

Posttraumatic Stress Disorder in First-Episode Psychosis: Prevalence and Related Factors

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Abstract

Introduction: The experience of psychosis or related treatment can be conceptualized as a traumatic event, which might lead to posttraumatic stress disorder (PTSD) or PTSD syndrome (which is defined as the presence of PTSD symptoms irrespective of the *DSM-IV* criterion A definition of a traumatic event as an actual or threatened harm). Few studies explored the subject so far. **Methods:** This cross-sectional study included 52 clinically stabilized patients who were hospitalized for a first-psychotic episode during the two years preceding the study. Sociodemographic and clinical information were collected including past trauma history and drug and alcohol use. Patients were administered the Clinician-Administered PTSD Scale (CAPS), the Major Depression Inventory (MDI), the Positive and Negative Syndrome Scale (PANSS), the Global Assessment of Functioning scale (GAF), and the Brief COPE. **Results:** A total of 22 patients (42.3%) met full PTSD criteria and 36 patients (69.2%) met PTSD syndrome criteria. Full PTSD as well as PTSD syndrome were both associated with physical restraint, higher scores on the MDI and its maladaptive coping scales. The most distressing symptoms were paranoid delusions, and the most distressing treatment experiences involved physical restraint and problems with other hospitalized patients. **Discussion/Conclusions:** Our data showed high rates of psychosis-related PTSD. To prevent PTSD, conditions of hospitalization should be optimized and the use of coercive treatments should be limited. Subjects with recent-onset psychosis should be screened for PTSD symptoms. Improving coping abilities with a well-fitted therapy would be useful in these patients.

Key Words: Posttraumatic Stress Disorder, PTSD, Psychosis, Schizophrenia, Coping

Introduction

The occurrence of a psychotic disorder is often described as traumatic for individuals and their relatives (1-4). It can have a major impact on an individual's life by affecting perception of self, self-esteem, and the ability to get on with life (5). Psychotic symptoms such as hallucinations and delusions can be a terrifying experience (6). In addition, coer-

cive intervention such as involuntary hospitalization, seclusion, restraint or being forced to take medication, as well as being around sick or anxious patients, can be upsetting and traumatizing (7-9). Psychotic symptoms can cause intense fear and distress and could be even more distressing than external events, as they are internally generated and, therefore, allow experiences to be personalized (10).

Several researchers have proposed that the experience of a psychosis itself could be conceptualized as a traumatic event, leading to the development of posttraumatic stress disorder (PTSD) (11-13). Studies have reported high rates of PTSD symptoms due to either psychotic symptoms, or treatment experiences, or some combination (13, 14).

However, psychosis alone does not meet *DSM-IV* (15) criterion A1 of PTSD of actual or threatened harm when strictly interpreted. Several studies have examined the prev-

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Clinical Implications

The following recommendations could be drawn from this work. The conditions of hospitalization should be improved, and patients should be better protected from the threats of other inpatients. Treatment providers need to be aware that patients with acute psychosis can be overly reactive to and misinterpret social interactions; therefore, specialized training on how to interact with this group of patients in emergency and hospital settings should be increased. The utilization of physical restraint should be limited to the strict minimum needed and take into consideration the physical and psychological consequences it could entail. It should be utilized only under careful medical and paramedical supervision.

Systematic screening for PTSD in recent-onset psychosis patients is recommended, given the high frequency of PTSD in this group of patients. If PTSD is present, this measure would help to guide or adjust the therapeutic management. Improving coping abilities by enhancing adaptive coping strategies and fighting maladaptive strategies with a well-fitted psychotherapy would be particularly useful in these patients. An intervention was designed and tested by Jackson et al. (63) for use in patients experiencing PTSD following a first-psychotic episode and could be used.

absence of PTSD symptoms related to psychotic or treatment experiences by evaluating how many patients meet *DSM-IV* B, C, and D symptom criteria for PTSD, irrespective of the criterion A definition of a traumatic event. Mueser et al. defined this as PTSD syndrome (13). Although PTSD syndrome is an important phenomenon distinguished in the literature, this syndrome is not part of *DSM-5* definition of PTSD (16). *DSM-5* definition of criterion A of PTSD is wider than *DSM-IV*: it includes direct experiencing of the traumatic event, witnessing the event as it occurs to others, learning that the traumatic event occurred to others or experiencing repeated or extreme exposure to aversive details of the traumatic event, whereas the criteria A2, requiring a negative emotional reaction to the event, has been dropped (16). All these situations imply that the traumatic event is an external event. *DSM* does not cite psychotic symptoms as possible traumatic events but, as we already said, several studies found empiric results of actual psychosis-related PTSD. PTSD syndrome could be captured by “Other Specified Trauma- and Stressor-Related Disorder” or “Unspecified Trauma- and Stressor-Related Disorder” since the diagnostic criteria of these entities are very large. Nonetheless, we preferred to use the term “PTSD syndrome” because it is more accurate and specific to this condition.

There is evidence that psychological factors, such as trauma history or coping style, might influence psychosis-related PTSD. Some studies found a significant association between previous traumatic events and the frequency of psychosis-related PTSD symptoms (11, 17), whereas other studies did not find a relationship (14, 18). Numerous studies have assessed coping style in people suffering from PTSD due to external traumatic events, showing that the presence of PTSD was associated with more maladaptive coping styles. So far, very few studies evaluated the coping style of patients with psychosis-related PTSD (13, 19).

The co-occurrence of psychosis and PTSD is related to more severe and chronic symptoms (20) and predicts greater use of psychiatric services and poorer life satisfaction (21, 22). Furthermore, PTSD symptoms may be mistaken for psychotic relapse or negative symptoms, preventing access to appropriate treatment. Although psychosis-related PTSD symptoms seem to be very frequent and are associated with more negative outcomes for patients, existing research on the subject is still scarce and findings about the factors contributing or influencing psychosis-related PTSD are often conflicting. Further, these symptoms remain largely under diagnosed by clinicians (22).

Therefore, the aims of our study were to:

- establish the prevalence of PTSD and PTSD syndrome among patients recovering from a first episode of psychosis;
- explore which psychotic symptoms and treatment experiences were associated with PTSD;
- assess coping abilities and their relationship with PTSD occurrence; and,
- find a relationship between PTSD and the individual's clinical picture as well as these features: symptom severity, depression, prior trauma, substance abuse and global functioning.

Methods

The study was conducted at the Department of Psychiatry “A” of Razi University Hospital in Manouba, Tunisia. It offers acute and specialized care to patients with mostly severe mental illnesses and provides inpatient and outpatient services.

Participants

Inclusion Criteria

Included in our study were all patients that were hos-

pitalized for a first-psychotic episode during the two years preceding the study and who consulted our outpatient department from March 1 to June 30, 2014. Psychotic episode was defined as the presence of delusions, hallucinations, or marked formal thought disorder, as defined by Shaw et al. in a study about PTSD following a psychotic episode (14). Although diagnoses were heterogeneous, all participants had experienced psychotic symptoms requiring hospitalization. Participants had to be symptomatically stabilized at the time of the study.

Exclusion Criteria

Excluded from the study were patients who were unable to give informed consent, and patients who presented with significant psychotic symptoms or significant intellectual disability. Patients admitted for substance-induced psychotic disorders were also excluded. Psychotic symptoms were considered as significant when the patient presented gross thought disorder or important delusions or severe loss of contact with reality that made him unable to understand and answer the interviewer questions. The study was approved by the local ethics committee.

Collected Data and Instruments

Sociodemographic information, clinical features during the first-psychotic episode and information about the hospitalization were collected using a semi-structured interview, as well as the medical files of each patient. Clinical features included diagnosis, date of first admission to hospital, involuntary/voluntary admission, presenting psychotic symptoms upon admission (delusion, hallucinations, and disorganization), and treatment. Duration of untreated psychosis was measured by asking patients and their relatives about the date of appearance of the very first minor psychotic symptoms, behavior disturbance or any abnormal sign they noticed. We also asked the patients about their perception of the hospitalization (e.g., relationships with other patients, with doctors and hospital staff, side effects of treatments [such as sedation or dyskinesia], and major stressful events during hospitalization).

Evaluation of Trauma and PTSD-Related Symptoms

Lifetime trauma exposure was evaluated with an abbreviated version of the Traumatic Life Events Questionnaire (23) that included 12 items, each rated on a no/yes basis. (Items: Serious accident, Natural disaster, Physical assault by family, Physical assault by stranger, Sexual assault by family, Sexual assault by stranger, Military combat/war zone, Sexual contact younger than 18, Imprisonment, Torture, Life-threatening illness, and Other traumatic event.)

Posttraumatic stress disorder for psychosis-related experiences was diagnosed using the Clinician-Administered PTSD Scale (CAPS) (24) translated into Tunisian Arabic. This is a semi-structured interview that is designed to assess the essential features of posttraumatic stress disorder as defined by the *DSM-IV-TR* (15). CAPS has proved to be a reliable psychometric instrument based on analysis of interrater reliability, test/re-test reliability, and internal consistency. CAPS is arguably the most valid measure of PTSD relative to other well-validated structured interviews and self-report instruments of PTSD (25).

The participant's experience of psychotic symptoms and the treatment he had received were the basis upon which the PTSD CAPS scores were obtained. The patient was asked to consider the symptom questions (i.e., B, C, and D phenomena) as reactions to two events: the first event consisted of the experience of psychosis and the second event consisted of treatment experiences, including hospitalization. A traumatic event was considered to meet the A1 criterion if it involved perceived threat, and criterion A2 if it involved a negative emotional reaction. A patient was considered to have a PTSD syndrome if he met criteria B, C and D of PTSD irrespective of criterion A.

Evaluation of Coping Abilities

We assessed coping abilities using the Brief COPE (26), translated and adapted to Tunisian Arabic. The Brief COPE consists of 28 items that evaluate how an individual faces difficult situations. The 28 items comprise two separate scales reflecting maladaptive (12 items) and adaptive (16 items) coping styles. Each coping strategy is represented by two items. A 4-point Likert scale (0–3) is used to determine how often an individual engages in a given behavior, with 0 referring to “not at all” and 3 meaning “all of the time.” The questionnaire has shown good reliability and validity in adults (27), and was associated with clinically relevant outcomes across several studies (26–30). Our participants were specifically asked how they coped with psychotic and treatment experiences.

Evaluation of Other Current Psychiatric Symptoms and Social Functioning

For evaluation of substance abuse, we applied the same criteria as in Mueser's study (13): we inquired about alcohol and drug use over the past 30 days. Information was obtained about the number of days the participant abused alcohol (got high or had more than three drinks in a day), or abused drugs (drugs that were not prescribed, used more than the prescribed amount of medication or used over-the-counter medication to get high). For statistical analysis, we included the number of days of alcohol abuse and of drug abuse.

Participants were screened for depression using the Arabic-validated version of the Major Depression Inventory (MDI-A) (31). This scale has proven to have an excellent reliability and an acceptable concurrent and discriminant validity, and its scores strongly correlate with the Beck Depression Inventory (BDI) (32, 33). The original MDI is a self-rating inventory using the past 2 weeks as the time frame. In principle, MDI is composed of 12 items, but because items 8 and 10 are composed of 2 sub-items each (a and b), with only the highest score of either a or b being countable, the MDI has, functionally, only 10 items. Responses are scored on a 6-point Likert-type scale, ranging from 0 (at no time) to 5 (all the time) with a total potential range of 0–50.

Symptom severity was assessed using the Positive and Negative Syndrome Scale (PANSS) (34). This scale constitutes 4 scales measuring positive and negative syndromes, their differential and general severity of illness. Studies found the 4 scales to be normally distributed and supported their reliability and stability and provided evidence of the PANSS criterion-related validity with antecedent, genealogical, and concurrent measures, its predictive validity, its drug sensitivity, and its utility for both typological and dimensional assessment (34).

Global functioning was rated by the Global Assessment of Functioning scale (GAF) of the *DSM-IV-TR*, which is used for reporting the clinician's judgment of the individual's overall level of functioning with respect to psychological, social, and occupational functioning (15).

Only one rater was involved in the rating of the questionnaires and instruments of evaluation of all included patients.

Statistical Analysis

Statistical analysis was performed using Statistical Package for the Social Sciences, version 20.0 (SPSS Inc., Chicago, IL, USA). Descriptive analysis was performed to establish the prevalence of PTSD as well as describe the sociodemographic profile of the study population. Categorical data were analyzed via Pearson's chi-squared test. Continuous data were first assessed if they fulfilled normality assumption before choosing either the Student's t-test or the Mann-Whitney U-test. Results were considered statistically significant if p-value <0.05.

Results

A total of 52 participants met the study criteria and completed the assessments. Demographic and clinical data are detailed in Table 1.

In our study, 10 patients (19.2%) met full PTSD criteria related to treatment and hospitalization, and 12 patients (23.1%) met full PTSD criteria related to psychotic symptoms. Thus, a total of 22 patients (42.3%) met full PTSD

Table 1 Demographic and Clinical Data, and Trauma History of the Study Sample

Age, mean±SD	27.6±5.6
Gender, n (%)	
Female	25 (48.1)
Male	27 (51.9)
Education, n (%)	
Illiterate	4 (7.7)
Primary education	24 (46.2)
Secondary education	17 (32.7)
Tertiary education	7 (13.5)
Marital Status, n (%)	
Single	44 (84.6)
Married	8 (15.4)
Employment Status, n (%)	
Unemployed	33 (63.5)
Employed	19 (36.5)
Trauma History, n (%)	
No traumatic event	31 (59.6)
Serious accident	11 (21.1)
Physical assault by family	10 (19.2)
Duration of Untreated Psychosis, mean±SD (in months)	8.3±4.2
Diagnosis, n (%)	
Schizophrenia	22 (42.3)
Bipolar disorder	12 (23.1)
Schizoaffective disorder	9 (17.3)
Brief psychotic episode	7 (13.5)
Major depressive disorder	2 (3.8)
n=number; SD=standard deviation	

criteria. No patient met full PTSD criteria related to both treatment/hospitalization experience and psychotic symptoms. Patients with full PTSD fulfilled criterion A of PTSD according to the *DSM-IV*. Most of these patients felt persecuted and feared for their lives or presented frightening and command hallucinations that induced a feeling of helplessness and loss of control. These symptoms were interpreted by them as actual or threatened harm and considered as a traumatic event.

Comparison of participants with full PTSD to those without full PTSD on demographic or diagnostic characteristics indicated no significant differences. Trauma history was not related to the likelihood of a participant having full PTSD.

Upsetting experiences related to treatment/hospitalization experiences and to psychotic symptoms as reported by patients are summarized in Table 2. The most cited distressing symptoms were related to paranoid delusions. The most cited distressing treatment experiences involved physical restraint and problems with other hospitalized patients including thefts, and verbal and physical assaults. Some patients reported verbal assaults from hospital staff.

Table 2 Reported Upsetting Experiences Related to Treatment and Psychotic Symptoms

Psychotic Symptoms	n	%
Feeling persecuted	34	65.4
Afraid of losing touch with reality	32	61.5
Violent or embarrassing behavior	31	60
Frightening hallucinations	27	51.9
Treatment Experiences	n	%
Threat by other patients	42	80.7
Physical restraint	33	63.4
Forced hospitalization	30	57.7
Medication side effects		
Sedation	13	25
Dyskinesia	9	17.3
Problem at injection site	11	21.1
Threat by treatment provider	14	26.9

When asked about the most upsetting experience related to their psychotic episode, 28 (53.9%) of the participants reported that the symptoms were most upsetting, whereas 24 (46.1%) reported that a treatment experience was most upsetting.

The presence of PTSD was significantly associated with physical restraint ($p=0.002$). There was no significant association between PTSD and other treatment experiences. PTSD was not related to any specific psychotic symptom.

Coping and clinical outcome measures of participants in relation to PTSD and PTSD syndrome are depicted in Table 3.

Participants with full PTSD had significantly higher scores on the maladaptive coping scales. Adaptive coping

scales scores were lower in the PTSD group and p value was near significance ($p=0.06$). The highest scores of adaptive coping strategies found in the non-PTSD group were in “religion” scale and in “use of emotional support” scale. The highest scores of maladaptive scales in the PTSD group were in “self-blame” and “denial” scales.

Patients with full PTSD scored significantly higher on the MDI scale. Scores on the PANSS and on the GAF scale did not differ significantly between groups with and without full PTSD, although we noted a slight correlation between the presence of PTSD and lower GAF scores. Days of alcohol and drug abuse did not differ significantly between PTSD and non-PTSD groups.

When PTSD syndrome is considered (i.e., patients meeting PTSD symptom criteria regardless of whether they also meet the A1/A2 criteria for traumatic event), 17 patients (32.7%) met PTSD syndrome criteria related to treatment and hospitalization and 19 patients (36.5%) met PTSD syndrome criteria related to psychotic symptoms.

Thus, a total of 36 patients (69.2%) met PTSD syndrome criteria. Similar to full PTSD, PTSD syndrome was associated with physical restraint, higher scores on the MDI and on the maladaptive coping scales.

Discussion

Our study has several important findings: First of all, it supports the findings of previous studies reporting a high frequency of psychosis-related PTSD and PTSD syndrome amongst subjects suffering from psychosis. In our series, a total of 22 patients (42.3%) met full PTSD criteria. According to Berry et al., prevalence rates for psychosis-related PTSD

Table 3 Comparison of Coping and Clinical Outcome Measures Between Patients with and Without Full PTSD and Between Patients with and Without PTSD Syndrome

	PTSD (N=22)	No PTSD (N=30)	P	PTSD syndrome (N=36)	No PTSD syndrome (N=16)	P
Adaptive coping scales, mean±SD	22.3±6	26.6±9	0.06	23.3±7	28.0±9	0.06
Maladaptive coping scales, mean±SD	28.1±7	20.9±8	0.002	26.1±9	19.1±5	0.007
MDI, mean±SD	25.5±6	20.0±5	0.001	29.7±5	23.5±6	0.03
PANSS, mean±SD	56.2±14	52.9±13	0.40	55.5±14	51.7±12	0.36
GAF, mean±SD	64.3±9	68.4±10	0.14	65.7±8	68.7±12	0.31
Days of alcohol abuse, mean±SD	0.7±1	0.6±1	0.83	0.4±1	1.0±2	0.13
Days of drug abuse, mean±SD	2.6±0.8	2.3±1	0.42	2.5±1	2.4±1	0.93

MDI=Major Depression Inventory; PANSS=Positive and Negative Syndrome Scale; GAF=Global Assessment of Functioning Scale

vary from 11 to 67% (35). In our study, 36 patients (69.2%) met PTSD syndrome criteria. Since PTSD syndrome allows assessment of the impact of the traumatic event—even if it doesn't meet the *DSM* criterion A1 of actual or threatened harm when strictly interpreted—this definition is more sensitive than full PTSD and, therefore, increases prevalence rates.

In the present study, a high number of patients described the psychotic symptoms—feelings of persecution (65.4%) and losing touch with reality (61.5%)—as very upsetting. Similarly, in a study about PTSD in recent-onset psychosis (13) involving 38 patients, common psychotic symptoms were “feeling people plotting against you” (66%) and “being afraid of losing mind/touch with reality” (63%).

In our study, the treatment experiences—“physical restraint” (63.4%) and “threat by other patients” (80.7%)—were shown to be the most upsetting. Several recent studies on this topic revealed similar results. Physical restraint was reported as an upsetting experience by 52.2% of patients in Sin's study (17) and by 72% in Lu's study (36).

Our study also showed a significant association between physical restraint and PTSD. The relatively high prevalence of physical restraint can be explained by hospital overcrowding, lack of nursing staff and absence of an isolation room. In these conditions, physical restraint can sometimes be widely used. Moreover, patients are often brought to hospital severely agitated after a long evolution of symptoms and after all other treatment attempts failed (trad healing, ambulant psychiatric care). The main reason for this is that hospitalization in psychiatry is highly stigmatized. For many patients, the use of physical restraint has more of a traumatic than a therapeutic character (37, 38). It is accompanied by feelings of shame, loss of dignity and self-respect, loss of identity, anxiety and aggression, social isolation, and disillusionment. Many patients express feelings of imprisonment and restriction of their freedom of movement (38, 39). Others express feelings of depression and apathy concerning the use of these methods (39, 40).

In our study, distress from other inpatients was a common complaint of participants. This finding should be understood in the light of the conditions at our inpatient services. Most admitted patients are severely ill, often come as an involuntary emergency admission, and several patients have to share one room. In fact, there can be three to six patients in the same room. Moreover, there is no isolation room, so agitated patients and those who require a strict monitoring and special care may stay altogether in a common room which is next to the nurses' office, resulting in a lack of intimacy. This situation may account for patients' discomfort. Being around sick and frightening patients was repeatedly described in the literature as a traumatizing

event, as well as other negative aspects that can be related to inpatient psychiatric services, such as physical assaults or unwanted sexual advances (4, 41). The phenomenon of experiencing distress and trauma in a place supposed to be safe and secure has been described as sanctuary trauma (4, 41).

In our study, a slight majority of participants ($n=28$, 53.9%) reported that the symptoms of psychosis were more upsetting than the treatment experience. There are conflicting data in regards to which is more traumatic, the psychotic experience itself or the treatment experience in the psychiatric hospital. However, most studies suggest that psychotic symptoms were more distressing than coercive treatments (10, 13, 42). In Mueser's study (13), 20 patients (53%) reported that 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. In Sin's study (18) involving 61 patients, 75% cited psychosis and 25% cited hospitalization as the main traumatic event.

Our results showed that full PTSD as well as PTSD syndrome were significantly associated with higher scores on maladaptive coping scales. “Self-blame” had the highest scores among maladaptive coping strategies. Ullman et al. (43) showed that the association typically observed between victim self-blame and PTSD symptoms may be partially due to the effect of negative social reactions from others. These reactions may contribute to both self-blame and PTSD (43).

The second most important maladaptive coping strategy in our study was “denial.” This could be related to the psychotic condition of our patients. In fact, one of the defense mechanisms in psychosis is psychotic denial (44), which is a mechanism that obliterates external reality in order to reduce anxiety (45). Denial could also represent a form of cognitive avoidance. In this context, many authors have shown that avoidance-coping strategy, which is defined as efforts to distance oneself from aversive situations or negative emotional reactions, was associated with the severity of PTSD symptoms (46, 47).

In the present study, association between adaptive-coping scales and the non-PTSD group was near significance ($p=0.06$). The most important adaptive strategy was “religion” and had the highest scores. In the scientific literature, the relationship between religion and mental health is controversial (48, 49). Religious coping is common among individuals with psychosis, but on the other hand many of these patients have religious delusions. A review of the literature (50) distinguished between two different types of religious involvement: pathologic religious involvement that can be harmful or non-pathologic religious beliefs that help to cope with the disorder. Rosmarin et al. (51) assessed religious coping in patients with psychosis and found that posi-

Table 4 Comparison with Previous Major Study Results

Study	Study Sample	PTSD Scale	PTSD Rate	Variables Associated with PTSD
Present study	First-psychotic episode, n=52	CAPS	PTSD=42.3% PTSD syndrome=69.2%	-Depression -Maladaptive coping strategies -Physical restraint
Mueser, 2010	Recent-onset psychosis, n=38	CAPS	PTSD=39% PTSD syndrome=66%	-Higher BPRS scores -Higher depression and anxiety scores -Drug abuse -Integrative coping style
Lu, 2011	Multiple-psychotic episodes, n=50	CAPS	PTSD=31% PTSD syndrome=69%	-Higher BPRS scores -Higher depression and anxiety scores
Sin, 2010	First-episode psychosis, n=61	CAPS	PTSD=19.7%	-Ethnicity (lower risk in Chinese patients)
Shaw, 2002	Psychotic episode, n=42	CAPS	PTSD=52.3%	-Suicidal thoughts
Brunet, 2012	First-episode psychosis, n=39	PTSD symptom scale interview	PTSD=30.8%	-Appraisal of loss of control

tive religious coping was associated with significantly greater reductions in depression and anxiety, and increases in well-being over the course of treatment, while negative religious coping was associated with greater suicidal ideation, depression, anxiety and less well-being.

The second most important adaptive coping strategy in our study was “use of emotional support.” This finding might be explained by the importance of strong family ties and of a tight social network in the Tunisian-Arab cultural context. On a more general level, many authors have stressed the role of family, friends and social support in PTSD outcome (52, 54). In patients with psychosis, lack of social support due to social stigma may have an effect on the development of post-psychotic PTSD (55). Moreover, severe avoidance and social isolation due to PTSD are expected to worsen symptoms and impairment in persons with severe mental illnesses (55).

The Brief COPE scale that we used in the present study was applied in a variety of psychiatric conditions, and adaptive coping strategies were found to be associated with better outcome and functioning in patients with schizophrenia (56) and with better social functioning and less severe symptomatology in individuals at clinically high risk for developing psychosis (47). In several studies, maladaptive coping strategies were found to be associated with PTSD (46, 49).

Coping strategies have rarely been assessed in psychosis-related PTSD (35). Mueser et al. (13) investigated associations between recovery style and psychosis-related PTSD using the Integration/Sealing Over Scale (ISOS) (57) and found that participants with PTSD syndrome were more

likely to have an integrative rather than sealing over coping style. Recovery style is a factor reflecting how people adapt to their psychotic experiences. Lu et al. (36) and Jackson et al. (19) did not find associations between PTSD syndrome and recovery style.

In our series, PTSD was significantly associated with higher depression rates. This is consistent with literature findings. Most studies on PTSD in psychosis have proven a significant association between PTSD and depression (13, 36). In a review of the literature, Berry et al. reported consistent associations between affective symptoms and PTSD (35). Shaw et al. found suicidal thoughts to be associated with PTSD (14).

The existence of prior trauma was not significantly associated with PTSD in our series. The same result was reported in some studies (13, 14), while most studies reported a significant association between prior trauma and PTSD (7, 11, 17, 59, 60). In addition, in our study, only two types of trauma were reported (physical assault by family and serious accident). Our result could have been biased by the fact that in our cultural context, people are reluctant to talk about personal traumas, especially when it comes to sexual abuse.

People with psychosis may use substances to cope with distressing symptoms (61). In our series, drug and alcohol abuse were not associated with PTSD. Under reporting of substance abuse—given the punitive local laws and the severe stigmatization by society—might explain the low frequency and the absence of a correlation between substance abuse and PTSD in our study. The current state of research

on the subject reveals conflicting findings: whereas Mueser et al. (13) and Lu et al. (36) did not find higher levels of substance abuse in patients with psychosis-related PTSD, some other studies found a high prevalence (22, 43, 62).

A conclusive comparison of our study with previous major study results is presented in Table 4.

Our study has some limitations. First, only patients who continued to consult at our outpatient clinic were included. This method can lead to several biases. In fact, patients who interrupted their follow-up may have done so because they improved and were asymptomatic or they could have interrupted their follow-up because they developed a severe PTSD with an avoidance syndrome that made it impossible for them to come back to the hospital. Another limitation consisted in the use of two scales—the CAPS and the Brief COPE—that were not validated in our sociocultural context in Arabic. Moreover, included participants have not been evaluated at a fixed interval after they had their psychotic episode. Thus, memories of hospitalization and treatment, as well as the presence of PTSD symptoms, can differ between those who were hospitalized two years ago and those who were hospitalized a few months ago. The heterogeneity of underlying diagnoses of included patients, especially the presence of mood symptoms at the time of the acute episode, might have influenced the perception of psychotic symptoms and treatment experiences. Prior trauma history could have been better analyzed with the use of a separate measure of childhood trauma. Sample size is relatively small and this can account for nonsignificant results in this study.

Conclusions

The following recommendations could be drawn from this work. The conditions of hospitalization should be improved, and patients should be better protected from the threats of other inpatients. Treatment providers need to be aware that patients with acute psychosis can be overly reactive to and misinterpret social interactions; therefore, specialized training on how to interact with this group of patients in emergency and hospital settings should be increased. The utilization of physical restraint should be limited to the strict minimum needed and take into consideration the physical and psychological consequences it could entail. It should be utilized only under careful medical and paramedical supervision.

Systematic screening for PTSD in recent-onset psychosis patients is recommended, given the high frequency of PTSD in this group of patients. If PTSD is present, this measure would help to guide or adjust the therapeutic management. Improving coping abilities by enhancing adaptive coping strategies and fighting maladaptive strategies with a well-fitted psychotherapy would be particularly useful in these patients. An intervention was designed and tested by

Jackson et al. (63) for use in patients experiencing PTSD following a first-psychotic episode and could be used.

More research on the subject would be needed involving larger sample sizes and first-episode patients who were not hospitalized.

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