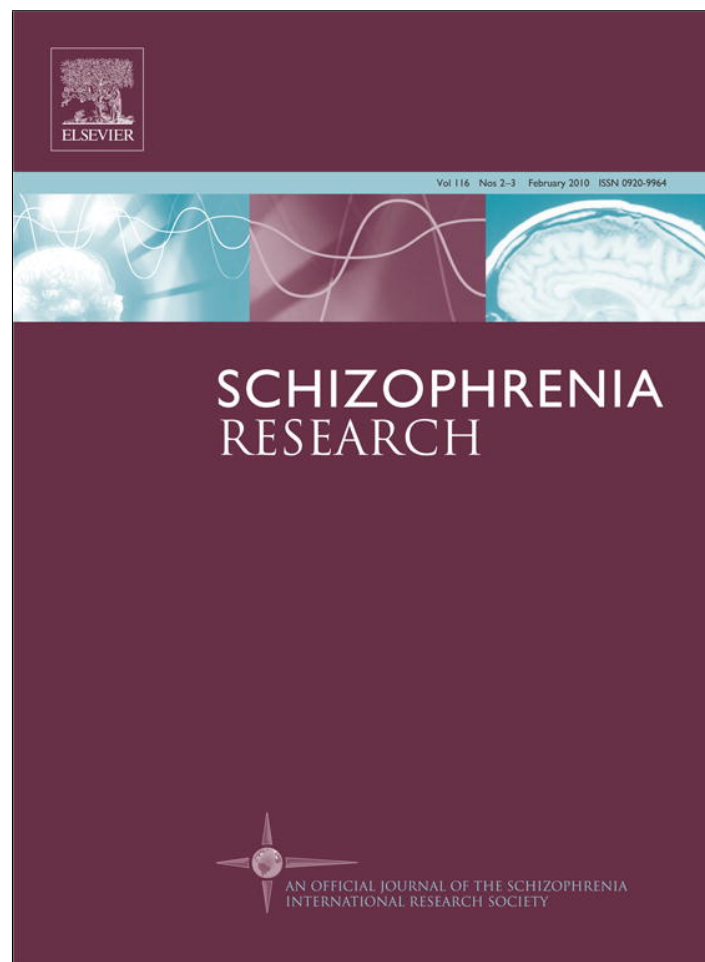


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## The trauma of psychosis: Posttraumatic stress disorder and recent onset psychosis

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### ABSTRACT

Clinical investigators have argued that the experience of a recent onset of psychosis is an event of such severity that it can lead to posttraumatic stress disorder (PTSD), or at least to PTSD symptoms. The traumagenic elements of the psychotic experience may relate to the distressing nature of psychotic symptoms, components of treatment, or both. However, this hypotheses has not been fully empirically evaluated. In particular, the importance of the DSM-IV A1 (perception of threat) and A2 (negative emotion at time of event) criteria for a traumatic event due to a psychotic episode has not been assessed. To address this question, 38 clients in treatment for recent onset of psychosis were interviewed to identify distressing experiences related to the episode, with PTSD assessed (including A1/A2 criteria) related to those events. More than one-half of the participants reported intense distress related to psychotic symptoms or treatment experiences, with 66% meeting symptom criteria for the PTSD syndrome (regardless of A1/A2), and 39% meeting full diagnostic criteria for PTSD (including A1/A2). Both participants with the PTSD syndrome and full PTSD reported more problems in daily functioning and more severe symptoms than those without PTSD. Participants with the PTSD syndrome were also more likely to have an integrative rather than sealing over coping style compared to those without the PTSD syndrome. The results suggest that individuals with PTSD symptoms related to a recent onset of psychosis may benefit from intervention designed to help them integrate their experience into their lives and address potentially stigmatizing beliefs that could contribute to distress and impaired functioning.

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### 1. Introduction

The development of a psychotic disorder has often been described as traumatic for individuals and their relatives (Birchwood, 2003; Boevink, 2006; Jeffries, 1977). Psychotic

symptoms such as hallucinations and delusions can be a terrifying experience that both shakes their grip on reality as they previously knew it, and threatens their sense of self (Strauss, 1989; Tarrier et al., 2007). Following treatment, people may be mortified or feel shame when looking back at bizarre, potentially harmful, or socially embarrassing behaviors they engaged in during a psychotic episode. These experiences may be compounded by the effects of being labeled with a mental illness, social rejection, and the internalization and acceptance of societal attitudes towards mental illness (Deegan, 1993; Estroff, 1981). Furthermore, people may also be exposed to upsetting coercive treatments

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such as involuntary hospitalization, the use of seclusion or restraints in the hospital, or being forced to take medication (Deegan, 1990; Gallop et al., 1999). Finally, when people are in the hospital they may be exposed to other traumas, such as physical or sexual victimization at the hands of other inpatients or even treatment staff, a phenomenon which has been described as *sanctuary trauma* (Frueh et al., 2000; Frueh et al., 2005; Robins et al., 2005). This set of risks and experiences contribute to what Goffman (1961) described as the “mortifications of self” associated with psychiatric illness and its management.

Shaner and Eth (1989) observed that the impact of first experiencing psychotic symptoms or coercive treatments led some individuals to develop posttraumatic stress disorder (PTSD) symptoms, including re-experiencing the trauma (DSM-IV Criterion B), avoidance of trauma-related stimuli (Criterion C), and increased arousal (Criterion C). Mueser and Rosenberg (2003) suggested that the emergence of PTSD symptoms related to psychosis could be especially important early in the course of psychosis because clients might avoid stimuli related to their traumatic experiences, including aftercare treatment for their illness. Several studies have examined the prevalence of PTSD symptoms related to psychotic symptoms or treatment experiences by evaluating how many clients meet the DSM-IV B, C, and D symptom criteria for PTSD, irrespective of the Criterion A definition of a traumatic event. We refer here to clients who meet these symptom criteria for PTSD, but not necessarily Criterion A, as having the *PTSD syndrome*, and to refer to clients who meet both the symptom criteria and the Criterion A definition of trauma as having *full PTSD*. Studies of first episode psychosis have reported that between 31 and 46% of clients meet criteria for the PTSD syndrome (Jackson et al., 2004; McGorry et al., 1991; Tarrrier et al., 2007), with the exception of one study that reported a rate of 11% (Meyer et al., 1999). Research on multi-episode clients has found that between 44 and 61% meet criteria for the PTSD syndrome (Chisholm et al., 2006; Frame and Morrison, 2001; Morrison et al., 2001; Priebe et al., 1998; Shaw et al., 2002).

It is clear that people with psychotic symptoms often develop a PTSD syndrome related to their symptoms or treatment. What is unknown is how many of these cases would also meet the DSM criteria for a traumatic event. The A1/A2 criterion for trauma according to DSM-IV is:

“The person has been exposed to a traumatic event in which both of the following have been present: 1) The person has experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others. 2) The person's response involved intense fear, helplessness, or horror. Note: in children, it may be expressed instead by disorganized or agitated behavior.” (pp. 427–428) (American Psychiatric Association, 1994).

This definition of trauma is relatively restrictive compared to the broader use of the word “trauma” in the common vernacular and among many clinicians. For example,

Horowitz (1986) describes trauma as a major life event that occurs in forceful way, is recognized as highly relevant to the self, but does not fit with the self's usual view of the world and their personal responses and abilities. The definition of trauma has evolved over the different versions of the DSM (Breslau and Kessler, 2001; Spitzer et al., 2007), and continues to be a hotly debated topic (Bodkin et al., 2007; Rosen, 2004; Rosen and Lilienfeld, 2008; Young and Breslau, 2007), with some arguing for an even more restrictive definition (Spitzer et al., 2007; Weathers and Keane, 2007a,b) and others for less restrictive criteria (Kilpatrick et al., 1998; Maier, 2007). For purposes of this paper, we will leave aside controversy in the field as to whether the threatening nature of the event (“actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others”) must be objectively verifiable, or whether the subject's perception of such threat is the key variable in determining if the A1 criterion has been met.

The implications of using a broader versus a more narrow definition of trauma in describing the PTSD symptoms that occur related to psychosis have not been explored. A broader definition of trauma could identify more individuals with distressing PTSD symptoms related to their psychotic disorder who could benefit from treatment aimed at helping them psychologically processes and incorporate their experiences into their understanding of themselves and the world. On the other hand, it may be that the narrower definition of trauma adopted by the DSM-IV is more useful for identifying individuals with PTSD symptoms related to their psychosis who are most in need and most likely to respond to psychological treatment for these symptoms.

Another issue related to the experience of posttraumatic symptoms following a recent onset of psychosis is the potential impact of other traumatic life events on those symptoms. There is abundant evidence that people with schizophrenia and other severe mental illnesses have high rates of childhood sexual and physical abuse and other early life traumatic experiences (Lu et al., 2008; Read et al., 2005; Rosenberg et al., 2007), and correspondingly high rates of PTSD related to these events (Mueser et al., 1998, 2004; Switzer et al., 1999). One study of first episode psychosis reported a 14% rate of PTSD related to such traumatic events (Neria et al., 2002). It remains unclear whether trauma exposure prior to the onset of psychosis influences the extent to which people experience posttraumatic symptoms secondary to the onset of psychotic symptoms or negative treatment experiences. Of particular interest is the question of whether cumulative trauma exposure or history of childhood sexual abuse increases the likelihood that clients experiencing a first episode of psychosis will develop posttraumatic symptoms related to their psychosis or treatment, given that these aspects of trauma exposure have been linked to PTSD in both in the general population (Astin et al., 1995; Rodriguez et al., 1997) and in people with severe mental illness (e.g., Mueser et al., 1998).

This study was aimed at addressing these and several related questions about the traumatic nature of the onset of psychosis. Specifically, we evaluated traumatic experiences related to psychosis in clients with a recent onset of

psychosis, as soon as possible after receiving treatment, in order to address the following questions:

1. What aspects of psychotic symptoms do clients find most upsetting?
2. What aspects of treatment do clients find most upsetting?
3. How often do upsetting reactions to psychotic symptoms or treatment experiences meet the DSM-IV A1/A2 criteria for a traumatic event?
4. Is the full diagnosis of PTSD including the A1/A2 criteria more strongly related to distress and functional impairment than a diagnosis of a PTSD syndrome that does not meet the DSM-IV A1/A2 criteria for a traumatic event?
5. Does prior trauma exposure increase the chances of clients experiencing posttraumatic symptoms secondary to the onset of psychotic symptoms or negative treatment experiences?

## 2. Methods

The study was conducted at two state psychiatric hospitals (New Hampshire State Hospital (NHH) in Concord, NH, and Trenton Psychiatric Hospital in Trenton, NJ) and two inpatient units at two academic medical centers (Dartmouth–Hitchcock Medical Center (DHMC) in Lebanon, NH and University Hospital in Newark, NJ) that provided acute care, inpatient services to people with psychotic and other severe mental illnesses. The NHH is the only state hospital in the state of New Hampshire while Trenton Psychiatric Hospital is one of the several state hospitals in New Jersey. Both NHH and DHMC are located in the rural New Hampshire, while Trenton Psychiatric Hospital and University Hospital are located in urban areas of New Jersey. The treatment teams were first informed of the study and eligibility criteria of the study. Members of the treatment team (attending psychiatrists, psychologists, and nurses) then identified potentially eligible participants and referred them to the study team who checked with the treatment team periodically for referrals. There was no incentive for staff from the treatment team for referral of clients.

Because a central question addressed in the study was the importance of the A1/A2 criteria for traumatic event in diagnosing PTSD related to a psychotic episode, we chose to assess participants as soon as possible after the symptoms of their episode had been stabilized in order to ensure the greatest accuracy of their perceptions of threat and emotional reactions. Subjects participated in the study after they were considered to be symptomatically stabilized (i.e., not catatonic, aggressive, suicidal, actively delusional or hallucinating, or grossly psychotic or disoriented) by their treatment team and were subsequently referred by the members of their treatment team. All of the study procedures were approved of by the appropriate university and hospital Institutional Review Boards.

### 2.2. Participants

Inclusion criteria for participation in the study were:

- a) between age 14 and 30;
- b) chart or clinician diagnosis of schizophrenia, schizoaffective disorder, schizophreniform disorder, bipolar disorder, major depression, brief reactive psychosis, or unspecified psychosis;

- c) presentation for treatment of a psychotic episode within the past 6 weeks;
- d) either one or two psychotic episodes over their lifetime, the first having occurred not more than 2 years ago and the most recent having occurred within the past 6 weeks;
- e) psychotic symptoms of moderate severity or greater on any item on the Brief Psychiatric Rating Scale (Lukoff et al., 1986) thought disturbance subscale (hallucinatory behavior, unusual thought content, grandiosity, and suspiciousness) (Mueser et al., 1997), that have persisted for at least 2 days in the absence of any active substance use; and
- f) voluntary signed informed consent for participation in the study by the participants 18 years or older, or for participants under age 18 verbal assent from the youth and signed informed consent from a parent or guardian.

A total of 38 participants including adolescents met the study criteria and completed the assessments. The characteristics of the study sample are summarized in Table 1. The

**Table 1**  
Demographic and Diagnostic Characteristics, and Trauma History of Study Sample.

	N	%
Gender		
Male	26	68
Female	12	32
Race/Ethnicity		
White	26	68
African American	6	16
Hispanic	3	8
Other	3	8
Marital Status		
Never Married	35	92
Married	1	3
Separated/divorced	2	5
Work status before hospitalization		
Not employed	20	53
Employed	15	39
Missing	3	8
Diagnosis		
Bipolar disorder	6	16
Major depression	4	10
Psychotic or delusional disorder	14	37
Schizoaffective disorder	1	3
Schizophrenia	8	21
Schizophreniform disorder	2	5
Other	2	5
Missing	1	3
Traumatic event (yes)		
Serious accident	12	32
Natural disaster	8	21
Physical assault by family	17	45
Physical assault by stranger	10	26
Sexual assault by family	11	29
Sexual assault by stranger	8	21
Military combat/war zone	1	3
Sexual contact younger than 18	14	37
Imprisonment	8	21
Torture	3	8
Life-threatening illness	4	11
Other traumatic event	14	37
	Mean	SD
Age	22.5	5.89
Highest Grade Completed	11.7	2.44



inpatient participants in the present study were significantly younger (the mean age was 22.5) than studies of multi-episode clients with severe mental illness (e.g., mean age = 42,  $N=931$  for inpatients and outpatients in Rosenberg et al., 2001; mean age = 40,  $N=275$  for inpatients and outpatients in Mueser et al., 1998; mean age = 42,  $N=33$  for outpatients in Lommen and Restifo, 2009; mean age = 44,  $N=47$  for outpatients in Resnick et al., 2003). The participants also had fewer hospitalizations (one or two) upon the time of assessments compared to the participants in other studies of persons with severe mental illness (e.g., mean number of hospitalizations = 4 in Rosenberg et al., 2007; mean number of hospitalizations = 7 in Resnick et al., 2003). Participants also were more likely to be diagnosed with psychotic disorder NOS (37%) rather than schizophrenia or schizoaffective disorders (13%), compared to other studies of persons with severe mental illness (e.g., 34% schizophrenia or schizoaffective disorder in Mueser et al., 1998; 64% schizophrenia or schizoaffective disorder, and 36% mood or other disorders in Rosenberg et al., 2001). Educational levels in this study were similar to other studies of persons with severe mental illness. A significantly higher proportion of the participants in this study were never married (92%) compared to other studies of persons with severe mental illness, while the percentage of minority participants was similar to some other studies (e.g., Mueser et al., 1998), but lower than others (e.g., Rosenberg et al., 2001).

### 2.3. Measures

#### 2.3.1. Trauma and PTSD symptoms

Exposure to traumatic events over the lifetime (e.g., sexual assault, serious accident) was evaluated with an abbreviated version of the Traumatic Life Events Questionnaire (Kubany et al., 2000) that included 12 items, each rated on a no/yes basis. For the purposes of evaluating the relationship between traumatic events and posttraumatic reactions to the onset of a first episode psychosis, a cumulative score of traumatic events was computed for each participant, as well as binary measure of whether the person had a history of sexual abuse or assault (based on an affirmative response to any of the three items: sexual assault by family, sexual assault by stranger, or sexual contact younger than 18). Psychologically traumatic events related to the onset of psychotic symptoms or treatment experiences were evaluated with a modified version of the PTSD Assessment Tool for Schizophrenia (PATS) (Williams-Keeler, 1999). The PATS is a semi-structured interview designed to elicit posttraumatic reactions to psychosis and treatment experiences. The modified PATS was divided into two sections, corresponding to reactions to psychotic symptoms and treatment experiences. For the first section, reactions to psychotic symptoms were assessed by initially asking 15 questions (e.g., "Have the symptoms of your psychiatric illness ever caused you to feel extremely anxious or terrified?" "Did you believe that groups of people wanted to hurt you?"), with any affirmative response followed up by probes to elicit specific examples. After these questions, clients were asked to identify which experience was currently most distressing to them when looking back on it, and subsequent questions were asked based on the Clinician Administered PTSD Scale (Blake et al.,

1995) to evaluate whether that event met the DSM-IV A1 (perception of threat) and A2 (negative emotional reaction) criteria for a traumatic event from the perspective of the participant.

The *Posttraumatic Diagnostic Scale* (PDS) (Foa et al., 1997) was used to ascertain PTSD diagnosis and symptom severity for the most upsetting traumatic event related to psychotic symptoms, treatment experiences, or their combination. This is a semi-structured interview that is used to diagnose PTSD with good inter-rater and test-retest reliability, and relates strongly to PTSD diagnoses based on the Clinician Administered PTSD Scale (Blake et al., 1995), which takes significantly longer to administer. The PDS is a 49-item measure designed to aid in the detection and diagnosis of PTSD. Respondents report on PTSD symptoms that they have experienced within the last month, followed by questions (no/yes) as to whether the symptoms have interfered with functioning in the areas of work, household chores, relationships with friends, fun and leisure activities, schoolwork, relationships with family members, sex life, or general satisfaction with life. Items on the PDS correspond to the DSM-IV PTSD criteria (American Psychiatric Association, 1994). Symptom severity scores are calculated by summing responses to the 17 symptom items (range 0–51). Severity scores below 10 are considered mild, scores of 10 to 20 are considered moderate, scores of 21 to 35 are considered moderate-to-severe, and scores above 35 are considered severe (Foa et al., 1997). An overall measure of interference with life was also computed by summing the number of different areas of functioning the client reported were adversely affected by their PTSD symptoms. The PDS has been shown to be psychometrically sound (Foa et al., 1993).

Two types of PTSD groups were formed based on these assessments, depending on whether the distressing event met DSM-IV A1 and A2 criteria for a traumatic event. Clients who met symptom criteria for PTSD on the PDS and whose distressing event also met A1 and A2 criteria were classified as full PTSD, whereas client who met symptom criteria for PTSD but whose distressing event did not meet A1/A2 criteria were classified as PTSD syndrome.

#### 2.3.2. Other symptom and coping measures

The expanded version of the *Brief Psychiatric Rating Scale* (BPRS) (Lukoff et al., 1986) was used to assess psychiatric symptoms. This measure includes 24 items, each rated on a 7-point Likert scale. The BPRS is a widely used instrument for measuring severity of psychiatric symptoms, with excellent psychometric properties (Mueser et al., 1997; Velligan et al., 2005). A BPRS score of 31 is considered as "mildly ill," a score of 41 is "moderately ill," and 53 is "markedly ill" (Leucht et al., 2005).

The *Beck Depression Inventory* (BDI-II) (Beck et al., 1996) was used to measure changes in depression. It is a commonly used self-rating scale that assesses the behavioral, affective, cognitive, and psychological components of depression. It contains 21 items, each rated on a 4-point Likert scale. Scores of 1 to 10 are considered in the normal range, scores of 11 to 16 are considered "mild" depression, scores of 17 to 30 are considered "moderate" depression, and scores of 31 and higher are considered "severe" depression (Trent and Weiss, 2000). The *Beck Anxiety Inventory* (BAI; Beck and Steer, 1993) was used to evaluate anxiety. The BAI is a

21-item self-report scale that measures the severity of self-reported anxiety in adults and adolescents. It has the internal consistency reliability ranging from .92 to .94 and a test-retest reliability of one week interval of .75. Its validity has been established to discriminate between anxious and non anxious diagnostic groups. It has demonstrated correlation with other self-report or clinician-administered anxiety rating scales and with measures of dysfunctional cognitions related to anxiety among adults. Each item of BAI is rated on a four-point Likert scale with a total score ranging from 0 to 63. Scores below 16 indicate “minimal to mild anxiety,” scores of 16 to 25 suggest “moderate anxiety,” and scores of 26 to 63 reflect “severe anxiety.”

Substance abuse was measured by inquiring about alcohol and drug use over the past 30 days. Specifically, information was obtained about the number of days the client used alcohol, got high from alcohol or consumed more than 3 drinks in a day (i.e., abuse), used drugs that were not prescribed for the person other than over-the-counter medications, used more than the prescribed amount of medication, or used over-the-counter medications in order to get high. For the purposes of statistical analysis, three measures were examined: number of days of alcohol use, number of days of alcohol abuse, and number of days of drug abuse (including the last three questions).

At the end of the assessment the interviewer provided a rating of the client's style for coping with the psychotic experience using the Integration/Sealing Over Scale (ISOS) (McGlashan et al., 1977). This scale distinguishes between two opposing coping styles for dealing with a psychotic experience, with integration characterized by an awareness of the continuity of between thoughts and feelings during the psychotic episode and emotional conflicts before and after the episode, and sealing over characterized by encapsulating the psychotic experience as an even which is alien to the person's mental life before and after the episode. Ratings were made on a 7-point anchored Likert scale, with 1 corresponding to integration and 7 corresponding to sealing over.

#### 2.4. Procedures

Study participants were identified by the clinical treatment team. When potentially eligible clients were identified, and were symptomatically stabilized, permission for a member of the research team to discuss the research project with the client was obtained from the clinician. If permission from the client was granted, a meeting was set up between a member of the research team and client, the research project was explained, and if the client was interested he or she provided signed informed consent (or for participants under the age of 18, signed assent was obtained, with signed consent obtained from the parent or legal guardian). An interview was then arranged to conduct the assessment, and a thorough chart review performed. All participants were paid a modest fee for their participation in the study.

#### 2.5. Statistical analysis

We first examined the impact of psychotic symptoms by computing the percent of specific negative events related to those symptoms that clients reported experiencing, and

whether the most distressing of those events met DSM-IV A1 and A2 criteria for a traumatic event. Next, we evaluated the impact of treatment experiences by computing the percent of specific negative events related to treatment clients reported experiencing, and whether the most distressing of those events met DSM-IV A1 and A2 criteria for a traumatic event. Third, we computed percentages to determine whether the most distressing event that clients experienced was related to psychotic symptoms, treatment, or their combination, and whether the event met A1/A2 criteria for a traumatic event. Fourth, to determine whether a full PTSD diagnosis was related to client characteristics or functioning, clients who met all diagnostic criteria for PTSD (including the A1 and A2 criteria for traumatic event, and symptom criteria B, C, and D corresponding the re-experiencing, over-arousal, and avoidance symptom) were compared with clients who did not meet all the criteria for PTSD on background variables (e.g., trauma history), clinical functioning, coping style, and perceived impact of PTSD symptoms on different domains of life, using  $\chi^2$  analyses for categorical variables, and *t*-tests for continuous ones. A similar set of analyses was performed comparing all of the clients who met the symptom criteria for a diagnosis of PTSD (i.e., symptom clusters B, C, and D), regardless of whether they meet the A1/A2 criteria for traumatic event (i.e., the PTSD syndrome), with clients who did not meet symptom criteria for PTSD. An alpha level of  $p < .05$  was set to determine statistical significance.

### 3. Results

Specific negative responses to psychotic symptoms are summarized in Table 2. The most distressing symptoms were those that involved paranoid thoughts, fear of losing one's mind, and violent, strange, or embarrassing behavior, identified by more than one-half of the participants, with putting oneself in danger and frightening hallucinations identified by approximately one-third of the participants. Of the 36 participants with data on when the most distressing event related to psychotic experiences occurred, 26 (66%) indicated it had occurred more than a month ago. Evaluation of A1/A2 criteria for the most distressing event indicated that

**Table 2**

Negative responses to psychotic symptoms and DSM-IV A1/A2 criteria for traumatic event.

Psychotic symptom	% clients endorsed
People plotting against you	66
Afraid of losing mind/touch with reality	63
Violent, strange, or embarrassing behavior	61
People or groups want to get you	60
Put yourself in danger	37
Upsetting voices	34
Hurting yourself	34
Frightening hallucinations	32
Forces outside self make you harm yourself	32
DSM-IV A1/A2 criteria	% clients met criterion
A1: perceived threat	60
A2: intense fear, helplessness, or horror	76
Meets A1 and A2 criteria	47

60% of the events met the A1 criterion (perceived threat), 76% met A2 criterion (negative emotional reaction), and 47% met both A1 and A2 criteria for a traumatic event.

Negative responses to specific treatment experiences are summarized in Table 3. The most distressing treatment experiences identified by at least one-half of the participants involved involuntary hospitalization and being physically secluded or restrained. Other common negative treatment experiences were also identified as distressing, including medication side effects or other problems (45%), being forced to take medication (24%), and being threatened by a treatment provider (22%). Of the 38 participants, 20 (53%) indicated that the most distressing treatment-related event had occurred more than a month ago. Regarding the A1/A2 criteria for the most distressing of these events, 47% met A1 criterion (perceived threat), 63% met A2 criterion (negative emotional reaction), and 31% met both A1 and A2.

Among the different negative experiences participants described related to their psychotic episode, 20 (53%) reported that the symptoms were most upsetting, 16 (42%) reported that a treatment experience was most upsetting, and 2 (5%) indicated that an event related to both symptoms and treatment together was most upsetting. A total of 25 (66%) participants had the PTSD syndrome (i.e., met PTSD symptom criteria related to their most distressing event, regardless of whether they also the A1/A2 criteria for traumatic event). Among the 24 participants for whom the most distressing event occurred more than a month ago, 14 (58%) met criteria for the PTSD syndrome, and 9 (38%) met full diagnostic criteria for PTSD (i.e., both symptom criteria, event occurring more than one month-ago, and A1/A2 criteria) related to their most distressing event.

Comparison of participants with the PTSD syndrome to those without the syndrome on demographic or diagnostic characteristics indicated no significant differences. Similarly, participants who met full PTSD criteria related to their psychotic episode did not differ from those who did not on any of these characteristics. Thus, PTSD symptoms due to psychotic symptoms or treatment experiences did not appear to be influenced by participants' demographic or diagnostic characteristics.

The results of the  $\chi^2$  analyses and *t*-tests comparing participants with the PTSD syndrome to those without on

trauma history, symptoms, interference with functioning, and integration–sealing over coping style are provided in Table 4. Neither cumulative traumatic events nor history of sexual abuse/assault were related to the likelihood of a participant having the PTSD syndrome. Compared to participants without the PTSD syndrome, those with the syndrome indicated that their PTSD symptoms had caused significantly greater interference in four out of nine functional domains, including household, relationships with friends, schoolwork, and sex life. The overall measure of interference with life, comprised of the sum of all the different domains of functioning affected by PTSD symptoms, was also highly significant ( $p = .003$ ). Participants with the PTSD syndrome also had significantly higher total scores on the BPRS, the BDI-II, the BAI, and number of days abusing drugs over the past 30 days. Finally, participants with the PTSD syndrome had significantly lower scores on the integration–sealing over scale, indicating that they tended to have more of an integrative style of coping with their psychotic episode than a sealing over style.

Table 5 provides the same analyses as Table 4 comparing participants who met full PTSD diagnostic criteria related to their psychotic episode (including the A1 and A2 criteria) with those who did not. Similar to the PTSD syndrome, neither cumulative traumatic events nor history of sexual abuse/assault was related to the likelihood of a participant meeting full PTSD diagnostic criteria. Participants with full PTSD reported their symptoms interfered significantly with three life domains, including work, household, and relationships with friends, and indicated significantly higher overall interference with life than those without full PTSD. Participants with full PTSD also reported significantly more distress on the BDI-II and BAI, but did not differ on the BPRS symptoms, substance use, or coping style on the sealing over-integration measure.

#### 4. Discussion

Adolescents and young adults with a recent onset of psychosis reported high levels of distress related to both the nature of their psychotic symptoms and their treatment experiences. A slightly higher proportion of participants found symptoms to be the most distressing aspect of their psychotic episode (53%) compared to treatment (42%), with 5% reporting that both types of events were equally upsetting. The most distressing symptoms were those that involved paranoid thoughts, fear of losing one's mind, and violent, strange, or embarrassing behavior, which were reported by more than one-half of the participants, with putting oneself in danger and frightening hallucinations reported by approximately one-third of the participants. These results are consistent with other studies documenting the traumatic effects of first experiencing psychotic symptoms (Jackson et al., 2004; McGorry et al., 1991; Meyer et al., 1999; Shaner and Eth, 1989).

The most distressing treatment experiences reported by at least one-half of the participants involved involuntary hospitalization and being physically secluded or restrained. Other common negative treatment experiences included medication side effects or other problems (45%), being forced to take medication (24%), and being threatened by a

**Table 3**  
Negative responses to treatment experiences and DSM-IV A1/A2 criteria for traumatic event.

Treatment experience	% clients endorsed
Forcibly taken to hospital	71
Frightening or hurtful treatment	50
Physically restrained or secluded in hospital	50
Serious problem or side effect related to medications	45
Forced to take medication	24
Other challenging treatment experiences	24
Threatened by treatment provider	22
DSM-IV A1/A2 criteria	% clients met criterion
A1: perceived threat	47
A2: intense fear, helplessness, or horror	63
Meets A1 and A2 Criteria	31

**Table 4**

Associations between PTSD syndrome (not including A1/A2 criteria) and trauma history, functional, clinical, and coping style (integration–sealing over) measures.

Categorical Variables	No PTSD syndrome		PTSD syndrome		$\chi^2$	df	p		
	N	%	N	%					
History of sexual abuse/assault									
No	8	61	10	40	1.591	1	.207		
Yes	5	39	15	60					
<i>PDS<sup>d</sup> interference with:</i>									
Work									
No	11	85	14	56	3.112	1	.078		
Yes	2	15	11	44					
Household									
No	12	92	15	60	4.340	1	.037 <sup>a</sup>		
Yes	1	8	10	40					
Relationships with friends									
No	9	69	8	32	4.795	1	.029 <sup>a</sup>		
Yes	4	31	17	68					
Fun and leisure									
No	8	62	10	40	1.591	1	.207		
Yes	5	38	15	60					
Schoolwork									
No	13	100	16	67	5.529	1	.019 <sup>a</sup>		
Yes	0	0	8	33					
Family relationships									
No	8	62	8	32	3.061	1	.080		
Yes	5	38	17	68					
Sex life									
No	12	92	15	60	4.340	1	.037 <sup>a</sup>		
Yes	1	8	10	40					
General life satisfaction									
No	6	46	6	24	1.943	1	.163		
Yes	7	54	19	76					
Overall functioning									
No	7	54	7	28	2.455	1	.117		
Yes	6	46	18	72					
Continuous variables									
	N	Mean	SD	N	Mean	SD	t	df	p
Cumulative traumatic events	13	2.08	2.36	25	3.32	2.30	1.565	36	.126
Interference with life (from PDS)	13	2.38	2.14	25	5.00	2.47	3.236	36	.003 <sup>b</sup>
Brief Psychiatric Rating Scale	13	38.92	13.51	22	52.59	10.61	3.327	33	.002 <sup>b</sup>
Beck Depression Inventory-II	13	4.46	3.95	21	19.90	13.24	4.999	32	.000 <sup>c</sup>
Beck Anxiety Inventory	12	5.08	5.93	20	18.70	11.64	3.755	30	.001 <sup>c</sup>
Days alcohol use past 30	13	2.23	7.15	25	2.04	4.50	-.101	36	.920
Days alcohol abuse past 30	12	.33	.65	24	1.58	4.15	1.030	34	.310
Days drug abuse past 30	13	.04	.63	24	3.75	8.13	2.064	35	.050 <sup>a</sup>
Integration–sealing over coping style	10	5.30	.95	23	4.26	1.36	–2.521	31	.019 <sup>b</sup>

<sup>a</sup> p<.05.<sup>b</sup> p<.01.<sup>c</sup> p<.001.<sup>d</sup> PDS = posttraumatic diagnostic scale.

treatment provider (22%). These findings are also similar to other reports of first experiences with the treatment system of people with a recent episode of psychosis (McGorry et al., 1991; Meyer et al., 1999; Tarrier et al., 2007). The traumatizing effects of seclusion and restraints in the hospital have been frequently noted (Deegan, 1990; Ray et al., 1996), especially for individuals with a history of childhood sexual abuse (Brase-Smith, 1995; Fromuth and Burkhart, 1992; Gallop et al., 1999; Jennings, 1995), leading to a push for safe alternatives to such practices (Carmen et al., 1996; Donat, 2005; Smith et al., 2005).

A high proportion of participants reported PTSD symptoms related to their psychotic episode, with 66% meeting criteria for the PTSD syndrome (i.e., meeting DSM-IV symptom criteria for PTSD irrespective of the A1/A2 criterion

for traumatic event). When the study sample was restricted to participants for whom their traumatic experience had occurred more than one month ago, 58% met symptom criteria for PTSD. McGorry et al. (1991) found that 46% of first episode clients met the criteria for PTSD syndrome four months after the episode, and 35% met PTSD criteria 11 months later. Jackson et al. (2004) reported that 31% of their sample of first episode psychosis clients had the PTSD syndrome approximately 1.5 years later, whereas 38% of the first episode clients in Tarrier et al's (2007) had the PTSD syndrome immediately following hospitalization for the episode. PTSD symptoms appear to be common reactions to the experience of psychotic symptoms and their treatment, both soon after the event has occurred as well as many months later.



**Table 5**

Associations between full PTSD diagnosis (including A1/A2 criteria) and trauma history, functional, clinical, and coping style (integration–sealing over) measures.

Categorical variables	Not full PTSD		Full PTSD		$\chi^2$	df	p		
	N	%	N	%					
History of sexual abuse/assault									
No	11	48	7	47	0.005	1	.944		
Yes	12	52	8	53					
<i>PDS<sup>d</sup> Interference Scale</i>									
Work									
No	18	78	7	47	4.027	1	.045 <sup>a</sup>		
Yes	5	22	8	53					
Household									
No	20	87	7	47	7.165	1	.007 <sup>b</sup>		
Yes	3	13	8	53					
Relationships with friends									
No	14	61	3	20	6.134	1	.013 <sup>b</sup>		
Yes	9	39	12	80					
Fun and leisure									
No	13	57	5	33	1.958	1	.162		
Yes	10	43	10	67					
Schoolwork									
No	20	87	9	64	2.639	1	.104		
Yes	3	13	5	36					
Family relationships									
No	10	43	6	40	.045	1	.832		
Yes	13	57	9	60					
Sex life									
No	19	83	8	53	3.783	1	.052		
Yes	4	17	7	47					
General life satisfaction									
No	8	35	4	27	0.277	1	.599		
Yes	15	65	11	73					
Overall functioning									
No	10	43	4	27	1.103	1	.294		
Yes	13	57	11	73					
Continuous Variables	N	Mean	SD	N	Mean	SD	t	df	p
Cumulative traumatic events	23	2.39	2.13	15	3.67	2.58	1.662	33	.106
Interference with life (from PDS)	23	3.26	2.45	15	5.40	2.47	2.619	36	.013 <sup>b</sup>
Brief Psychiatric Rating Scale	21	44.52	13.64	14	52.00	12.05	1.662	33	.106
Beck Depression Inventory-II	22	8.68	9.59	12	23.75	13.18	3.831	32	.001 <sup>c</sup>
Beck Anxiety Inventory	20	9.30	9.54	12	20.75	12.20	2.960	30	.006 <sup>b</sup>
Days alcohol use past 30	23	1.65	5.41	15	2.80	5.65	0.629	36	.534
Days alcohol abuse past 30	22	.63	1.14	14	2.00	5.33	.943	34	.362
Days drug abuse past 30	22	2.64	7.96	15	2.40	4.58	-.104	35	.918
Integration–sealing over coping style	18	4.89	1.18	15	4.20	1.42	-1.519	31	.139

<sup>a</sup>  $p < .05$ .<sup>b</sup>  $p < .01$ .<sup>c</sup>  $p < .001$ .<sup>d</sup> PDS = posttraumatic diagnostic scale.

A unique focus of this study was on evaluating whether traumatic experiences related to psychosis or treatment met the DSM-IV A1 (perceived threat) and A2 (negative emotional reaction) criteria for a traumatic event, as perceived by the individual. Psychotic symptoms were more likely to be perceived as presenting a grave threat and meeting the A1 criterion (60%) than treatment experiences (47%), and to evoke strong feelings of intense fear, helplessness, or horror specified by the A2 criterion (76% and 63%, respectively). Overall, 47% of the events related to psychotic symptoms met both A1 and A2 criteria for trauma, and 31% of events related to treatment experiences. Slightly over one-half of the 66% of participants with the PTSD syndrome met full criteria for PTSD including the A1/A2 criteria (but not including the one month duration of symptoms)—39% of the total sample.

Among the participants whose traumatic experience occurred more than one month ago and who met the one month duration of symptoms criteria, 37% met full diagnostic criteria for PTSD.

As expected, fewer clients met full PTSD criteria than for the PTSD syndrome, although this rate was nevertheless significant. Of greater importance is the question of whether distress or functional impairment was more strongly linked to one set of diagnostic criteria than the other. Inspection of Tables 4 and 5 indicates that meeting A1/A2 criteria in addition to PTSD symptom criteria was not associated with worse clinical or psychosocial functioning, but rather was related to slightly less impairment. Among the nine domains of functioning evaluated on the PDS, participants with the PTSD syndrome had significantly ( $p < .05$ ) greater impairment

in four domains than people without the PTSD syndrome, compared to three domains for participants meeting full PTSD diagnostic criteria. With respect to clinical functioning, participants with the PTSD syndrome had more severe psychiatric symptoms on the BPRS, depression on the BDI-II, anxiety on the BAI, and more drug abuse over the previous 30 days than those without the syndrome. In comparison, participants meeting full PTSD criteria had more severe depression and anxiety, but did not differ in overall symptoms or drug abuse than those without full PTSD. The association between the PTSD syndrome and symptom severity, especially anxiety and depression, is consistent with several other studies of psychosis-related PTSD in first episode psychosis clients (McGorry et al., 1991; Meyer et al., 1999; Tarrier et al., 2007) and multi-episode clients (Morrison et al., 2001; Priebe et al., 1998; Shaw et al., 2002).

In addition to participants with the PTSD syndrome being slightly more impaired than those with full PTSD, clients with the PTSD syndrome had a significantly more integrative coping style on the integration–sealing over scale than those without the syndrome, whereas there was no difference in coping style between participants with full PTSD compared to those without full PTSD. The results suggest that distressing memories of traumatic events related to a psychotic episode may intrude on clients' everyday functioning and well-being in the form of PTSD symptoms, interfering with functioning and triggering distress, but also stimulating a desire to understand their experience and integrate it into their lives. Interestingly, Jackson et al. (2004) reported no association between PTSD 1.5 years after a first psychotic episode and integration–sealing over coping style, suggesting that the association between coping style and traumatic experience related to psychosis may be stronger soon after the traumatic event.

Considering the high rate of childhood trauma exposure in persons with severe mental illness (Goodman et al., 1997; Read et al., 2005), it is possible that PTSD symptoms related to the onset of psychosis were influenced by PTSD symptoms due to other lifetime traumatic events. Although we did not evaluate PTSD due to other traumatic life events, we did explore whether cumulative trauma exposure or history of sexual abuse or assault was related to the PTSD syndrome or full PTSD. While sexual abuse assault was not related to PTSD symptoms, there was a non-significant trend for participants with either the PTSD syndrome or full PTSD to have been exposed to more traumatic events over their lifetime ( $M_s = 3.32, 3.67$ , respectively) than participants without the syndrome or full PTSD ( $M_s = 2.08, 2.39$ ,  $p_s = .126, .106$ , respectively). Given the small sample size, these findings suggest that a more extensive history of prior trauma may increase the chances of an individual experiencing PTSD symptoms related to the first onset of a psychosis. Prior trauma history could sensitize individuals to the trauma of psychosis, or PTSD related to other traumatic events could contribute to PTSD symptoms that appear to be due to psychotic symptoms or negative treatment experiences. Further research with larger sample sizes is needed to better understand the relationship between prior trauma exposure and posttraumatic reactions to the onset of a psychosis.

The findings suggest that requiring the DSM-IV A1/A2 criterion for a traumatic event related to psychosis or

upsetting treatment experiences in clients with a recent onset of their disorder does not lead to identifying a more distressed or functionally impaired group of clients with PTSD than if the criterion is ignored. These findings are in line with some in the PTSD field who have argued that PTSD can be reliably diagnosed in the absence of specific criteria for defining a traumatic event (Kilpatrick et al., 1998; Maier, 2007). Concerns have been expressed that relaxing the criterion used to define a traumatic event, or “criterion creep” (Rosen, 2004), could threaten the validity of PTSD as a diagnostic entity. Breslau and Kessler (2001) found in the general population that while broadening the criteria for a traumatic event led to the identification of more events, most individuals did not meet the symptom criteria for PTSD due to one of those events. Spitzer et al. (2007) has noted about the definition of a traumatic event in DSM-IV that:

“The question is an empirical one whether this specified class of stressors is categorically different in its disorder-inducing potential (as was assumed by many when the PTSD diagnosis was formulated) or alternatively whether these stressors are in fact just the prototypical or extreme examples on a dimension that includes many other stressors with perhaps lower but possibly equal syndrome-causing potential.” (p. 236)

The present study suggests that the DSM-IV criterion for a traumatic event does not identify a unique group of stressors related to the experience of developing a psychotic disorder that are more inducing of PTSD symptoms or associated problems. Rather, the fact that the PTSD syndrome identified a larger group of clients who were more distressed and functionally impaired than clients who met full PTSD criteria suggests that treatment may be beneficial to this broader range of clients with a recent onset of psychosis. Furthermore, the tendency for clients with the PTSD syndrome to employ an integrative style of coping with their episode suggests that they may welcome efforts to help them understand and integrate this experience into their lives.

Two randomized studies have addressed this question. Bernard, Jackson, and Jones (2006) evaluated the effects of writing for 15 min about traumatic experiences in 22 clients about 2.5 years after a first episode of psychosis, and found that writing about trauma was associated with significant reductions in the severity of PTSD symptoms five weeks later, but no differences in recovery style, insight, anxiety, or depression. Jackson et al. (2009) compared the effects of Cognitive Recovery Intervention with treatment as usual in 66 clients who had experienced a first episode of psychosis 6–18 months ago. The intervention included up to 26 sessions provided over a six month period, and focused on engaging the client, processing the traumatic experience, and evaluating and challenging appraisals about the psychotic experience. Clients who received the Cognitive Recovery Intervention tended to have lower PTSD symptoms and greater improvement at six and 12 months than those who received usual services, although there were no differences between the interventions in depression or self-esteem.

These studies support the potential value of treatment focused on PTSD related to the experience of a psychotic

episode. The limited effects on anxiety, depression, and self-esteem of the two interventions published thus far may be due partly by the fact that the interventions were provided a significant period of time after the traumatic event (6 months to about 2.5 years), allowing negative, self-stigmatizing beliefs about the mental illness, oneself, and one's prospect for the future to persist for an extended duration of time before being actively disputed in treatment. Self-stigma is strongly associated with poor self-esteem, poor coping, depression, and other symptoms (Kleim et al., 2008; Ritsher et al., 2003). Interventions aimed at helping clients cope with and integrate their psychotic episode as soon as possible after the episode may be more effective at challenging and altering stigmatizing beliefs before they have had a chance to become entrenched over time. Providing such intervention immediately after an episode may also have beneficial effects of reducing treatment non-adherence mediated by PTSD avoidance symptoms, as hypothesized by Mueser and Rosenberg (2003).

An additional consideration is the type of intervention that might be effective for PTSD related to the onset of psychosis. The preponderance of research on the treatment of PTSD in the general population supports the efficacy of exposure therapy, including imaginal “reliving” of the traumatic experience, although there is also support for cognitive restructuring (Bisson et al., 2007; Foa et al., 2009). Research is needed to evaluate the potential utility of both types of approaches, as well as their combination, in people who have recently experienced a first psychotic episode.

This study confirmed previous reports that the experience of a recent psychotic episode is associated with high levels of distress, including PTSD symptoms, related to the psychotic symptoms themselves as well as treatment experiences such as involuntary hospitalization and seclusion and restraint. This study was unique in its focus on evaluating the importance of A1/A2 criteria for a traumatic event in the diagnosis of PTSD following a psychotic episode. Almost twice as many participants met the symptom criteria for PTSD irrespective of the A1/A2 criteria (66%) as met full PTSD criteria including the A1/A2 criteria (39%), but there were comparable levels of distress and functional impairment for participants meeting either definition of PTSD. These findings suggest that intervention should target clients with the PTSD syndrome following a psychotic episode, regardless of whether the traumatic event meets A1/A2 criteria. Furthermore, it will be important to assess whether treatment provided closer to the index psychotic episode produces more rapid and longer lasting relief than intervention provided months or years later.

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The funding source (NARSAD) had no role in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication.

#### Contributors

Mueser and Rosenberg designed the protocol. Lu managed literature searches and collected data. Wolfe managed the data and performed the statistical analyses under the supervision of Mueser. Mueser wrote the first draft of the paper. All authors contributed to and have approved the final manuscript.

#### Conflict of Interest

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