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Posttraumatic stress disorder with secondary psychotic features (PTSD-SP): Diagnostic and treatment challenges

Ebele Compean[a,b], Mark Hamner[a,b,*]

[a] Medical University of South Carolina (MUSC), 169 Ashley Ave, RM 202 MUH MSC 333, Charleston, SC 29425, United States
[b] Ralph H. Johnson VA Medical Center, Department of Veterans Affairs, 109 Bee Street Charleston, SC 29401-5799, United States

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ABSTRACT

Trauma exposure leads to various psychiatric disorders including depression, anxiety, bipolar disorders, personality disorders, psychotic disorders, and trauma related disorders, especially posttraumatic stress disorder (PTSD). There are some overlapping symptoms of both PTSD and psychosis that make diagnosis challenging. Despite this overlap, the evidence of PTSD with comorbid psychosis as a distinct entity lies in the research showing biologic, genetic and treatment management differences between psychotic PTSD, non-psychotic PTSD, psychotic disorders and healthy controls. There is emerging evidence that PTSD with secondary psychotic features (PTSD-SP) might be a discrete entity of PTSD with known risk factors that increase its prevalence. This review has presented evidence for individuals with PTSD-SP being distinct in genetics and neurobiological factors. Individuals with PTSD and comorbid psychosis can benefit from evidence based psychotherapy (EBT). There is not enough evidence to recommend second generation antipsychotics (SGA) for PTSD-SP given that risperidone and quetiapine are the only SGAs studied in randomized controlled trials. Hence, developing an operational diagnostic criteria and treatment framework for clinical and research use is critical.

Taxonomy

Neuroscience
Behavioral Neuroscience

1. Introduction

Trauma exposure leads to various psychiatric disorders including depression, anxiety, bipolar disorders, personality disorders, psychotic disorders, and trauma related disorders, especially posttraumatic stress disorder (PTSD) (Schäfer and Fisher, 2011a). Posttraumatic stress disorder (PTSD) is a nosological diagnosis characterized by the presence of trauma exposure with a minimal of one month of persistent symptoms, at least one symptom from the four clusters: intrusion, avoidance, negative mood and cognitive alterations, as well as arousal and reactivity (Gayle and Raskin, 2017). The lifetime prevalence of trauma exposure found in the US community is 40-80% with an average of 3.5 different events (Kessler, 1995; Read, 2005). However, the lifetime prevalence of PTSD is approximately 7% (Kessler, 1995; Read, 2005). Since the addition of PTSD into the Diagnostic and statistical manual of mental disorders-3rd edition (DSM-III), there has been emerging evidence for a variant of PTSD involving the presence of psychosis when full PTSD criteria are met (Association, 1980; Braakman, 2009; Hamner et al., 2000; Hamner, 1997; Hamner et al., 1999; Ivezic et al., 2000; Seedat et al., 2003). There are some overlapping symptoms of both PTSD and psychosis that make diagnosis challenging. Despite this overlap, the evidence of PTSD with comorbid psychosis as a distinct entity lies in the research showing biologic, genetic and treatment management differences between psychotic PTSD, non-psychotic PTSD and psychotic disorders. Based on research, there are two types of PTSD with psychosis—post psychotic PTSD (PP-PTSD) and PTSD with secondary psychotic features1 (PTSD-SP). However, this review will focus on the latter. Thus, it is important to note that there are risk factors that predispose individuals to develop PTSD-SP such as trauma types, cultural differences and comorbid diagnoses. In addition, proper diagnosis and treatment of PTSD-SP is of great importance. Individuals with PTSD and comorbid psychosis can benefit from evidence based psychotherapy2 (EBT). There is not enough evidence to recommend second generation antipsychotics3 (SGA) for PTSD-SP given that risperidone and quetiapine are the only SGAs studied in randomized controlled trials. However, there is still conflicting information about the relationship between trauma burden, PTSD symptom severity, chronicity, and treatment resistance with PTSD-SP. It is important to address the methodological issues found in studies of PTSD-SP. Given emerging

* Corresponding author at: Medical University of South Carolina (MUSC), 169 Ashley Ave, RM 202 MUH MSC 333, Charleston, SC 29425, United States
E-mail address: hamnermb@musc.edu (M. Hamner).

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evidence for PTSD-SP as a distinct entity, this review paper aims to not only summarize the extant data on PTSD-SP, but also proposes a symptom criterion, and create diagnostic and treatment recommendations.

2. Methodology

Studies published between 1997 and 2017 were reviewed using multiple databases—PubMed and Google Scholar—with full-text terms: "*posttraumatic stress disorder*", "*PTSD*", "*trauma*", "*traumatic life events*", "*combat*", "*combat-trauma*", "*childhood trauma*", "*PTSD-secondary features*", "*PTSD-SP*", with varied combinations: "*psychosis*", "*neurobiological*", "*genetics*", "*minority*", "*refugees*", "*immigrants*", "*treatment*", "*psychotherapy*", "*therapy*", "*second generation antipsychotic*". Studies were screened using the title and abstracts and eventually selected based on topic relevance and exceeding the evidence level for case studies. To find other additional and relevant studies, reference lists were examined for any appropriate articles.

104 publications were found which discussed topics on PTSD-SP, excluding case reports, opinion, and correspondence reports. While childhood trauma will be extensively mentioned throughout, this review focuses on individuals with PTSD-SP, age 18 and above. For the PTSD-SP management, occasionally, numerous publications with less rigorous standards will be cited to illustrate both the paucity of information available and barriers to formulating comprehensive conclusion with the available information. Only statistically significant findings will be discussed with $p < 0.05$, unless authors utilize a different p value threshold, which will be explicitly stated. If the authors identify that $p < 0.05$ is statistically significant, then any findings with p value ≥ 0.05 will be considered as insignificant, even if the authors did not exclusively comment on that finding. There are common methodological limitations with the majority, if not all studies, discussed; these limitations will be discussed where relevant.

2.1. General overview: PTSD with secondary psychotic features (PTSD-SP)

Evaluation of psychotic symptoms in patients with post-traumatic symptoms or disorders is important. There is an increased likelihood of psychotic symptoms with lifetime PTSD diagnoses in the community (Shevlin et al., 2011). Thus, many authors are proposing PTSD-SP as a discrete diagnostic entity (Braakman, 2009; Coentre, 2011; Hamner, 2011; Kilcommons and Morrison, 2005; Kroll, 2007; Morrison et al., 2003; Seedat et al., 2003; Shevlin et al., 2011). However, Gaudiano and Zimmerman (2010) make the opposite case that PTSD-SP should not be a discrete diagnostic entity based on their data, which showed decrease PTSD-SP prevalence after psychiatric comorbidities were excluded (Gaudiano and Zimmerman, 2010). But, the authors' careful examination of their data revealed statistically significant lifetime prevalence of PTSD-SP without major depressive disorder with an odds ratio of 3.48 (Gaudiano and Zimmerman, 2010). Meanwhile, after the exclusion of psychiatric comorbidities, the lifetime prevalence of PTSD-SP decreased from 24% to 2.4%; however, this was not statistically significant (Gaudiano and Zimmerman, 2010). The case of psychiatric comorbidities contributing to PTSD-SP prevalence has its merits (see risk factors below). Gaudiano and Zimmerman (2010)'s case was based on limited data with low study sample and high p-value (Gaudiano and Zimmerman, 2010). Thus, there is some evidence that PTSD-SP should be a distinct diagnostic psychopathology, even with the presence of psychiatric comorbidities, such as depression and substance use disorders.

Mueser et al. (2002) proposed an adaptation of the stress-vulnerability model for shared mechanism between trauma, PTSD and severe mental illness (Mueser et al., 2002). This model explored trauma as a mediator and PTSD and psychosis as disorders that interact with each other and exacerbate each other's symptoms (Morrison et al., 2003; Mueser et al., 2002). Based on a modified Morrison et al. (2003)'s model, there are different modes for the direction causality between trauma, PTSD and psychosis: psychosis causing PTSD, called PP-PTSD; and trauma causing psychosis; and trauma causing both psychosis and PTSD (Morrison et al., 2003). The remainder of this section will focus PTSD-SP then will discuss how trauma along with other risk factors can cause both psychosis and PTSD.

First, it is important to examine common developmental and symptomatological processes of PTSD and psychosis. One is dissociation. On the one hand, trauma-induced dissociation and dissociative detachment render people vulnerable to psychotic symptoms (Morrison et al., 2003). For individuals with PTSD, hearing voices was correlated with dissociative experiences in Brewin and Patel (2010)'s study (Brewin and Patel, 2010). In addition, Morrison et al., 2003 alluded to dissociative symptoms affecting reality-testing difficulties (Morrison et al., 2003) while Brewin and Patel (2010) found in their sample that those with dissociative symptoms retained normal thought processes (Brewin and Patel, 2010; Morrison et al., 2003; Seedat et al., 2003). There were studies refuting that PTSD-SP is associated with dissociation (Braakman, 2009; David et al., 1999). Hence, there are some indications that dissociation in PTSD might be associated with psychotic symptoms.

Another shared commonality in developmental and symptomatological processes of PTSD and psychosis are positive symptoms of hallucinations and delusions. These symptoms can be conceptualized as intrusions and flashbacks, which might be interpreted as psychotic symptoms based on cultural unacceptability (Morrison et al., 2003; Seedat et al., 2003). It is important to note that these positive psychotic symptoms should be delineated from flashbacks (Hamner et al., 2000; Hamner, 2011) and intrusions. Although, if present, hallucinations and delusions in PTSD patients tend to be more paranoid and persecutory in nature compared with those found in primary psychotic disorders which are more bizarre (Seedat et al., 2003). More studies are revealing that psychotic symptoms in PTSD do not necessarily need to be trauma-related (Hamner, 2011; Seedat et al., 2003). Hence, Hamner (2011) argued that lack of complex hallucinations and delusions is one major differentiating factor between those with PTSD-SP and a primary thought disorder (Hamner, 2011). Positive psychotic symptoms must be delineated from PTSD intrusions and flashbacks. If patients retain their cognitive thought processes and preserved reality testing, then these positive psychotic symptoms may be attributed to PTSD-SP.

Some negative psychotic symptoms such as withdrawal and lack of motivation can be interpreted as avoidance or emotional numbing in patients with PTSD (Morrison et al., 2003; Seedat et al., 2003). They enumerated many shared features between PTSD and psychosis: paranoia, arousal, hypervigilance, interrupted sleep along with emotional numbing, affective constriction, detachment, estrangement from others, and derealization (Morrison et al., 2003; Seedat et al., 2003). Despite these shared symptoms between PTSD and psychosis, the nature and complexity of psychosis along with thought process must be considered to help differentiate PTSD-SP from psychotic disorders. Negative psychotic symptoms are harder to differentiate from some PTSD symptoms. Nonetheless, patients should have preserved reality testing before the negative psychotic symptoms can be attributed to PTSD-SP.

Hence, there is emerging evidence that PTSD-SP might be a discrete entity with some proposing an operational diagnostic criteria.

2.2. Proposed diagnostic criterion for PTSD with secondary psychotic features (PTSD-SP)

Hamner et al. (1999) and Braakman et al. (2008) suggested operational criteria for PTSD-SP (Braakman et al., 2008; Hamner et al., 1999). The combined criteria which was summarized in table 2 in Hamner (2011) was an effort to establish some structure to the definition and characterization of PSTD-SP (Hamner, 2011). In order, to meet criteria for PTSD-SP, an individual cannot have any history of psychotic symptoms before a traumatic event; thus, PTSD precedes