



PTSD symptoms associated with the experiences of psychosis and hospitalisation: A review of the literature



Katherine Berry ^{a,*}, Sarah Ford ^a, Lorna Jellicoe-Jones ^b, Gillian Haddock ^a

^a University of Manchester, Division of Clinical Psychology, 2nd floor, Zochonis Building, Brunswick Street, Manchester M13 9PL, UK

^b Medium Secure Psychological Services, Guild Lodge, Whittingham Lane, Whittingham, Preston, Lancashire PR3 2JH, UK

HIGHLIGHTS

- ▶ Rates of psychosis-related PTSD range from 11% to 67%, with a median of 39% across studies.
- ▶ There are associations between psychosis-related PTSD and anxiety and depression.
- ▶ Trauma history correlates with psychosis-related PTSD, although the association is not strong.
- ▶ Psychological variables such as appraisals and coping may be important associates of psychosis-related PTSD.

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ABSTRACT

There is evidence of high rates of PTSD in people with psychosis, but the influence that symptoms or hospitalisation have on PTSD in individuals with psychosis is less clear. This paper reviewed studies investigating the prevalence of PTSD induced as a result of the experience of psychosis and hospitalisation and factors that might influence its development. The review included 24 studies, published between 1980 and 2011. Studies showed high levels of PTSD resulting from the trauma of symptoms and/or hospitalisation, with prevalence rates for actual PTSD resulting from these traumas varying from 11% to 67%. In line with studies of PTSD related to other traumatic events, there were inconsistent associations between PTSD and severity of positive and negative symptoms, but there were consistent associations between affective symptoms and PTSD. There were also inconsistent associations between hospital experiences and PTSD. Consistent with the general PTSD literature, there was some evidence that psychosis-related PTSD was associated with trauma history. There was also some emerging evidence that psychological variables, such as appraisals and coping style may influence psychosis-related PTSD. The review highlights the need for further research into psychological mechanisms that could increase vulnerability to psychosis-related PTSD and treatment approaches.

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* Corresponding author at: School of Psychological Sciences, University of Manchester, 2nd Floor Zochonis Building, Brunswick Street, Manchester M13 9PL, UK. Tel.: +44 161 3060400; fax: +44 161 3060406.

E-mail address: Katherine.berry@manchester.ac.uk (K. Berry).

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1. Introduction

Traditionally psychosis and post traumatic stress disorder (PTSD) have been regarded as theoretically distinct, but there is a growing body of evidence linking the two constructs (Morrison, Frame, & Larkin, 2003). It is now well accepted that trauma in childhood may contribute to the development of psychosis or be associated with worse outcomes (Bebbington et al., 2004; Larkin & Read, 2008; Lommen & Restifo, 2009). A trauma occurring in adulthood, re-traumatisation or multiple traumas may also significantly increase the risk of developing psychosis (Larkin & Read, 2008). Furthermore, trauma may influence the content of symptoms, as several studies have found associations between themes in voices or delusions and the nature of trauma experienced (Hardy et al., 2005; Read, Agar, Argyle, & Aderhold, 2003; Read & Argyle, 1999; Steel, Haddock, Tarrier, Picken, & Barrowclough, 2011). As well as having a higher trauma incidence, those with psychosis also have a higher incidence of, often undiagnosed, PTSD (Grubaugh, Zinzow, Paul, Egede, & Frueh, 2011). The lifetime rate of PTSD is significantly higher for those with a psychotic disorder compared to the rate of PTSD in the general population (Mueser, Rosenberg, Goodman, & Trumbetta, 2002) and the severity of the trauma is associated with the severity of both PTSD and psychotic experiences (Kilcommons & Morrison, 2005).

Psychosis does not meet DSM-IV (American Psychiatric Association, 1994) criterion A1 of actual or threatened harm when strictly interpreted. Many researchers would also argue that the symptoms of psychosis themselves are difficult to disentangle from PTSD symptoms (e.g. persecutory delusions versus hypervigilance; negative symptoms versus emotional numbing and experiential avoidance; and hallucinations versus flashbacks) making it problematic to state that one caused the other. Despite these arguments, a growing number of researchers have proposed that the experience of a psychosis itself could be conceptualised as a traumatic event, leading to the development of PTSD (Bendall, McGorry, & Krstev, 2006). There is substantial evidence that psychotic symptoms can cause intense fear and distress especially in the context of critical voice-hearing, command hallucinations or paranoid delusions (Bendall et al., 2006). It could even be argued that psychotic experiences have the potential to be more distressing than external events, as they are internally generated and therefore allow experiences to be personalised (Shaner & Eth, 1989). Psychosis can also result in distressing experiences, such as hospitalisation to an acute psychiatric ward, which is regarded by some as the most stressful consequence of mental health problems (Morrison, Bowe, Larkin, & Nothard, 1999). The co-occurrence of psychosis and PTSD is related to more severe and chronic symptoms alongside higher rates of service use (Mueser & Rosenberg, 2001). In a vicious cycle, this increased severity of symptoms and hospital use may further exacerbate and maintain psychotic experiences (Mueser et al., 2002).

This paper aims to critically review studies investigating psychosis-related PTSD¹ and to answer the following questions: (i) what symptoms

and hospital experiences do people with a diagnosis of psychosis report as distressing; (ii) what is the incidence of psychosis-related PTSD; (iii) what factors correlate with, or influence the development of psychosis-related PTSD. The review will conclude by summarizing the limitations of the existing literature and the implications for future research and practice. Integrating the evidence in this area has key clinical implications as undiagnosed and untreated PTSD may lead to a more enduring and worse course of psychosis, such as increased severity of symptoms (Ross, Anderson, & Clark, 1994), decreased social functioning, prolonged distress (Bak et al., 2005), breakdown in relationships, increased drug use (Mueser et al., 2002), increased stigma, increased risk of depression and suicide (Tarrier, Khan, Cater, & Picken, 2007) and reduced recovery (Goff, Brotman, & Kindlon, 1991). Carers consequently experience a heavier impact of care (Magliano et al., 2000) and services experience an increased cost due to more frequent and prolonged service use (Newmann, Greenley, Sweeney, & Van Dien, 1998). A greater understanding of the experiences that are most closely associated with psychosis-related distress and PTSD could inform assessment and treatment approaches and therefore improve outcomes. Although there are related reviews of PTSD in severe mental illness (Grubaugh et al., 2011; Morrison et al., 2003), this review build on this work by focusing specifically on the phenomenon of psychosis-related PTSD.

2. Method

2.1. Definition of terms

According to DSM-IV (APA, 1994) criterion A1 for PTSD, the person has to have been exposed to an event that involved actual or threatened death or serious injury or a threat to the physical integrity of self or others. Implicit in this DSM-IV criterion is that the traumatic event or threat actually exists. As the criteria for A1 is still a matter of debate, studies have placed emphasis on the DSM-IV A2 criteria for trauma: a response of intense fear, helplessness or horror at the time of the event; as being important in diagnosing PTSD in psychosis. For the purpose of this review, the traumatic event was therefore defined as an experience related to psychosis or hospitalisation resulting in intense fear, helplessness or horror. Symptoms of psychosis, included hallucinations in all modalities, delusional beliefs and changes in mood and behaviour. There is more agreement that hospital experiences can meet A1 criteria for PTSD (Priebe, Broker, & Gunkel, 1998). However, in accordance with studies of hospital-related PTSD, we defined hospital experiences on the basis of perceptions of harm rather than the potential for actual harm. Hospital experiences were defined as incidents that were experienced or witnessed during an admission to a psychiatric hospital, including police involvement, interactions with staff, the behaviour of other patients, and the use of medication, restraint and seclusion. The definition of 'PTSD symptoms' was informed by the DSM-IV criteria (APA, 1994). PTSD symptoms are defined by criterion B, C and D, consisting of three symptom clusters: re-experiencing, avoidance and hyperarousal symptoms.

¹ We use the term psychosis-related PTSD throughout to refer to PTSD induced as a result of the experience of psychosis and upsetting or potentially traumatic treatment experiences.

2.2. Search procedure

Potential studies were identified via an electronic keyword search of three major databases: Web of Knowledge, MEDLINE and PsycINFO. The terms 'PTSD' OR 'trauma' AND 'psychosis' OR 'schizophrenia' OR 'severe mental' OR 'inpatient' OR 'hospital experience' were entered for searching in article abstracts. Articles identified as potentially relevant by title were collected and assessed for appropriateness by the second author and then reviewed for inclusion by the first and second authors.

2.3. Inclusion criteria

Studies were manually reviewed to assess whether they met the following criteria: a report of empirical research; published from 1980 up to and including the year 2011; written in English; and sampling people with a diagnosis of psychosis or other severe and enduring mental health problems. We included studies with measures of symptoms of PTSD in response to either symptoms of psychosis or hospitalisation, as well as articles assessing psychological distress in relation to psychosis and hospitalisation, thus enabling us to incorporate findings from qualitative research. Dissertation abstracts, editorials, review papers and commentaries were excluded. Nineteen articles were initially identified. From these papers, five relevant studies were then found by searching reference lists and a further four were identified by reviewers. The review therefore included a total of 28 papers.

3. Results

3.1. Overview of studies

Table 1 provides a summary of published articles in date order. Ten studies took place in the US, with the remainder taking place in the UK ($n=9$), Australia ($n=6$), Finland ($n=2$) and Germany ($n=1$). Sample sizes ranged from two to one hundred and forty-two. Studies sampled came from community teams ($n=15$), acute inpatient wards ($n=8$), acute inpatient wards and community teams ($n=4$) and early intervention teams ($n=1$). Diagnostic categories included in the studies were broken down as follows: first-episode psychosis ($n=2$); schizophrenia/psychosis ($n=13$); schizophrenia/psychosis excluding affective psychosis and schizoaffective disorder ($n=4$); bipolar with psychotic features ($n=1$); serious mental illness ($n=2$); mental health problems unspecified ($n=3$); and mental health problems not specified (bipolar affective disorder, depression, schizophrenia and borderline personality disorder) ($n=3$). The majority of studies employed a quantitative approach to data collection and analysis ($n=23$) with the remainder using a qualitative approach ($n=5$); either thematic analysis or grounded theory.

3.2. Experiences of psychosis and hospitalisation

A consistent finding across all of the studies was that both symptoms and hospitalisation were highly distressing. Quantitative studies listed specific symptoms and hospital experiences that were frequently reported as distressing or were given the highest ratings of distress. Qualitative studies complemented this data by providing more detailed information about specific stressful experiences. There was inevitable variation in the symptoms and experiences associated with high levels of distress, due to the heterogeneous nature of psychosis and its treatment and individual differences in the appraisals of these. However, there were clearly similarities in findings across studies using different methodologies and samples.

Symptoms that were frequently reported as distressing or that were associated with high levels of distress included paranoid delusions or delusions of being controlled (Lu et al., 2011; Mueser, Lu,

Rosenberg, & Wolfe, 2010), threatening, commanding or critical voices (Beattie, Shannon, Kavanagh, & Mulholland, 2009; Lu et al., 2011; Mueser et al., 2010) or losing touch with reality more generally (Dunkley, Bates, Foulds, & Fitzgerald, 2007; Koivisto, Janhonen, & Vaisanen, 2003; Lu et al., 2011; Mueser et al., 2010; Shaw, McFarlane, Bookless, & Air, 2002). Thoughts of or attempts to harm the self or others were also particularly distressing (Centofanti, Smith, & Altieri, 2005; Lu et al., 2011; Mueser et al., 2010; Shaw, McFarlane, & Bookless, 1997). Beattie et al. (2009) found that affective symptoms were distressing, but did not distinguish between anxiety, depressed mood or elevated mood (Beattie et al., 2009). Studies identified negative consequences associated with symptoms that were distressing for participants, including persistent loss, change or disruption to life, physical harassment and violence and problems in relationships (Dunkley et al., 2007; Koivisto et al., 2003; Tarrier et al., 2007).

Hospital experiences that were frequently reported as distressing or were associated with high levels of distress were aspects of treatment, such as restraint, seclusion, sedation, being forced to take medication and medication side effects (Bonner, Lowe, Rawcliffe, & Wellman, 2002; Centofanti et al., 2005; Cusack, Frueh, Hiers, Suffoletta-Maierle, & Bennet, 2003; Cusack et al., 2007; Frueh et al., 2005; Lu et al., 2011; Mueser et al., 2010; Reddy & Spaulding, 2010; Shaw et al., 1997; Swartz, Swanson, & Hannon, 2003; Tarrier et al., 2007; Wood & Pistrang, 2004). Studies also found distress associated with threats or actual acts of physical and sexual assault by both other patients and staff (Centofanti et al., 2005; Cusack et al., 2003; Frueh et al., 2005; Lu et al., 2011; Mueser et al., 2010; Priebe et al., 1998; Reddy & Spaulding, 2010; Robins, Sauvageot, Cusack, Suffoletta-Maierle, & Frueh, 2005; Shaw et al., 1997; Tarrier et al., 2007; Wood & Pistrang, 2004). Involuntary admissions and police involvement were further frequently cited sources of distress (Centofanti et al., 2005; Cusack et al., 2007; Frueh et al., 2005; Lu et al., 2011; Mueser et al., 2010). Isolation from family members, lack of choice and not understanding the reasons for admission were also reported as distressing (Centofanti et al., 2005; Dunkley et al., 2007; Robins et al., 2005; Shaw et al., 2002), as were lack of fairness, respect, empathy and support from staff (Bonner et al., 2002; Cusack et al., 2003; Priebe et al., 1998; Robins et al., 2005). Physical environmental factors that were distressing included noise levels (Priebe et al., 1998), locked doors (Dunkley et al., 2007) and inadequate privacy (Cusack et al., 2007; Frueh et al., 2005). For some participants, experiences, such as separation from usual activities and family, were as distressing as obviously traumatic experiences, such as the use of seclusion, highlighting the importance of considering individual appraisals of events (Shaw et al., 2002).

3.3. Rates of PTSD

Sixteen studies reviewed reported psychosis-related PTSD rates. Prevalence rates varied widely across studies from 11% (Meyer, Taiminen, Vuori, Aijala, & Helenius, 1999) to 67%, with a median rate of 39% (Frame & Morrison, 2001). Studies used a wide range of measures to assess PTSD and different measures may be more or less sensitive to symptoms. For example, the criteria for diagnosing PTSD in Meyer et al.'s (1999) study were strict and the authors paid particular attention to differentiating between psychotic and trauma symptoms. The issue of diagnosis is particularly problematic in psychosis research, as criterion A2 is a more subjective criterion than criterion A1 and as indicated earlier, studies tend to use criterion A2 rather than A1 for psychotic experiences.

Rates of PTSD are also likely to vary as a consequence of the sample studied. Studies of first episode psychosis have reported rates between 31% and 46%, with a median rate of 38.5% (Jackson, Knott, Skeate, & Birchwood, 2004; McGorry et al., 1991; Mueser et al., 2010; Tarrier et al., 2007). Excluding Meyer et al.'s (1999) study, research with samples that have experienced multiple episodes have found that between 31%

Table 1
Studies investigating psychosis-related and hospital-related PTSD symptoms.

Authors & date	Participants	Design	Measures	Key results
McGorry et al. (1991)	36 in-patients with an acute psychotic episode	Repeated measures 12-month follow-up 3 time-points Quantitative	BDI, IES, PTSD Scale, SANS	45.8% at 4-month and 34.5% at 11-month follow-up met criteria for combined psychosis-related and hospital-related PTSD PTSD symptoms linked to hospitalisation and less so to psychosis Strong relationship between PTSD and depression at 4-month and 11-month follow-up No relationship between PTSD and admission number, involuntary status or negative symptoms
Shaw et al. (1997)	45 in-patients with an acute psychotic episode	Cross-sectional Quantitative	BPRS, CAPS, CIDI, HES IES	52.3% met criteria for combined psychosis-related and hospital-related PTSD PTSD group were significantly more distressed than non-PTSD group Hospitalisation was distressing and was associated with intrusive thoughts Most distressing experiences were seclusion, thoughts of harming family, physical abuse, olfactory hallucinations, beliefs that someone means harm and beliefs about being controlled.
Priebe et al. (1998)	105 out-patients with a diagnosis of schizophrenia	Cross-sectional Quantitative	BPRS, PSE, PTSD interview	51.4% met criteria for combined psychosis-related and hospital-related PTSD Those with involuntary admissions reported more negative hospital experiences. PTSD was not correlated with involuntary admissions, but was significantly correlated with anxiety and depression
Meyer et al. (1999)	46 in-patients with an acute psychotic episode	Repeated measures Prospective 2-month follow-up 2 time-points Quantitative	CAPS, IES-R, PANSS	11% met criteria for combined psychosis-related and hospital-related PTSD 69% of PTSD symptoms were related to psychosis and 24% to hospitalisation A significant positive correlation between total PANSS score and PTSD score at week 1 and week 8 A significant negative correlation between age and treatment-related PTSD scores and age and psychosis-related PTSD scores at week 1. Voluntary patients had higher PTSD scores at week 1 and involuntary patients had more treatment-related traumatic symptoms at week 8
Morrison et al. (1999)	34 patients who had an admission to an acute psychiatric hospital over a 6 year month	Cross-sectional Random sampling postal survey Quantitative	HADS, IES, HEQ, VAS	44% met criteria for hospital-related PTSD Those with involuntary admissions had significantly lower PTSD symptoms Significant association between PTSD symptoms and number of compulsory admissions No association between PTSD symptoms and number of admissions, duration of admission or time since admission
Frame and Morrison (2001)	60 acute in-patients with an acute psychotic episode	Repeated measures 6-month follow-up 2 time-points Quantitative	Standardised measures of trauma and psychosis, self-report measure of PTSD	67% met criteria for combined psychosis-related and hospital-related PTSD at hospital discharge and 50% 4 to 6-month follow-up Psychosis in particular (as well as hospitalisation) made a substantial contribution to traumatisation. Involuntary admission had no effect on PTSD symptoms
Bonner et al. (2002)	Six incidents of physical restraint on inpatient wards involving the patient and two members of staff	Thematic analysis Qualitative	Semi-structured interviews focused on the incident	Patients felt they did not receive enough attention from staff and valued permanent over temporary staff. Incidents of restraint reawakened memories of past traumas.
Shaw et al. (2002)	45 in-patients with a diagnosis of psychosis or mood disorder with psychotic features	Cross-sectional Quantitative	BPRS, CAPS, CIDI, FCRS, IES, IS, SASRQ	52.3% met criteria for combined psychosis-related and hospital-related PTSD PTSD group rated had more distress and intrusive memories Significant positive associations between PTSD score and specific psychotic symptoms. More distress due to psychosis and hospitalisation was related to PTSD symptoms PTSD was not significantly related to severity of psychosis, the total number of hospital experiences or insight No significant differences between PTSD and non-PTSD groups in relation to involuntary status, treatment setting or number of admissions, hospital experiences, severity of the psychotic episode or age and age of onset
Kennedy et al. (2002)	50 out-patients with a diagnosis of schizophrenia or bipolar	Cross-sectional Quantitative	BDI, IES-R, Penn	40% with bipolar and 23% with schizophrenia met criteria for PTSD related to hallucinations, delusions or other experiences Overall 30% met criteria for PTSD Positive correlations between PTSD symptoms and depression
Koivisto et al. (2003)	9 acute in-patients recovering from a psychosis	Phenomenological Qualitative	Semi-structured interview	Psychosis was experienced as an uncontrollable sense of self which included feelings of distress, change and loss of control leading to losing confidence and feeling vulnerable, insecure, fearful, shame, guilt and confusion

(continued on next page)

Table 1 (continued)

Authors & date	Participants	Design	Measures	Key results
Cusack et al. (2003)	57 out-patients with a history of psychiatric hospitalisation	Cross-sectional Quantitative	PEQ, PTSD Checklist, TAA	Admission was experienced as shameful, frightening, difficult but inevitable 91% experienced at least one negative hospital experience with 70% experienced 3+ 47% experienced a DSM-IV-defined traumatic event: 22% witnessed physical assaults and 18% experienced physical assaults Reports of fear, helplessness or horror in response to these events which was correlated with the number of lifetime trauma, particularly physical/sexual abuse Negative hospital experiences independently contributed to the variance in subjective distress and distress was independent of abuse history
Swartz et al. (2003)	104 in-patients with schizophrenia spectrum disorders and 85 mental health problems	Cross-sectional Quantitative	SCHIZOM ITAQ MPCS TPAS	63% of patients reported a life time history of involuntary hospitalisation and 36% reported a fear of coerced treatment as a barrier to seeking help for a mental health problem.
Jackson et al. (2004)	35 out-patients 18 months after a first-episode non-affective psychosis	Cross-sectional Quantitative	HADS, HEQ, IES, KGV PTSD Scale, RSQ	31% met criteria for PTSD with a high level of intrusions and avoidance for the sample Anxiety, but not depression, was significantly higher in the PTSD group 77% described first-episode as 'extremely stressful' PTSD was not related to duration of untreated psychosis, place of first treatment, police involvement, Mental Health Act or secure ward PTSD was not correlated with residual psychotic symptoms
Wood and Pistrang (2004)	9 acute in-patients and 7 staff members	Thematic analysis Qualitative	Semi-structured interview	Patients and staff felt threatened and unsafe in hospital Patient themes: assault/intimidation; sexual harassment; sharing bedrooms; friendships; own/others psychological functioning making you feel unsafe/frightened Non-consensual themes: seclusion/restraint; administration of medication Staff behaviour themes: staff ability to protect patients; staff ability to listen and understand patients; boundary infringements
Harrison and Fowler (2004)	38 patients with schizophrenia or non-affective psychosis in a Community Mental Health Team, inpatient rehabilitation and acute inpatient ward	Cross-sectional Quantitative	AMT, CDS, IES-R, PANSS	59% of trauma symptoms were related to psychosis and 41% to hospitalisation Negative symptoms had significant positive correlations with avoidance relating to both psychosis and hospitalisation. Those who avoided traumatic memories of psychosis and hospitalisation had more negative symptoms
Robins et al. (2005)	27 out-patients with a diagnosis of serious mental illness who had been hospitalised	Thematic analysis Cross-sectional Qualitative	PANSS, Semi-structured interview	67% had witnessed/experienced harmful incidents Hospital setting theme (e.g., threat of physical violence and arbitrary nature of the rules) Many had experienced physical assaults and felt hospital was unsafe e.g., due to combustible mix of clients and potentially violent staff members
Frueh et al. (2005)	142 out-patients with a diagnosis of serious mental illness and had been previously hospitalised	Cross-sectional Quantitative	PEQ, PTSD Checklist, TAA	63% had witnessed at least one traumatic event High rates of seclusion, handcuffed transportation, physical/sexual assaults and were distressing High rates of harmful experiences were reported, e.g., medication used as a threat/punishment, and were distressing Lifetime history of sexual assault had significantly higher traumatic hospital experiences and higher concerns for personal safety, helplessness, fear and distress Lifetime history of physical assault had significantly higher concerns for personal safety and distress
Centofanti et al. (2005)	20 out-patients recovering from a psychotic episode and had been hospitalised within the previous year	Cross-sectional Quantitative	BPRS, CAPS, HEQ, THQ	25% met criteria for combined psychosis-related and hospital-related PTSD General trend towards higher PTSD rates in recently discharged, but PTSD scores were not significantly correlated with time since last admission or total number of admissions Hospital experiences and being taken to hospital was highly distressing. PTSD scores were positively related to overall number of hospital experiences PTSD scores were correlated with distress for hospital experiences Number of previous traumas was significantly related to PTSD symptoms
Chisholm et al. (2006)	36 out-patients with a diagnosis of schizophrenia or non-affective psychosis and had experienced an hospitalisation or home treatment in the previous year	Cross-sectional Quantitative	BPRS, CSS, DoT, IES PCQ, PHQ SLES	61.1% had a moderate/severe PTSD reaction to psychosis PTSD symptoms was significantly associated with levels of helplessness and previous trauma and lower levels of control and crisis support First-episode group had lower PTSD scores than relapse group PTSD symptoms were significantly associated with higher perceptions of power of the persecutor, awfulness of the threat, inability to cope, thinking persecution to be deserved and lower ratings of situational control
Cusack et al. (2007)	142 outpatients with 20% completing more indepth interviews.	Cross-sectional Quantitative/ qualitative	PEQ TAA PCL	Few racial differences were noted in the frequency of or distress associated with psychiatric events. There were no associations between lifetime trauma history

Table 1 (continued)

Authors & date	Participants	Design	Measures	Key results
Dunkley et al. (2007)	Two out-patients who had a first-episode of bipolar disorder with psychotic features requiring hospitalisation	Prospective 2 time-points Qualitative/ quantitative	Semi-structured interview PANSS, RSQ, Semi-structured interview	and experiences in hospital for Caucasians, but for African-Americans, a history of adult sexual abuse and physical abuse were each associated with reports of traumatic experiences in a psychiatric setting. Psychosis was distressing and hospital experiences were distressing, including being "locked up", hospital conditions, rules, staff responses, other patients, the legal system and physical assault. Other distressing aspects included isolation from family, other patients, being "locked up", police-assisted admission, inability to make choices, not understanding reason for admission, sedation and seclusion.
Grubaugh et al. (2007)	142 patients recruited from community day hospital programme	Cross-sectional Quantitative	PEQ PCSQ	45.1% reported they had been to a psychiatric facility they did not want to return to and the majority did not communicate with staff following a distressing event. Patients who reported traumatic psychiatric events were more likely to report that they had been to a psychiatric facility they would not want to return to.
Tarrier et al. (2007)	35 in-patients with a first-episode of non-organic psychosis	Cross-sectional Quantitative	CAPS, PANSS, Semi-structured interview	38% met criteria for combined psychosis-related and hospital-related PTSD Positive psychotic symptoms were associated with physical harassment or violence Hospitals were distressing due to confusion/fear by admission, police insensitivity, fear of patients, staff attitudes and forced to take medication Those who had experienced physical harassment/violence had significantly higher PTSD, avoidance and arousal scores Significant association between PTSD and involuntary status
White and Gumley (2009)	27 out-patients with a diagnosis of schizophrenia and were distressed by experiences	Cross-sectional Quantitative	BPRS, CAPS, FoRSe, HADS, IES-R, IUS, IVI	37% met criteria for psychosis-related PTSD PTSD group had significantly higher negative symptoms, total PANSS scores, depression and anxiety No differences regarding gender, age, positive symptoms, number of admissions or time since the last admission PTSD group associated with negative appraisals about paranoid thoughts, being intolerant of uncertainty and being fearful of psychosis recurring
Beattie et al. (2009)	47 out-patients who had experienced psychosis and been discharged from an inpatient unit within the previous year	Cross-sectional Quantitative	AES, CTQ, IES-R KGV, SAQ, THQ	31% and 45% met PTSD criteria for hospitalisation and psychosis respectively First admission identified as most distressing aspect of hospital followed by most recent admission Affective symptoms associated with PTSD symptoms Past physical/sexual traumas were related to intrusion and avoidance symptoms
Mueser et al. (2010)	38 out-patients who had inpatient treatment for a psychotic episode in the past 6 weeks and had one or two prior episodes	Cross-sectional Quantitative	BAI, BDI, BPRS, CAPS, ISOS, PATS, PDS, TLEQ	47% and 31% met PTSD criteria for psychosis-related and hospital-related psychosis Most distressing symptoms were paranoid thoughts, fear of losing one's mind, and violent/strange/embarrassing behaviour Most distressing treatment experiences were involuntary hospitalisation and being secluded/restrained 53% found symptoms and 42% found treatment most distressing PTSD group had significantly higher depression, anxiety and psychopathology scores and number of days abusing drugs and were more likely to integrate psychotic experience
Reddy and Spaulding (2010)	43 inpatients and outpatients with a diagnosis of serious mental illness on the schizophrenia spectrum and who had at least one inpatient admission	Cross-sectional Quantitative	PEQ CTQ	98% of participants had experienced at least one negative event in the psychiatric hospital. Participants with a history of child abuse reported experiencing a greater number of negative hospital events and a higher level of subjective distress.
Lu et al. (2011)	50 in-patient and outpatients who had presented for treatment in the past 6 weeks, and had a history of treatment of at least 3 episodes	Cross-sectional Quantitative	TLEQ, PATS, CAPS, PDS, BSPR, BDI, BAI, ISOS	66% and 25% reported intense distress related to psychotic symptoms and hospital experiences, respectively 69% met symptom criteria for PTSD and 31% met full diagnostic criteria i.e. met A1/A2 criteria for a traumatic event Most distressing symptoms were hallucinations and delusions, thoughts to attempt to harm the self or others and losing touch with reality. Most distressing hospital experiences were side effects of medication, being restrained or secluded and frightening or painful treatments. Both groups of PTSD patients reported more severe symptoms and distress and more problems in daily functioning than patients with fewer or no PTSD symptoms.

Note. AES=Admission Experience Survey; AMT=Autobiographical Memory Test; BAI=Beck Anxiety Inventory; BAPS=Beliefs about Paranoia Scale; BAI=Beck Anxiety Inventory; BDI-II=Beck Depression Inventory; BPRS= Brief Psychiatric Rating Scale; CAPS= Clinician-Administered PTSD Scale; CDS= Calgary Depression Scale; CIDI= Composite International Diagnostic Interview; CSS= Crisis Support Scale; CTQ= Childhood Trauma Questionnaire; DoT= Details of Threat Questionnaire; FCRS= Factor Construct Rating Scale; FoRSe= Fear of Recurrence Scale; HADS= Hospital Anxiety and Depression Scale; HEQ= Hospital Experiences Questionnaire; IES= Impact of Events Scale; IES-R= Impact of Events Scale – Revised; IS= Insight Scale; ITAQ= Insight and Treatment Attitude Questionnaire; ISOS= Integration/Sealing Over Scale; IUS= Intolerance of Uncertainty Scale; IVI= Interpretation of Voices Inventory; KGV= Psychiatric Assessment Scale; MPCS= MacArthur Perceived Coercion Scale; PANSS= Positive and Negative Syndrome Scale; PATS= PTSD Assessment Tool for Schizophrenia; PCL= PTSD Checklist; PCQ= Perceived Control Questionnaire; PCSQ= Perceptions of Care and Safety Questionnaire; PDS= Posttraumatic Diagnostic Scale; Penn= Penn Inventory; PEQ= Psychiatric Experiences Questionnaire; PHQ= Perception of Helplessness Questionnaire; PSE= Present State Examination; RSQ= Recovery Style Questionnaire; SANS= Scale for the Assessment of Negative Symptoms; SAQ= Service Attachment Questionnaire; SASRQ= Stanford Acute Stress Reaction Questionnaire; SCHIZON= Schizophrenia Outcomes Module; SLES= Stressful Life Experiences Screening; TAA= Trauma Assessment for Adults; THQ= Trauma History Questionnaire; TLEQ= Traumatic Life Events Questionnaire; TPAS= Treatment Pressures Attitude Scale.

and 67% of participants meet criteria for PTSD, with a median rate of 51% (Chisholm, Freeman, & Cooke, 2006; Frame & Morrison, 2001; Lu et al., 2011; Morrison et al., 1999; Priebe et al., 1998; Shaw et al., 2002). However, when rates of PTSD in recent onset and multiple episode samples were compared in two studies using similar assessment tools, prevalence rates were similar, with 39% in the recent onset sample meeting full diagnostic criteria (Mueser et al., 2010) and 31% in the multiple episode sample meeting full diagnostic criteria (Lu et al., 2011). These findings suggest that psychosis and negative experiences of treatment are important triggers for PTSD across the course of schizophrenia, from first to later episodes. Prevalence rates might also vary depending upon the diagnostic groups studied. For example, Meyer et al. (1999) attribute their low rates of PTSD to the fact that they excluded people with affective diagnoses and highlight that people with depressive symptoms may be more prone to developing PTSD. However, the majority of studies included participants with a number of different diagnoses, including schizophrenia, bipolar disorder and depression with psychotic features and did not compare rates across diagnostic groups. It is also noteworthy that the Meyer et al.'s (1999) research was carried out in an inpatient setting in Finland where a 'needs-adapted' therapy, specifically designed to reduce trauma associated hospitalisation, was being implemented. This unusual setting may therefore have resulted in lower levels of PTSD.

There is some evidence to suggest that levels of PTSD may be higher in inpatient compared to community samples. Excluding the study by Meyer et al. (1999), rates of PTSD in inpatient settings range from 38% to 52.2%, with a median rate of 52% (Shaw et al., 1997, 2002; Tarrier et al., 2007). Whereas rates in community samples range from 25% to 61.1%, with a median rate of 40.5% (Beattie et al., 2009; Centofanti et al., 2005; Chisholm et al., 2006; Jackson et al., 2004; Kennedy et al., 2002; Morrison et al., 1999; Priebe et al., 1998; White & Gumley, 2009). However, there are no studies directly comparing rates of PTSD in in-patient and community samples using similar inclusion and exclusion criteria and similar assessment tools.

Rates of PTSD are also likely to vary according to when symptoms are measured. For example, at discharge from hospital, one study found the psychosis-related PTSD rate to be 67%, which then reduced to 50% four to six months later (Frame & Morrison, 2001). An earlier study by McGorry et al. (1991) also found rates of 45.8% at 4-months post-discharge and 34.5% 11-months post-discharge. However, none of the studies completed a longer-term follow-up and no research has been carried out into those with delayed-onset PTSD.

The majority of studies reported a combined symptom-related and hospital-related PTSD rate due to difficulties differentiating and accurately assessing the experiences separately. This is problematic as the two experiences, although related, are conceptually different. Some studies did, however, separate the two stressors in order to compare rates. One earlier study found that PTSD symptoms were linked more to the experience of hospitalisation rather than psychosis (McGorry et al., 1991), whereas later studies have found higher rates of distress in relation to symptoms compared to hospital experiences and similarly higher rates of PTSD in relation to symptoms compared to hospital experiences (Beattie et al., 2009; Harrison & Fowler, 2004; Lu et al., 2011; Meyer et al., 1999; Mueser et al., 2010). For example, Mueser et al.'s (2010) study involving people with recent onset psychosis found rates of 47% and 31% for psychosis-related and hospital-related PTSD, respectively. Similarly, Lu et al.'s (2011) study involving people with multiple episodes found rates of 48% and 28% (Lu et al., 2011).

Mueser et al. (2010) and Lu et al.'s (2011) studies also examined differences in PTSD rates on the basis of whether full diagnostic criteria or whether just symptom criteria (B, C and D) were met (PTSD syndrome). The recent onset study found 66% of participants met symptom criteria for PTSD (Mueser et al., 2010) and the multiple episode study found 69% met symptom criteria (Lu et al., 2011). In both recent onset and multiple episode samples, there may therefore

be a high rate of distress associated with psychosis that are not captured by studies only reporting cases that meet full diagnostic criteria. Other studies reviewed also noted participants who did not meet criteria for a PTSD diagnosis but exhibited high levels of intrusions, avoidance and arousal (Centofanti et al., 2005; Jackson et al., 2004; Meyer et al., 1999; Shaw et al., 1997).

3.4. Factors associated with PTSD symptoms

The majority of studies investigated factors correlating with, or influencing, the likelihood of developing psychosis-related PTSD. We grouped these findings into seven themes: duration of psychosis; symptoms; hospital experiences; appraisals of psychosis; insight and coping; trauma history; and patient demographics.

3.4.1. Duration of psychosis and number of admissions

As discussed in the previous section, prevalence of PTSD may vary in terms of whether participants have recently developed psychosis or have a long history of illness. Mueser and Rosenberg (2003) hypothesise that post traumatic reactions to psychosis would be worse for first episode clients due to the novelty of events. However, findings of associations between duration and illness and psychosis-related PTSD are inconsistent. Contrary to Mueser and Rosenberg's (2003) hypothesis, in a sample of 36 participants with delusions and hallucinations that had remitted, Chisholm et al. (2006) found that participants who had experienced a relapse had a higher number of psychosis-related PTSD symptoms than participants with a first episode of psychosis. As discussed previously, Mueser et al. (2010) and Lu et al. (2011) found similar prevalence rates in early episode and multiple episode samples, suggesting that psychosis and negative experiences of treatment can be important triggers for PTSD across the course of schizophrenia.

Several studies with different samples and methods of assessing PTSD have also investigated associations between number of admissions and psychosis-related PTSD and found no significant relationships (Beattie et al., 2009; Centofanti et al., 2005; McGorry et al., 1991; Morrison et al., 1999; Priebe, Oliver, & Kaiser, 1999; Shaw et al., 2002; White & Gumley, 2009). Duration of hospitalisation (Morrison et al., 1999; Tarrier et al., 2007), time since admission (Beattie et al., 2009; Centofanti et al., 2005; Morrison et al., 1999; White & Gumley, 2009), and time since first admission (Priebe et al., 1999) are also unrelated to PTSD symptoms.

3.4.2. Symptoms

A number of studies have investigated associations between psychotic symptoms and PTSD symptoms. These studies have explored associations between overall severity of symptoms and psychosis-related PTSD and associations between specific types of psychotic symptoms and psychosis-related PTSD. There is inconsistent evidence of associations between severity of positive symptoms and psychosis-related PTSD, with some studies finding associations (Harrison & Fowler, 2004; Lu et al., 2011; Meyer et al., 1999; Mueser et al., 2010) and others not (Chisholm et al., 2006; Jackson et al., 2004; Shaw et al., 1997, 2002; Tarrier et al., 2007; White & Gumley, 2009). It is possible that associations between psychotic symptoms and PTSD are not strong and smaller studies therefore lacked the power to detect such a weak overall effect. A failure to find associations between PTSD and positive symptoms, suggests that psychosis-related PTSD is not an artefact of differences between groups in terms of levels of positive symptoms (White & Gumley, 2009).

Studies have also investigated associations between negative symptoms and psychosis-related PTSD. Two studies found participants who avoided traumatic memories of psychosis or hospital, or experienced hyperarousal and avoidance of traumatic hospital memories, experienced more negative symptoms (Harrison & Fowler, 2004; Priebe et al., 1999). Meyer et al. (1999) and White and Gumley (2009) also

found a positive correlation between the number of negative symptoms and psychosis-related PTSD. Conversely, McGorry et al. (1991) and Tarrier et al. (2007) investigated associations between negative symptoms and PTSD symptoms in first episode samples and found no significant relationships. These null findings may be explained by the small sample sizes in these two studies and subsequent loss of power. McGorry et al. (1991) also highlight that the mean level of negative symptoms rose in the PTSD group, which did not occur with the non-PTSD group. Participants in these studies were also only experiencing a first episode of psychosis, so they may not have experienced as many negative symptoms as those with a longer duration of illness.

In contrast to the mixed findings in relation to positive and negative symptoms, studies investigating associations between affective symptoms and psychosis-related PTSD symptoms have found consistent relationships with different measures and samples. Significant correlations are reported between depressive symptoms and PTSD symptoms (Beattie et al., 2009; Kennedy et al., 2002; McGorry et al., 1991; Meyer et al., 1999; Mueser et al., 2010), between anxiety symptoms and PTSD symptoms (Jackson et al., 2004; Meyer et al., 1999; Mueser et al., 2010) and between depressive and anxiety symptoms and PTSD symptoms (Lu et al., 2011; Morrison et al., 1999; Priebe et al., 1999; White & Gumley, 2009). In a multivariate analysis, Meyer et al. (1999) found that depression and anxiety were both independently associated with psychosis-related PTSD scores during the first week of admission and seven weeks later. Harrison and Fowler (2004) also found that depression was specifically associated with intrusive memories relating to hospitalisation and hyperarousal relating to both psychosis and hospitalisation. Studies investigating associations between PTSD related to other traumatic events have found inconsistent relationships between PTSD and psychotic symptoms, but more consistent relationships between PTSD and affective symptoms (Grubaugh et al., 2011).

Two studies have investigated associations between psychosis-related PTSD and suicide. Shaw et al. (2002) found that those who met criteria for PTSD were significantly more likely to experience suicidal thoughts (Shaw et al., 2002). Tarrier et al.'s (2007) first episode study also found that suicide behaviour was higher in those identified as having psychosis-related PTSD, although this association was not significant. The authors argue that their study suffered from loss of power due to small sample size and that associations between suicidal behaviour and PTSD may increase with time as suicidal behaviour increases over three years from the onset of psychosis (Tarrier et al., 2007). Indeed, in the general population, there is good evidence that a PTSD diagnosis is associated with increased suicidality and that co-morbid depression can significantly compound the risk of suicide in PTSD populations (Panagiotti, Gooding, & Tarrier, 2012).

3.4.3. Hospital experiences

Studies have investigated associations between total number of negative hospital experiences and psychosis-related PTSD, but have found no significant relationships (Centofanti et al., 2005; Frueh et al., 2005; Meyer et al., 1999; Shaw et al., 2002). There is, however, evidence to suggest that psychosis-related PTSD is associated with higher distress ratings in relation to hospital experiences (Centofanti et al., 2005; Shaw et al., 2002). There is also some evidence of associations between specific types of hospital experiences and psychosis-related PTSD. The most commonly researched factor is legal status. It might be hypothesised that being involuntarily admitted is more traumatic for patients and therefore might be associated with higher levels of PTSD. Consistent with this hypothesis, Tarrier et al. (2007) involving a first onset sample found a significant association between legal status and PTSD status. Meyer et al. (1999) also found that those who had been involuntarily admitted either for the first or subsequent time and those who had experienced coercive measures had more hospital-related PTSD symptoms. In contrast, the same study also found that participants

who were voluntarily admitted had higher symptom-related PTSD scores. Similarly, Morrison et al. (1999) found psychosis-related PTSD symptoms were higher in patients without a history of compulsory admission. The authors explain this finding in terms of the fact that their PTSD scale assessed symptoms in relation to the most recent admission only and that with several previous compulsory admissions, patients may habituate to the process. Several studies have, however, found no significant relationships between the legal status and psychosis-related PTSD (Beattie et al., 2009; Frame & Morrison, 2001; Jackson et al., 2004; McGorry et al., 1991; Priebe et al., 1999; Shaw et al., 2002). It is also difficult to assess differences between voluntary and involuntary admissions if participants experienced coercive voluntary admissions or false promises of short voluntary inpatient stays with the threat of use of the Mental Health Act if they asked to leave. Indeed staff and patients have been found to disagree as to whether an admission is voluntary or involuntary and patients' perceptions may not always correspond with the documented legal status of the admission (Eriksson & Westrin, 1995). There is also some evidence to suggest that it is patients' perceptions of the fairness of the admission process that is a more important factor in determining responses to hospitalisation, as opposed to whether the admission was voluntary or not (Beveridge, 1998).

Several studies with different samples and methods of assessing PTSD have also investigated treatment setting and circumstances of admission, but have found no association with PTSD symptoms, including place of first treatment, police involvement, admission to a secure ward (Jackson et al., 2004) and treatment setting (Shaw et al., 2002). However, Beattie et al. (2009) found that a reduced sense of the availability of mental health providers as measured by the Service Attachment Questionnaire (SAQ, Goodwin, Holmes, Cochane, & Mason, 2003) was an important predictor of intrusion and hyperarousal symptoms on the Impact of Event Scale (Horowitz, Wilness, & Alvarez, 1979). Tarrier et al. (2007) also found that experiences of physical harassment or violence were associated with significantly higher avoidance, arousal and total PTSD symptom scores.

The mixed findings in associations between hospital experiences and psychosis-related PTSD are consistent with mixed findings in relation to symptoms of psychosis and psychosis-related PTSD. Researchers have therefore begun to explore the role of psychological factors, such as appraisals and coping, and trauma history which have been shown to be important in the development of PTSD in relation to other events.

3.4.4. Appraisals of psychotic episodes

Two studies have examined appraisals of psychotic episodes and their relationship to psychosis-related PTSD. The study by Chisholm et al. (2006), described earlier, assessed for PTSD symptoms in reaction to participants' most recent psychotic episode. The authors identified known predictors of PTSD reactions to external events, including appraisals of helplessness, lack of control and lower crisis support. Consistent with the existing PTSD literature, appraisals of helplessness, lack of control and lower crisis support during psychotic episodes were associated with psychosis-related PTSD symptoms. Focusing specifically on paranoia, higher levels of PTSD symptoms were significantly associated with higher perceptions of the persecutor's power (and therefore an increase in threat), greater ratings of the deservedness of persecution, awfulness of the threat, inability to cope, and lower ratings of control.

White and Gumley (2009) also investigated associations between negative appraisals of psychotic episodes and psychosis-related PTSD symptoms in a sample of 27 participants. The authors excluded people who were acutely unwell, but purposively recruited people who were experiencing distress associated with the memories of psychosis. Consistent with Chisholm et al. (2006), the authors assessed negative appraisals of paranoia and found that participants with psychosis-related PTSD made more negative appraisals about their paranoid thoughts than clinical controls. White and Gumley

(2009) also found associations between PTSD symptoms and tolerance of uncertainty which is a key cognitive process in the maintenance of worry, and associations between PTSD symptoms and the fear of recurrence of symptoms. The authors argue that fear of relapse may be a particularly useful concept in identifying those at risk of psychosis-related PTSD.

Associations between appraisals and PTSD symptoms in psychosis are consistent with the general PTSD literature and suggest that psychosis-related PTSD can be understood in terms of normal trauma process. Targeting appraisals of psychosis is important in the psychological treatment of PTSD in relation to other events and may therefore be helpful in the treatment of psychosis-related PTSD. However, it is important to note that both studies which examined the role of appraisals in PTSD were cross-sectional, so it is possible that higher levels of distress may have biased judgments of psychotic episodes. Future research which involves manipulating appraisals is therefore needed to establish the direction of relationships between appraisals of psychosis and PTSD symptoms.

3.4.5. *Insight and coping*

One study looked at the associations between insight assessed by Insight Scale (Markova & Berrios, 1992) and psychosis-related and hospital-related PTSD symptoms (Shaw et al., 2002). The authors hypothesised that people with more insight into their illness may be less “protected” from their symptoms and therefore more likely to experience psychosis-related PTSD. However, insight scores were not significantly higher in the 22 participants diagnosed with psychosis-related PTSD compared to those who did not meet criteria. The authors argue that these negative findings might reflect the complexity of the concept of insight and the difficulty in assessing the phenomenon with a simple scale.

The concept of insight has overlaps with the concept of recovery style. Three studies looked at the associations between recovery style and psychosis-related PTSD symptoms. Recovery style is hypothesised to be an important factor in understanding how people adapt to their experiences of psychosis; for example, whether they wish to push it to the back of their mind and minimise it (‘sealing-over recovery style’) or whether they relate it to their everyday experience (‘integrative recovery style’) (McGlashan, Docherty, & Siris, 1976). Jackson et al. (2004) investigated associations between recovery style assessed using the self-report Recovery Style Questionnaire (Drayton, Birchwood, & Trower, 1998) and psychosis-related PTSD in a sample of 35 first episode patients. The authors found no relationship between recovery style and PTSD caseness, possibly because only 9 participants in the study were classified as ‘sealers’ resulting in reduced power. The authors argue that sealers may have been reluctant to participate in the study due to higher levels of avoidance and poorer engagement which highlights the importance of efforts to engage this group in research. Jackson et al.’s (2004) study did, however, find that sealers were more likely to implement cognitive strategies to avoid intrusions than integrators and had a trend towards less frequent intrusions about psychosis. Given the conceptual overlap between sealing over and negative symptoms, associations between a sealing over recovery style and avoidance of intrusions are in line with associations between negative symptoms and avoidance of intrusions discussed previously (Harrison & Fowler, 2004; Priebe et al., 1999). Jackson and colleagues argue that associations between a sealing over recovery style and an avoidance of intrusions are also consistent with models of assimilation and trauma which suggest that people repress unwanted thoughts and images due to a fear of negative consequences. Although this sealing over may be initially adaptive, in the longer term, it may be associated with worse outcomes (McGlashan, 1987).

Mueser et al. (2010) also investigated associations between psychosis-related PTSD and recovery style in an early onset sample, but used a clinician rating of recovery style: the Integration/Sealing Over Scale (ISOS; McGlashan, Wadson, Carpenter, & Levy, 1977).

Although there was no difference in recovery style between those who met full criteria for PTSD compared to those who did not, participants with PTSD syndrome had a significantly more integrative coping style than those who did not. The authors argue that traumatic memories of psychotic episodes may intrude on everyday functioning in the form of PTSD symptoms, but individuals may also have a desire to integrate the experiences. Mueser et al. (2010) assessed PTSD 6 weeks after presentation for treatment with an acute episode, whereas Jackson et al. (2004) assessed PTSD over 12 months later. The authors therefore argue that associations between recovery style and traumatic experience related to psychosis may be stronger soon after the traumatic event. Findings of associations between recovery style and psychosis-related PTSD may also be specific to recent onset psychosis, as the study by Lu et al. (2011), which replicated Mueser et al.’s (2010) methodology in a sample with multiple episodes sample, failed to find associations between PTSD syndrome and recovery style.

Substance use may be an important way in which people with psychosis cope with distressing symptoms and experiences (Gregg, Barrowclough, & Haddock, 2009). Mueser et al. (2010) and Lu et al. (2011) explored associations between psychosis-related PTSD and substance use by inquiring about alcohol and drug misuse over the past 30 days. Although PTSD in psychosis has been associated with increased levels of substance misuse (Mueser, Rosenberg, Jankowski, Hamblen, & Descamps, 2004), both studies did not find higher levels of substance misuse when comparing patients who met full criteria for psychosis-related PTSD and those that did not. Mueser et al. (2010) did find that patients meeting criteria for psychosis-related PTSD syndrome reported a higher number of days of abusing drugs than those who did not meet criteria. However, caution must be applied in interpreting the findings of both of these studies due to the relatively crude way in which substance misuse was assessed and the potential for participants to under report their use.

3.4.6. *Trauma history*

In a meta-analysis of 267 PTSD studies, previous experience of trauma in both childhood and adulthood was one of the strongest predictors of PTSD (Brewin, Andrews, & Valentine, 2000). Studies have therefore investigated associations between past trauma and psychosis-related PTSD. Consistent with previous research with people with a diagnosis of psychosis, high rates of participants in studies of psychosis-related PTSD had been exposed to previous and often multiple traumas (Beattie et al., 2009; Frueh et al., 2005; Kennedy et al., 2002; Shaw et al., 2002; Tarrier et al., 2007). However, associations between trauma history and psychosis-related PTSD symptoms varied across the studies. Chisholm et al. (2006) found that the number of previous trauma assessed using the Stressful Life Experiences Screen (SLES; Stamm et al., 1996) was significantly associated with higher levels of psychosis-related PTSD symptoms (Chisholm et al., 2006). In a small study involving 20 participants, five of whom met criteria for post-psychotic PTSD, Centofanti et al. (2005) also found significant correlations between levels of psychosis-related PTSD symptoms and the number of previous traumatic events participants had experienced, as measured by the Trauma History Questionnaire (Green, 1996). Focusing specifically on trauma related to hospital experiences, Cusack et al. (2003) also found that the degree of fear, helplessness and horror experienced in hospital was associated with the number of historical traumas experienced, assessed using the Trauma Assessment for Adults (TAA; Resnick, 1996). Participants with a history of physical or sexual abuse reported higher subjective distress scores in relation to their experiences in hospital. Similarly, in a sample of 142 day hospital patients, Frueh et al. (2005) found that participants with a history of physical or sexual assault, also assessed using the TAA, reported significantly higher levels of concern for personal safety, helplessness, fear and distress in hospital (Frueh et al., 2005). Those who had a lifetime history of sexual assault as an adult had significantly higher

traumatic hospital experiences, particularly having medication used as a threat/punishment, unwanted sexual advances, inadequate privacy and sexual assaults from staff. In a sample of 47 participants, Beattie et al. (2009) also found some evidence of associations between history of physical and sexual abuse as measured by THQ (Green, 1996) and levels of intrusion and avoidance symptoms, but no associations between traumatic events and overall scores for either symptom-related or hospital-related PTSD.

Both Mueser et al. (2010) and Lu et al. (2011) used the Traumatic Life Events Questionnaire (Kubany et al., 2000) to assess trauma history in samples with recent onset and multiple episodes, respectively, and found no significant associations between either symptom or treatment-hospital PTSD and number or type of traumas or sexual assault. Mueser et al. (2010) did, however, suggest that associations between PTSD and lifetime trauma events may have reached significance in a larger sample or using a more sensitive measure of traumatic experiences. Tarrrier et al.'s (2007) study with 35 first episode patients also found that previous trauma did not influence hospital-related PTSD scores. They do not, however, report how previous trauma was assessed, so it is difficult to determine if the measure was sufficiently sensitive. Shaw et al. (2002) assessed PTSD in relation to previous trauma and psychosis-related trauma using the Clinician Administered PTSD Scale (CAPS-1; Blake et al., 1995) and found no associations between psychosis-related PTSD and PTSD associated with other traumatic events. However, there were only eleven participants who met 'cut off' for PTSD in relation to past trauma and unlike the other studies, the authors did not report associations between number of traumatic events and PTSD-related psychosis.

In summary, consistent with the literature in PTSD in relation to other traumatic events, there was also some evidence that psychosis-related PTSD was associated with trauma history. However, studies with small samples or those that used measures of trauma that are not validated or focused on PTSD in relation to past trauma rather than number of events did not find significant associations.

3.4.7. Patient demographics

A number of studies have reported associations between patient demographics and psychosis-related PTSD symptoms. Patients who met PTSD criteria were more likely to be unemployed in Priebe et al.'s (1999) study which included community patients with schizophrenia. Meyer et al. (1999) also found that younger service users had a higher level of traumatic stress and that female patients had more psychosis-related PTSD symptoms than males (Meyer et al., 1999). Associations between psychosis-related PTSD and gender are consistent with existing research in the general literature that shows that females have a higher prevalence of PTSD (Zlotnick, Zimmerman, Wolsdorf, & Mattia, 2001), even when controlling for the type of trauma (Breslau, Chilcoat, Kessler, Peterson, & Lucia, 1999). However, associations between PTSD and other demographic variables are mixed in the general PTSD literature and this is also mirrored in inconsistent associations between demographics and psychosis-related PTSD. For example, other studies found no associations between PTSD and age (Lu et al., 2011; Mueser et al., 2010; Priebe et al., 1999; Shaw et al., 2002; White & Gumley, 2009), gender (Lu et al., 2011; Mueser et al., 2010; Priebe et al., 1999; White & Gumley, 2009), education (Lu et al., 2011; Mueser et al., 2010; Priebe et al., 1999), professional qualifications, living situation, occupational status, employment, dosage of neuroleptics (Priebe et al., 1999), ethnicity, marital status or pre-morbid employment (Lu et al., 2011; Mueser et al., 2010). Lack of consistent associations between PTSD symptoms and demographic variables suggests that psychological process may be more important in influencing psychosis-related PTSD, as in the case of other types of PTSD.

3.5. Summary of findings

A consistent finding across the studies was that the experience of psychosis and hospitalisation is highly distressing and a considerable group of patients meet criteria for PTSD in relation to their experiences. Psychosis-related PTSD prevalence rates varied from 11% to 67%, with a median rate of 39%. Differences in prevalence rates across studies are likely to be associated with: differences in criteria and measures for diagnosing PTSD; the sample composition and in particular whether or not studies include participants with affective diagnoses; when symptoms are measured; and whether studies assess PTSD in relation to symptoms, hospital experiences or both. There is also evidence to suggest that there are significant rates of PTSD symptoms and distress in participants who do not meet full criteria for psychosis-related PTSD and psychosis and the negative experiences of treatment may be equally important in both first and multiple episode groups.

In terms of external factors, there are limited evidence of associations between PTSD and hospital experiences, including legal status and psychosis-related PTSD, although there is some evidence to suggest that psychosis-related PTSD is associated with higher distress ratings in relation to hospital experiences. There is also some evidence that psychosis-related PTSD is associated with a reduced sense of the availability of mental health providers and experiences of physical harassment or violence. However, the generally mixed findings in relation to hospital experiences suggest that internal factors may play a more important role in determining how individuals respond to their experiences in hospital, as well as their symptoms. Consistent with models of PTSD in the general literature, there was evidence that psychological variables, such as appraisals and coping style may influence PTSD. These findings suggest that PTSD for psychosis can be understood in terms of a normal process and that targeting psychological mechanisms may be important in treating psychosis-related PTSD. Further research is, however, warranted to investigate associations between psychological mechanisms in intervention studies to assess the direction of causal relationships.

In terms of symptoms, although a number of studies investigated the link between severity of positive and negative symptoms and psychosis-related PTSD, the results are conflicting. These inconsistencies suggest that psychosis-related PTSD is not simply a reflection of more severe symptoms of psychosis. There is, however, consistent association between affect and PTSD, which is in line with findings of associations between affective disorders and PTSD in the general literature.

Consistent with the literature in PTSD in relation to other traumatic events, there was also some evidence that psychosis-related PTSD was associated with trauma history. However, studies with smaller samples or those that used measures of trauma that were not validated or focused on PTSD in relation to past trauma rather than number of events did not find significant associations. The majority of studies found no associations between psychosis-related PTSD and patient demographics, also reflecting inconsistent associations between demographic variables and other types of PTSD.

4. Limitations of the review

The findings of this review need to be interpreted alongside the methodological limitations of the studies that were included. Many of the studies had small sample sizes, with 13 studies recruiting less than 40 participants. This increases the possibility of type two errors and potentially important associations being undetected. The samples were often unrepresentative thus effecting generalisability. Most of the participants were between 20 and 50 years old and there were a high proportion of Western males. The participants who took part could also be seen as a highly selected sample. There were high numbers of patients who declined to participate, but who were eligible, which

may have been due to higher levels of avoidance and trauma. Participants were often selected by staff, allowing de-selection of those who were highly symptomatic or had known trauma histories to be excluded on the grounds that participating could be re-traumatising, distressing or contribute to deterioration in mental state. This sampling bias suggests a potential underestimation of PTSD rates. Other factors, such as a fear of others' responses to disclosure (Symonds, 1982) or reluctance to discuss adverse memories due to fear or shame (Dill, Chu, Grob, & Eisen, 1991) may have also impacted on reporting of symptoms, negative hospital experiences or past traumas. Conversely, it could be argued that people with a diagnosis of psychosis exaggerate rates of traumatic experiences due to delusional beliefs. There is, however, evidence to suggest that individuals with severe and enduring mental health problems are comparable to non-clinical samples in terms of the reliability of their reports of abuse and is anything are likely to under-report it (Goodman et al., 1999; Mueser et al., 2010). A further limitation is that the majority of studies reported a combined symptom-related and hospital-related PTSD rate due to difficulties differentiating and accurately assessing the experiences separately. This is problematic as the two experiences, although related are conceptually different. It may also be difficult to separate PTSD symptoms from symptoms of psychosis and affective disorders and it is possible that pre-existing PTSD may have influenced psychosis-related PTSD, particularly given the high level of lifetime trauma. These potential confounds could lead to an over estimation of rates of PTSD and inflate associations between psychosis-related PTSD and other symptoms. The inconsistent findings across studies were also noteworthy and may be attributed to the diverse range of measures that were used to assess psychotic symptoms and hospital experiences, as well as PTSD reactions to these events. A final and important limitation is that the majority of studies were cross-sectional and so the direction of associations between PTSD and potential predictors is not known.

5. Implications for future research and practice

This review has generated a number of key areas for further research. It is important to explore differences in rates of psychosis-related PTSD in a diverse range of patients, including those who may be highly traumatised or difficult to engage. Trauma history and other psychological factors, such as appraisals of experiences and coping, would seem to be more important in influencing psychosis-related PTSD than actual symptoms or experiences. Future studies should use sensitive measures of trauma to explore associations between past traumas and psychosis-related trauma. These studies should include measures of physical and sexual abuse in both childhood and adulthood and assess PTSD due to other lifetime traumas, as well as psychotic symptoms and treatment experiences. It is also important to separate out PTSD associated with psychotic experiences and PTSD associated with hospital experiences, as the two are conceptually different. Future studies should attempt to replicate associations between appraisals of experiences and psychosis-related PTSD and associations between recovery style and psychosis-related PTSD. Models of PTSD in psychosis highlight the importance of additional psychological processes, such as contextual integration, which would be important to investigate in relation to psychosis-related PTSD (Steel, Fowler, & Holmes, 2005). In order to establish the direction of relationships between psychological variables and psychosis-related PTSD, studies should attempt to manipulate psychological mechanisms via psychological interventions. When assessing psychosis-related PTSD it is important to distinguish between psychosis-related PTSD and PTSD in relation to previous trauma.

The high prevalence of psychosis-related and hospital-related PTSD has important clinical implications. First, it may be possible to reduce rates of PTSD by improving hospitalisation experiences. For example, Borckardt and colleagues describe an 'Engagement Model' which involves reducing seclusion and restraint procedures and enhancing patient safety in psychiatric settings (Borckardt et

al., 2007). The authors describe efforts to incorporate and evaluate the model in psychiatric hospitals using a randomised multiple baseline time-series design (Borckardt et al., 2007, 2011). They report that implementation of the model was associated with significant reductions in seclusion and restraint (Borckardt et al., 2011). The low rate of PTSD in Meyer et al.'s (1999) study, which sampled participants from a hospital with a model of care that actively avoided coercive measures is also noteworthy. The next step should be to apply similar models across different settings and evaluate effects on patients' perceptions of hospital experiences and rates of PTSD pre- and post-implementation. Improving psychiatric care is important not just in terms of reducing rates of PTSD, but also improving longer-term engagement in treatments, as there is evidence that people who have experienced traumatic experiences in hospital are less willing to seek treatment in the future (Grubaugh et al., 2007; Swartz et al., 2003).

Second, despite the high prevalence of trauma and PTSD in samples of people with psychosis, these experiences and symptoms are often not recognised in clinical practice (Lommen & Restifo, 2009; Mueser et al., 1998). A significant number of patients with PTSD may therefore remain untreated which has been shown to increase the severity of problems (Hamner, Frueh, Ulmer, & Arana, 1999). Grubaugh et al. (2011) highlight the importance of 'trauma initiatives' which increase awareness of PTSD in services for people with severe and enduring mental health problems and improve care for patients experiencing trauma-related difficulties. Third, there is good evidence that CBT is effective in treating psychotic symptoms (Wykes, Steel, Everitt, & Tarrier, 2008). There is also emerging evidence of its potential benefits in treating PTSD in people with psychosis (Grubaugh et al., 2011) and the efficacy of Cognitive Recovery Invention in reducing trauma, depression and low self-esteem following a first episode of psychosis (Jackson et al., 2009). However, there is a need for further RCTs of CBT for PTSD in people with a diagnosis of psychosis which include other meaningful outcome measures such as social inclusion and personal recovery.

6. Conclusions

This paper aimed to critically review studies investigating psychosis-related PTSD and to answer the following questions: (i) what symptoms and hospital experiences do people with a diagnosis of psychosis report as distressing; (ii) what is the incidence of psychosis-related PTSD; (iii) what factors correlate with, or influence psychosis-related PTSD. We found that people describe a range of symptoms and hospital experiences as distressing and that these include those that would seem objectively distressing such as physical attacks, but also those that are not obviously traumatic, such as noise levels. Many of these studies showed that patients experiencing and recovering from a psychotic episode have high levels of PTSD symptoms related to psychosis and treatment experiences, both soon after the event and many months later. There are a number of potential external and internal events that can influence psychosis-related PTSD. Consistent with models of and findings in relation to other forms of PTSD, trauma history and other psychological variables, such as appraisals and coping may be more important than actual symptoms or hospital experiences in influencing the severity of psychosis-related PTSD symptoms. Further research into psychological mechanisms and psychosis-related PTSD is therefore recommended. Further research should also focus on evaluating interventions to prevent or treat psychosis-related PTSD.

References

- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.
- Bak, M., Krabbendam, L., Janssen, L., de Graaf, R., Vollebergh, W., & van Os, J. (2005). Early trauma may increase the risk for psychotic experiences by impacting on emotional response and perception of control. *Acta Psychiatrica Scandinavica*, 112, 360–366.

- Beattie, N., Shannon, C., Kavanagh, M., & Mulholland, C. (2009). Predictors of PTSD symptoms in response to psychosis and psychiatric admission. *The Journal of Nervous and Mental Disease*, 197, 56–60.
- Bebbington, P. E., Bhugra, D., Brugha, T., Farrell, M., Jenkins, R., Lewis, G., et al. (2004). Psychosis, victimisation and childhood disadvantage: Evidence from the second British National Survey of psychiatric morbidity. *The British Journal of Psychiatry*, 185, 220–226.
- Bendall, S., McGorry, P., & Krstev, H. (2006). The trauma of being psychotic: An analysis of posttraumatic stress disorder in response to acute psychosis. In W. Larkin, & A. P. Morrison (Eds.), *Trauma and psychosis: New directions for theory and therapy* (pp. 58–74). London: Routledge.
- Beveridge, A. (1998). Psychology of compulsory detention. *Psychiatric Bulletin*, 22, 115–117.
- Blake, D. D., Weathers, F. W., Nagy, L., Kaloupek, D. G., Gusman, F. D., Charney, D. S., et al. (1995). The development of a Clinician-Administered PTSD Scale. *Journal of Traumatic Stress*, 8, 75–90.
- Bonner, G., Lowe, T., Rawcliffe, D., & Wellman, N. (2002). Trauma for all: A pilot study for the subjective experience of physical restraint for mental health inpatients and staff in the UK. *Journal of Psychiatric and Mental Health Nursing*, 9(4), 465–473.
- Borckardt, J. J., Grubaugh, A. L., Pelic, C. G., Danielson, C. K., Hardesty, S. J., & Frueh, B. C. (2007). Enhancing patient safety in psychiatric settings. *Journal of Psychiatric Practice*, 13(6), 355–361.
- Borckardt, J. J., Madan, A., Grubaugh, A. L., Danielson, C. K., Pelic, C. G., Hardesty, S. J., et al. (2011). Systematic investigation of initiatives to reduce seclusion and restraint in a state psychiatric hospital. *Psychiatric Services*, 62(5), 477–483.
- Breslau, N., Chilcoat, H. D., Kessler, R. C., Peterson, E. L., & Lucia, V. C. (1999). Vulnerability to assaultive violence: Further specification of the sex difference in post-traumatic stress disorder. *Psychological Medicine*, 29, 813–821.
- Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, 68, 748–766.
- Centofanti, A. T., Smith, D. I., & Altieri, T. (2005). Posttraumatic stress disorder as a reaction to the experience of psychosis and its sequelae. *Clinical Psychologist*, 9, 15–23.
- Chisholm, B., Freeman, D., & Cooke, A. (2006). Identifying potential predictors of traumatic reactions to psychotic episodes. *The British Journal of Clinical Psychology*, 45, 545–559.
- Cusack, K. J., Frueh, B. C., Hiers, T. G., Suffoletta-Maierle, S., & Bennet, S. (2003). Trauma within the psychiatric setting: A preliminary empirical report. *Administration and Policy in Mental Health*, 30, 453–460.
- Cusack, K. J., Grubaugh, A. L., Yim, E., Knapp, R. G., Robins, C. S., & Frueh, B. C. (2007). Are there racial differences in the experience of harmful or traumatic events within psychiatric setting? *The Psychiatric Quarterly*, 78(2), 101–115.
- Dill, D., Chu, J., Grob, M., & Eisen, S. (1991). The reliability of abuse history reports. A comparison of two inquiry formats. *Comprehensive Psychiatry*, 32, 166–169.
- Drayton, M., Birchwood, M., & Trower, P. (1998). Early attachment experience and recovery from psychosis. *The British Journal of Clinical Psychology*, 37, 269–284.
- Dunkley, J. E., Bates, G. W., Foulds, M., & Fitzgerald, P. (2007). Understanding adaptation to first-episode psychosis: The relevance of trauma and posttraumatic growth. *Australasian Journal of Disaster and Trauma Studies*, 1.
- Eriksson, K. I., & Westrin, C. G. (1995). Coercive measures in psychiatric care: Reports and reactions of patients and other people. *Acta Psychiatrica Scandinavica*, 92, 225–230.
- Frame, L., & Morrison, A. P. (2001). Causes of posttraumatic stress disorder in psychotic patients. *Archives of General Psychiatry*, 58, 305–306.
- Frueh, B. C., Knapp, R. G., Cusack, K. J., Grubaugh, A. L., Sauvageot, J. A., Cousins, V. C., et al. (2005). Patients' reports of traumatic or harmful experiences within the psychiatric setting. *Psychiatric Services*, 56, 1123–1133.
- Goff, D. C., Brotman, A. W., & Kindlon, D. (1991). Self-reports of childhood sexual abuse in chronically psychotic patients. *Psychiatry Research*, 11, 103–112.
- Goodman, L. A., Thompson, K. M., Weinfurt, K., Corl, S., Acker, P., Mueser, K. T., et al. (1999). Reliability of reports of violent victimization and posttraumatic stress disorder among men and women with serious mental illness. *Journal of Traumatic Stress*, 12(4), 587–599.
- Goodwin, I., Holmes, G., Cochane, R., & Mason, O. (2003). The ability of Adult Mental Health Services to meet clients' attachment needs: The development and implementation of the Service Attachment Questionnaire. *Psychology and Psychotherapy: Theory, Research and Practice*, 76, 145–161.
- Green, B. L. (1996). Psychometric Review of Trauma History Questionnaire (self report). In B. H. Stamm, & E. M. Varra (Eds.), *Measurement of stress, trauma and adaptation*. Sidran: Lutherville, MD.
- Gregg, L., Barrowclough, C., & Haddock, G. (2009). Development and validation of a scale for assessment of reasons for substance use in schizophrenia: The ReSUS scale. *Addictive Behaviors*, 34, 830–837.
- Grubaugh, A. L., Frueh, B. C., Zinzow, H. M., Cusack, K. J., & Wells, C. (2007). Patients' perceptions of care and safety within psychiatric settings. *Psychological Services*, 4, 193–201.
- Grubaugh, A. L., Zinzow, H. M., Paul, L., Egede, L. E., & Frueh, B. C. (2011). Trauma exposure and posttraumatic stress disorder in adults with severe mental illness: A critical review. *Clinical Psychology Review*, 31(6), 883–899.
- Hamner, M. B., Frueh, B. C., Ulmer, H. G., & Arana, G. W. (1999). Psychotic features and illness severity in combat veterans with chronic posttraumatic stress disorder. *Biological Psychiatry*, 45(7), 846–852.
- Hardy, A., Fowler, D., Freeman, D., Smith, B., Steel, C., Kuoiers, E., et al. (2005). Trauma and hallucinatory experience in psychosis. *The Journal of Nervous and Mental Disease*, 193, 501–507.
- Harrison, C. L., & Fowler, D. (2004). Negative symptoms, trauma and autobiographical memory: An investigation of individuals recovering from psychosis. *The Journal of Nervous and Mental Disease*, 192, 745–753.
- Horowitz, M., Wilness, N., & Alvarez, W. (1979). Impact of event scale: A measure of subjective stress. *Psychosomatic Medicine*, 41(3), 209–218.
- Jackson, C., Knott, C., Skeate, A., & Birchwood, M. (2004). The trauma of first-episode psychosis: The role of cognitive mediation. *The Australian and New Zealand Journal of Psychiatry*, 38, 327–333.
- Jackson, C., Trower, P., Reid, I., Smith, J., Hall, M., Townend, M., et al. (2009). Improving psychological adjustment following a first episode of psychosis: A randomised control trial of cognitive therapy to reduce post psychotic trauma symptoms. *Behaviour Research and Therapy*, 47(6), 454–462.
- Kennedy, B. L., Dhaliwal, N., Pedley, L., Sahner, C., Greenberg, R., & Manshadi, M. S. (2002). Post-traumatic stress disorder in subjects with schizophrenia and bipolar disorder. *The Journal of the Kentucky Medical Association*, 100, 395–399.
- Kilcommons, A., & Morrison, A. P. (2005). Relationships between trauma and psychosis: An exploration of cognitive and dissociative factors. *Acta Psychiatrica Scandinavica*, 112, 351–359.
- Koivisto, K., Janhonen, S., & Vaisanen, L. (2003). Patient's experiences of psychosis in an inpatient setting. *Journal of Psychiatric and Mental Health Nursing*, 10, 221–229.
- Kubany, E. S., Haynes, S. N., Leisen, M. B., Owens, J. A., Kaplan, A. S., Watson, S. B., et al. (2000). Development and preliminary validation of a brief broad-spectrum measure of trauma exposure: The Traumatic Life Events Questionnaire. *Psychological Assessment*, 12, 210–224.
- Larkin, W., & Read, J. (2008). Childhood trauma and psychosis: Evidence, pathways, and implications. *Journal of Postgraduate Medicine*, 54, 287–293.
- Lommen, M. J., & Restifo, K. (2009). Trauma and posttraumatic stress disorder (PTSD) in patients with schizophrenia or schizoaffective disorder. *Community Mental Health Journal*, 45, 485–496.
- Lu, W., Mueser, K. T., Shami, A., Siglag, M., Petrides, G., Schoepp, E., et al. (2011). Posttraumatic reactions to psychosis in people with multiple psychotic episodes. *Schizophrenia Research*, 127, 66–75.
- Magliano, L., Fadden, G., Economou, M., Held, T., Xavier, M., Guarneri, M., et al. (2000). Family burden and coping strategies in schizophrenia: One-year follow-up data from the BIOMED I study. *Social Psychiatry and Psychiatric Epidemiology*, 35, 109–115.
- Markova, I. S., & Berrios, G. E. (1992). The assessment of insight in clinical psychiatry: A new scale. *Acta Psychiatrica Scandinavica*, 86, 159–164.
- McGlashan, T. H. (1987). Recovery style from mental illness and long-term outcome. *The Journal of Nervous and Mental Disease*, 175, 681–685.
- McGlashan, T. H., Docherty, J. P., & Siris, S. (1976). Integrative and sealing-over recoveries from schizophrenia: Distinguishing case studies. *Psychiatry*, 39, 325–338.
- McGlashan, T. H., Wadeson, H. S., Carpenter, W. T., Jr., & Levy, S. T. (1977). Art and recovery style from psychosis. *Journal of Nervous and Mental Disorder*, 164, 182–190.
- McGorry, P. D., Chane, A., McCarthy, E., Van Riel, R., McKenzie, D., & Singh, B. S. (1991). Posttraumatic stress disorder following recent-onset psychosis: An unrecognized postpsychotic syndrome. *The Journal of Nervous and Mental Disease*, 179, 253–258.
- Meyer, H., Taiminen, T., Vuori, T., Aijala, A., & Helenius, H. (1999). Posttraumatic stress disorder symptoms related to psychosis and acute involuntary hospitalisation in psychotic and delusional patients. *The Journal of Nervous and Mental Disease*, 187, 343–352.
- Morrison, A. P., Bowe, S., Larkin, W., & Nothard, S. (1999). The psychological impact of psychiatric admission: Some preliminary findings. *The Journal of Nervous and Mental Disease*, 187, 250–253.
- Morrison, A. P., Frame, L., & Larkin, W. (2003). Relationships between trauma and psychosis: A review and integration. *The British Journal of Clinical Psychology*, 42, 331–335.
- Mueser, K. T., Goodman, L. A., Trumbetta, S. L., Rosenberg, S. D., Osher, C., Vidaver, R., et al. (1998). Trauma and posttraumatic stress disorder in severe mental illness. *Journal of Consulting and Clinical Psychology*, 66, 493–499.
- Mueser, K. T., Lu, W., Rosenberg, S. D., & Wolfe, R. (2010). The trauma of psychosis: Posttraumatic stress disorder and recent onset psychosis. *Schizophrenia Research*, 116, 217–227.
- Mueser, K. T., & Rosenberg, S. D. (2001). Treatment of PTSD in persons with severe mental illness. In J. P. Wilson, M. J. Friedman, & J. D. Lindy (Eds.), *Treating psychological trauma and PTSD* (pp. 354–382). New York: Guilford Press.
- Mueser, K. T., & Rosenberg, S. R. (2003). Treating the trauma of first episode psychosis: A PTSD perspective. *Journal of Mental Health*, 12, 103–108.
- Mueser, K. T., Rosenberg, S. D., Goodman, L. A., & Trumbetta, S. L. (2002). Trauma, PTSD and the course of severe mental illness: An interactive model. *Schizophrenia Research*, 53, 123–143.
- Mueser, K. T., Rosenberg, S. D., Jankowski, M. K., Hamblen, J., & Descamps, M. (2004). A cognitive-behavioural treatment program for posttraumatic stress disorder in persons with severe mental illness. *American Journal of Psychiatric Rehabilitation*, 7, 107–146.
- Newmann, J. P., Greenley, D., Sweeney, J. K., & Van Dien, G. (1998). Abuse histories, severe mental illness, and the cost of care. In B. L. Levin, A. K. Blanch, & A. Jennings (Eds.), *Women's mental health services: A public health perspective*. Thousand Oaks: Sage.
- Panagiotti, M., Gooding, P. A., & Tarrier, N. (2012). Hopelessness, defeat, and entrapment in posttraumatic stress disorder: Their association with suicidal behavior and severity of depression. *The Journal of Nervous and Mental Disease*, 200(8), 676–683.
- Priebe, S., Broker, M., & Gunkel, S. (1998). Involuntary admission and posttraumatic stress disorder symptoms in schizophrenia patients. *Comprehensive Psychiatry*, 39, 220–224.
- Priebe, S., Oliver, J., & Kaiser, W. (1999). *Quality of life and mental health care*. Petersfield: Wrightson Biomedical Publishing.
- Read, J., Agar, K., Argyle, N., & Aderhold, V. (2003). Sexual and physical assault during childhood and adulthood as predictors of hallucinations, delusions and thought disorder. *Psychology and Psychotherapy: Theory, Research and Practice*, 76, 1–22.
- Read, J., & Argyle, N. (1999). Hallucinations, delusions, and thought disorder among adult psychiatric inpatients with a history of child abuse. *Psychiatric Services*, 50, 1467–1472.

- Reddy, L. F., & Spaulding, W. D. (2010). Understanding adverse experiences in the psychiatric institution: The importance of child abuse histories in iatrogenic trauma. *Psychological Services, 7*(4), 242–253.
- Resnick, H. S. (1996). Psychometric review of Trauma Assessment for Adults (TAA). In B. H. Stamm (Ed.), *Measurement of stress, trauma, and adaptation* (pp. 362–364). Lutherville, MD: Sidran Press.
- Robins, C. S., Sauvageot, J. A., Cusack, K. J., Suffoletta-Maierle, S., & Frueh, B. C. (2005). Consumers' perceptions of negative experiences and "sanctuary harm" in psychiatric settings. *Psychiatric Services, 56*, 1134–1138.
- Ross, C. A., Anderson, G., & Clark, P. (1994). Childhood abuse and the positive symptoms of schizophrenia. *Hospital & Community Psychiatry, 45*, 489–491.
- Shaner, A., & Eth, S. (1989). Can schizophrenia cause posttraumatic stress disorder? *American Journal of Psychotherapy, 43*, 588–597.
- Shaw, K., McFarlane, A. C., & Bookless, C. (1997). The phenomenology of traumatic reactions to psychotic illness. *The Journal of Nervous and Mental Disease, 185*, 434–441.
- Shaw, K., McFarlane, A. C., Bookless, C., & Air, T. (2002). The aetiology of postpsychotic posttraumatic stress disorder following a psychotic episode. *Journal of Traumatic Stress, 15*, 39–47.
- Stamm, B. H., Rudolf, J. M., Dewane, S., Gaines, N., Gorton, K., Paul, G., et al. (1996). Psychometric review of stressful life experiences screening. In B. H. Stamm (Ed.), *Measurement of stress, trauma and adaptation*. Lutherville (MD): Sidran Press.
- Steel, C., Fowler, D., & Holmes, E. A. (2005). Trauma-related intrusions and psychosis: An information processing account. *Behavioural and Cognitive Psychotherapy, 33*, 139–152.
- Steel, C., Haddock, G., Tarrier, N., Picken, A., & Barrowclough, C. (2011). Auditory hallucinations and posttraumatic stress disorder within schizophrenia and substance abuse. *The Journal of Nervous and Mental Disease, 199*, 709–711.
- Swartz, M. S., Swanson, J. W., & Hannon, M. J. (2003). Does fear of coercion keep people away from mental health treatment? Evidence from a survey of persons with schizophrenia and mental health professionals. *Behavioral Sciences & the Law, 21*(4), 459–472.
- Symonds, M. (1982). Victim's response to terror: Understanding and treatment. In F. Ochberb, & D. Soskis (Eds.), *Victims of terrorism* (pp. 95–103). Boulder: Westview.
- Tarrier, N., Khan, S., Cater, J., & Picken, A. (2007). The subjective consequences of suffering a first-episode psychosis: Trauma and suicide behaviour. *Social Psychiatry and Psychiatric Epidemiology, 42*, 29–35.
- White, R. G., & Gumley, A. I. (2009). Post-psychotic PTSD: Associations with fear of recurrence and intolerance of uncertainty. *The Journal of Nervous and Mental Disease, 197*(11), 841–849.
- Wood, D., & Pistrang, N. (2004). A safe place? Service users' experiences of an acute mental health ward. *Journal of Community and Applied Social Psychology, 14*, 16–28.
- Wykes, T., Steel, C., Everitt, B., & Tarrier, N. (2008). Cognitive behaviour therapy for schizophrenia: Effect sizes, clinical models, and methodological rigor. *Schizophrenia Bulletin, 34*(3), 523–537.
- Zlotnick, C., Zimmerman, M., Wolsdorf, B. A., & Mattia, J. I. (2001). Gender differences in patients with posttraumatic stress disorder in a general psychiatric practice. *The American Journal of Psychiatry, 158*, 1923–1925.