report format. Cognitive disorganization was assessed using three original items, given the absence of appropriate existing self-report measures within the literature. Scores for hallucinations, delusions and cognitive disorganisation were summed to form a positive symptom scale ($\alpha = .50$). Analyses were also conducted separately for each of the three positive symptom types of hallucinations, delusions and cognitive disorganisation by summing the number of endorsed items. Delusions as a subscale demonstrated appropriate internal consistency $\alpha = .71$.

Negative symptoms. Disconnection from others, amotivation and anhedonia were measured using three original items adapted from the DSM-IV-TR descriptions (American Psychiatric Association, 2000). Scores on these items were summed to form a negative symptom scale. Estimates of internal consistency were not possible for negative symptoms, given only three items.

Time elapsed before symptom disclosure. Participants were asked: “How long after you began having unusual experiences/symptoms related to psychosis did you tell someone about it?”, with responses recorded in months.

Reactions to symptom disclosure. The reactions to symptoms by the first person who was told about the psychotic experiences and the client’s mother/primary caregiver were explored. Participants were asked: “when you did tell someone, who was the first person you

Table 1*Items Used to Assess Symptoms and the Origin of these Items.*

Symptom	Items	Source
Hallucinations	“Have you ever heard voices or other sounds when no one is around?”	SAPS*
	“Have you ever had visions or seen things that other people cannot?”	SAPS
	“Have you ever experienced any unusual smells or smells that others do not notice?”	SAPS
Delusions Of Reference	“Have there been times where you have felt you have unusual talents/abilities or are destined for great things?”	SAPS
	“Have you seen things in magazines or on TV that seem to refer to you or contain a special message for you?”	SAPS
Paranoid	“Have you felt other people are aware of your private thoughts?.”	SCL-90-R**
	“Have there been times where you have felt people have been spying on you, following you or intended to harm you?”	SAPS
Of Control	“Have you ever felt you were being controlled by some outside force?”	SAPS
	“Have you had the idea that someone else can control your thoughts?”	SCL-90-R
Cognitive Disorganisation	“Have your thoughts sometimes felt so jumbled up that other people find it impossible to understand you?”	Adapted from DSM-IV-TR criteria.***
	“Have you ever found your thoughts jumping quickly from one topic to another?”	Adapted from DSM-IV-TR criteria.
	“Has your behaviour ever become so disorganized that you have been unable to carry out daily tasks?”	Adapted from DSM-IV-TR criteria.
Negative Symptoms	“Have you felt emotionally numb or flat?”	Adapted from DSM-IV-TR criteria.
	“Have you felt distant from other people?”	Adapted from DSM-IV-TR criteria.
	“Have you felt uninterested in the things you normally would enjoy?”	Adapted from DSM-IV-TR criteria.

Note: *Scale for Assessment of Positive Symptoms: Andreasen, N. C. (1984). *Scale for the assessment of positive symptoms*. Iowa City: University of Iowa.

**Symptom Checklist-90 Revised: Derogatis, L. R. (1994). *SCL-90-R: Administration, scoring, and procedures manual*. Minneapolis, Minnesota: National Computer Systems.

*** Diagnostic and Statistical Manual, Text Revision: American Psychiatric Association. (2000). *The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV-TR)*. Washington: American Psychiatric Association.

told? (e.g. brother, friend, doctor).” The perceived emotional support and degree of acceptance of symptoms by that person were assessed using five-point scales. To explore the degree of perceived emotional support, participants were asked: “How much emotional support did you receive from that person?”, from *None* (0) to *A great deal of support* (4). To assess the degree of acceptance demonstrated by the first person symptoms were disclosed to, participants were asked “How accepting was this person of your unusual experiences/symptoms relating to psychosis?” from *Very Rejecting* (0) to *Very Accepting* (4).

Participants were also asked who their primary caregiver was growing up and whether or not this person was aware of their unusual experiences/symptoms related to psychosis, with participants able to choose from the options: *Yes*, *No* or *Not Applicable*. If the first person they told was the same as their primary caregiver, participants were asked to skip to the next section. The degree of acceptance and perceived emotional support from their primary caregiver was assessed using the same scales as above.

Past relationships. Participants were asked: “During adolescence (age 13-18), did you have a romantic relationship?”, with response options being *Yes* or *No*.

The number of close relationships during adolescence were assessed using the question: “How many close friendships/relationships (where you had a strong emotional connection with another person) did you have during adolescence (age 13-18)?”, with participants selecting from the positive choices of: 0, 1-2, 3-4, 5-6 or 6+.

Substance use. Participants were asked about their use of alcohol, cannabis and ‘other’, a category which covered any additional substances which the participants may have used. Participants were asked to indicate whether or not they had used the substance and what age they had first used the substance. To explore the degree to which substance use was at a problematic level, participants were asked the question: “Did using this substance have negative impacts on your life? (e.g. in your family life, work, finances, health),” on a three-point scale from *Not at all* (1) to *A lot* (3). Problematic substance use scores were analysed separately for each substance type.

History of childhood trauma. Childhood trauma was assessed using the shortened version of the Childhood Trauma Questionnaire (CTQ; D Bernstein et al., 2003). The CTQ has been used with diverse populations, including individuals with psychosis (Üçok & Bikmaz, 2007). This measure appears to have convergent validity, with moderate correlations between the CTQ and related measures, such as the Childhood Trauma Interview (Fink, Bernstein, Handelsman, Foote, & Lovejoy, 1995). Scores on the CTQ also could predict rate of drop out within a sample of adult outpatients with substance abuse, demonstrating

predictive validity of the measure (D. Bernstein & Fink, 1998). Internal consistency of the original scales were at an acceptable level, with alpha values above 0.7 (D. Bernstein & Fink, 1998).

The CTQ has 28 items, and five subscales, with each item scored on a five-point scale from Never True (1) to Very Often True (5). The subscales of the CTQ are sexual abuse, physical abuse, emotional abuse, physical neglect and emotional neglect, with items summed to form subscale scores.

Categorical labels have been developed by the CTQ to differentiate levels of trauma, from “none”, “low”, “moderate” and “severe”. Those who fell within the “moderate” or “severe” ranges were used to conservatively estimate the abuse prevalence within the sample. Table 2 displays the respective score ranges from the CTQ manual.

Table 2

Classification for Scores on the Childhood Trauma Questionnaire Scales.

Scale	Categorisation			
	None (or Minimal)	Low (to Moderate)	Moderate (to Severe)	Severe (to Extreme)
Emotional Abuse	5-8	9-12	13-15	≥ 16
Physical Abuse	5-7	8-9	10-12	≥ 13
Sexual Abuse	5	6-7	8-12	≥ 13
Emotional Neglect	5-9	10-14	15-17	≥ 18
Physical Neglect	5-7	8-9	10-12	≥ 13

Note. Taken from Appendix B: Bernstein, D. P., & Fink, L. (1998). *Childhood trauma questionnaire: A retrospective self-report - Manual*. San Antonio, Texas: Psychological Corporation.

Disclosure of abuse. Participants were asked to complete additional questions if they had been sexually or physically abused, with a description of what constituted abuse supplied using relevant items from the Childhood Trauma Questionnaire (see Appendix A). The age that abuse first occurred, whether or not the person was a part of the family and whether or not they had told someone about the abuse were assessed.

If participants had disclosed abuse to someone else, they were asked: “Who did you tell? (e.g. a teacher, doctor, a friend).” Participants were also asked to indicate the extent to which they were believed by that person, using a five-point scale, from *Not at all believed* (0) to *Believed 100%* (4). The degree of perceived emotional support provided by that person

was also assessed using the same five-point scale as had been used for reactions to symptoms, described above.

Coping with past adverse experiences. The ways in which participants coped with past adverse experiences were assessed using two measures. The first measure was an adapted version of the 28 item Brief COPE (Carver, 1997). This was selected given the variety of differing coping styles covered, the brevity and flexibility of this measure and its previous use in populations of people with psychosis (Jalbrzikowski et al., 2012; Meyer, 2001) and at clinical high risk of psychosis. Support for concurrent validity and internal consistency of the Brief COPE has been provided from these studies.

The instructions for participants adapted from the Brief COPE were: “There are many ways to try to deal with stressful events or challenges in our lives. These questions relate to the ways you coped with **the most stressful experience during your childhood and adolescence.**” Participants were asked to rate each of the 25 items on a four-point scale from *I didn’t do this at all* (1) to *I did this a lot* (4), with responses summed to create the subscales: self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, acceptance, religion and self-blame. Two items: “I’ve been making jokes about it” and “I’ve been making fun of the situation” were omitted as they were deemed potentially inappropriate given the nature of the questionnaire. Consistent with the procedure outlined by the original author, analyses were conducted using the individual subscales of this measure, rather than creating separate scales for ‘adaptive’ and ‘maladaptive’ forms of coping (Carver, 1997).

The second measure which was used to assess coping was the self-report version of the 10 item Peritraumatic Dissociative Experiences Questionnaire (PDEQ; Marmar, Metzler, & Otte, 2004). This measure was selected given its focus on dissociative responses during or immediately after the traumatic experience (peritraumatic dissociation). This rendered the PDEQ preferable to other measures of dissociation, which generally assess dissociative symptoms in adulthood. Studies conducted using the PDEQ have demonstrated good convergent, discriminant and predictive validity in populations of trauma survivors (Birmes et al., 2005; Marmar et al., 2004). Research also supports reliability for this measure, with high levels of internal consistency reported by original authors ($\alpha = .85$) (Marmar et al., 2004).

The instructions of the PDEQ were adapted slightly for the purposes of the study. Participants were asked about their “experiences and reactions during the most stressful

experience in your childhood/adolescence.” The PDEQ asks participants were to indicate the degree to which each of the ten statements reflected their experience, from *Not at all true* (1) to *Extremely true* (5), with responses summed to generate a total score.

Coping with psychotic symptoms. Coping with symptoms was assessed using the adapted version of the Brief COPE discussed above.

Causal explanations of psychosis. In order to explore perspectives on the origins of psychosis, the question: “What do you think caused your unusual experiences/symptoms related to psychosis?” was asked on the final page of the questionnaire.

Study Procedure

Consultation and approval.

The initial stages of the study involved consultation and discussion with psychologists and other clinicians in the field, including with the Regional Auckland Psychosis Group: a multi-disciplinary group of clinicians and researchers with an interest in psychosis. Consultation with service users was also initiated in the preliminary stages of the research, as well as Māori cultural consultation. This process helped to determine the appropriateness, relevance and acceptability of the variables selected for this research. Ethical and organizational approval for the project was obtained through the Auckland and Counties-Manukau District Health Boards and the Ministry of Health Ethics committee. Approval was gained to recruit more widely for the study at a later stage, including care and recovery teams with ADHB and through the Hearing Voices Network support groups within the Auckland region.

Recruitment.

Following approval processes, the researcher met with relevant clinical teams and discussed the project. Folders containing a sheet of instructions about the study procedure, general information about the study, a participant information sheet, the study questionnaire with a detachable consent form and a self-addressed envelope were then distributed across relevant mental health teams in ADHB and CMDHB.

Clinicians were the first point of contact with potential participants within mental health services. Clients that were eligible for the research were introduced to the research project and asked if they would be interested in participating by clinicians. If clients were amenable to participating, they were provided with the Participant Information Sheet and consent form (see Appendix B and C).

When organisational approval was gained from the Hearing Voices Network, contact was made with facilitators of hearing voices groups within the Auckland region. The researcher attended meetings and discussed the topic of the study. Any individuals who thought they may be interested were asked to provide contact details. Potential participants were then called and the study was outlined in more detail.

Completing the questionnaire.

The completion of the questionnaire could occur in different ways. For individuals recruited through mental health teams, participants were given the choice of completing the questionnaire with the support of the clinician or researcher, or to complete it in their own time. If the participant preferred to complete the questionnaire with support, the clinician or the researcher would arrange to sit with them while they completed the questionnaire. The primary purpose of this option was to support the participant in the event they experienced emotional distress. In order to maintain consistency across conditions, clinicians were advised to answer any participant questions about the content of the questionnaire with the phrase: "Answer the question the way you think is best." An opportunity to discuss the experience of participating in the research and any issues raised by the content was offered to participants by clinicians, regardless of their chosen method of completing the questionnaire.

For individuals recruited through the Hearing Voices support groups, they could choose to complete the questionnaire with support from the researcher, or in their own time. If the participant chose to complete it with the researcher, a time and location was organised either at the venue of the support group or at the university. Following the completion of the questionnaire, participants were encouraged to make contact with support phone lines or mental health services if their participation had raised any issues or distress.

After completion, participants either posted the questionnaire to the researcher using the provided envelope or handed it in in person. When the envelopes were received, the consent form was detached and stored separately from the questionnaire to ensure anonymity. Participants were then sent a \$20 petrol or grocery voucher to the address listed on the consent form, as a token of appreciation for their participation. A summary of the study results was sent out to participants who had requested this on the consent form.

Data Analysis

Descriptive statistics.

Analyses were performed on the data using the statistical software PASW. Where there were missing data, these cases were excluded from relevant analyses. Descriptive analyses were first performed for all variables as a total group and then separately for males and females. These included calculations of the mean and standard deviations for continuous variables, as well as frequencies and percentages for categorical variables. Skewness and kurtosis statistics were also generated as part of assumption testing for inferential tests.

Exploration of relationships in the total sample.

Associations for variables across the total sample were explored using correlation analyses. For continuous variables, a Pearson's correlation matrix was generated. For categorical variables and variables where the assumption of normality was significantly violated, Spearman's rho correlation matrix was used to explore relationships. A significance level of 0.01 was adopted to reduce the potential for increased Type 1 error.

To further explore associations between measured variables on symptoms and age of onset across the total sample, the data was analysed using multiple linear regression. Variables which appeared to have a moderate degree of association ($r \geq 0.4$) were selected to be entered as predictors. A maximum of four predictor variables was selected based on the general "rule of thumb" of 10 cases per 1 predictor variable (Tabachnick & Fidell, 1989; cited in Green (1991)). A simultaneous entry method was used for all regression analyses.

Exploration of gender differences.

To determine group differences based on gender for continuous variables, an omnibus one way analysis of variance (ANOVA) was conducted. An alpha level of 0.05 was adopted. Chi-square analyses were used to explore group differences in categorical variables. For the variables which were identified as significantly different between men and women, multivariate analysis of variances (MANOVA) and Chi-square analyses were conducted to determine what specific items on scales were contributing to the differences between men and women.

Exploration of within-group relationships in male and female samples.

To investigate which variables were related to age of onset and symptoms for men and women, Spearman's rho correlation matrices were generated separately for each gender.

As for analyses across the total sample, correlations were required to be significant at the 0.01 level.

Causal explanations of psychosis.

The analysis for the open-ended question responses was based on the procedures described for thematic analysis, as outlined by Braun and Clarke (2006). First, the data was separated into two samples for men and women. Time was spent exploring the responses and looking for initial codes in each respective sample. This process was not 'blind' as some responses were familiar to the researcher, meaning that the gender of each grouping was identifiable.

Initial codes were grouped into themes for each sample. These provisional themes were then reviewed by the primary supervisor for a validation check. Some changes were made to these based on supervisor feedback. Final version of the themes, including theme names, were then developed and checked over in accordance with the data set. The results of all analyses are presented in the next chapter.

CHAPTER III

RESULTS

Overview

Firstly, the characteristics of the sample will be outlined. This will be followed by the exploration of gender differences using a one way ANOVA and Chi-square analyses. The results of the omnibus ANOVA will be presented in separate sections for ease of interpretation. Next, relationships between age of symptom onset and symptoms and psychosocial variables across the total sample will be explored, using correlations and regression analyses. The results for the main component of this study, exploring the role of psychosocial factors in age of onset and symptoms separately for males and females, will be presented in the subsequent section. Relationships between age of symptom onset, symptoms and psychosocial variables for males and females were analysed separately, using correlation and regression analyses. A summary of quantitative results follow these analyses. For the final component of this chapter, analyses of responses to the open-ended question: “What do you think caused your unusual experience/symptoms relating to psychosis?” will be presented.

Participants were not required to answer every question, meaning that there are differences in the numbers of participants across variables. In addition, some questions were contingent on a ‘yes’ answer to a preceding question. This also affected the sample sizes across differing variables.

Characteristics of the Sample

In this section, the characteristics for the total sample are outlined, followed by the characteristics for men and women for key variables, including clinical variables, childhood trauma scales (CTQ) and abuse-related variables. Although basic trends for men and women will be discussed, the statistical significance of these differences is stated in the “Determining Differences between Men and Women” section.

Characteristics of the total sample.

Clinical variables. The clinical variables which were explored in the present study were age of symptom onset, age of first contact with mental health services, age of first hospitalization, past hospitalisation, number of hospitalisations, time elapsed before symptom disclosure, positive symptoms (hallucinations, delusions and cognitive disorganisation) and negative symptoms. Table 3 presents the means, standard deviations and sample sizes for

these variables with the exception of past hospitalisation. Counts and percentages for this variable are depicted in Table 4.

Table 3

Means, Standard Deviations and Sample Sizes for Age of First Contact with Services, Age of Symptom Onset, Age of First Hospitalisation, Number of Hospitalisations, Time Elapsed Until Symptom Disclosure and Symptoms for Males, Females and the Total Sample.

Variable	Male			Female			Total Sample		
	M	SD	N	M	SD	N	M	SD	N
Age of Contact with Services	20.92	6.31	50	19.41	3.53	22	22.11	7.70	28
Age of Symptom Onset	19.82	9.73	28	17.77	6.02	22	18.92	8.30	50
Age of First Hospitalisation	24.06	7.31	18	21.56	5.47	18	22.81	6.49	36
Number of Hospitalisations	2.82	2.58	17	5.94	9.26	17	4.38	6.88	34
Time elapsed until symptom disclosure (months)	15.92	33.42	24	30.68	59.13	19	22.44	46.53	43
Positive Symptoms	7.97	2.63	29	8.45	2.60	22	8.18	2.60	51
Negative Symptoms*	2.31	0.89	29	2.77	0.43	22	2.51	0.76	51
Hallucinations	1.69	0.93	29	2.18	0.85	22	1.90	0.92	51
Cognitive Disorganisation	1.97	1.05	29	2.18	1.01	22	2.06	1.03	51
Delusions	4.31	1.58	29	4.09	1.69	22	4.22	1.62	51
Paranoid Delusions	1.62	.68	29	1.68	.65	22	1.65	.66	51
Delusions of Reference	1.55	.63	29	1.29	.85	21	1.44	.73	50
Delusions of Control	1.14	.88	29	1.24	.77	21	1.18	.83	50

Note. Significant at the .05 level.*

Table 4

Counts and Percentages of Past Hospitalisation for Males, Females and the Total Sample.

Variable	Male	Female	Total Sample
Past Hospitalisation			
Yes	18 (62.1%)	18 (81.8%)	36 (70.6%)
No	11 (37.9%)	4 (18.2%)	15 (29.4%)
Total	29 (100%)	22 (100%)	51 (100%)

A number of trends were noteworthy within the descriptive statistics for clinical variables. Across the sample, the average age at which symptoms developed was 18.9 years. This contrasted with the age of first contact with services on average, which was 20.9 years.

These findings are consistent with reported average time taken to disclose symptoms, which for the total sample was 22.4 months. This suggests a relatively long period of untreated psychosis. The majority of the sample had been hospitalised in the past. On average, participants had been hospitalised approximately four times. The current age of participants is likely to have had an influence on this number, given there was no upper age limit for the study.

Psychosocial variables.

Childhood trauma. Table 5 presents the abuse prevalence for the sample for all five forms of abuse measured by the CTQ. In Table 6, the means, standard deviations and sample sizes for the respective scales of the CTQ are displayed. As is evident from Table 5, the majority of the sample reported at least one form of abuse (at a ‘moderate’ or ‘severe’ level).

Table 5
Prevalence and Frequency of Abuse and Neglect at a ‘Moderate’ to ‘Severe’ Level on the CTQ for Males, Females and the Total Sample.

Type of Abuse or Neglect	Experienced Abuse	No Abuse	Total
<i>Emotional Abuse</i>			
Male	31% (9)	69% (20)	100% (29)
Female	72.7% (16)	27.3% (6)	100% (22)
Total	49% (25)	51% (26)	100% (51)
<i>Sexual Abuse</i>			
Male	44.8% (13)	55.2% (16)	100% (29)
Female	45.5% (10)	54.5% (12)	100% (22)
Total	45.1% (23)	54.9% (28)	100% (51)
<i>Physical Abuse</i>			
Male	31% (9)	69% (20)	100% (29)
Female	45.5% (10)	54.5% (12)	100% (22)
Total	37.3% (19)	62.7% (32)	100% (51)
<i>Emotional Neglect</i>			
Male	27.6% (8)	72.4% (21)	100% (29)
Female	50% (11)	50% (11)	100% (22)
Total	37.3% (19)	62.7% (32)	100% (51)
<i>Physical Neglect</i>			
Male	41.2% (11)	58.8% (18)	100% (29)
Female	45.5% (10)	54.5% (12)	100% (22)
Total	37.9% (21)	58.8% (30)	100% (51)
<i>Any Abuse</i>			
Male	69% (20)	31% (9)	100% (29)
Female	86.4% (19)	13.6% (3)	100% (22)
Total	76.6% (39)	23.4% (12)	100% (51)

Table 6*Means, Standard Deviations and Sample Sizes for the CTQ Scales for Males, Females and the Total Sample*

Variable	Male			Female			Total Sample		
	M	SD	N	M	SD	N	M	SD	N
Emotional Abuse*	10.97	4.55	29	16.59	6.84	22	13.39	6.25	51
Physical Abuse	8.83	5.22	29	11.55	6.79	22	10.00	6.04	51
Sexual Abuse	10.69	7.00	29	13.00	8.87	22	11.69	7.86	51
Emotional Neglect*	11.57	4.40	28	15.09	6.06	22	13.12	5.43	50
Physical Neglect	8.62	2.91	29	9.95	4.30	22	9.20	3.60	51

*Note.** Significant at the .05 level.

Across the sample, participants had most commonly experienced emotional abuse, followed by sexual abuse and physical neglect. Physical abuse and emotional neglect were less prevalent within the sample. As is presented in Table 6, mean scores on the emotional abuse, physical abuse and sexual abuse scales all fell within the ‘moderate’ range. The mean score for emotional neglect and physical neglect fell within the ‘low’ ranges.

In Table 7, the means, standard deviations and sample sizes for age of physical/sexual abuse, other’s belief in physical/sexual abuse disclosure and emotional support following physical/sexual abuse disclosure are displayed.

Table 8 displays the counts and percentages for the categorical abuse-related variables, which include disclosure of physical/sexual abuse, physical/sexual abuse by a family member and person who physical/sexual abuse was disclosed to.

Table 7*Means, Standard Deviations and Sample Sizes for Abuse-Related Variables for Males, Females and the Total Sample.*

Variable	Male			Female			Total Sample		
	M	SD	N	M	SD	N	M	SD	N
Age of Physical Abuse	8.00	4.02	13	5.50	3.03	10	6.91	3.76	23
Other’s Belief in Physical Abuse Disclosure	2.67	1.50	9	2.25	2.06	4	2.54	1.61	13
Emotional Support following Physical Abuse Disclosure	2.00	1.41	9	0.33	0.82	6	1.33	1.45	15
Age of Sexual Abuse	7.78	2.68	9	7.33	5.28	12	7.52	4.27	21
Other’s Belief in Sexual Abuse Disclosure	3.00	1.26	6	2.00	2.00	7	2.46	1.71	13
Emotional Support following Sexual Abuse Disclosure*	2.14	1.46	7	1.71	1.50	7	1.93	1.44	14

*Note.** Significant at the .05 level.

Table 8

Counts and Percentages for Variables Associated with the Experience of Physical And Sexual Abuse for Males, Females and the Total Sample.

Variables	Male	Female	Total Sample
Physical Abuse by Family Member			
Yes	9 (69.2%)	9 (90%)	18 (78.3%)
No	4 (30.8%)	1 (10%)	5 (21.7%)
<i>Total</i>	<i>13 (100%)</i>	<i>10 (100%)</i>	<i>23 (100%)</i>
Disclosure of Physical abuse			
Yes	6 (46.2%)	4 (40%)	10 (43.5%)
No	7 (53.8%)	6 (60%)	13 (56.5%)
<i>Total</i>	<i>13 (100%)</i>	<i>10 (100%)</i>	<i>23 (100%)</i>
Person who Physical Abuse Disclosed to			
Sibling	1 (16.7%)	0 (0%)	1 (10%)
Relative	0 (0%)	1 (25%)	1 (10%)
Friend	2 (33.3%)	1(25%)	3 (30%)
Health Professional	1 (16.7%)	1(25%)	2 (20%)
Teacher	1 (16.7%)	1 (25%)	2 (20%)
Other	1 (16.7%)	0 (0%)	1 (10%)
<i>Total</i>	<i>6 (100%)</i>	<i>4 (100%)</i>	<i>10 (100%)</i>
Sexual Abuse by a Family Member			
Yes	6 (66.7%)	9 (75%)	15 (71.4%)
No	3 (33.3%)	3 (25%)	6 (28.6%)
<i>Total</i>	<i>9 (100%)</i>	<i>12 (100%)</i>	<i>21 (100%)</i>
Disclosure of Sexual Abuse			
Yes	4 (44.4%)	6 (50%)	10 (47.6%)
No	5 (55.6%)	6 (50%)	11 (52.4%)
<i>Total</i>	<i>9 (100%)</i>	<i>12 (100%)</i>	<i>21 (100%)</i>
Person who Sexual Abuse Disclosed to			
Mother	2 (50%)	0 (0%)	0 (0%)
Father	0 (0%)	1 (16.7%)	0 (0%)
Sibling	0 (0%)	0 (0%)	0 (0%)
Relative	0 (0%)	0 (0%)	2 (20%)
Friend	1 (25%)	2 (33.3%)	1 (10%)
Health Professional	1 (25%)	1 (16.7%)	3 (30%)
Teacher	0 (0%)	0 (0%)	2 (20%)
Other	0 (0%)	2 (33.3%)	2 (20%)
<i>Total</i>	<i>4 (100%)</i>	<i>6 (100%)</i>	<i>10 (100%)</i>

Additional questions relating to the experience of physical abuse were completed by 45% of the sample (see Table 7 and 8). Out of these participants, the majority of the sample had not disclosed their experience of physical abuse to others. On average, participants who disclosed felt they were at least partially believed about their experience and received a moderate degree of emotional support following disclosure. The questions relating to an experience of sexual abuse were completed by 41% of the sample (see Table 8). Again, the majority of the sample had not disclosed sexual abuse. For those who disclosed sexual abuse,

there was also a moderate degree of belief in disclosure and emotional support across the total sample.

Coping with past adverse events and coping with symptoms. Table 9 presents the means, standard deviations and sample sizes for each of the respective coping scales (Brief COPE) and a dissociative response for past adverse experiences (PDEQ). In Table 10, the means, standard deviations and sample sizes for each of the respective coping scales for symptoms.

Table 9
Means, Standard Deviations and Sample Sizes for Scales of the Brief COPE for Past Adverse Events, displayed for Males, Females and the Total Sample.

Variable	Male			Female			Total Sample		
	M	SD	N	M	SD	N	M	SD	N
Distraction*	2.71	0.80	28	3.32	0.89	22	2.98	0.89	50
Active Coping	2.13	1.02	28	2.43	0.95	22	2.26	1.00	50
Denial	1.98	0.87	29	2.23	0.96	22	2.09	0.91	51
Substance Use	2.30	1.26	28	2.14	1.35	22	2.23	1.29	50
Emotional Support	2.34	0.89	29	2.55	1.06	22	2.43	0.96	51
Behavioural Disengagement	2.38	0.89	29	2.59	1.04	22	2.47	0.96	51
Instrumental Support	2.34	1.06	29	2.50	1.21	22	2.41	1.12	51
Reframing	2.31	0.85	29	2.66	0.93	22	2.46	0.89	51
Planning	2.39	1.03	28	2.55	0.91	22	2.46	0.97	50
Acceptance	2.95	0.85	28	2.82	0.89	22	2.89	0.86	50
Venting	2.29	1.24	28	2.48	1.17	21	2.37	1.20	49
Self-Blame*	2.53	0.96	29	3.25	0.78	22	2.84	0.95	51
Religion	2.27	1.11	28	2.43	0.97	22	2.34	1.04	50
Dissociative Response	24.69	11.19	29	29.59	12.79	22	26.80	12.03	51

*Note.** Significant at the .05 level.

Across the total sample, there were no obvious patterns noted for different types of coping scales for both past adverse events, and for coping with symptoms (See Table 9 and 10). The mean scores for coping scales typically fell at the midpoint of the scale. There were no clear trends indicating that some coping scales were either more or less widely used than others.

Dissociative response. Within the total sample, there appeared to be a moderate level of dissociative responses to past adverse events, with a mean total dissociative score of 26.8 on the PDEQ (see Table 9). This score fell slightly under the midpoint of the scale. Most people reported at least one dissociative symptom, with 92% of participants endorsing at least one of the 10 PDEQ items. The mean number of dissociative symptoms endorsed was also calculated to enable comparison with other researchers (M = 2.7, SD = 1.2). However, this

Table 10

Means, Standard Deviations and Sample Sizes for Scales of the Brief COPE for Symptoms, displayed for Males, Females and the Total Sample.

Variable	Male			Female			Total Sample		
	M	SD	N	M	SD	N	M	SD	N
Distraction	2.76	0.91	29	3.18	1.12	22	2.94	1.02	51
Active Coping	2.40	0.88	29	2.21	1.03	21	2.32	0.94	50
Denial	2.21	0.77	28	2.36	0.94	21	2.28	0.84	49
Substance Use	2.26	1.23	29	2.29	1.39	21	2.27	1.29	50
Emotional Support	2.57	0.96	29	2.36	0.96	21	2.48	0.96	50
Behavioural Disengagement	2.22	0.74	29	2.60	1.07	21	2.38	0.90	50
Instrumental Support	2.62	1.07	29	2.36	1.15	21	2.51	1.10	50
Planning	2.71	0.91	29	2.48	0.75	21	2.61	0.85	50
Reframing	2.38	0.98	29	2.50	0.97	21	2.43	0.97	50
Acceptance	2.66	0.77	29	2.62	0.91	21	2.64	0.82	50
Venting	2.45	1.06	29	2.48	1.29	21	2.46	1.15	50
Religion	2.59	1.19	29	2.38	1.13	21	2.50	1.16	50
Self-Blame	2.52	0.94	29	2.83	1.05	21	2.65	0.99	50

was not specifically used in analyses.

Substance use. In Table 11, the counts and percentages for substance use variables are presented. Table 12 displays the means, standard deviations and sample sizes for the age of first use and problematic substance use.

The majority of the sample had used alcohol and cannabis in adolescence (see Table 11). A smaller proportion of participants had used other substances. Across the total sample,

Table 11

Counts and Percentages for Past Alcohol Use, Past Cannabis Use and Past Use of Other Substances.

Substance	Male	Female	Total Sample
Alcohol			
Yes	27 (93.1%)	18 (81.8%)	45 (88.2%)
No	2 (6.9%)	4 (18.2%)	6 (11.8%)
Total	29 (100%)	22 (100%)	51 (100%)
Cannabis*			
Yes	23 (79.3%)	11 (50%)	34 (66.7%)
No	6 (20.7%)	11 (50%)	17 (33.3%)
Total	29 (100%)	22 (100%)	51 (100%)
Other Substances			
Yes	15 (51.7%)	7 (33.3%)	22 (44%)
No	14 (48.3%)	14 (66.7%)	28 (56%)
Total	29 (100%)	21 (100%)	50 (100%)

Note. Significant at the .05 level.*

Table 12

Means, Standard Deviations and Sample Sizes for Age of First Use and Problematic Substance Use for Alcohol, Cannabis and Other Substances, displayed for Males, Females and the Total Sample.

Variable	Male			Female			Total Sample		
	M	SD	N	M	SD	N	M	SD	N
Age of First Alcohol Use	14.71	2.96	24	15.33	3.42	15	14.95	3.11	39
Problematic Alcohol Use	1.88	0.83	25	1.50	0.52	16	1.73	0.74	41
Age of First Cannabis Use*	16.90	2.92	20	14.38	2.56	8	16.18	3.01	28
Problematic Cannabis Use	2.05	0.97	21	1.78	0.97	9	1.97	0.96	30
Age of First Other Substance Use	20.50	4.30	12	17.80	3.70	5	19.71	4.21	17
Problematic Other Substance Use	2.00	0.96	14	1.80	0.84	5	1.95	0.91	19

*Note.** Significant at the .05 level.

alcohol, cannabis and other substances were not perceived to have had led to significant negative impacts. Mean scores for alcohol, cannabis and other substances all fell between *None* and *Somewhat* on the scale.

Relationships. In Table 13, the counts and percentages of responses regarding romantic and close relationships are displayed for the sample. Across the sample, most participants had relationships present in some form during adolescence. More than half the sample reported being in a romantic relationship and almost all of the sample reported at least one close relationship. Participants most commonly reported having 1-2 close relationships.

Table 13

Counts and Percentages for Past Romantic Relationships and Close Relationships for Males, Females and the Total Sample.

	Male Sample	Female Sample	Total Sample
Romantic Relationships			
Yes	15 (53.6%)	11 (52.4%)	26 (53.1%)
No	13 (46.4%)	10 (47.6%)	23 (46.9%)
<i>Total</i>	<i>28 (100%)</i>	<i>21 (100%)</i>	<i>49 (100%)</i>
Close Relationships			
0	3 (10.7%)	2 (9.1%)	5 (10%)
1-2	8 (28.6%)	8 (36.4%)	16 (32%)
3-4	6 (21.4%)	7 (31.8%)	13 (26%)
5-6	3 (10.7%)	2 (9.1%)	5 (10%)
6+	8 (28.6%)	3 (13.6%)	11 (22%)
<i>Total</i>	<i>28 (100%)</i>	<i>22 (100%)</i>	<i>50 (100%)</i>

Reactions to symptoms. Table 14 presents the counts and percentages of people who symptoms were disclosed to and in Table 15, the means, standard deviations and sample sizes for acceptance following symptom disclosure, emotional support following symptom disclosure from the first person that symptoms were disclosed to and from their primary caregiver.

Table 14
Counts and Percentages for Person Symptoms Disclosed to.

	Male	Female	Total Sample
Person Symptoms Disclosed To			
Mother	10 (34.5%)	7 (33.3%)	17 (34%)
Father	3 (10.3%)	1 (3.5%)	4 (8%)
Sibling	3 (10.3%)	1 (3.5%)	4 (8%)
Relative	1 (3.4%)	0 (0%)	1 (2%)
Friend	4 (13.8%)	6 (28.6%)	10 (20%)
Health Professional	7 (24.1%)	5 (23.8%)	12 (24%)
Partner	1 (3.4%)	1 (3.5%)	2 (4%)
Total	29 (100%)	21 (100%)	50 (100%)

Note. Percentages rounded to one decimal point for table display, meaning summed table percentages may not exactly equal 100%.

Table 15
Means, Standard Deviations and Sample Sizes for Reactions to Symptom Disclosure for Males, Females and the Total Sample.

Variable	Male			Female			Total Sample		
	M	SD	N	M	SD	N	M	SD	N
Acceptance of Symptoms	3.31	0.93	29	2.90	1.04	21	3.14	0.99	50
Emotional Support for Symptoms	2.39	1.29	28	2.71	1.23	21	2.53	1.26	49
Caregiver's Acceptance of Symptoms	2.80	1.26	15	2.00	1.69	8	2.52	1.44	23
Caregiver's Emotional Support for Symptoms	2.47	1.28	17	2.67	1.63	6	2.52	1.34	23

As seen in Table 14, the majority of the sample first disclosed symptoms to their mother, followed by health professional and friend. On average, participants found the first person they told about their symptoms to be accepting, with the mean score falling between the *accepting* and *very accepting* range. Across the total sample, some emotional support was provided when symptoms were disclosed, with the mean score falling between the *some support* and *a lot of support* range (see Table 15).

Characteristics of the male and female samples.

Clinical variables. The means, standard deviations and sample sizes for clinical variables are displayed in a previously discussed table (see Table 3 on p.55). There was a trend towards a higher level of severity in the female sample noted across the means, including a higher mean number of hospitalisations, earlier contact with services, earlier age of first hospitalisation and a longer period of time prior to disclosure of symptoms present in female sample. In addition, female mean scores for all types of symptoms appeared to be higher relative to male scores, with the exception of delusions. Discussion of the significance of these differences will occur in a later section.

Childhood trauma. Prevalence of abuse was explored in the respective male and female samples (see Tables 5 and 6, p.56 and 57). Abuse was considered to have occurred if scores fell within the 'moderate' or 'severe' categorisations, as previously discussed. As depicted in Table 5, within the male sample, the majority of males had experienced at least one form of abuse. The most frequent form of abuse was sexual abuse. For the female sample, there was also a high prevalence of abuse. The most common form of abuse experienced within the female sample was emotional abuse.

Abuse-related variables. Within the male sample, 44.8% (N =13) participants completed the additional questions relating to physical abuse (see Table 7 on p.57). Of these participants, the majority of individuals had experienced physical abuse by a family member. Of those who completed the physical abuse questions, approximately half of the sample had not disclosed physical abuse. For those who disclosed, there was a range of different people with whom this occurred. Across the female sample, 45.5% (N =10) completed the additional questions relating to physical abuse. As for the male sample, the majority of participants who had completed these questions experienced physical abuse at the hands of a family member. Most of females did not disclose physical abuse. As with male sample, there was a range of different people who physical abuse was disclosed to, if disclosure did occur.

For the male sample, 31% (N = 9) completed the additional questions relating to sexual abuse. For the majority of the sample, the perpetrator of the sexual abuse was a family member. Sexual abuse was disclosed by more than half of participants to people of various roles. Across the female sample, 54.5% (N =12) of participants completed the additional questions on sexual abuse. Again, the majority of sexual abuse occurred at the hands of a family member. The number of females who disclosed relative to not disclosing was equivalent. Participants identified a diverse range of people to whom they disclosed to.

Exploration of Gender Differences

This section examines differences between males and females in regards to clinical and psychosocial variables. The clinical variables tested were age of symptom onset, age of first contact with mental health services, age of first hospitalisation, past hospitalisation, number of hospitalisations, time elapsed before symptom disclosure, positive symptoms (hallucinations, delusions and cognitive disorganisation) and negative symptoms. The psychosocial variables tested were history of childhood trauma, coping with past adverse experiences, variables associated with sexual and physical abuse, past relationships, substance use, reactions to symptom disclosure and coping with symptoms.

Assumption testing.

Key assumptions of ANOVA, that the data is normally distributed and that there are homogeneous variances, were considered prior to analyses. The assumption of normality was explored using skewness and kurtosis statistics and appeared to hold within the data set (Tabachnick & Fidell, 2001). The assumption of homogeneity of variances was assessed using the Levene's Equality of Variance test. Emotional support following symptom disclosure, time elapsed until symptom disclosure, negative symptoms, age of sexual abuse and some trauma scales (emotional abuse, physical abuse, sexual abuse and physical neglect) violated this assumption. This suggests that results for these variables may need to be interpreted with caution.

Clinical variables.

A one way ANOVA was conducted to explore the effect of gender on age of symptom onset, age of contact with services, age of first hospitalisation, number of hospitalisations and time elapsed until symptom disclosure (see Table 3 for means and standard deviations, p.55). A Chi-square analysis was conducted to explore whether or not gender was related to past hospitalisation (see Table 4 for counts and frequencies on p.55). No significant differences were found ($p > .05$).

The effect of gender on positive symptoms, hallucinations, delusions, cognitive disorganisation and negative symptoms was explored using an ANOVA (see Table 3 for means and SDs on p.55). A significant difference was found only for negative symptoms, $F(1, 49) = 5.03, p = .030$, partial $\eta^2 = .09$. Females reported more negative symptoms than males. The difference between men and women for hallucinations was approaching

significance, $F(1, 49) = 3.76, p = .058$, partial $\eta^2 = .07$, where females reported a greater number of hallucinations than males.

Item-specific analysis. A Chi-square test was conducted to further explore which items on the negative symptom scale contributed to the significant difference noted. Two of the three items, “Have you felt emotionally numb or flat?” ($\chi^2(1) = 7.73, p = .005$) and “Have you felt distant from other people” ($\chi^2(1) = 5.16, p = .023$), contributed to the overall difference in negative symptoms found. The third item, “Have you felt uninterested in the things you normally would enjoy?”, did not significantly contribute to the overall difference in items ($p > .05$).

Psychosocial variables.

Relationships and substance use. Chi-square tests were conducted to explore any association between gender on past romantic relationship, number of close friendships and substance use (past use of alcohol, cannabis and other substances) (see Tables 11 and 13 for counts and percentages, p.60-61). No significant differences were found either of the relationship variables, past use of alcohol or past use of other substances ($p > .05$). However, significant differences between men and women were found for cannabis use, $\chi^2(1) = 4.84, p = .028$. Men were more likely to have used cannabis than women.

In regards to age of first use and perceived problematic substance use (alcohol, cannabis or other substance), an ANOVA was conducted to explore the effects of gender (see Table 12 for means and standard deviations on p.61). A significant difference was found for cannabis, $F(1, 26) = 4.56, p = .042$, partial $\eta^2 = .15$. Out of the participants who had used cannabis, females first used the substance at a younger age than males. However, there were no other significant differences noted ($p > .05$).

Childhood trauma. An ANOVA was conducted to determine if men and women had differing degrees of emotional, sexual, or physical abuse and emotional or physical neglect (see Table 6 for means and standard deviations on p.57). Significant differences were found for emotional abuse, $F(1, 49) = 12.43, p = .001$, partial $\eta^2 = .20$. Females in the sample had experienced a greater amount of emotional abuse relative to males. There was also a significant difference found across genders for emotional neglect, $F(1, 48) = 5.66, p = .021$, partial $\eta^2 = .11$, where females had experienced a greater extent of emotional neglect relative to males. There were no significant differences based on gender for physical abuse, sexual abuse, or physical neglect ($p > .05$).

Abuse-related variables. An ANOVA and Chi-square analyses were conducted to determine differences based on gender for age of physical/sexual abuse, physical/sexual abuse by a family member, disclosure of physical/sexual abuse, person who physical/sexual abuse was disclosed to, other's belief in physical/sexual abuse disclosure and emotional support following physical/sexual abuse disclosure (see Tables 7 and 8 for means, standard deviations, counts and percentages, p.57-58). No significant differences were noted for any of these variables, with the exception of emotional support following physical abuse disclosure, $F(1, 13) = 6.72, p = .022, \text{partial } \eta^2 = .34$. Males reported a greater level of emotional support following a disclosure of physical abuse relative to females.

Additional analyses were planned for variables associated with abuse, for example, exploring the influence of disclosure, age of abuse, family member or not a family member and gender on clinical and psychosocial variables. However, there were small sample sizes for the majority of these questions (see Table 7 and 8 on p.57-58), meaning that ANOVAs were not performed.

Coping with past adverse experiences. Gender differences on each of the scales of the Brief COPE were explored using an ANOVA (see Table 9 for means and standard deviations on p.59). Significant differences were found for distraction, $F(1,48) = 6.35, p = .015, \text{partial } \eta^2 = .12$ and self-blame, $F(1, 49) = 8.08, p = .007, \text{partial } \eta^2 = .14$. Females reported a higher use of distraction in coping with negative childhood experiences and also a higher rate of self-blame in coping relative to males. No other significant differences were found for coping scales ($p > .05$).

To further explore differences found between genders, MANOVAs were conducted for each item on the self-blame and distraction scales. Means and standard deviations for these variables are displayed in Table 16.

For the variable, self-blame, there were two items. These were: "I criticised myself" and "I blamed myself for the things that had happened". There was a significant difference found for the latter variable, $F(1, 48) = 7.70, p = .008, \text{partial } \eta^2 = .14$. Females rated this item higher on average than men. The two items which comprised the distraction scale were: "I turned to work or other activities to take my mind off things" and "I did something to think about it less, such as going to the movies, watching T.V., reading, daydreaming, sleeping or shopping." Out of these items, the latter item appeared to be contributing to the effect of gender noted for the distraction scale, $F(1, 48) = 6.07, p = .017, \text{partial } \eta^2 = .11$. Females in the sample endorsed this item to a greater extent than males.

Table 16

Means, Standard Deviations and Sample Sizes For Self-Blame and Distraction Scale Items of the Brief COPE for Past Adverse Events, displayed for Males, Females and the Total Sample.

Variable	Male			Female			Total		
	M	SD	N	M	SD	N	M	SD	N
Self-Blame									
“I criticised myself.”	2.89	1.20	28	3.36	.85	22	3.10	1.07	50
“I blamed myself for the things that had happened.”	2.21	1.23	28	3.14	1.08	22	2.62	1.24	50
Distraction									
“I turned to work or other activities to take my mind off things.”	2.71	1.18	28	3.23	1.02	22	2.94	1.13	50
“I did something to think about it less, such as going to the movies, watching T.V., reading, daydreaming, sleeping or shopping.”	2.71	1.01	28	3.41	.96	22	3.02	1.04	50

Dissociative response to past adverse experiences. An ANOVA was conducted to explore any gender differences on the PDEQ scale (see Table 9 for means and standard deviations on p.59). No significant differences were noted between genders for dissociative responses to past adverse experiences ($p > .05$).

Coping with symptoms and reactions to symptoms. An ANOVA was conducted to explore effects of gender on coping with symptoms, as measured by the Brief COPE (see Table 10 for means and standard deviations on p.60). No significant differences were noted for any of the scales ($p > .05$).

The effect of gender on acceptance following symptom disclosure and emotional support following symptom disclosure was explored, with no significant differences found (see Table 15 for means and standard deviations on p.62). A MANOVA exploring effects of gender and person symptoms disclosed to on the dependant variables of acceptance and emotional support was also conducted. There were no significant main effects or interaction effects found ($p > .05$).

Caregiver reactions to symptoms (for those who did not disclose symptoms first to their caregiver) were also explored using an ANOVA (see Table 15 for means and standard deviations on p.62). The number of respondents who had completed scales of acceptance and emotional support for caregivers was small (N = 8 and 9, respectively). No significant differences were noted across genders for these respondents ($p > .05$).

Exploration of Relationships: Psychosocial and Clinical Variables

Pearson correlations were generated in order to examine the degree of relationships between clinical variables (age of symptom onset, age of first contact with mental health services, time elapsed until symptom disclosure, age of first hospitalisation and symptoms) and psychosocial variables (childhood trauma, relationships, substance use, coping responses to past adverse events and coping responses for symptoms). Due to the large number of comparisons and the increased likelihood of Type I error, only those which had a p value <.01 were reported as significant. Correlations between psychosocial variables and age of onset, and psychosocial variables and symptoms, are displayed in Table 17 and 18. Given this study has a focus on the relevance of psychosocial variables to clinical variables, the inter-correlations between psychosocial variables will not be discussed. Additional tables relating to inter-correlations of psychosocial variables are presented in Appendix D. Specific inter-correlations which are relevant for the purposes of regression analyses will be presented in text.

Assumption testing.

The assumption of normality for Pearson's correlation was explored using skewness and kurtosis statistics. Two variables, number of hospitalisations ($g = 4.46$, $SE = .40$) and time elapsed until symptom disclosure ($g = 2.50$, $SE = .36$), demonstrated considerable skew, violating the assumption of normality. Analyses of these variables were therefore conducted using Spearman's correlations.

Clinical variables.

Correlations between age of onset, age of first contact with mental health services, age of first hospitalisation, number of hospitalisations and time taken until symptom disclosure with psychosocial variables are all presented in Table 17. The significant correlations for positive symptoms, negative symptoms, hallucinations, delusions, cognitive disorganisation, paranoid delusions, delusions of control, delusions of reference and psychosocial variables are displayed in Table 18.

Age of symptom onset. Behavioural disengagement as a coping response to past adverse events and cognitive disorganisation were both negatively associated with age of onset, indicating that the greater the level of behavioural disengagement and disorganised symptoms, the earlier the age of symptom development (see Table 17). Three of the coping with symptom scales active coping, behavioural disengagement and self-blame were also related to age of symptom onset. The later the age of onset, the more that active coping would be used to cope with symptoms. The earlier the age of onset, the greater the use of

Table 17*Correlations between Age of Symptom Onset, Age of First Contact, Number of Hospitalisations and Time Elapsed until Symptom Disclosure and Psychosocial Variables.*

	Age of Sympt. Onset	Age of First Contact	No. of Hospital.	Time until Symptom Disclosure	Cognitive Disorg.	Age of Sexual Abuse	Behavioural Disengage. (AE)	Reframe. (AE)	Dissociative Response	Behavioural Disengage. (S)	Active Coping (S)	Self-Blame (S)	Emotional Support (S)	Instrum. Support (S)
Age of Symptom Onset	-													
Age of First Contact	.61	-												
Number of Hospitalisations	-.32	.02	-											
Time until Symptom Disclosure	-.10	-.02	.06	-										
Cognitive Disorganisation	-.37	-.35	.06	-.23	-									
Age of Sexual Abuse	.17	-.09	-.74	-.35	-.23	-								
Behavioural Disengagement (AE)	-.37	-.20	.16	.15	.20	.07	-							
Reframing (AE)	.23	.26	-.06	-.37	-.06	.22	.05	-						
Dissociative Response	-.34	-.44	.13	.06	.52	-.10	.36	-.10	-					
Behavioural Dis. (S)	-.43	-.48	.27	.32	.20	-.05	.64	-.20	.30	-				
Active Coping (S)	.40	.21	-.14	-.37	-.03	-.08	-.17	.41	-.33	-.31	-			
Self-Blame (S)	-.35	-.31	.18	.25	.30	-.02	.41	-.23	.50	.42	-.32	-		
Emotional Support (S)	.16	.06	-.44	-.39	.00	.38	.02	.45	-.26	-.24	.53	-.30	-	
Instrumental Support (S)	.28	.21	-.31	-.42	-.14	.39	-.14	.58	-.30	-.34	.62	-.31	.84	-

Note. Correlation which are significant at the 0.01 level are in bold; AE = Past Adverse Events, S = Symptoms.

Table 18

Correlations for Positive Symptoms, Negative Symptoms, Hallucinations, Delusions, Cognitive Disorganisation, Paranoid Delusions, Delusions of Control, Delusions of Reference and Psychosocial Variables.

	Pos. Symp.	Neg Symp.	Hallucination	Cog. Dis.	Delus.	Para. Del.	Del. of Ref.	Del. of Cont.	Accep Symp	Sex. Abuse	Emo. Abuse	Emo. Neg.	Age of Phy. Abuse	Diss. Resp.	Self-Blame (AE)	Distra (AE)	Emo. Supp. (AE)	Distra (S)	Age of Alc. Use	Age of Cann. Use	Belief in SA Dis.
Positive Symp.	-																				
Negative Symp.	.39	-																			
Hallucination	.56	.36	-																		
Cognitive Dis.	.72	.37	.24	-																	
Delusions	.83	.19	.18	.38	-																
Paranoid Del.	.69	.33	.34	.39	.68	-															
Delusion of Ref.	.41	-.04	-.13	.14	.67	.21	-														
Delusion of Control	.72	.18	.27	.38	.78	.38	.24	-													
Acceptance of Symp. Dis.	-.39	-.31	-.28	-.19	-.35	-.39	-.07	-.39	-												
Sexual Abuse	.38	.09	.35	.25	.26	.27	.09	.33	-.34	-											
Emotional Abuse	.47	.35	.44	.31	.31	.46	.00	.31	-.26	.51	-										
Emo. Neglect	.28	.33	.19	.13	.25	.47	.06	.07	-.25	.40	.66	-									
Age of Physical Abuse	-.47	-.50	-.42	-.27	-.43	-.53	-.13	-.43	.02	-.14	-.58	-.56	-								
Dissociative Response	.39	.10	.21	.52	.18	.29	.00	.25	-.12	.40	.48	.41	-.23	-							
Self-Blame (AE)	.43	.15	.36	.40	.23	.36	-.07	.32	-.55	.37	.43	.27	-.03	.47	-						
Distraction (AE)	.21	.11	.39	.19	.00	-.03	-.20	.27	-.17	.08	.22	-.17	.04	.12	.29	-					
Emo. Support (AE)	-.21	-.09	-.06	.00	-.31	-.44	-.12	-.18	.18	-.39	-.30	-.69	.50	-.25	-.09	.30	-				
Distraction (S)	.36	.20	.14	.43	.21	.25	.08	.30	-.18	.31	.42	.24	-.12	.76	.36	.29	-.10	-			
Age of Alc. Use	-.16	.09	-.51	-.01	.02	-.02	-.14	.06	-.19	-.14	-.18	.21	.05	-.10	-.01	.00	-.13	.05	-		
Age of Can. Use	-.19	-.22	-.51	-.24	.11	-.14	.23	-.04	.13	-.13	-.34	.01	-.21	-.39	-.22	-.32	-.21	-.28	.58	-	
Belief in SA Disclosure	.11	-.17	-.24	-.17	.48	-.14	.75	-.14	.48	-.38	-.39	-.65	.34	-.59	-.56	-.01	.45	-.39	.39	.52	-

Note. Correlations which are significant at the 0.01 level are displayed in bold; AE = Past Adverse Events, S = Symptoms.

behavioural disengagement and self-blame to cope with symptoms.

Age of first contact with mental health services. A dissociative response to past adverse events and cognitive disorganisation were negatively associated with age of first contact with services. This indicates that the greater the extent of dissociation in childhood and the experience of cognitive disorganisation symptoms, the earlier the age of contact with services.

Two symptom-related coping responses were also associated with age of first contact with services. Behavioural disengagement was negatively correlated with age of contact, indicating that the greater the extent of behavioural disengagement, the earlier the presentation to services. The use of religion as a coping response for symptoms was positively correlated with age of contact, where the greater the use of religion for coping with symptoms, the later the presentation to services.

There were no significant correlations between scores on the CTQ scales and age of onset for symptoms or age of first contact with services evident in the total sample. Similarly, no associations between number of close relationships or the presence of romantic relationships and onset of symptoms or contact with services ($p > .01$).

Time elapsed before symptom disclosure. The time taken to disclose symptoms was significantly negatively correlated with three variables: reframing as a coping response to past adverse events, emotional support as a coping response for symptoms and instrumental support as a coping response for symptoms (see Table 17). The greater the use of reframing, seeking emotional support, and of seeking instrumental support, the earlier symptoms were disclosed.

Number of hospitalisations and age of hospitalisation. Emotional support as a coping response for symptoms had a significant negative association with number of hospitalisations (see Table 17), where the greater the seeking of emotional support, the fewer the number of hospitalisations. A negative correlation was also evident between number of hospitalisations and age of sexual abuse was noted for the subset of the sample who had completed abuse-related questions ($N = 17$), with the earlier the age of sexual abuse, the greater the number of hospitalisations experienced. There were no significant correlations with age of first hospitalisation and psychosocial variables ($p > .01$).

Symptoms.

Positive symptoms. As seen in Table 18, there was a significant negative correlation between acceptance following symptom disclosure and positive symptoms, where the greater the number of positive symptoms experienced, the lower the degree of acceptance. Positive

associations between positive symptoms and respective scores for emotional abuse and sexual abuse, were present; where the higher the reported positive symptoms, the greater the degree of emotional and sexual abuse. A self-blaming coping response with past adverse events, a dissociative response to past adverse events and distraction as coping response for symptoms were also all positively associated with positive symptoms.

Hallucinations. With regards to specific symptoms, a number of significant relationships were evident. Firstly, both age of alcohol use and age of cannabis use were strongly negatively associated with hallucination scores, where by the earlier age of first use, the greater the number of hallucination symptoms endorsed. Hallucinations were positively correlated with sexual and emotional abuse, and two of the coping scales for past adverse events, distraction and self-blame.

Delusions. Acceptance following symptom disclosure was significantly negatively correlated with delusions, where with a greater number of delusion symptoms, there was a lesser degree of acceptance reported. A positive correlation between delusions and age of first hospitalisation was also present.

Paranoid delusions. Correlations for the different types of delusions were also explored. Paranoid delusions were negatively associated with acceptance of symptoms following disclosure, suggesting that the greater the extent of paranoid symptoms, the lower the degree of accepting reactions. Self-blame and emotional support as coping responses to past adverse events were also respectively associated with paranoid delusions. Self-blame was positively correlated with paranoid delusions, whereas emotional support was negatively correlated with paranoid symptoms.

Emotional abuse and emotional neglect scales were also significantly positively related to paranoid delusions. For those who completed the additional physical abuse questions (N = 22), there was a negative association between age of physical abuse and paranoid delusions; where the earlier the age of physical abuse, the greater number of paranoid symptoms endorsed.

Delusions of reference and delusions of control. The only significant association evident for delusions of reference was for the subsection of the sample who completed the sexual abuse questions and had disclosed sexual abuse (N = 12). There was a positive association between belief in sexual abuse disclosure and delusions of reference.

For delusions of control, only one association was evident, which was the acceptance following symptom disclosure. Delusions of control and acceptance of symptoms were

negatively associated, indicating the greater the number of delusion symptoms, the less the participant was met with accepting reactions.

Cognitive disorganisation. As discussed previously, both age of symptom onset and age of first contact with mental health services were negatively associated with cognitive disorganisation (see Table 17 on p.69). Symptoms of cognitive disorganisation were also positively correlated with self-blame as a coping response to past adverse events, a dissociative response for past adverse events and distraction as coping response for symptoms (see Table 18 on p.70).

Negative symptoms. Negative symptoms were only significantly associated with emotional abuse (see Table 18 on p.70). This was a positive correlation, with a greater degree of emotional abuse, the greater the number of negative symptoms reported.

Exploration of Psychosocial Predictor Variables in the Total Sample

Regression analyses were conducted to explore potential pathways to the development of symptoms across the total sample. Psychosocial variables which were significantly correlated with age of onset, age of contact with mental health services and types of symptoms at the .01 level (with $r \geq .40$), not highly inter-correlated and would logically precede the development of symptoms were included in regression analyses (Tabachnick & Fidell, 2001). No regression analyses were conducted for delusions, given there were no significant associations with psychosocial variables meeting the above criteria. Individual subtypes of delusions were not explored using regression analyses given small number of items for these subtypes. Table 19 presents a summary of significant correlations with clinical variables and specific variables entered into regression analyses.

Assumption testing.

The assumptions of normality, linearity and homoscedasticity were explored visually using scatter plots (standardized residuals versus predicted values, Normal P-P plots) and appeared to hold for the data set.

Age of onset.

Behavioural disengagement as a coping response to past adverse events was the only potential predictor variable included in regression analyses (see Table 17 on p.69). This variable alone accounted for approximately 13% of the variance in symptom onset ($R^2 = .13$, $F(1, 48) = 7.41$, $p = .009$) and was a significant predictor of age of symptom onset ($\beta = -.37$,

Table 19*Summary of Significant Correlations between Clinical and Psychosocial Variables for the Total Sample.*

Clinical Variables	Significantly Correlated Psychosocial Variables
Age of Symptom Onset	Behavioural Disengagement (AE) (-)** Cognitive Disorganisation(-) Behavioural Disengagement (S) (-) Active Coping (S) (+) Self-Blame (S) (-)
Age of First Contact with Mental Health Services	Dissociative Response to Past Adverse Events (-)** Cognitive Disorganisation (-) Behavioural Disengagement (S) (-)** Religion (S) (+)
Time Taken for Symptom Disclosure	Reframing (AE) (-) Emotional Support (S) (-) Instrumental Support (S) (-)
Number of Hospitalisations	Emotional Support (S) (-) Age of Sexual Abuse (-)
Positive Symptoms	Acceptance Following Symptom Disclosure (-) Sexual Abuse (+) Emotional Abuse (+)** Dissociative Response to Past Adverse Events (+) Self-Blame (AE) (+)** Distraction (S) (+)
Hallucinations	Age of Alcohol Use (-)** Age of Cannabis Use (-) Sexual Abuse (+)* Emotional Abuse (+)** Distraction (AE) (+) Self-Blame (AE) (+)
Delusions ^{&}	Acceptance Following Symptom Disclosure (-)
Paranoid Delusions ^{&}	Acceptance Following Symptom Disclosure (-) Self-Blame (AE) (+) Emotional Support (AE) (-) Emotional Abuse (+) Emotional Neglect (+) Age of Physical Abuse (-)
Delusions of Reference ^{&}	Belief in Sexual Abuse Disclosure (+)
Delusions of Control ^{&}	Acceptance of Symptoms Following Disclosure (-)
Cognitive Disorganisation	Age of Symptom Onset (-) Age of First Contact with Mental Health Services (-) Self-Blame (AE) (+)* Dissociative Response to Past Adverse Events (+)** Distraction (S) (+)
Negative Symptoms	Emotional Abuse (+)**

Note. AE = Past Adverse Event coping scale, S = Symptom-related coping scale. (-) Negative correlation, (+) positive correlation. * Included in regression model, ** Significant predictor in regression model, [&] No regression analyses run for this variable.

$t(48) = - 2.72, p = .009$).

Age of first contact with mental health services.

Dissociative response to past adverse events and behavioural disengagement as a coping response for symptoms were included in regression analyses (see Table 17 on p.69). These variables account for 33% of the variance in age of first contact ($R^2 = .33, F(2, 46) = 11.24, p < .001$). Both behavioural disengagement ($\beta = -.39, t(48) = - 3.06, p = .004$) and dissociative response to past adverse events ($\beta = -.33, t(48) = - 2.58, p = .013$) were significant predictors.

Symptoms.

Positive symptoms. A linear regression analysis was conducted to explore the ability of psychosocial variables to predict positive symptoms. Two variables, emotional abuse and self-blame as coping response for past adverse events, were significantly correlated with positive symptoms and thus included as predictors (see Table 18 on p.70). Sexual abuse was excluded due to the high inter-correlation with emotional abuse and as emotional abuse had a stronger relationship with positive symptoms ($r = .47, p < .001$). Emotional abuse and self-blame as a coping response to past adverse events explained 28% of the variance in positive symptoms ($R^2 = .28, F(2, 48) = 9.52, p < .001$). Both emotional abuse and self-blame as a coping response to past adverse events significantly predicted positive symptom scores ($\beta = .35, t(48) = 2.60, p = .012$), ($\beta = .28, t(48) = 2.05, p = .046$).

Hallucinations. Key variables which were moderately correlated with hallucinations included age of alcohol use, age of cannabis use, emotional abuse and sexual abuse (see Table 18 on p.70). There was a significant degree of correlation between age of cannabis and age of alcohol use ($r = .61, p < .01$) indicating multi-collinearity (Tabachnick & Fidell, 2001). The inclusion of age of cannabis use also reduced more of the available number of cases within the overall model ($N = 28$) relative to age of alcohol use ($N = 39$). As a result, the decision was made to exclude cannabis use from regression analysis.

Sexual abuse and emotional abuse were positively correlated ($r = .51, p < .01$) However, it was deemed important to include both forms of abuse in the model due to indications of unique contributions of forms of trauma to symptom outcome found in the literature. Thus it was decided to conduct the linear regression with age of alcohol use, emotional abuse and sexual abuse as predictor variables and hallucinations as the criterion variable. These three variables combined accounted for 41% of the variance in hallucination

scores ($R^2 = .41$, $F(3, 35) = 8.20$, $p < .001$). Age of alcohol use ($\beta = -.43$, $t(38) = 4.19$, $p < .001$) and emotional abuse ($\beta = .33$, $t(38) = 2.32$, $p = .026$) were both significant predictors of hallucinations. Sexual abuse was not found to be a significant predictor in this model ($\beta = .13$, $t(38) = .93$, $p > .05$).

Cognitive disorganisation. Two variables, dissociative response to past adverse events and self-blame as a coping response to past adverse events, were selected to be included in multiple regression analyses due to the strength of correlations with cognitive disorganisation (see Table 18 on p.70). Distraction as a coping response for symptoms, age of symptom onset and age of first contact with mental health services were excluded given reasoning discussed above. The model including these two variables combined accounted for 30% of the variance in delusion scores ($R^2 = .30$, $F(2, 48) = 10.17$, $p < .001$). Dissociative response to past adverse event was a significant predictor of delusion scores ($\beta = .42$, $t(50) = 3.08$, $p < .01$), whereas self-blame was not a significant predictor ($\beta = .20$, $t(50) = 1.48$, $p > .05$).

Negative symptoms. Regression analyses were conducted to explore relationships between negative symptoms and related psychosocial variables. The only variable which appeared to be significantly correlated with negative symptoms was emotional abuse ($r = .35$). Emotional abuse was a significant predictor of negative symptoms ($\beta = .35$, $t(48) = 2.65$, $p = .011$), accounting for 13% of the variance in scores ($R^2 = .13$, $F(1, 48) = 6.99$, $p = .011$).

Exploration of Relationships: Psychosocial and Clinical Variables for Males and Females

A core focus of the present study has been to explore the ways in which psychosocial variables may relate to differences between men and women in the age of onset and experience of psychosis. The following section explores this question directly by separately analysing the male and female samples using correlational and regression analyses.

As previously discussed, only correlations which were significant at the .01 level were interpreted to reduce the likelihood of Type 1 error. Correlations were explored using Spearman's rho analyses given greater robustness to violations of normality and linearity (Tabachnick & Fidell, 2001). Variables which were significantly correlated but had a sample size less than 10 were not included in presentation of results.

Statistical analysis exploring significant differences between correlations of the same variable across the males and female samples was initially planned. However, it became evident there was no overlap between the variables which were significantly associated with

symptom onset and symptom types for the male sample and those significant within the female sample. The significant relationships between age of onset, age of first contact with services and symptoms with psychosocial variables are displayed in Table 20.

Age of onset and age of first contact with mental health services.

Two significant associations were noted in the male sample (see Table 20). Firstly, behavioural disengagement and self-blame as coping responses for past adverse events were both negatively associated with age of onset. This indicates that with the greater the extent of behavioural disengagement and self-blame, the earlier the respective age of symptom onset.

For females within the sample, there were no significant relationships between age of onset and psychosocial variables. With regards to age of first contact with mental health services, there were no significant correlations were evident for either the male or female sample.

Symptoms.

Positive symptoms. For males, there were three key associations noted with positive symptoms. Firstly, there was a negative correlation between acceptance following symptom disclosure and positive symptoms, where with the greater number of positive symptoms, there were less accepting reactions experienced. Positive symptoms were positively associated with emotional abuse and with self-blame as a coping response with past adverse events, with the greater the degree of emotional abuse or of self-blame, the more symptoms experienced.

Different associations were evident for the female sample. Sexual abuse and physical neglect had positive correlations with positive symptoms, where the greater the extent of sexual abuse and physical neglect, the greater the respective positive symptoms. There were no relationships between acceptance following symptom disclosure, emotional abuse or self-blame as a coping response with past adverse events and positive symptoms within the female sample.

Hallucinations. For the male sample, there were negative correlations for age of alcohol use and reframing as a coping response with past adverse events with hallucinations, where the younger the age of first use or lesser the use of reframing, the greater number of symptoms of hallucinations endorsed. Scores on the emotional abuse scale also were positively associated with hallucinations, where the greater the extent of emotional abuse, the greater the number of symptoms of hallucinations. There were no significant correlations between hallucinations and psychosocial variables for the female sample.

Table 20

Correlations Between Positive Symptoms, Hallucinations, Cognitive Disorganisation, Delusions, Paranoid Delusions, Delusions of Reference, Delusions of Control, Negative Symptoms and Psychosocial Variables for Men and Women.

		Pos. Symp.	Hallucin.	Cog. Disorg.	Delus. Del.	Paranoid Del.	Delus. of Ref.	Delus. of Cont.	Neg. Symp.	Age of Hosp.	Accept. of Sym.	Alcohol Use	Age of Alc. Use	Diss. Resp.	Emo. Abuse	Sexual Abuse	Phys. Neg	Reframe (AE)	S. Blame (AE)	Distract (S)	Religion (S)	Inst. Supp.(S)	Emo. Supp.	Prob. use Oth. Sub	
Positive Symptoms	M	-																							
	F	-																							
Hallucinations	M	.49	-																						
	F	.65	-																						
Cognitive Disorg.	M	.76	.14	-																					
	F	.64	.35	-																					
Delusions	M	.86	.14	.52	-																				
	F	.83	.29	.21	-																				
Paranoid Delusions	M	.78	.37	.58	.68	-																			
	F	.57	.28	.09	.68	-																			
Delusions of Ref.	M	.31	-.31	.19	.57	.01	-																		
	F	.58	.15	.13	.78	.45	-																		
Delusions of Control	M	.73	.19	.36	.87	.45	.31	-																	
	F	.70	.40	.40	.67	.26	.20	-																	
Negative Symptom	M	.40	.42	.39	.16	.26	-.06	.13	-																
	F	.40	-.01	.32	.43	.59	.19	.32	-																
Age of First Hospital.	M	-.02	-.10	-.26	.22	-.02	.07	.39	.23	-															
	F	.25	-.20	.01	.53	.34	.39	.34	.13	-															
Accept. Of Symptoms	M	-.55	-.22	-.43	-.50	-.26	-.18	-.58	-.21	-.17	-														
	F	-.16	-.26	.17	-.23	-.56	-.04	-.12	-.49	.16	-														
Alcohol Use	M	.00	.06	.12	-.12	.05	.02	-.27	.10	-.72	.24	-													
	F	.50	-.04	.57	.46	.32	.32	.48	.31	.20	-.05	-													
Age of Alc. Use	M	-.11	-.58	.24	-.01	-.16	.02	.11	.07	.40	-.03	-	-												
	F	-.31	-.48	-.46	.04	.19	-.35	-.08	.05	.06	-.36	-	-												
Dissociative Response	M	.38	.08	.57	.21	.31	.02	.12	-.11	-.34	-.06	.01	.24	-											
	F	.38	.28	.43	.19	.25	.05	.42	.41	.09	-.10	.40	-.50	-											
Emotional Abuse	M	.48	.49	.19	.37	.48	.01	.30	.10	-.05	-.13	-.09	-.27	.44	-										
	F	.51	.28	.41	.40	.53	.15	.36	.65	.26	-.24	.18	-.26	.45	-										
Sexual Abuse	M	.23	.25	.03	.22	.17	.04	.23	-.09	-.13	-.28	-.05	-.17	.24	.39	-									
	F	.53	.41	.48	.33	.37	.18	.47	.35	.18	-.36	.41	-.17	.50	.58	-									
Physical Neglect	M	.05	.29	.14	-.18	.11	-.19	-.26	-.05	-.21	.01	.11	-.15	.27	.19	.09	-								
	F	.45	-.05	.13	.64	.47	.61	.23	.38	.40	-.18	.39	-.06	.50	.33	.37	-								
Reframing (AE)	M	-.38	-.53	-.19	-.19	-.47	.24	-.16	-.25	.02	.01	.10	.29	-.32	-.40	-.05	-.30	-							
	F	.25	.32	.04	.19	.17	.16	.36	-.08	.21	.04	.21	-.43	.05	-.07	-.04	-.12	-							
Self-Blame (AE)	M	.52	.29	.53	.34	.32	-.12	.46	.01	-.16	-.61	-.21	-.01	.56	.32	.34	.09	-.29	-						
	F	.27	.29	.15	.18	.45	.13	.04	.18	-.09	-.40	.15	-.13	.25	.35	.36	.24	.16	-						
Distract (S)	M	.29	.01	.48	.15	.05	.05	.20	-.08	-.14	-.04	.00	.48	.78	.21	.11	.21	-.13	.39	-					
	F	.41	.19	.37	.32	.48	.16	.43	.69	.25	-.26	.46	-.60	.73	.49	.45	.31	.23	.23	-					
Religion (S)	M	-.19	-.30	-.13	-.06	-.14	-.04	.02	-.14	.51	.12	-.33	.27	-.14	-.03	-.17	.17	.29	-.01	.00	-				
	F	.41	.10	.09	.55	.28	.31	.44	.17	-.05	-.04	.33	.20	-.29	-.21	-.13	.05	.48	-.06	-.02	-				
Instrumental Support (S)	M	-.28	-.35	-.15	-.15	-.61	.11	-.04	-.06	.11	-.04	-.03	.15	-.24	-.34	.17	-.20	.63	-.08	-.06	.28	-			
	F	.18	.14	.00	.23	.16	.06	.14	.03	.08	-.04	.12	-.24	-.28	-.15	-.29	-.18	.61	.08	.11	.73	-			
Emo. Supp. for Symp.	M	-.15	.01	-.11	-.14	-.12	-.20	-.14	-.03	-.20	.40	.07	-.03	-.10	-.20	-.12	.05	-.09	-.23	.12	.29	.09	-		
	F	-.17	-.05	-.07	-.25	-.53	-.14	-.14	-.42	-.18	.70	-.21	-.37	.04	-.36	-.50	-.21	-.03	-.24	-.19	-.10	.01	-		
Prob. Other Sub use	M	.53	.48	.30	.51	.68	.56	.18	.45	.24	.26	-	-.33	.08	.57	-.26	.49	-.60	-.23	-.10	.18	-.52	.23	-	
	F	-.11	.03	-.19	-.03	-.19	.30	.00	-.19	.50	.18	-	-.65	-.16	-.47	.49	.16	.36	.00	.65	.05	.58	-.25	-	

Note. Correlations which are significant at the 0.01 level are displayed in bold; AE = Past Adverse Events, S = Symptoms.

Delusions. Within the male sample, there was a negative relationship between delusions and acceptance following symptom disclosure, where the greater the number of delusional symptoms, the lesser the degree of acceptance experienced by participants. Delusions were positively associated with age of hospitalisation for the female sample. The greater the number of delusion symptoms, the later the age of first hospitalisation (for those who had been hospitalised, N = 18). Delusions were also positively associated with physical neglect and religion as a coping response for symptoms.

Paranoid delusions. For the male sample, there was a positive association between scores on the emotional abuse scale and paranoid delusions. There was also a positive correlation between paranoid delusions and problematic substance use for those who had used Other substances (N = 14). This association demonstrates that within the male sample, the greater the perceived negative impact of other substance use, the greater the number of paranoid symptoms. Instrumental support as a coping response for symptoms had a negative association with paranoid delusions for males; as the degree of instrumental support increased, there were fewer paranoid symptoms endorsed.

Within the female sample, there were a number of associations evident with paranoid delusions. Acceptance following symptom disclosure and emotional support following symptom disclosure both had negative associations with paranoid symptoms, where the more paranoid symptoms reported, the lesser the degree of acceptance and emotional support was received after symptom disclosure. Physical neglect and self-blame as a coping response with past adverse events had positive associations with paranoid delusions within the female sample; the greater the extent of physical neglect and of self-blame, the more paranoid symptoms that were reported.

Delusions of reference and delusions of control. There were no significant relationships between delusions of reference and psychosocial variables for the males in the sample. Within the female sample, there was a positive association between delusions of reference and physical neglect. As the extent of physical neglect increased, the number of delusional symptoms also increased.

There was a positive association between delusions of control and self-blame as a coping response with past adverse events within the male sample; with the greater the self-blame, the greater the number of delusions. Within the female sample, sexual abuse was found to be positively associated with delusions of control. As the extent of sexual abuse increased, the number of delusions of control also increased.

Cognitive disorganisation. For males, self-blame as a coping response with past adverse events, dissociative response to past adverse events and distraction as a coping response for symptoms were all positively associated with cognitive disorganisation. Within the female sample, there was only one significant relationship. This was a positive association between cognitive disorganisation and alcohol use, where with the use of alcohol, the level of cognitive disorganisation increased.

Negative symptoms. For the males within the sample, there were no significant relationships between negative symptoms and psychosocial variables. In the female sample, there were positive relationships between emotional abuse and distraction as a coping response for symptoms with negative symptoms. This indicates that as the level of emotional abuse increased, the number of negative symptoms increased. Moreover, with more negative symptoms, the greater the use of distraction as a coping response.

Exploration of Psychosocial Predictor Variables for Males and Females

Regression analyses were conducted to explore potential pathways to the development of symptoms separately for males and females. As for regression analyses conducted within the total sample, there were some criteria which were required to be met for variables to be included in regression analyses. Psychosocial variables needed to be significantly correlated with age of onset and symptoms at the .01 level, not highly inter-correlated (multi-collinearity) and would logically precede the development of symptoms to be included in analysis. Table 21 presents a summary of significantly correlated clinical and psychosocial variables for men and women.

Assumption testing.

The assumptions of normality, linearity and homoscedasticity were explored visually using scatter plots (standardized residuals versus predicted values, Normal P-P plots). There was some heteroscedasticity evident for cognitive disorganization and negative symptoms for the female sample, meaning results for these variables may need to be interpreted with caution. The assumptions appeared to hold for other variables.

Age of symptom onset.

Within the male sample, self-blame and behavioural disengagement were selected as potential predictor variables for age of symptom onset as they had significant correlations

Table 21*Summary of Significant Correlations between Clinical and Psychosocial Variables for Males and Females.*

Clinical Variables	Significantly Associated Psychosocial Variables	
	Males	Females
Age of Symptom Onset	Behavioural Disengagement (AE)(-)** Self-Blame (AE)(-)*	None.
Age of First Contact with Mental Health	None.	None.
Positive Symptoms	Acceptance Following Symptom Disclosure (-) Emotional Abuse (+)** Self-Blame (AE) (+)**	Sexual Abuse (+)** Physical Neglect (+)*
Hallucinations	Age of Alcohol Use (-)** Reframing (AE) (-)* Emotional Abuse (+)*	None.
Delusions	Acceptance Following Symptom Disclosure (-) ^{&}	Age of Hospitalisation (+) Physical Neglect (+)** Religion (S) (+)
Paranoid Delusions ^{&}	Emotional Abuse (+) Problematic Substance Use of Other Substances (+) Instrumental Support (S) (-)	Acceptance Following Symptom Disclosure (-) Emotional Support Following Symptom Disclosure(-) Physical Neglect(+) Self-Blame (AE)(+)
Delusions of Reference ^{&}	None.	Physical Neglect (+)
Delusions of Control ^{&}	Self-Blame (AE) (+)	Sexual Abuse (+)
Cognitive Disorganisation	Self-Blame (AE) (+) Dissociative Response to Past Adverse Events (+)** Distraction (S) (+)	Alcohol Use(+)**
Negative Symptoms	None.	Emotional Abuse (+)** Distraction (S) (+)

Note. AE = Past Adverse Event coping scale, S = Symptom-related coping scale. (-) Negative correlation, (+) positive correlation. * Included in regression model, ** Significant predictor in regression model, [&] No regression analyses run for this variable.

with this outcome variable (see Table 20 on p.78). The model including these two variables combined accounted for 34% of the variance in age of symptom onset scores ($R^2 = .34$, $F(2, 27) = 6.30$, $p = .006$). Behavioural disengagement was found to be a significant predictor of age of symptom onset ($\beta = -.47$, $t(27) = -2.63$, $p = .015$), whereas self-blame was not ($\beta = -.21$, $t(27) = -1.16$, $p > .05$). No regression analyses were run for the female sample given there were no correlations with age of symptom onset of an appropriate sample size at the .01 level.

Symptoms.

Positive symptoms. Within the male sample, emotional abuse and self-blame were selected as variables to be included in the model as they were highly correlated with positive symptoms. The model, which included these variables, accounted for 38% of the variance in positive symptom scores ($R^2 = .38$, $F(2, 28) = 7.97$, $p = .002$). Self-blame was found to be a significant predictor of positive symptom scores ($\beta = .41$, $t(28) = 2.50$, $p = .017$), as was emotional abuse ($\beta = .34$, $t(28) = 2.11$, $p = .045$).

For the female sample, the variables selected to be included in the regression were sexual abuse and physical neglect as they were significantly correlated with positive symptoms. The model accounted for 36% of the variance in positive symptom scores ($R^2 = .36$, $F(2, 21) = 5.34$, $p = .014$). Sexual abuse was found to be a significant predictor of positive symptom scores ($\beta = .43$, $t(21) = 2.16$, $p = .044$). Physical neglect was not found to be a significant predictor in this model ($\beta = .29$, $t(21) = 1.49$, $p > .05$).

Hallucinations. Within the male sample, emotional abuse, reframing and age of first alcohol use were selected as predictor variables for hallucination scores given high correlations with hallucination scores. The model was significant and accounted for 53% of the variance in hallucination scores ($R^2 = .53$, $F(3, 23) = 7.58$, $p = .001$). Age of first alcohol use was found to be the only significant predictor ($\beta = -.42$, $t(23) = -2.56$, $p = .019$). Emotional abuse was not found to be a significant predictor in this model ($\beta = .33$, $t(23) = 2.02$, $p > .05$), nor was reframing ($\beta = -.26$, $t(23) = -1.56$, $p > .05$). No regression analyses was run for the female sample, given there were no correlations with hallucinations of an appropriate sample size at the .01 level.

Delusions. No regression analyses was run for the male sample, given there were no correlations with delusions of an appropriate sample size at the .01 level. For the female sample, physical neglect was the only variable selected to be included in the model (see Table 20 on p.78). This model was found to be significant and could account for 41% of the

variance in delusion scores ($R^2 = .41$, $F(1, 21) = 13.62$, $p = .001$). Physical neglect was a significant predictor of delusion scores ($\beta = .64$, $t(21) = 3.69$, $p = .001$). Regression analyses for subtypes of delusions were not conducted due to the small number of questions for each subtype.

Cognitive disorganisation. Within the male sample, two variables, self-blame and dissociative response to past adverse events, were initially selected as variables to be included in the model given significant correlations with cognitive disorganisation. However, it appeared there was a high degree of inter-correlation between these two predictor variables ($r = .53$). Thus regression analyses were run using the variable which had a higher correlation with cognitive disorganisation, which was dissociative response. The model was significant and accounted for 33% of the variance in cognitive disorganisation scores ($R^2 = .33$, $F(1, 28) = 13.19$, $p = .001$). A dissociative response was found to be a significant predictor of thought scores ($\beta = .57$, $t(28) = 3.63$, $p = .001$).

For the female sample, alcohol use was selected as a predictor variable for the regression analyses given its significant correlation with cognitive disorganisation. This model could account for 32% of the variance in cognitive disorganisation scores ($R^2 = .32$, $F(1, 21) = 9.46$, $p = .006$), with alcohol use also a significant predictor of cognitive disorganisation scores ($\beta = .57$, $t(21) = 3.08$, $p = .006$).

Negative symptoms. No regression analyses was run for the male sample, given there were no appropriate correlations with negative symptoms. For the female sample, emotional abuse was included as a predictor variable in the model given its significant association with negative symptoms. The model was significant, with emotional abuse accounting for 42% of the variance in negative symptoms ($R^2 = .42$, $F(1, 21) = 14.55$, $p = .001$). Emotional abuse was a significant predictor of negative symptom scores ($\beta = .65$, $t(21) = 3.81$, $p = .001$).

Summary of relationships in male and female samples.

Overall, there were different psychosocial variables which were relevant for each gender, with none of the same variables shown to be significantly associated across male and female samples (see Table 21 on p.81).

Variables which were significantly associated with age of symptom onset for males were two of the coping scales relating to past adverse events, behavioural disengagement and self-blame. Behavioural disengagement could significantly predict the variance in age of onset scores. There were no significant associations for psychosocial variables and age of symptom onset for the female sample.

In terms of positive symptoms, there were associations within the male sample between acceptance following symptom disclosure, emotional abuse and self-blame as a coping response to past adverse events. Both self-blame and emotional abuse could significantly predict the variance in positive symptom scores. For females, sexual abuse and physical neglect were significantly associated with positive symptoms. Sexual abuse was a predictor of positive symptoms for females.

Relationships were also explored between psychosocial variables and individual positive symptoms. For males, there were associations between hallucinations and age of alcohol use, reframing as a coping response to past adverse events and emotional abuse. Age of alcohol use could predict extent of hallucination symptoms. There were no significant associations for the female sample.

There were significant correlations between delusions and acceptance following symptom disclosure for males. For females, physical neglect, age of hospitalisation and religion as a coping response with symptoms were associated with delusions. Physical neglect was a significant predictor of delusional symptoms.

Cognitive disorganisation was correlated with self-blame and dissociation as coping responses to past adverse events and distraction as a coping response for symptoms within the male sample. A dissociative response could predict cognitive disorganisation. For females, alcohol use was associated with cognitive disorganisation, and could predict cognitive disorganisation scores.

There were no significant relationships between negative symptoms and psychosocial variables for males. For females, emotional abuse and the use of distraction as a coping response to symptoms were significant associations. Emotional abuse could predict negative symptoms within the female sample.

Causal Explanations for the Experience of Psychosis

Forty-eight of the 51 participants (94%) responded to the question “What do you think caused your unusual experiences/symptoms related to psychosis?” These were analysed based on the techniques from thematic analysis, separately for men and women. Participants who responded to this question were allocated a number to ensure anonymity. Any specific detail which may have enabled identification of the individual was omitted in analysis. Many participants discussed multiple contributing factors in their explanation of the development of psychosis. This meant that for some participants, aspects of their response could be included under more than one theme.

Responses of men.

Twenty-seven of the 29 men (93%) provided a response to this question. Table 22 displays the responses of men and the themes. Seven key themes were developed from the responses. These were: “Biological Pathways,” “Childhood Adverse Experiences”, “Cumulative Stress and Stress Responses”, “Substance Use”, “Socio-Emotional Experiences”, “Psychological Processes” and “Destiny, Spirituality, Other-worldliness.”

Biological Pathways. This theme was comprised of responses which referred to biological processes. Explanations included references to chemical imbalances (P21) as well as family history (P20, P24). Family history was considered under the “Biological pathways” theme given the term typically has connotations of genetics or heritability. However, it is acknowledged that participants could also be referring to other psychological or social mechanisms, such as modelling and parental rearing when using the term ‘family history.’

Childhood Adverse Experiences. This theme was created from responses which outlined difficult and potentially traumatic experiences in their childhood or teenage years. Some of the responses which comprised this theme detailed specific types of abuse (P24, P26) or particular challenges within the family background (P25). Others were less direct in their descriptions of adversity during childhood (P2, P18).

Cumulative Stress and Stress Responses. This theme was comprised of responses which described the influence of proximal stressors and/or highlighted other physical reactions indicative of stress. Some participants identified specific stressors such as unemployment following redundancy (P13) and difficulties within the family context (P27). Another participant highlighted the influence of stress in different contexts and the role of personality in the face of these (P11). ‘Stress responses’ which were highlighted included lack of sleep (P1, P9 and P14) and not eating (P6).

Substance Use. This theme was created from responses which identified the use of drugs or alcohol as relevant in the development of psychosis. Some highlighted specific substances such as cannabis and LSD (P26) or extensive alcohol use (P12). Another participant described the role of an early age of drug-taking as relevant (P20), whereas for Participant 15, it was a specific incident where substance use precipitated psychotic symptoms.

Socio-Emotional Experiences. This theme was created from responses which highlighted social or relationship factors in their causal models of psychosis. There were two sub-themes within this category: “Pressure of Expectations” and “Disconnection and Rejection.” Responses which identified the role of expectations or opinions of others or

Table 22*Themes and Responses for Men's Causal Explanations for the Experience of Psychosis.*

Theme	Quotes	No. of Participants
Biological Pathways	P20: "Family history..." P24: "Family history..." P21: "Brain chemical balance since I don't smoke and drink little there is not much to cause me to hear voices. Medicines lower the amount of voices."	3
Childhood adverse experiences	P2: "Childhood weakness." P18: "I believe it was...childhood..." P25: "My father was distant, anxious and depressed and I think he needed to get himself well to be a good role model and a better father..." P24: "Sexual abuse..." P26: "Sexual abuse...physical abuse in teenage years."	5
Cumulative Stress and Stress Responses	P1: "Lack of sleep combined with significant lifestyle changes and stress." P9: "Difficult to explain but stress related. Not sleeping..." P14: "More regular sleep - 8 hours plus." P6: "Not eating for seven days, that's when I heard voices." P11: "Excessive stress at home and at work in combination with my highly sensitive personality type." P13: "Unemployed looking for a job...after being made redundant." P27: "Family problems, tension with my mum 3 months prior..."	7
Substance Use	P12: "Alcohol - too much..." P8: "Doing drugs." P15: "I went on a drug fuelled holiday with some friends that spun out of control. I got really paranoid and started to lose the plot - not sure how much of the bad stuff I experienced was real..." P18: "Drugs and alcohol." P20: "Taking drugs at an early age." P26: "...cannabis, a trip (LSD)..."	8
Socio-Emotional Experiences		7
- Pressure of expectations	P9: "Strong emphasis on future expectation." P14: "Worrying about what other people think I should do...where I should consider people's thoughts and not get upset about opinions and get "over the bridge" which I have..." P27: "High expectations seemed unachievable. Everyone else seems to be accomplishing them i.e. finding and building work experience (career, marriage, children, future). Wanted to be independent and work but have a fantastic social life..."	3

Table 22 Continued

Theme	Quotes	No. of Participants
- Disconnection and rejection	P3: "Isolation..." P4: "Isolation, being really antisocial." P25: "I just felt lonely and ugly and isolated... I never had a girlfriend." P15: "When...I talked about some of what had gone on with my girlfriend - she was hypocritical and accusatory. That is when the voices started..."	4
Psychological processes		
- Cognitive process	P9: "Deep philosophical inquiry." P12: "Jumping to conclusions..."	2
- Emotional experience	P3: "Hopelessness" P9: "Build-up...tendency not to express anger/resentment." P12: "Fear."	3
- Devaluation of the self	P3: "Stupidity..." P7: "Low self-esteem, hating myself." P9: "Lack of confidence, partly as a result of university research..."	3
Destiny, Spirituality, Other-worldliness	P5: "...the mind is the motion of the planets and the body is the silence of the stars the flesh is the physical known as humanity the distance between the thoughts." P16: "I planned something and it worked, something that I couldn't work out how it worked, but it did. The only explanations I have are probability and that I have superpowers. I went with superpowers. I was the greatest experience I've had...It made me believe in higher powers." P17: "Karma." P19: "Doctors say drugs and alcohol. I think it's a predestined spiritual experience." P22: "My theory is that the voices have always been there, but at the beginning of psychotic break I first became aware of them. I believe them to be spiritual in origin, not from a physical plane - God?"	5
Miscellaneous	P10: "Unknown cause."	1

themselves were included under "Pressure of Expectations." Participant 27 identified multiple areas in which (his own) expectations seemed "unachievable" – such as in his career and relationships. For Participant 14, the pressure of others' expectations was particularly relevant, whereas the pressure of a future focus was highlighted by another participant (P9).

“Disconnection and Rejection” was drawn from the sense of separateness and isolation which some participants identified as influential in the development of psychosis. This sense of disconnection was directly mentioned by some participants (P3, P4). Participant 25 linked the absence of having a close relationship with a sense of loneliness and disconnection. In Participant 15’s account, there was a sense of rejection experienced in the context of a romantic relationship.

Psychological Processes. This theme represented the general role of psychological factors within the development of psychosis. “Psychological Processes” was comprised of three subthemes. These were: “Cognitive Process,” “Emotional Experience” and “Devaluation of the Self.” “Cognitive Process” was developed from responses which identified the role of thought content (P9) or other patterns of thinking (P12). “Emotional Experience” was constructed from responses which described an influence of emotions, whether this was their presence (P3, P12) or the ways in which emotions were coped with (P9). “Devaluation of the Self” was developed from responses where there was a sense of self-blame, low self-worth or self-criticism identified as part of the causal models, overtly expressed by Participants 3, 7 and 9.

Destiny, Spirituality, Otherworldliness. Responses which referred to elements of spirituality, destiny or religious ideas were included under this theme. A diverse range of explanations fell within this category. Some of these explanations reflected specific personal belief systems (P5) or referred to a particular extraordinary experience (P16). Spiritual and religious processes were more generally described in the responses of Participants 17, 19 and 22.

Miscellaneous. A final category was created for responses which did not easily fit under other themes. Only one response, that of Participant 10 (“unknown cause”) was under this category.

Responses of women.

Twenty one of the 22 (95%) women responded to the open-ended question. The responses and respective themes are displayed in Table 23. The data was analysed and six key themes were developed. These were: “Biological Pathways,” “Cumulative Stress and Stress Responses,” “Childhood Adverse Experiences,” “Socio-emotional Experiences,” “Overwhelming of Psychological Resources” and “Spirituality and Religious Understandings.”

Table 23*Themes and Responses for Women's Causal Explanations for the Experience of Psychosis.*

Theme	Quotes	No. of Participants
Biological Pathways	P1: “? Chemical imbalance (high levels of stress)...some hereditary factors.” P12: “Genetic...”	2
Cumulative Stress and Stress Responses	P2: “Not enough sleep, not eating right, doing too much, working too hard, using drugs under stress.” P14: “Not sleeping enough, family death.” P3: “Drugs and stress plus myself.” P7: “A lot of stress. 1 - I'd just started working (about 2 months) and fulltime. 2 - I had just starting living with a boyfriend and still working fulltime.” P20: “Large amounts of stress, changes, non-compliance with medication, when I used to use cannabis...” P21: “Stress about life.”	6
Childhood Adverse Experiences	P1: “Environment...Traumatic events” P12: “Growing up alone although I had 2 parents who died in my teens and 3 brothers and 2 sisters.” P13: “Physical abuse and mental abuse towards me and my family and witnessing physical abuse happening to my mother, sisters and myself by father.” P18: “I notice or not notice (unusual experiences/symptoms related to psychosis) due to depression, anxiety and recalling bad memories.” P5: “Early childhood and life experience, relationship with family.” P16: “My upbringing...” P20: “Dealing with a traumatic past...”	7
Socio-Emotional Experiences	P6: “Having a 6 year relationship with my partner and having that comfort and loving from him until we broke up my life just fell apart. I didn't have that love anymore.” P9: “Not having my needs met.” P10: “Expressing my feelings negatively, being around negative people. Also not having anyone to talk to about my feelings who knew what I was going through and opening up about what I knew was wrong and not coping with it.” P17: “Emotional breakdown (I did not express my emotions or share with other people in the past). Also difficult relationship with mother, no school to go to (rejected by university) and friends moved out from my home. Also I became more isolated after my family sent me to a city alone.”	4

Table 23 Continued

Themes	Quotes	No. of Participants
Overwhelming of psychological resources	<p>P4: “Due to the stressful moments in life, the mind was blocked with too many thoughts and this lead to psychosis.”</p> <p>P15: “My life experiences and the lack of recall to things I was seeing, hearing and smelling that didn't make sense til later. I felt like my life was a lie. I seemed to have all these different lives and ways of being.”</p> <p>P19: “My brain/spirit could not cope with all the bad things that had happened and it short circuited to avoid it.”</p>	3
Spirituality and the Divine	<p>P8: “I think what caused my unusual experiences related to psychosis has to do with some kind of spiritual or godly thing because what I'm experiencing seems like it know everything about me from the time I was in my mother's womb.”</p> <p>P11: “My relationship with god, it’s a spiritual gift from god. When I get unwell it’s because the battle of the flesh and spirit is constant and I have lost track or focus of what the spirit wanted.”</p>	2

Biological Pathways. This theme was comprised of responses which identified an influence of biological process within descriptions. Responses by participants included references to chemical imbalances within the brain (P1) and genetic factors (P1, P12).

Cumulative Stress and Stress Responses. As for the men in the sample, this theme was developed from material which highlighted a role for stressful events prior to symptoms, signs of stress or coping responses adopted to manage stressors. Some participants identified specific stressors (P7), whereas others reported the cumulative impacts of stress in different domains (P2, P20). Substance use was identified by some participants as within the context of stressors (P2, P3, P20), however, did not appear to constitute a theme in their own right.

Childhood Adverse Experiences. This theme was comprised of experiences detailed by participants in their backgrounds which were deemed influential in their development of psychosis. Some participants did not overtly refer to negative experiences within their responses (P5, P16). However, for many, adverse events were specifically mentioned, including physical abuse (P13), isolation and parental death (P12) and generally traumatic experiences (P20).

Socio-Emotional Experiences. This theme related to responses which discussed the role of emotional and social needs that were unmet as relevant in their development of psychosis. For example, for Participant 6, this was about the absence of love and comfort

which occurred following a relationship breakdown. Other participants described emotional suppression, an absence of emotional support (P10, P17) and a sense of isolation (P17).

Overwhelming of Psychological Resources. Responses which identified a breakdown or fragmentation within cognitive and emotional processes were included under the “Overwhelming of Psychological Resources” theme. For Participant 4, the overwhelming of resources was in the form of the mind “blocking” with thoughts, whereas Participant 19 describes a process of “short-circuiting” due to negative experiences. Participant 15 identified a breakdown of memory processes and her sense of reality where she had “all these different lives and ways of being.”

Spirituality and Religious Understandings. This theme was created from responses which made reference to spiritual, religious or other related factors. For both participants, responses appeared to reflect personal spiritual experiences and beliefs.

CHAPTER IV

DISCUSSION

Overview

This thesis explored gender differences in psychosis and the potential role of psychosocial variables in these differences. Using a questionnaire design, clinical variables, psychosocial variables, and causal explanations were explored in a sample of 51 men and women with psychosis. The aims of the study were to explore sex differences in age of onset, symptoms and psychosocial variables in men and women with psychosis and explore the relevance of psychosocial variables to age of onset and symptomatology.

There were a number of key findings. Analyses of the total sample revealed significant associations between psychosocial variables and age of onset. Specifically, coping responses with past adverse events were found to predict age of symptom onset. The experience of childhood trauma, coping responses with past adverse events and aspects of substance use were found to relate to differing symptom types across the total sample.

A central component of the study was to explore gender differences in the clinical variables of age of onset and symptomatology and psychosocial variables, including childhood trauma, coping responses, reactions to symptom disclosure, relationship history and substance use. There were no significant differences between males and females in age of onset or for many of the symptom types. Surprisingly, females were found to experience more negative symptoms than males in the current study. Differences were also present for some forms of childhood trauma, aspects of coping and substance use across genders.

Another important finding was that when the data for each gender were analysed separately, there was little similarity in terms of the psychosocial variables which were relevant to development or presentation of psychosis for each gender. This suggests that differing pathways to symptom development may exist for men and women.

Analysis of client causal explanations of psychosis revealed that participants tended to identify multiple factors relevant to the development of psychosis. Rather than differing explanations based on gender, there were many similarities in the explanatory models of men and women with psychosis. However, some slight variations in the content of responses were also evident.

In the following chapter, key results will be discussed in light of the study aims, hypotheses and relevant literature. The limitations of the study, implications of the findings and concluding remarks will comprise the remainder of the chapter.

Characteristics of the Sample

Some important trends and patterns were evident from the characteristics of the sample. These will be discussed in the context of comparable literature. As a convenience method of sampling was used by this study, there are some limitations to the extent that these characteristics represent those of the wider population of individuals with psychosis.

Trauma.

The results of this study support the much documented link between trauma and psychosis (Read et al., 2005; Varese, Smeets, et al., 2012). The majority of the sample (76.6%) had experienced at least one form of abuse in childhood or adolescence. With regards to gender, 86.4% of the women and 69% of the men had experienced some form of abuse. These figures are higher than reported by Read, Agar, Argyle and Aderhold (2003) in their review of 100 inpatient files, where 30% of their New Zealand sample had experienced childhood abuse. Male and female abuse prevalence figures were also higher than those reported in other studies which audited inpatient mental health files (Read, 2013a), research with individuals with psychosis (Üçok & Bikmaz, 2007) and reviews (Read et al., 2005).

A higher prevalence of abuse within this study could be related to different definitions of abuse. For example, few studies have included emotional abuse or emotional neglect in their research. Furthermore, this study used a self-report design to determine abuse prevalence, rather taking abuse history from clinical files as occurred in some research. Both aspects may have also contributed to the higher noted prevalence of abuse in the present study.

Substance use.

Consistent with the existing literature, high rates of substance use were present for participants. Approximately 88% of participants had used alcohol, 66.7% had used cannabis and 44% had used miscellaneous other substances. The mean age of first cannabis use, 16.2 years, for the total sample was comparable to New Zealand population norms; though the rate of past use of cannabis (66.7%) was higher than for the general population (estimated at 46.4%) (Ministry of Health, 2010). The rate of cannabis use was similar to findings of other studies exploring substance use in psychosis (Barnett et al., 2007).

Coping responses.

In the current study, no separate subscales were created for ‘adaptive’ and ‘maladaptive’ coping, consistent with the intentions for the scale by its original author (Carver, 1997) but contrary to the methodology of some other studies of psychosis (Jalbrzikowski et al., 2012; Meyer, 2001). Yet the findings of the present study do reveal that a wide variety of coping strategies were employed to cope with both past adverse events and with symptoms. This was consistent with the findings of another study that explored coping, using the Brief COPE, in inpatients diagnosed with schizophrenia (El Sheshtawy, 2011). Moreover, some coping scales, such as self-blame and behavioural disengagement, appeared to be particularly relevant to clinical variables, as will be discussed in a later section.

Within the sample, there was a high level of dissociation as a response to past adverse events, with 92% of the sample endorsing at least one dissociative symptom. Few studies have explored dissociation using the Peritraumatic Dissociative Experiences Questionnaire (PDEQ) in samples of people with a mental health diagnosis; other researchers have tended to focus on the presence of current dissociative symptoms, as opposed to dissociation in the context of adverse experiences. The limited use of the PDEQ leads to some difficulty comparing the prevalence of dissociative responses from the present study with rates found in other research. One study which did use the PDEQ was that of Sijbrandij and colleagues (2012). These authors compared the mean PDEQ score across a group of police officers, trauma-exposed individuals who presented to hospital who had not sought treatment and trauma-exposed individuals who were seeking psychological input. The mean number of dissociative symptoms endorsed in the present study was relatively comparable to scores to the treatment seeking trauma-exposed individuals in research by Sijbrandij et al.

Relationships.

Some studies have found that individuals who develop psychosis tend to be more socially isolated than their peers during adolescence (Gayer-Anderson & Morgan, 2012). In the current study, the majority of people had had at least one close relationship, with approximately half (53.6%) having experienced a romantic relationship in adolescence.

The finding that many individuals had experienced a close relationship is somewhat consistent with trends noted for reactions to symptom disclosures. On average, the disclosure of symptoms was met with a moderate degree of acceptance and emotional support. Furthermore, this did not appear to significantly differ based on the person to whom symptoms were disclosed. This may indicate that the experience of rejection or stigmatisation

by others which has been documented in other studies (Haas et al., 1990) was not as prominent in the current sample.

Many of the trends and patterns relating to trauma, substance use, relationships and coping responses within the present sample were comparable to the wider literature. The specific differences between men and women for psychosocial and clinical variables will be outlined in the “Gender Differences” section.

Exploration of Relationships: Psychosocial and Clinical Variables

Age of onset.

It was predicted that history of childhood trauma, the use of less adaptive methods of coping, substance use and history of few relationships would be associated with earlier age of onset. Consistent with these hypotheses, one form of coping responses to past adverse events, behavioural disengagement, was predictive of age of onset.

Behavioural disengagement, which consists of the items: “I gave up in the attempt to cope” and “I gave up trying to deal with it,” has been categorised as a “potentially maladaptive emotion-focused strategy (Moos & Holahan, 2003).” The association between this coping response and less favourable outcomes (i.e., earlier age of onset) is therefore consistent with existing literature. As discussed, Barker-Collo and Read (2003) identified emotion-focused coping as a mediating variable between the experience of sexual abuse and poorer outcomes in their theoretical article. Other research has also suggested emotion-focused coping is associated with poorer psychological adjustment (Campbell-Sills et al., 2006; Runtz & Schallow, 1997), as was found in the present study.

Contrary to predictions, there were no significant associations between childhood trauma, relationship history or substance use with age of onset across the total sample. The lack of association between age of onset and trauma was inconsistent with the results of other studies (Álvarez et al., 2011; Goff et al., 1991; Rosenberg et al., 2007; Schenkel et al., 2005). It is possible that the broad inclusion of individuals who had experienced any positive symptoms may have influenced the findings of the present study. Álvarez and colleagues (2011), for example, found that the experience of any abuse was related to age of onset for those with a diagnosis of schizophrenia, however, not for those who had psychotic symptoms in the context of bipolar disorder diagnosis.

The finding that past relationships were not associated with age of onset is contrary to the results of some studies, such as the WHO ten nation study by Jablensky and Cole (1997) and other researchers (Kasckow et al., 2010; Riecher-Rössler et al., 1992). This

discrepancy may also relate to differences in methodology. It could be that the presence of past romantic and close relationships, assessed by the current study, is less associated with age of onset than marital status, the specific variable explored in the discussed research.

The absence of a relationship between substance use and age of onset was inconsistent with published literature, particularly relating to cannabis use (Large et al., 2011). It may be that the inclusion of more detailed measures of use, including frequency, intensity and changes in patterns of use would have resulted in clearer differences between men and women. These factors have been identified as relevant to the strength of the association in other studies (Compton et al., 2009; Gregg et al., 2007).

Age of first contact with mental health services.

Some psychosocial variables were found to be associated with age of first contact with services, namely, a dissociative response to past adverse events, the use of religion to cope with symptoms and the use of behavioural disengagement to cope with symptoms.

The association between a dissociative response to past adverse events and age of contact with services is consistent with other literature, where links between trauma, dissociation and psychosis have been indicated (Kilcommons & Morrison, 2005; Morrison & Petersen, 2003; Varese, Barkus, et al., 2012). There could be a number of differing interpretations of this present study finding. It may be that dissociative coping influences the development of more overt mental health symptoms, including hallucinations or PTSD symptoms (Hetzl & McCanne, 2005; Varese, Barkus, et al., 2012), leading to an earlier presentation to services (the specific relationships between coping responses and symptoms will be discussed in more detail in a later section).

The ways in which individuals cope with symptoms of psychosis were found to be relevant to age of first contact with services. The association between greater behavioural disengagement and earlier presentation to services supports the existing conclusions of other researchers, where maladaptive coping has been linked to poorer outcomes (Jalbrzikowski et al., 2012; Lin et al., 2011). It may be that disengaging in response to developing symptoms serves to increase distress, culminating in the earlier age of contact with services.

The positive association between coping using religion and age of first contact with services could be interpreted in different ways. It is possible that accessing religion is adaptive and helps to minimize symptoms or the distress associated with symptoms. This, in turn, could lead to a delay in needing mental health services. A potential relationship between religious coping and reduced distress in psychosis has some research support (Nolan et al.,

2012). Alternatively, it could be that people with religious beliefs initially seek out other avenues to understand psychosis-like experiences or reduce associated distress, such as pastoral support. This could result in a later age of first contact with mental health services.

Symptoms.

As part of the study aims, the relationships between psychosocial variables and symptomatology were assessed. No specific hypotheses were made based on the literature, with these analyses exploratory in nature.

Trauma. The experience of childhood trauma had significant associations with type of symptoms experienced. Emotional and sexual abuse were correlated with positive symptoms overall, with emotional abuse a significant predictor of positive symptom scores. Both sexual and emotional abuse were also significantly related to hallucination scores, with emotional abuse again able to predict the variance in hallucination scores.

Trauma variables were not associated with delusions overall, but were related to different subtypes. Increased experience of paranoid delusions was significantly associated with emotional abuse and emotional neglect. Earlier physical abuse was also significantly related to a greater the number of paranoid delusional beliefs endorsed. Somewhat counter-intuitively, belief in sexual abuse disclosure was positively associated with delusions of reference. Negative symptoms were also related to trauma, with emotional abuse significantly related and predictive of negative symptoms.

The correlation between positive symptoms and sexual abuse is consistent with the results of large-scale population studies (Bebbington et al., 2004; Spauwen et al., 2006) and research from ‘clinically-high-risk’ groups (Thompson et al., 2013). The finding that emotional abuse was significantly associated with positive symptoms was contrary to some research findings (Kelleher et al., 2008; Thompson et al., 2013). However, the results of the present study are generally consistent with trends documented in the review of Varese et al. (2012), where there was a strong relationship between emotional abuse and psychosis across studies.

There were no associations found between physical abuse and positive symptoms in general, or between physical abuse and hallucinations. This contrasted with the findings of other studies, where physical abuse was shown to be relevant to the symptoms of psychosis (Fisher et al., 2009; Shevlin et al., 2007) and specifically to hallucinations (Bentall et al., 2012; Whitfield, Dube, Felitti, & Anda, 2005). It may be that the lower prevalence of physical abuse in the present study had an influence on the strength of these relationships.

The association between sexual abuse and hallucinations parallels existing findings and lends support to the contention this form of trauma is particularly relevant to hallucinations (e.g., Read et al., 2003; Read et al., 2008; Shevlin et al., 2011). The specific relationship between emotional abuse and hallucinations has been less extensively explored by researchers. However, the findings of the present study are complementary with those of Whitfield, Dube, Felitti and Anda (2005), who found that the experience of emotional abuse increased the risk of hallucinations by 2.5 times. Üçok and Bizmas (2007) also found a significant relationship between emotional abuse (as measured by the Childhood Trauma Questionnaire) and hallucinations in their study of individuals with first-episode schizophrenia.

There was no association between delusions overall and trauma variables, as found in other research (Janssen et al., 2004; Scott et al., 2007). The specific correlations between paranoid delusions, emotional abuse and neglect, however, are consistent with other findings in the literature. A recent study of individuals with schizophrenia (Ashcroft, Kingdon, & Chadwick, 2011) found emotional abuse was significantly associated with persecutory delusional beliefs, with a trend towards significance for emotional neglect. As discussed, other researchers have found links between paranoia and experiences of discrimination (Janssen et al., 2003) and institutional upbringing (Bentall et al., 2012), both of which could involve elements of emotional maltreatment; though these were not specifically measured in the present sample.

Contrary to the results of Bentall et al. (2012), there was no direct association between physical abuse and paranoia in the present study. However, within those who completed the additional questions on physical abuse, an earlier age of physical abuse was related to increased paranoia. This lends support for the potential relationship between past victimisation and paranoid symptoms.

It is unclear why delusions of reference were positively associated in belief of sexual abuse disclosure, rather than a more intuitive negative correlation. It is possible that the small sample size for this variable ($N = 12$) was associated with increased Type I error, leading to a positive result by chance. Other factors not assessed by the study may also have mediated this relationship.

The finding that negative symptoms were associated with emotional abuse may extend the existing literature. In the few studies which have identified a link between childhood abuse and negative symptoms, emotional abuse has not been specifically assessed

(Burns et al., 2011; Read et al., 2003). Overall, this finding indicates that trauma does have a potential influence on negative symptoms and represents an important area of future research.

Coping. Some types of coping with past adverse events were associated with types of symptoms. Self-blaming and dissociative responses were both significantly related to the experience of positive symptoms; while past self-blaming and use of distraction as a coping response were both significantly associated with increased hallucination scores.

With regard to specific positive symptoms, increased paranoid delusions were positively associated with the use of self-blame to cope with past adverse events and with reduced accessing of emotional support. No other coping scales were related to any forms of delusions. Coping with past adverse events was also correlated with cognitive disorganisation. Self-blame and a dissociative response to past events had significant associations with cognitive disorganisation. A dissociative response could predict the variance in cognitive disorganisation.

The finding that a self-blaming response was relevant to positive symptoms is consistent with the existing literature. Studies have found that negative internal attributions following trauma can mediate later adult mental health outcomes overall (Barker-Collo, 2001). The specific association between self-blame following trauma and positive symptoms parallels the findings of Campbell and Morrison (2007) in their study of adolescent bullying and the results of studies exploring hallucination-proneness (Kilcommons & Morrison, 2005; Morrison & Petersen, 2003).

The relationship between a dissociative response and positive symptoms is complementary with the existing literature. The findings of this study provide support for the role of dissociation as a potential mechanism in the development of psychosis, as indicated in studies by Varese, Barkus and Bentall (2012), Kilcommons and Morrison (2005) and other research (Kilcommons, Morrison, Knight, & Lobban, 2008; Morrison et al., 2003). However, no specific link between dissociation as a coping response and hallucinations was evident in the current study, as found in some of the above studies.

The association between the reduced use of emotional support in coping with past adverse experiences and increased paranoid symptoms is intuitive and consistent with other findings from the present study. As discussed, paranoid delusions had a significant association with the experience of emotional abuse and emotional neglect in this study. Thus, it is unsurprising that individuals who experienced emotional maltreatment may be less likely to access emotional support from others. It is possible that reduced access to emotional support contributes to the later experience of paranoia given limited opportunities to establish

trusting and caring relationships with others and to “reality-test” beliefs in the context of these relationships (see Bentall, 2013 for more detailed discussion).

Substance use. There were two specific associations evident between symptoms and substance use. Increased hallucinations were significantly related to both age of first cannabis use and age of first alcohol use.

A relationship between the experience of hallucinations and age of first cannabis use is generally consistent with the literature documenting a link between cannabis use and psychosis (Large et al., 2011). The finding also supports an association between an earlier age of use and increased positive symptoms found in other research (Bersani et al., 2002; Grech et al., 2005).

The correlation between alcohol use and hallucinations was somewhat surprising, given that some studies (Barnett et al., 2007; Gregg et al., 2007), but not all (e.g., Compton et al., 2007), have found alcohol use to be less associated with psychosis. However, it may be that the role of alcohol use in psychosis has simply received less research attention. In their review, Zammit and colleagues (2008) found that alcohol use was often omitted or overlooked in studies exploring substance use in psychosis. It is possible that age of first alcohol use could be an important factor to investigate in future research on hallucinations.

The lack of association between problematic substance use and any of the symptom scales was somewhat inconsistent with the literature. As has been discussed in an earlier section, it is possible that this was related to the focus on the perceived impacts of the use in the present study, rather than the level or frequency of use, assessed by other researchers (Barnett et al., 2007; Schubart et al., 2011). The results of some studies indicate that there may be complex relationships between patterns of use and the experience of psychotic symptoms (Compton et al., 2009), which were not able to be explored in the present research.

Reactions to symptoms. Different types of symptoms seemed to elicit varying reactions when disclosed to others. Positive symptoms were associated with less acceptance of symptoms following disclosure. For delusional beliefs, less accepting reactions were more apparent, particularly for paranoid delusions and delusions of control. No specific relationships between hallucinations, negative symptoms or cognitive disorganisation and responses to disclosure were evident in the sample.

The presence of an inverse relationship between symptoms and degree of acceptance is intuitive. With a greater number of symptoms experienced by an individual, others may experience a greater degree of confusion, fear or avoidance, leading to more perceived rejection by the person with psychotic symptoms. The study results indicate that there could

be differential reactions to disclosure of symptoms based on the type of symptom. It may be that some experiences are genuinely more difficult to understand or accept by others than alternative experiences. Other factors may also have a bearing on the findings, for example, lack of trust and interpersonal sensitivity could be particularly pronounced in those who experience paranoia (Masillo et al., 2012), leading to a sense of greater rejection with symptom disclosure.

Other clinical variables. In addition to symptoms, this study examined other clinical factors that may relate to outcomes, including the time taken prior to symptom disclosed and number of hospitalisations.

Some psychosocial variables appeared to influence the length of time which it took individuals to disclose. A reframing coping response to past adverse events, and the use of emotional and instrumental support as coping strategies for symptoms, were associated with a smaller period of time to disclose symptoms. These findings are relatively consistent with some of the literature on the duration of untreated psychosis, where low levels of avoidant coping (Skeate, Jackson, Birchwood, & Jones, 2002) and family involvement in help-seeking behaviour (C. Morgan et al., 2006) have been linked to a shorter DUP.

Coping was also relevant to the number of hospitalisations, as were trauma variables. The use of emotional support with symptoms as a coping response and age of sexual abuse were both negatively associated with the number of hospitalisations. These findings are consistent with the protective effect of social and emotional support on relapse rates documented in some literature (Hultman, Wieselgren, & Öhman, 1997) and established links between sexual abuse and poorer outcomes (Read et al., 2008).

Summary.

Some important conclusions can be drawn from exploration of psychosocial factors and their relationship to clinical variables. First, it is clear that psychosocial variables were relevant to age of onset and symptoms experienced. In particular, coping with early adverse events, as well as coping with symptoms, were related to age of symptom development and contact with services.

The complexity of the relationships between psychosocial variables and symptoms was also evident from the above analyses, given the presence of specific relationships between differing types of trauma, coping with adverse events, substance use and symptoms. The results of this research confirm the importance of exploring particular symptom types

and the specific experiences associated with these symptom types in the tradition of some researchers (Bentall et al., 2012).

Some of the predicted relationships were not significant within the total sample analyses. For example, direct associations between fewer past relationships, the experience of trauma, perceived problematic substance use and age of onset were not evident. Additional research into these areas, potentially using a variety of different forms of measurement, and with larger samples, could clarify these links.

Gender Differences

A central component of this thesis was to explore gender differences, specifically for age of onset and symptoms, and for other related psychosocial variables. It was found that there were gender variations in rates of negative symptoms, experience of trauma, coping responses to past adverse events and some measures of substance use. Specifically, women reported more negative symptoms. There was also a trend towards a higher number of hallucinations reported by women relative to men, but this was not statistically significant. The women in the sample had experienced significantly more emotional abuse and emotional neglect than men in the sample. For those who had disclosed sexual abuse in the sample, there was significantly less emotional support reported by women relative to men following this disclosure.

With regards to coping with past adverse events, women were significantly more likely to utilize distraction and self-blame than men. There was a trend towards greater dissociative response in women, although this was not statistically significant. In terms of substance use, men had a significantly higher rate of past cannabis use than women yet women were significantly younger than men at the age of first cannabis use.

Contrary to predictions, there were no significant differences in age of onset, age of first contact with services, age of first hospitalisation, relationship history, positive symptoms (and specific positive symptoms of hallucinations, delusions and cognitive disorganisation), reactions to symptom disclosure, problematic substance use and coping responses to symptoms between genders in the current study.

Age of onset.

As discussed, there was no significant gender effect for age of onset, age of first contact with services or age of first hospitalisation between men and women, as hypothesised. This is inconsistent with the results of population-based (Häfner et al., 1994;

Jablensky et al., 1992) and clinical studies (Bertani et al., 2012; Galderisi et al., 2011), which have indicated that men develop the symptoms of psychosis earlier than women. However, the results of this study do reflect the findings of some other researchers, where a clear age of onset difference was not found. For example, no age of onset differences were found by Cotton et al. (2009) in their research of first-episode psychosis or other large-scale studies of psychosis (Kendler & Walsh, 1995; V. Morgan et al., 2008).

A number of factors may account for the present study's findings. It is possible that aspects of the methodology used in this study were relevant to the absence of gender effects. For example, this study employed a broad inclusion criterion, where the experience of any of the positive symptoms of psychosis and/or a diagnosis of a psychotic disorder was sufficient for entry into the study. This approach could have impacted on the degree of the age of onset difference. In their meta-analysis of age of onset studies, Eranti and colleagues (2012) found that diagnostic criteria had an important influence in the difference in age of onset scores. When the weighted difference was calculated from studies which had used the ICD criteria for schizophrenia, a less restrictive criterion relative to the DSM-IV (Bertelsen, 2002), it was not found to be significant between genders. This suggests that the more inclusive criteria in the current study could have exerted an influence on the age of onset findings.

The use of a convenience sample with this research may have also influenced age of onset results. It is possible that a greater number of females with an early age of onset were by chance selected into the current study, leading to comparable ages of onset between genders. It is also possible that lack of difference between age of onset between men and women was impacted by the method of recruitment. Many participants (56.9%) were recruited through Early Intervention services, which have an upper age range of 30 years. This criteria could have led to the exclusion of more women who presented at a later age, given the peak age of onset for women has been considered to be from 25-30 years relative to 18-25 years for men (Leung & Chue, 2000).

The comparable age of onset rates in this sample may alternatively be reflective of the unique trends present within New Zealand. There has been very little published research on psychosis in New Zealand, particularly with regard to age of onset. Thus it may be that the findings of the current sample represent wider trends that have been previously unexplored. Furthermore, Auckland is a city with considerable cultural diversity (Statistics New Zealand, 2006), reflected in the demographics of the current study sample, where almost half of the sample identified as Māori, Pacific Islander, Asian or Other. Cultural variations may also influence the relationship between age of onset and gender (Folnegovic & Folnegovic-Smalc,

1994; Murthy et al., 1998). It is therefore possible that the results on age of onset represent patterns specific to the New Zealand cultural context.

Symptoms.

Positive symptoms. There were no gender differences in positive symptoms evident from the results of this study. This is contrary to the results of some researchers, who have found a clear difference between men and women (Maric et al., 2003; Tang et al., 2007; Thorup, Petersen, et al., 2007). It is possible that the use of a symptom-based screen, as opposed to formalised interview method such as the SAPS, impacted on the present study findings. However, as has been discussed, other researchers have not found gender effects for positive symptoms (Chang et al., 2011; Galderisi et al., 2011; Køster et al., 2008; Segarra et al., 2012), with general inconsistency within this area of research. Thus it may be that men and women do not considerably differ in the experience of positive symptoms.

No specific differences were found in the current study for hallucinations. This is inconsistent with the results of Gur and colleagues (1996), research by Marneros (1984) and other studies (Rector & Seeman, 1992; Sharma et al., 1999; Thorup, Petersen, et al., 2007). However, the present study findings are similar to those of Køster, Lajer, Lindhardt and Rosenbaum (2008) in their research on first-episode psychosis and those of the Australian Low Prevalence study (V. Morgan et al., 2008).

With regards to delusions, the results of this study reflect the conclusions of Wustmann, Pillmann and Marneros (2011), who found no differences between frequency or topic of delusions across the sexes. The findings were also consistent with the results of other studies exploring gender and delusional subtypes, where no sex differences were evident (Hsiao et al., 1999; Yamada et al., 1998). Additional research into gender effects into hallucinations, as well as positive symptoms as a whole, may clarify patterns within the literature.

Negative symptoms. The present study found that women experienced more negative symptoms than men. This finding is opposite to what would be predicted based on the literature (Chang et al., 2011; Galderisi et al., 2011; Leung & Chue, 2000; Segarra et al., 2012). It is also discrepant with research where no gender differences have been found (Addington et al., 1996; Häfner et al., 1993; Tang et al., 2007).

A range of potential factors could account for this finding. As discussed previously in the context of the age of onset, the use of a relatively small convenience sample may have contributed to this result; where, by chance, a greater number of females with negative

symptoms participated in the study. It is also possible that the way in which negative symptoms were measured had an influence on the results. The adaptation of negative symptom items for the purposes of a self-reported questionnaire could have contributed to a conceptual overlap between negative and depressive symptoms (see Table 1 on p.46 for items). Thus the higher ratings for women on the negative symptom scale could be in part reflective of underlying depressive symptoms. Although this possibility is difficult to determine from the available data, a greater rate of depressive symptoms for women with psychosis relative to men would be consistent with existing research (Cotton et al., 2009).

The relationship between negative symptoms and emotional abuse could have also had a bearing on the current findings. Females within the sample had a significantly higher rate of emotional abuse relative to males. The association between emotional abuse and negative symptoms was also significant within both the total sample analyses and within the gender-based analyses for females. Covariates were not included in the one way ANOVA due to the associated reduction in statistical power, meaning this possibility was not able to be conclusively ruled out. The relationship between emotional abuse and negative symptoms therefore may have had an influence on the results for gender in this research.

Given the focus on psychosocial influences, information regarding other potentially mediating factors, such as medication use and dosages was not collected. It is possible that the higher rates of negative symptoms were in part associated with the levels of anti-psychotic medication, as hypothesised by Riechler-Rössler and Hafner (2000) and supported by the research of Szymanski et al. (1995). However, these possibilities were unable to be explored with the available data.

Overall, the present study findings on gender effects in symptoms were somewhat inconsistent with the available evidence base. Additional research studies which comprehensively explore the role of gender in symptom profiles, using larger samples, could extend the existing literature.

Trauma.

In this study, females were more likely to have experienced emotional abuse or emotional neglect relative to males. This finding was somewhat contrasting with the results of Üçok and Bikmaz (2007), who explored differing types of trauma in a population of first-episode schizophrenia. In this study, the researchers found no clear gender differences relating to emotional neglect or emotional abuse. It is possible that the current study results relating to gender and abuse represent trends specific to the particular group of participants,

given that males and females may be equally likely to experience maltreatment in some form during childhood and adolescence.

Coping with past adverse experiences.

The finding that females were more likely to adopt self-blame following past adverse events is relatively consistent with the available literature. As discussed in a previous section, there is evidence that girls may be more likely to adopt an internalising response in relation to trauma relative to boys (Darves-Bornoz et al., 1998; Spataro et al., 2001). Self-blame could be considered to fall within the continuum of internalising responses. The presence of heightened self-blame for females is also consistent with the findings of other studies exploring gender and attributions following specific forms of adversity (Kerig, 1998).

Strong support for the contention that females may experience greater dissociation as a response to childhood adversity was not found in the current study. Despite a trend towards higher rates in females, this difference was not statistically significant. This was somewhat inconsistent with proposed greater dissociative response in females outlined by Perry and colleagues (1995), yet does parallel other research results where no gender differences were evident (Spitzer, Barnow, Freyberger, & Grabe, 2006). Further studies, potentially utilising larger sample sizes, may clarify the relationship between adverse experiences, gender and dissociative responses.

Substance use.

The present study found that some forms of substance use were associated with gender, consistent with predictions and the literature. For example, that men had higher rates of past cannabis use is a finding consistent with the general population trends (Ministry of Health, 2010) and studies of individuals with psychosis (Mazzoncini et al., 2010). The younger age of first cannabis use documented in women was somewhat surprising, given other researchers have linked substance use in psychosis to male gender (Sevy et al., 2010) or found no gender differences in age of first use (Barnett et al., 2007). The lack of significant sex differences in problematic substance use was also contrary to expectations. Additional studies conducted within a New Zealand context could clarify these trends and patterns.

Relationships and reactions to symptom disclosure.

There were no significant gender differences in either the proportion of people who had been in a romantic relationship or number of close relationships in the present study. This

was contrary to the results of some researchers, which seemed to indicate a greater degree of social isolation in men (Riecher-Rössler et al., 1992; Thorup, Petersen, et al., 2007). However, as discussed in a recent review, there have been mixed findings relating to gender effects and relationships in psychosis (Gayer-Anderson & Morgan, 2012), with some studies showing no differences based on sex (Pruessner et al., 2011; Thorup et al., 2006). It is possible that longitudinal exploration of social networks and gender effects could provide a clearer picture of gender effects. A longer duration of psychotic symptoms has been linked to more pronounced differences in social functioning between genders in some research (Usall et al., 2002).

The current study did not find significant sex differences in reactions to symptom disclosure. These findings are contrary to those of Haas et al. (1990) and Davis, Goldstein and Nuechterlein (1996), who found that males may receive less favourable reactions or support when experiencing psychosis relative to females. There was also no evidence to support a differential family reaction based on the person that the symptoms were disclosed to, which was inconsistent with the results of Goldstein and Kreisman (1988). It is possible that varying methodology could in part explain this discrepancy. The above studies tended to focus on attitudes of family members within the context of treatment, rather than upon first symptom disclosure. It may be that differential attitudes towards men and women with psychosis are particularly salient over the process of treatment, where families are directly engaged in the care of the person with psychosis.

Summary.

This study found that there were some gender differences for both clinical and psychosocial variables. However, a complex picture of gender effects emerged. Some associations which were widely documented in the literature, including an earlier age of onset and a higher rate of negative symptoms for men were not found. These discrepancies may relate in part to the size and features of the current sample and methodology, although may also indicate that there are limits to the assumed universality of gender effects. In any case, there are many unanswered questions of the prevalence of sex differences in psychosis, which could be addressed by continued empirical investigation.

The findings on gender effects from the present study may inform the outcoming literature. As discussed, research into gender and outcomes has indicated a more favourable pathway for women (Ochoa et al., 2012). Psychosocial variables which were shown to vary based on gender, including specific forms of trauma, coping responses to adverse events and

some aspects of substance use, may represent factors to consider in future outcome research. Conversely, there was no support for a role of relationship history, reactions to symptom disclosure and coping with symptoms in the differential outcomes based on the results of this study.

Exploration of Relationships: Psychosocial and Clinical Variables for Males and Females

As part of extending understandings of gender-related effects, the relationships between psychosocial variables and clinical variables were separately analysed for men and women. It should be noted that there is very little published research in this area, meaning the comparisons to the existing literature are limited in this section.

Age of onset.

When the data was analysed separately, there appeared to be clearer associations between psychosocial variables and age of onset for men. An earlier age of onset was associated with specific coping responses to adverse events for men, which were behavioural disengagement and self-blame. However, for women, there were no psychosocial variables significantly associated with age of onset.

These findings indicate that some forms of coping with adverse experiences may link to less favourable outcomes for men. Although there is a general paucity of literature, some studies have focused specifically on ways that men have coped with adversity. For example, comparable results have been found by O'Leary (2009), who found that behavioural disengagement as a way of coping with sexual abuse was associated with a higher scores on measures of somatic symptoms, social dysfunction anxiety and depression in a group of men. Sigmon and colleagues (1997) found that avoidance coping was common within their sample of men who had experienced sexual abuse (Sigmon, Greene, Rohan, & Nichols, 1997). Furthermore, these authors found that avoidant coping in childhood was related to higher levels of distress in adulthood, which would also be consistent with the present study findings.

The relationship between coping responses and an earlier age of onset for the men in the sample may be interpreted in different ways. It is possible that given assumptions around the construct of masculinity, there are limits to the level of support which young men receive following some forms of traumatic events (Mejía, 2005); although the findings of the current study do not provide support for this in the context of sexual trauma, given that males

received significantly greater emotional support following sexual abuse disclosure relative to females. Another possibility is that through the process of gender socialisation, men may be less skilled in recognising and discussing their own emotional needs (Brody, 1997). Avoidance and self-blame could therefore be adopted to respond to distress. Over time these strategies may become less effective, culminating in an early age of onset. It may also be that self-blame and behavioural disengagement correlate with other behaviours in men, such as aggression or risk-taking. These behaviours and their potential consequences could exacerbate stress, which in turn leads to the earlier development of symptoms. Further research using a sample of men with psychosis may clarify these interesting possibilities.

Absence of significant findings for age of onset.

Some of the predicted gender effects for age of onset were not found in this study. First, there was no indication that the experience of trauma, particularly sexual trauma, had an association with the earlier development of psychosis for men. These results are inconsistent with the findings of Read (1998), where an the experience of sexual and physical abuse was related to an earlier age of admission for men; and those of Shevlin, Dorahy and Adamson (2007), where sexual trauma was a stronger predictor of psychosis in males relative to females. The results of the present study are also contrary to the conclusions of Barker-Collo and Read (2011) in their research into abuse history and psychiatric symptoms.

A number of factors could account for this inconsistency. Despite some similarities, the methodology and research aims in these studies did vary substantially. For example, Shevlin, Dorahy and Adamson explored the relative risk of psychosis and symptom severity, which were not a part of the present study. Barker-Collo and Read (2011) explored levels of psychoticism within a sample of the general population who had experienced abuse, rather than in a clinical sample.

Discrepant results with those of Read (1998) could have resulted from the method of analyses. This author differentiated between age of first admission at or below age 18 and age of first admission above age 18 as part of determining an early age of onset. This differed with the methods of the current study, where age of onset was explored on a continuum. Furthermore, in Read's research, abuse was determined from medical files, rather than self-report, which could have resulted in differing trends (i.e. only very severe cases reported). It is difficult, however, to draw definite conclusions from the available findings given the preliminary nature of the current study and limited other research on this area.

In addition to no sex-specific associations for trauma, there was also no evidence of gender effects for a number of other psychosocial variables. For example, relationship history was not found to be specifically relevant for men to age of onset, contrary to the findings of Jablensky and Cole (1997). There was also no support for a relationship between aspects of cannabis use, gender and age of onset, which could have been anticipated based on some studies (Compton et al., 2009). The use of gender-specific analyses by future studies could strengthen the preliminary findings of this research.

Symptoms.

The relationships between psychosocial variables and symptoms for men and women are summarised below. Figures 1 and 2 depict conceptual integrations of the potential pathways towards symptoms for men and women.

Trauma and symptoms. Trauma was found to be relevant to positive symptoms for both genders. For women, sexual abuse and physical neglect were associated with a greater number of positive symptoms, with sexual abuse a significant predictor of positive symptoms. Emotional abuse was relevant to the experience of negative symptoms (see Figure 1). For men, emotional abuse appeared to be a particularly relevant experience of adversity, being significantly associated with positive symptoms (see Figure 2). Emotional abuse was also specifically related to hallucinations and to paranoid delusions for men. There were no forms of trauma, or any other psychosocial variables that were associated with negative symptoms for men.

Coping responses and symptoms. As for the total sample, coping responses with past adversity were relevant to symptomatology. For men, a self-blaming response following past adversity appeared to have a particular influence on positive symptoms as a whole, with self-blame able to predict the variance in positive symptoms (see Figure 2). A self-blaming response to past adversity was also specifically related to delusions of control, and to cognitive disorganisation. Other coping responses which were shown to be significant for men were reframing, as well as a dissociative response to past adverse events. The less that reframing was used following past adversity, the greater the number of hallucination symptoms. Dissociation as a response to past adverse events was shown to be relevant to cognitive disorganisation in men, and was a significant predictor of this symptom. For women in the sample, the only significant relationship was that of paranoid delusions and a self-blaming response, where the greater the extent of self-blame, the higher the number of paranoid symptoms (see Figure 1).

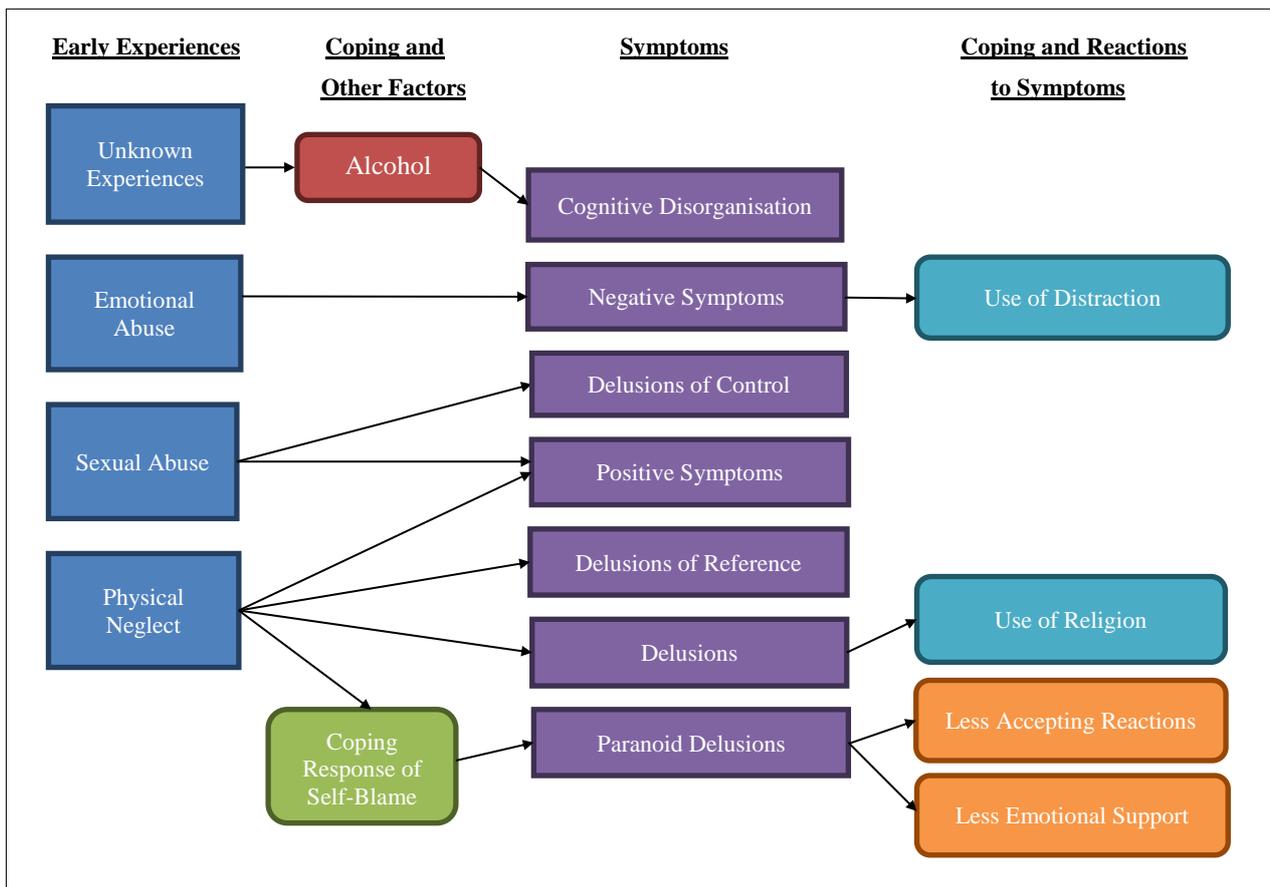


Figure 1. Conceptual Diagram of Potential Pathways Between Psychosocial Factors and Symptoms for Women.

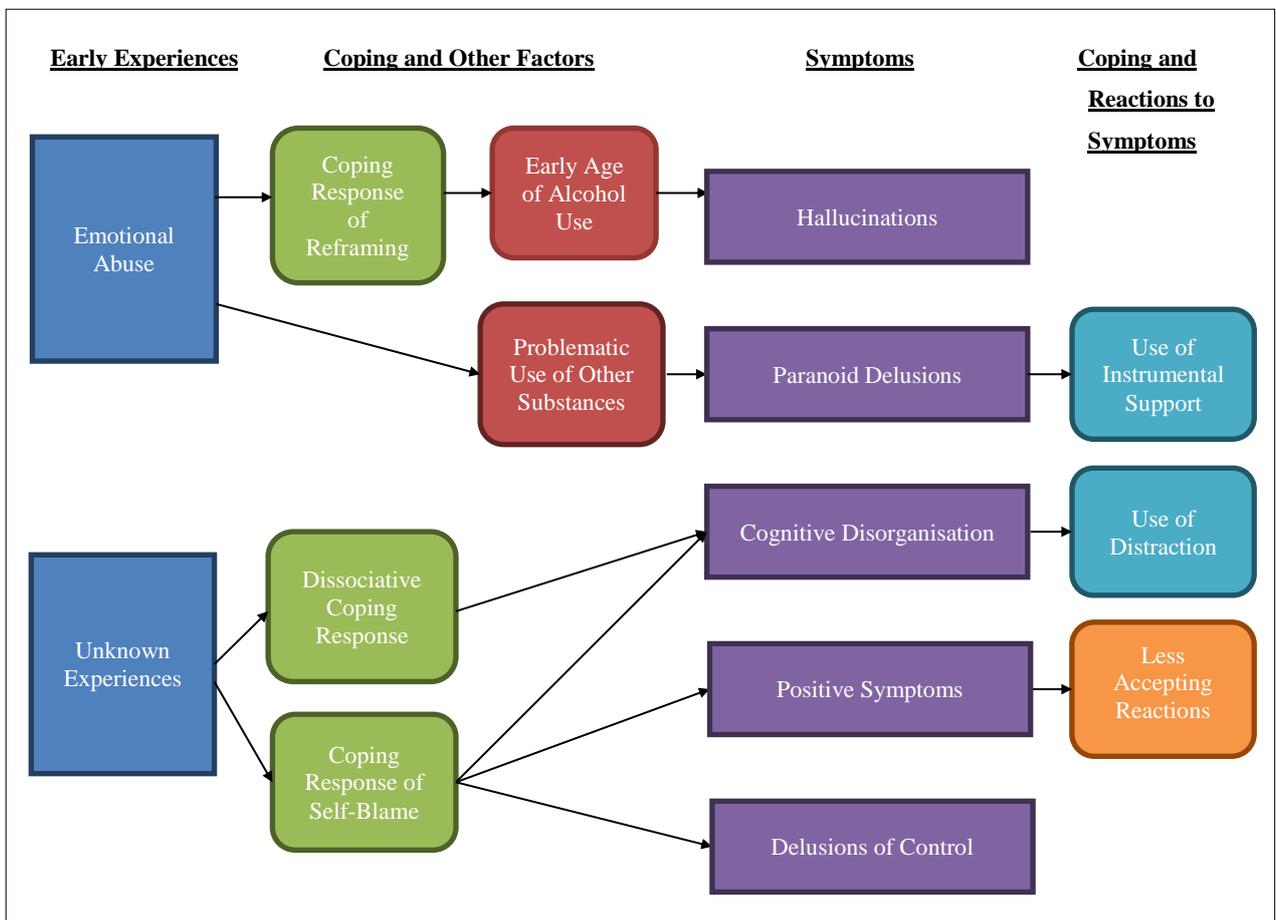


Figure 2. Conceptual Diagram of Potential Pathways Between Psychosocial Factors and Symptoms for Men

Gender-based differences were also found in the ways that individuals cope with symptoms. For women, the greater the number of delusion symptoms, the more that religion was accessed as a coping response (see Figure 1). Another significant association was between negative symptoms and use of distraction, where the greater the number of negative symptoms, the more distraction was employed to manage symptoms. For men in the sample, distraction was also used as a coping strategy to respond to symptoms, with the greater the degree of cognitive disorganisation, the more that distraction was used (see Figure 2). Also, the greater the extent of paranoid symptoms, the less that instrumental support was used by men as a means of coping.

Substance use and symptoms. For men in the sample, hallucinations were negatively associated with age of first alcohol use and could predict the variance in hallucination symptoms (see Figure 2). Paranoid delusions were related with perceived problematic use of other substances. For women, there was one relationship between substances and symptoms, where alcohol use was associated with cognitive disorganisation. This was the only significant psychosocial predictor (see Figure 1).

Reactions to symptoms. For both men and women, specific symptoms were associated with less acceptance and support (see Figures 1 and 2). For men, positive symptoms overall, as well as the experience of delusions, were related to less acceptance following symptom disclosure. For women, the greater the number of paranoid symptoms, the less acceptance and emotional support were experienced following symptom disclosure.

Discussion of symptom findings.

A number of general conclusions can be drawn from these findings. The results firstly indicate that the associations between gender, type of trauma, and symptomatology are complex. For men and women, varying experiences of adversity seemed to lead to differential symptoms, with no overlap in these pathways.

These preliminary findings can also be considered to extend the limited existing literature. For example, this study found a relationship between trauma and the symptoms of psychosis for both men and women, which contrasted with the results of other researchers (Fisher et al., 2009). The association between emotional abuse and negative symptoms in women may represent a particularly important finding from these analyses. Research into negative symptoms has often focused on male subjects, given the literature on higher rates in men. However, this may have led to a lack of exploration of the relevance of trauma, specifically emotional abuse, and potential pathways in women. The results of the present

research thus add to the limited available literature on the role of trauma, gender and symptoms of psychosis.

The study findings on coping responses may also extend the existing body of research. As discussed by Phillips et al. (2009) in their review, studies of coping for individuals with psychosis have been limited by a lack of consideration of both childhood trauma and gender. With regards to coping with adversity, it appears there was some variation for men and women. A self-blaming response in response to past adversity was shown to influence a variety of symptoms in men, but seemed to exert a more discrete influence for women; despite a greater prevalence of self-blame overall in the female sample. This may indicate that although self-blame is less common in men, when it does occur, it exerts a particularly strong influence on the development of psychotic symptoms overall.

The link between a dissociative coping response with past adverse experiences and cognitive disorganisation for males was unexpected, given literature indicating dissociation could be more relevant for females (Hulette, Freyd, & Fisher, 2011; Velden et al., 2006). This indicates that the developing literature exploring the potential pathways between dissociation and psychosis (Kilcommons & Morrison, 2005; Varese, Barkus, et al., 2012) may benefit from a consideration of gender differences.

The current study also indicates that men and women may respond differently to types of symptoms. The specific relationship between increased paranoia and reduced use of access to instrumental support in men could have implications for engagement and treatment. It may be that men with paranoia experience mistrust, fear and hostility that reduce their interest in actively seeking out mental health services. This could mean that outreach to men experiencing paranoid symptoms may need to be particularly assertive, with additional attention to building rapport and connection with these individuals.

Religion appeared particularly relevant for women experiencing delusional beliefs. Although this association could represent an overlap between perceived symptoms and coping responses (i.e. delusional content associated with religious beliefs), it is consistent with the results of Cohen and Berk (1985) who found spiritual coping was of particular importance for women with psychosis.

As for other analyses in this study, there were no clear patterns indicating substance use was influential for men in the sample or that reactions to symptoms by others varied based on gender. However, some important conclusions can still be drawn from the patterns of findings. Firstly, the use of alcohol and of cannabis should be considered as equally

relevant for both men and women. Secondly, there may be particular importance in maintaining an accepting and supportive stance for those who experience delusions.

The consideration of differential pathways in the development and experience of psychotic symptoms for men and women is an under-researched area. To the knowledge of the author, this is the first study to explore the interplay of psychosocial and clinical variables separately for men and women with psychosis. These findings are clearly preliminary in nature, however, may represent an important starting point for future research studies.

Casual Explanations for the Experience of Psychosis

Overview.

In addition to the quantitative analyses conducted in the present study, qualitative analyses were also used, comprising a small component of the questionnaire. Casual explanations for men and women were explored by asking the open-ended question: “What do you think caused your unusual experiences/symptoms of psychosis?” It was hoped that the inclusion of men and women’s perspectives on relevant causal influences would extend understandings of gender effects in psychosis. With the analyses of these accounts, it was clear that many influences that were identified were similar between the sexes. The themes “Biological Pathways,” “Childhood Adverse Experiences,” “Cumulative Stress and Stress Responses,” “Socio-Emotional Experiences” and themes relating to religion/spirituality were present for both genders. This suggests that there may be more commonality, rather than difference, in the ways in which men and women make sense of their experiences. In the following section, some key points that can be drawn from men and women’s accounts will be discussed, including comparisons with the available literature.

Discussion of central findings.

Some general trends were evident from participant responses to the open-ended question. First, participants seemed to have little difficulty articulating their own understandings of the origins of their psychosis, which is in keeping with the findings of Geekie (2007, 2013). This is an important finding in its own right, especially given the paucity of studies of people’s own beliefs. Secondly, participants often outlined multiple factors in their accounts, rather than having one primary causal influence. This finding is also consistent with the results of Geekie (2007) and other research into explanatory models of psychosis (Baker & Procter, 2013; Dudley, Siitarinen, James, & Dodgson, 2009; Sayre, 2000). Furthermore, the majority of participants chose to complete the open-ended question,

with many providing detailed and diverse accounts of their experiences. This may suggest that participants are interested in sharing their theories on what influenced the experience of psychosis and that this information is of particular value.

In the present study, both men and women tended to endorse social and psychological explanations, with only one of the themes relating to biological causes. This is generally consistent with the trends of research with individuals experiencing psychosis (Clarke, 2010; Dudley et al., 2009; Read, Haslam, Sayce, & Davies, 2006) and the perspectives on the origins of mental health problems within the general population (Jorm & Griffiths, 2008).

Some parallels could be drawn between the themes in participant accounts and scientific and clinical understandings. The role of childhood adverse experiences, for example, is now increasingly recognised as important in the development of psychosis (Varese, Smeets, et al., 2012), forming the rationale for the exploration of trauma within the present study. The significance of early life experiences in later adult development is a core paradigm in psychological formulation and treatment models, including cognitive-behavioural approaches.

The experience of adverse experiences in childhood found in the female responses paralleled the general themes of loss, hopelessness and for some, repeated victimisation, highlighted in other studies of women. In Repper, Perkins and Owen's (1998) accounts, early trauma was one part of a cycle of loss and disillusionment, which many women battled with across their lifetime. O'Neill (2010) explored the accounts of four women who had experienced sexual abuse and psychosis, all of whom felt that their past trauma had negatively influenced their mental health. In their research on women with severe mental illness and substance use, Padgett et al. (2006) attributed the experience of trauma to both mental health and addiction, concluding that "the women in our study were self-medicating extreme stress accumulated over the life course (p.466)."

In the accounts of both men and women, it was not only earlier life experiences which were significant. Many responses highlighted a sense of proximal stress and stressors building over time, culminating in the development of psychotic symptoms. This was represented by the "Cumulative Stress and Stress Response" theme. A range of stressors were noted, including family tensions, employment issues, as well as a general notion of "overdoing it".

There are some links between the "Cumulative Stress and Stress Response" theme and the findings of other researchers. For example, young men in research by Perry et al. (2007) identified feeling stressed and pressured prior to development of symptoms. The

“Cumulative Stress and Stress Response” theme can also be considered comparable to the “Trauma/Stress” frame of reference in Aschebrock’s (2005) accounts of women with hallucinations and delusions. The concept of stressors being influential in the onset of psychosis is consistent with the “stress-vulnerability” model (Zubin & Spring, 1977) and other research on the role of proximal life events in psychosis (Bebbington et al., 1993; Tessner, Mittal, & Walker, 2011).

Spirituality and religious explanations were evident in accounts for both men and women. In research by Aschebrock (2005), spirituality was a core frame of reference for women, with both mainstream religious beliefs and more personalised understandings incorporated in explanatory models. The relevance of spirituality in causal beliefs was also found in the accounts of young men in the study of Perry and colleagues (2007), as well as in other research (Geekie, 2007). Interestingly, despite the documented influences of spirituality in understandings of psychosis, this area has typically received little attention within the academic literature (Clarke, 2010; Sayre, 2000). The findings of the present study reiterate the value of understanding the role of spirituality for clients in both research and clinical contexts.

Although the “Socio-Emotional Experiences” theme was present for both men and women, there were also some variations based on gender. For men, responses could be grouped into the sub-themes of “Pressure of Expectations” and “Disconnection and Rejection”, whereas for women, this theme was not further differentiated. The relevance of expectations and social disconnection for men parallels the findings of Hirschfeld and colleagues (2005). In this study, the challenge of meeting age-related milestones was considered to be a core part of the “Personal Explanations” theme. Significantly, Harrop and Trower (2001) have argued that developmental milestones in adolescence, including individuating from parents and forming peer relationships, are highly relevant in the development and experience of psychosis. Some support for these theories could be provided from these qualitative results.

For both men and women, there were themes which seemed to relate to psychological factors. These themes were “Psychological Processes” for men and “Overwhelming of Psychological Resources” for women. Both themes highlight the role of cognitive and emotional factors involved in the development of psychosis. However, there were also some important variations. For the men, there appeared to be more discrete factors identified in causal explanations, leading to the differentiation of the “Psychological Processes” theme into “Cognitive Process,” “Emotional Experience” and “Devaluation of the Self.” For

women, the process of breaking down and fragmenting appeared to be more salient, leading to the “Overwhelming of Psychological Resources” theme.

The “Devaluation of the Self” sub-theme, featuring within the male accounts, is consistent with other research results. Hirschfeld et al. (2005) for example, identified the theme of “Thinking about Dying,” which encompassed the depth of low self-worth and hopelessness evident in participant accounts. Lloyd, Sullivan and Williams (2005), who explored social stigma in a group of young men with psychosis, also discussed the influence of low self-worth through the experience of psychosis in the context of their “Change of Self-Perception” theme.

Interestingly, low self-worth or self-esteem did not feature significantly within female accounts in the present study. This contrasts with Aschebrock’s (2005) research. The author described how some women felt that their “low self-esteem” or “insecurities” were factors in the development of hallucinations and delusions, implicitly locating responsibility within themselves (p.116).

More similarities were present between the “Overwhelming of Psychological Resources” theme for women and other frames of references in research by Aschebrock. The author discussed how in both the “Trauma/Stress” and “Biological” frames of reference, there was a sense of human frailty and an inherent limitation in the ability to cope with increasing stressors. This seems to closely link with the responses of women in the current study.

There was a difference between the themes in men and women’s accounts in one central area. “Substance Use” was a theme which appeared relevant for the men in the sample, but did not seem as prominent in female responses. The use of substances by young men has been widely researched, as has been discussed in previous sections. In terms of qualitative studies, Hirschfeld and colleagues (2005) found substance use formed a core part of the personal explanations of young men in their study.

Although substance use was not as salient in the responses of women in the present study, it is likely that using substances, potentially to cope with difficult experiences, is common to both genders. Storm (2007) explored the experiences of men and women with substance use and on-going mental health concerns, with many participants speaking of the role of “self-medicating” in the face of past trauma. Substance use was also highlighted as a causal factor in two other studies of women with severe mental health concerns (Aschebrock, 2005; Padgett et al., 2006). Furthermore, substance use was found to be prevalent for both men and women in the quantitative component of the current study, suggesting its universal relevance.

Summary.

A number of general conclusions can be made from discussion of the open-ended question analyses. First, it was evident that there were many commonalities, rather than differences, apparent in the themes. Only one theme, “Substance Use,” was unique across genders. Some slight variations in responses were present for specific themes, including “Socio-Emotional Experiences” and the “Psychological Processes”/“Overwhelming of Psychological Resources” themes.

Despite having data with limited “richness” (Braun & Clarke, 2006), the participant responses from the present study were able to be compared and contrasted with existing literature in meaningful ways. This indicates the value in exploring client perspectives, even if only on a small scale, as in this study. Overall, the open-ended question analyses can be considered to add to the research basis on explanatory models of men and women with psychosis.

Limitations of the Study

There were some limitations associated with the present study. One central limitation was the sampling method which was employed. The study used convenience sampling given the relatively low prevalence of psychosis, difficulty in accessing this population for research and practical and ethical constraints. This methodology limits the generalizability of the study findings, as there can be no guarantee this sample is representative of the wider psychosis population.

There was a lower sample size than hoped for, due to recruitment difficulties, with only 51 participants. A limitation associated with smaller sample sizes is the increased risk of Type I error, where there are “false positive” results. Where able, attempts were made to control for this type of error (e.g. lowering the level of required significance for correlation matrixes). However, Type I error may still have had some influence on the overall pattern of results.

Smaller sample sizes also have implications for the level of statistical power. Statistical power was a significant limitation associated with analyses. Within the current study, there was only sufficient power to detect very large effects in the one way ANOVA, and large effects within the regression analyses, based on the sample size of 51 and a 0.05 alpha level. Smaller to medium effects would not have been able to be detected.

Some features of the study design could also be considered limitations. For example, the use of a retrospective self-report design relies on the memory abilities of participants,

their level of awareness or ‘insight’ into difficulties and may also be subject to biases of social desirability. The validity of retrospective reports of childhood trauma and dissociation has been questioned by some (Hardt & Rutter, 2004; Putnam, 1995), however recent research supports the reliability of such accounts (Fisher et al., 2011; Read et al., 2005).

Aspects of recruitment and the procedure may have had implications for the study findings. Decisions around what individuals within mental health services were approached about the study were made at the discretion of the clinicians for ethical reasons. It is therefore not known how many people with psychosis were not approached about the study, or were approached and declined, or any characteristics of these groups. However, data on this was unfortunately not recorded so sensitivity analyses could not be performed. In addition, the process of completing the questionnaire was not strictly controlled, based on local health board requirements. Participants could complete the questionnaire with clinicians, the author, or in their own time. These variations may have impacted on the ways participants responded to the questionnaire items.

There were also some limitations related to the measurement of variables in the questionnaire. Although formal scales were used where available, some measures needed to be adapted or created due to the self-report format and practical constraints of the questionnaire. For example, novel items had to be created to assess negative symptoms and cognitive disorganisation. These scales were not able to be widely administered to establish their reliability, validity, sensitivity or specificity in a large sample. Furthermore, due to constraints on the length of the questionnaire, some variables were only explored in limited detail, such as relationship history, substance use and causal understandings of psychosis. Other potentially relevant variables were also not directly assessed in the questionnaire. For example, exploration of the severity of symptoms, outcomes, additional experiences of adversity, including parental loss, poverty or institutional care were beyond the scope of the present study. Factors associated with the measurement of psychosocial variables may therefore represent limitations of this research.

Despite these shortcomings, the results of this preliminary study can still be considered to extend the literature with its unique exploration of psychosocial factors and sex differences in psychosis.

Research Implications

There are some important research implications that can be drawn from this study. Firstly, this study confirms the relevance of exploring psychosocial factors in psychosis.

Rather than being factors to control for, social and psychological factors represent valuable research opportunities in their own right. For example, the ways in which people coped with past adversity were found to predict age of onset in the present study. Symptoms were found to be associated with differing forms of childhood trauma. These results demonstrate the limitations of exclusively biological approaches to research and the need for integrated conceptualisations of psychosis.

The findings from this study may also highlight areas for future investigation. Researchers have begun to explore potential psychosocial pathways involved in the development of psychosis, including attachment (Read & Gumley, 2008), dissociation (Varese, Barkus, et al., 2012) and cognitive processes (Bentall, 2004, 2009; Morrison & Petersen, 2003). However, gender has not thus far been a key feature within the context of this research. Furthermore, there are currently no comprehensive theories of why and how men and women could present differently in psychosis in the context of this existing literature. Large-scale, prospective studies which incorporate gender-based analyses would be ideal in developing these understandings.

As part of building a comprehensive picture of the role of gender, life events and psychosis, it would also be important for researchers to also conduct additional qualitative research. The present study opened a small window into the perspectives of men and women with psychosis. However, deeper exploration of clients' views will provide further insight in this research area and greater opportunities for clients to have their voices heard.

Another important implication of the current research is the need for investigation of psychosis within New Zealand populations. Within this study, it was unclear whether results which were inconsistent with international research were in part a product of the New Zealand context. Even basic prevalence data was difficult to ascertain, given psychotic disorders were not included in the most recent mental health survey (Oakley-Browne, Wells, & Scott, 2006). Extending the research into psychosis in New Zealand, including investigating trends and patterns for differing cultural groups, would therefore be a valuable future endeavour.

Given the exploratory nature of this study, there are a number of specific questions and hypotheses that could be clarified by future research projects. These questions include:

- Is there evidence for an earlier age of onset in men and a greater number of negative symptoms in New Zealand populations?
- How does the use of differing criteria for psychosis influence sex differences in age of onset in New Zealand populations?

- Is there a clear gender difference in dissociative responses to adverse childhood events?
- What is the nature of the relationship between coping with past adversity and an earlier age of onset?
- How does substance use (the frequency, intensity and progression of use) relate to age of onset in psychosis?
- Why might a dissociative response lead to an earlier age of contact with services?
- What is the nature of the relationships between different types of adversity and hallucinations and delusions?
- Is there a relationship between paranoia and physical abuse in New Zealand populations?
- How might the experience of emotional abuse lead to the development of negative symptoms?
- Why might self-blame and behavioural disengagement be influential in the onset of symptoms for young men?
- What factors influence an earlier age of onset in women?
- How may gender influence the relationship between emotional abuse and negative symptoms?
- What factors can protect against an earlier age of onset for both men and women?
- What is the nature of the relationship between gender, types of adversity and types of symptoms in psychosis?

Clinical Implications

There are some clinical implications of the study findings. Firstly, this research reiterates the established link between trauma and psychosis. As discussed by Read, Fink and colleagues (2008), this indicates a need for clinicians to ask, and receive appropriate training about how to ask, about childhood adverse experiences when working with clients with psychosis (Read, Hammersley, & Rudegeair, 2007). In the present study, the particular relevance of coping with early adversity in the development and experience of psychotic symptoms was established. This suggests that it is not just the experience of adverse events that should be enquired about, but the emotions, beliefs and behaviours associated with these adverse events, consistent with cognitive-behavioural approaches (Garety et al., 2001; Morrison, 2001).

Both the experience of early adversity and coping responses had associations with the clinical features of psychosis in this study. This may support the notion of early intervention from mental health services, where young people who have experienced adversity can be supported to minimise distress and promote adaptive ways of coping. Gender may be a factor to also consider within these early intervention services, based on the preliminary findings of

this study. Early intervention could contribute to better outcomes for young men and women at risk of developing psychosis.

This study may have general implications in the ways in which clinicians work with psychosis. First, a broad approach, where social, psychological and biological factors are explored in formulation and treatment processes, may have particular utility. Second, clinicians should be aware that different types of symptoms could be tied to both differential coping responses and reactions from others. This may mean that particular care needs to be taken to build trust, rapport and maintain open pathways for accessing services for certain client groups. Finally, participants were found to have diverse, multi-factorial understandings of psychotic experiences in this study: often which paralleled the existing academic literature. This indicates the value in enquiring around how the client makes sense of their own experiences within mental health services.

Conclusion

The literature on psychosis has undergone some important changes in recent decades. Prior to the 1980s, the consideration of psychosocial influences or of gender differences in psychosis was relatively rare. Although biological perspectives remain dominant, there is now a significant body of literature on these two respective fields. The intersection of psychosocial influences and gender effects, however, has yet to be the focus of considerable research attention.

The current study was designed to help address this gap within the literature. Psychosocial factors that were linked to the age of onset, the symptoms of psychosis and appeared to vary based on gender were drawn from the existing research. These key variables - childhood trauma, coping responses, relationships, substance use and reactions to symptom disclosure - were considered with reference to clinical factors in sample of individuals with psychosis.

Analyses conducted across the total sample were able to both support and extend existing findings. As in previous research, there were associations found between psychological factors in childhood and adolescence and the clinical features of psychosis. The ways in which individuals in the study had coped with past adversity were related to the age at which symptoms developed. This relationship represents a new finding within the literature. Furthermore, there were specific associations between some psychosocial factors, namely, types of trauma experiences, aspects of substance use and coping responses, and the

symptoms of psychosis. These findings, some of which are also new within the field, could constitute important future directions for researchers.

The exploration of gender differences was a key focus of this study, particularly age of onset and symptoms within men and women. The research findings were somewhat contrary to predictions. There was no clear difference in age at which symptoms had developed and negative symptoms were found to be more common for women rather than men. Overall, these results indicated that the interplay of gender and psychosis could be complex, with no firm conclusions able to be drawn from the study findings.

Although there were similarities in the clinical features between men and women when directly compared, within-group analyses highlighted an interesting pattern of results. Perhaps the most important finding is that when the data for males and females were analysed separately, there was very little overlap in the factors relevant for men relative to those relevant for women. This suggests that although the age of onset and types of symptoms were comparable for men and women, the specific pathways to these outcomes vary based on gender. Given the preliminary nature of these findings, the associated mechanisms remain unclear. No comprehensive theories can be generated. These results do however cast a spotlight onto a previously unexplored area of research, which warrants further empirical investigation. This research represents a valuable starting point from which future understandings of gender, psychosocial influences and psychosis can develop.

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APPENDIX A

SURVEY OF UNUSUAL EXPERIENCES AND PSYCHOSIS

**DETAILS OF QUESTIONNAIRE NOT DISPLAYED
IN DIGITAL FORMAT FOR COPYRIGHT
PURPOSES**

**DETAILS OF QUESTIONNAIRE NOT DISPLAYED
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**DETAILS OF QUESTIONNAIRE NOT DISPLAYED
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PURPOSES**

Department of Psychology
University of Auckland
Private Bag 92019,
Auckland, New Zealand

PARTICIPANT INFORMATION SHEET

Title: Investigating Gender Differences in Psychosis

Researchers

This research is being undertaken by Jennifer O’Callaghan as partial fulfilment of the requirements of a Doctorate of Clinical Psychology, at the University of Auckland.

To Potential Participants: An Invitation

Because of your current or recent involvement with a service for people who experience psychosis, you are invited to participate in a study exploring differences between men and women in the development of psychosis.

About the Study

Researchers have found that there are some differences between men and women who have the types of unusual experiences that are usually described as psychotic, but the reasons for these differences are not well understood.

We want to know more about whether the differences that have been found in other countries also occur in men and women in New Zealand, and, if so, why they may occur. One factor that we are investigating is the influence of negative past experiences in childhood and how people coped with these experiences.

We are also interested in how other people reacted to your unusual experiences and the ways men and women cope with these experiences.

We are inviting all adults who have been in contact with this agency and other agencies in the Auckland region to participate in this study. We hope to find at least 100 people willing to take part.

About your Participation

The study involves completing the survey which we have provided in this envelope. It takes about 45 minutes to complete. You can complete it in your own time, up to one month after you receive this letter. Once you have filled it out, you can post it back in the envelope provided.

After we have received the completed survey by post we can, if you choose, send you a \$20 grocery or petrol voucher as a token of our appreciation for the time taken to fill out the survey.

At the end of the study, you will receive a report of the study findings if you would like that. This report will be sent to your preferred address.

Your participation is entirely voluntary (your choice). You do not have to take part in this study. If you choose not to take part, your decision will not affect your current or possible future access to services or your relationships with staff. Staff members will not know whether or not you have chosen to complete the survey, and – if you do complete it – they will not see it. If you do choose to complete the survey, you do not have to answer all the questions.

Part of the questionnaire asks about negative experiences during childhood and your experiences relating to psychosis. It is possible that you may experience distress during the completion or, perhaps, after completing the survey. If this happens, we encourage you to contact your current mental health service and/or make contact with the services listed at the end of this sheet. And please remember you do not have to answer any questions you would rather leave blank.

All of your responses will be dealt with in ways that prevent anyone other than the researchers from identifying you as their source. Your name will not appear in any electronic datasets or research reports. The data will be reported in a thesis prepared by Jennifer O’Callaghan and in reports published in scientific journals. Any data reported in research documents and publications will be presented in ways that do not identify you as their source. Data will be stored in a password-protected database on a password-protected computer or in a locked cabinet in a locked office at the University of Auckland. The data will be deleted or shredded 6 years after publication of the study findings.

Please Contact Us For More Information

Please contact us if you have any questions or concerns about the study or if you would like to have more information about the study. Please contact one of the following research team:

Jennifer O’Callaghan: Department of Psychology (Tamaki Campus, The University of Auckland, Private Bag 92019, Auckland. Email: joca004@aucklanduni.ac.nz

Associate Professor John Read, Tamaki Campus, The University of Auckland, Private Bag 92019, Auckland. Phone: (09) 373-7599 ext. 85011 j.read@auckland.ac.nz

You may also contact the head of the psychology department:

Dr Doug Elliffe, Department of Psychology, The University of Auckland, Private Bag 92019, Auckland. Phone: (09) 373-7599 ext. 85262 d.elliffe@auckland.ac.nz

If you decide to complete the questionnaire and experience distress, we encourage you to make contact with your current mental health service (if any) and/or the following services.

Lifeline: (09) 522 2999 OR Youthline: 0800 376 633

If this is an emergency, please phone 111

OR

Phone your local DHB Mental Health Crisis Teams (CATT):

Counties Manukau: (09) 270 9090

APPROVED BY THE NORTHERN Y REGIONAL ETHICS COMMITTEE on 6/01/11 for 1 year, from 6/01/11 to 30/3/12. Reference: NTY/10/08/060

Department of Psychology
Building 721
Tamaki Campus
200 Morrin Road,
Glen Innes

CONSENT FORM

Title: Investigating Gender Differences in Psychosis

Researchers: Jennifer O’Callaghan, Doctoral candidate, and Associate Professor John Read, Department of Psychology, University of Auckland.

This consent form will be stored for a period of 6 years before it is destroyed.

- I have read and understand the information describing the aims and content of the study.
- I have had the opportunity to ask questions and have them answered.
- I understand that my participation or non-participation will not affect my access to services or relationships with staff in any way.
- I understand that the project involves up to 1 hour of my time.
- I understand that, if the information I provide is included in any report or publication, it will be done in a way that does not identify me as its source.
- I understand that, upon completion of my participation, I will be offered a \$20 grocery voucher in appreciation of my time and contributions to this research project.
- I agree to have my data stored in a locked cabinet and a password-protected database for a period of 6 years.
- I agree to take part in this research under the terms indicated in the Participant Information Sheet.

Participant Name: _____

Participant Signature: _____

Date: ____/____/____

I wish to receive a summary of the findings: YES/NO

I wish to receive a petrol OR grocery voucher YES/NO

I would like it to be sent to the following address:

APPROVED BY THE NORTHERN Y REGIONAL ETHICS COMMITTEE on 6/01/11 for 1 year, from 6/01/11 to 30/3/12. Reference: NTY/10/08/060

<p>THIS CONSENT FORM WILL BE DETACHED AND STORED SEPARATELY TO SURVEY WHEN RECEIVED BY THE RESEARCHER MEANING YOUR RESPONSES WILL REMAIN ANONYMOUS.</p>
--

Table A
Correlations Between Childhood Trauma Questionnaire Scales and Associated Psychosocial Variables.

	Emo. Abuse	Phy. Abuse	Sex. Abuse	Emo. Neg.	Phys Neg	Accep Careg.	Self-blame (AE)	Emo. Supp (AE)	Act. Cope (AE)	Instr. Supp. (AE)	Refra. (AE)	Distr. (S)	Beha. Dis (S)	Self-Blame (S)	Vent. (S)	Refra. (S)	Inst. Supp (S)	Emo. Supp. (S)	Diss. Resp.	
Emo. Abuse	-																			
Phy. Abuse	.71	-																		
Sex. Abuse	.51	.54	-																	
Emo. Neg.	.66	.46	.40	-																
Phys. Neg	.33	.18	.27	.47	-															
Acceptance from Careg.	-.37	.00	-.11	-.67	-.20	-														
Self-Blame (AE)	.43	.16	.37	.27	.21	-.29	-													
Emo. Supp (AE)	-.30	-.18	-.39	-.69	-.34	.42	-.09	-												
Active Cope (AE)	-.11	-.19	-.05	-.42	-.07	.50	.14	.51	-											
Instru. Supp. (AE)	-.28	-.14	-.17	-.53	-.05	.53	.01	.73	.57	-										
Reframing (AE)	-.10	-.15	-.02	-.46	-.15	.22	-.03	.55	.46	.49	-									
Distraction (S)	.42	.38	.31	.24	.29	-.21	.36	-.10	-.10	.04	.09	-								
Behav. Dis (S)	.37	.34	.32	.28	.11	-.15	.47	-.18	-.15	-.08	-.20	.26	-							
Self-Blame (S)	.46	.33	.23	.41	.15	-.50	.59	-.22	-.12	-.15	-.23	.35	.42	-						
Venting (S)	-.06	-.03	-.07	-.19	-.35	.26	.16	.26	.22	.20	.08	.22	.09	.19	-					
Reframing (S)	-.06	-.11	-.06	-.41	.03	.35	-.11	.40	.35	.40	.70	.28	-.23	-.35	.08	-				
Instrum. Supp. (S)	-.30	-.17	-.12	-.61	-.20	.50	-.09	.62	.51	.68	.58	-.01	-.34	-.31	.20	.56	-			
Emo. Supp. (S)	-.29	-.16	-.21	-.66	-.27	.60	-.09	.70	.53	.63	.45	-.01	-.24	-.30	.27	.48	.84	-		
Dissoc. response	.48	.31	.40	.41	.42	-.46	.47	-.25	-.18	-.15	-.10	.76	.30	.50	.14	-.02	-.30	-.26	-	

Note. Correlations which are significant at the 0.01 level are displayed in bold; AE = Past Adverse Events, S = Symptoms.

Table B*Correlations Between Coping with Past Adverse Experiences, Coping with Symptoms and Related Psychosocial Variables.*

	Distrac (AE)	Active Cope (AE)	Denial (AE)	Sub Use (AE)	Emo. Supp. (AE)	Behav Dis (AE)	Instr. Supp. (AE)	Refram (AE)	Plan. (AE)	Accep. (AE)	Vent (AE)	Self- Blame (AE)	Relig. (AE)	Diss. Resp.	Distrac (S)	Active Cope (S)	Denial (S)	Sub Use (S)	Emo. Supp. (S)	Behav Dis (S)	Instr. Supp. (S)	Plan. (S)	Refram (S)	Accept (S)	Vent (S)	Relig. (S)	Self- Blame (S)	Age Alc. Use	Roman Relat. Use	
Distraction (AE)	-																													
Active Cope (AE)	.30	-																												
Denial (AE)	.12	.09	-																											
Sub. Use (AE)	.08	.05	.12	-																										
Emo. Supp. (AE)	.30	.50	.05	.22	-																									
Behav Dis (AE)	.05	-.08	.45	.32	.02	-																								
Instr. Supp. AE)	.28	.57	.19	.11	.73	-.17	-																							
Reframing (AE)	.45	.46	.08	.11	.55	.05	.49	-																						
Planning (AE)	.45	.63	.30	-.06	.42	.08	.60	.48	-																					
Acceptance (AE)	.26	.11	-.28	-.03	.25	-.01	.12	.15	.26	-																				
Venting (AE)	-.04	.23	.21	.27	.27	.08	.38	.00	.24	.16	-																			
Self-Blame (AE)	.29	.14	.22	.25	-.09	.36	.01	-.03	.19	-.11	.11	-																		
Religion (AE)	.25	.44	.22	.24	.43	-.04	.48	.34	.37	.05	.19	.15	-																	
Dissoc. Respon.	.12	-.18	.40	.31	-.25	.36	-.15	-.10	.05	-.11	.15	.47	.03	-																
Distraction (S)	.29	-.10	.23	.26	-.10	.32	.04	.09	.20	.08	.17	.36	.08	.76	-															
Active Coping (S)	.18	.29	-.09	-.07	.31	-.17	.31	.41	.38	.11	.06	-.03	.28	-.33	.02	-														
Denial (S)	.21	.22	.38	.21	-.01	.24	.15	.16	.35	-.13	.36	.41	.06	.31	.33	.03	-													
Sub. Use (S)	.15	.11	.14	.77	.20	.16	.11	.15	-.03	-.06	.26	.17	.26	.17	.10	-.19	.36	-												
Emo. Supp. (S)	.25	.53	.00	.31	.70	.02	.63	.45	.49	.22	.24	-.09	.44	-.26	-.01	.53	-.03	.12	-											
Behav. Dis. (S)	-.16	-.15	.37	.22	-.18	.64	-.08	-.20	-.05	-.12	.24	.47	-.19	.30	.26	-.31	.38	.16	-.24	-										
Inst. Supp. (S)	.33	.51	.03	.16	.62	-.14	.68	.58	.51	.08	.13	-.09	.49	-.30	-.01	.62	.06	.14	.84	-.34	-									
Planning (S)	.34	.29	.16	-.08	.19	-.12	.24	.35	.53	.12	-.14	-.10	.15	-.13	.09	.66	.10	-.10	.39	-.36	.48	-								
Reframing (S)	.50	.35	.09	.16	.40	-.06	.40	.70	.44	.31	-.01	-.11	.37	-.02	.28	.39	.20	.22	.48	-.23	.56	.46	-							
Acceptance (S)	.40	.15	.13	.04	.19	-.01	.12	.41	.38	.30	.19	-.06	.12	-.03	.25	.61	.31	.09	.32	-.17	.39	.51	.58	-						
Venting (S)	.05	.22	.00	.32	.26	.23	.20	.08	.27	.21	.69	.16	-.05	.14	.22	.08	.38	.33	.27	.09	.20	-.02	.08	.21	-					
Religion (S)	.09	.37	.06	.02	.25	-.21	.41	.35	.27	-.01	.13	-.06	.69	-.22	-.03	.36	.09	.12	.38	-.32	.48	.28	.38	.20	-.08	-				
Self-blame (S)	.16	-.12	.25	.14	-.22	.41	-.15	-.23	-.07	-.12	.20	.59	-.08	.50	.35	-.32	.34	.10	-.30	.42	-.31	-.24	-.35	-.29	.19	-.19	-			
Age of Alc. Use	.00	-.03	.02	-.42	-.13	-.16	-.04	.01	.02	-.22	-.18	-.01	.01	-.10	.05	.24	.10	-.38	-.13	-.06	.04	.18	.04	.12	-.15	.25	-.03	-		
Romantic Relat.	.14	.22	.08	.49	.26	.08	.30	.26	.17	.25	.23	.01	.34	.10	.12	-.10	.19	.51	.18	.14	.09	.02	.25	.13	.00	.19	-.07	-.46	-	

Note. Correlations which are significant at the 0.01 level are displayed in bold; AE = Past Adverse Events, S = Symptoms.