Schizophrenia Research xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Impact of lifetime traumatic experiences on suicidality and likelihood of conversion in a cohort of individuals at clinical high-risk for psychosis

Margaux M. Grivel [a,*,1], Wei Leong [a,1], Michael D. Masucci [a], Rebecca A. Altschuler [a], Leigh Y. Arndt [a], Samantha L. Redman [a], Lawrence H. Yang [a,b], Gary Brucato [a,2], Ragy R. Girgis [a,2]

[a] New York State Psychiatric Institute, Columbia University, New York, NY, USA
[b] New York University, New York, USA

ARTICLE INFO

Article history:
Received 16 February 2017
Received in revised form 29 August 2017
Accepted 4 September 2017
Available online xxxx

Keywords:
Trauma
Psychosis
Attenuated psychosis syndrome
Suicidal ideation
Suicidal behavior

ABSTRACT

Recent research suggests that trauma history (TH) is a strong socio-environmental risk factor for the development of psychosis. While reported rates of childhood trauma are higher among individuals at clinical high-risk (CHR) for psychosis than in the general population, little research has explored the effects of trauma upon the severity of attenuated positive symptoms. We aimed to explore the specific relationships between TH and baseline symptom severity; likelihood of conversion to full-blown psychosis; suicidal ideation (SI); and suicidal behavior (SB) in a cohort of 200 help-seeking CHR individuals. Participants were evaluated every three months for up to two years using the Structured Interview for Psychosis-Risk Syndromes (SIPS). More trauma history was reported by females and Hispanic/Latino participants, while age and race did not significantly distinguish those with and without TH. Individuals with TH reported higher rates of SI and SB than those without. While TH was positively associated with several SIPS subscales, including Unusual Thought Content, Perceptual Abnormalities/Hallucinations, Bizarre Thinking, Sleep Disturbances, and Dysphoric Mood, and negatively associated with Expressed Emotion, results indicated that TH was not significantly related to conversion to psychosis. Moreover, baseline SI was unrelated to conversion and baseline DSM diagnosis, with the exception of Post-Traumatic Stress Disorder (PTSD). These results suggest that traumatic experiences may significantly impact the severity of attenuated positive symptoms and suicidality in the CHR state, providing new windows for further research and potential intervention.

1. Introduction

Recent research strongly suggests that various socio-environmental factors, such as childhood maltreatment, may increase one's risk of developing schizophrenia or other psychotic illness, with an estimated population attributable risk of 33% (Varese et al., 2012). Indeed, trauma history (TH) is one of the most robust socio-environmental risk factors for psychosis (Bendall et al., 2008; Bendall et al., 2013; Harley et al., 2010; Houston et al., 2008; Konings et al., 2012; Read et al., 2005; Trotta et al., 2015; van Os et al., 2008; Varese et al., 2012). A meta-analysis of 18 case-controlled studies yielded that individuals with psychosis are 2.72 times more likely to have reported childhood trauma, including sexual, physical, and emotional abuse, neglect, and bullying, compared to healthy controls; this relationship is further supported across ten prospective and quasi-experimental studies, and eight population-based cross-sectional studies (Varese et al., 2012). Sexual trauma, specifically, has been established as a robust contributor and risk factor for the development of psychosis (Bebbington et al., 2011; Cutajar et al., 2010). Importantly, the association between history of traumatic experience and risk for psychosis appears to remain stable even after controlling for contributing factors, such as family history of psychosis (Janssen et al., 2004).

Despite growing evidence of this association, less is known about how TH affects the severity of attenuated, or "prodromal" positive symptoms; clinical concerns beyond positive symptoms; and rate of conversion to full-blown psychosis among individuals at Clinical High-Risk (CHR) for psychotic illness. Addington et al. (2013) have established that CHR individuals report significantly more trauma (i.e. emotional, physical, or sexual trauma), relative to controls. A subsequent meta-analysis supports this finding, suggesting that, across six studies, the prevalence rate of childhood trauma is 86.8%, a significantly higher rate compared to the general population (Kraan et al., 2015b).

Thompson et al. (2009) were the first to examine the association between trauma and sub-threshold psychotic symptoms in 30 CHR individuals. Physical and sexual abuse were found to be related to positive

* Corresponding author at: 1051 Riverside Drive, Unit 31, New York, NY 10032, USA.
E-mail address: mmg2211@tc.columbia.edu (M.M. Grivel).
[1] These first authors contributed equally.
[2] These senior authors contributed equally.

http://dx.doi.org/10.1016/j.schres.2017.09.006
0920-9964/

symptom severity, as measured by the Structured Interview for Psychosis-Risk Syndromes (SIPS), most notably grandiosity, while physical trauma was associated with disorganization. No associations were established with negative symptom severity (Thompson et al., 2009). More contemporary research supports this trend, indicating that TH in CHR persons is related to SIPS positive symptom severity (Kline et al., 2016; Kraan et al., 2015a).

Given the higher rates of trauma among CHR individuals and early evidence suggesting its impact on symptom severity, some research has begun to explore whether history of traumatic experiences may be predictive of other clinically-relevant outcomes, including transition to psychosis. While some studies provide evidence to suggest that sexual trauma, in particular, is a predictor of the onset of psychotic illness (Bechdolf et al., 2010; Thompson et al., 2009), others fail to support the association between TH and transition to full-blown psychosis (Kraan et al., 2015a; Stowkowy et al., 2016). Despite the growing focus on trauma in those at CHR for psychosis, to date there have been relatively few studies reporting on trauma in CHR populations, with one review noting only 11 studies assessing these relationships longitudinally with childhood trauma specifically (Mayo et al., 2017).

Two other clinically-relevant outcomes for CHR individuals are suicidal ideation (SI) and suicidal behavior (SB). However, no studies to date have reported on associations of trauma and baseline SI and SB among CHR persons. Given the dearth of research in this area, the methodological inconsistencies, mixed findings, and the possible clinical implications, the present study endeavored to advance this line of research. Specifically, it aimed to (1) explore the relationship between sexual and non-sexual TH and baseline symptom severity, including SI and SB, and (2) to clarify associations between TH and conversion to full-blown psychosis.

2. Materials and methods

2.1. Subjects and measures

We recruited 200 help-seeking individuals, aged 13–30, at the Center of Prevention and Evaluation (COPE) at the New York State Psychiatric Institute/Columbia University Medical Center in New York City. All were found to meet psychosis-risk criteria defined by the SIPS (Miller et al., 2003). Participants were referred to COPE from schools, hospitals and clinicians across New York, New Jersey, and Connecticut. All met criteria for the Attenuated Positive Symptom Psychosis-Risk Syndrome (APSS) delineated in the SIPS, defined as having one attenuated positive symptom or more which first appeared or worsened by one point in the past year, and occurs at least once per week, with no history of full-blown psychosis. Participants were included if they reported any lifetime trauma, a diagnosis of PTSD was not considered as basis for exclusion in this study. Participants were followed up with SIPS assessments every three months for up to two years. Conversion is defined by the SIPS as achieving a score of 6 (full-blown psychosis) on a positive symptom for at least 1 h per day at an average frequency of four days per week over one month. All subjects provided written informed consent. Individuals under the age of 18provided written informed assent with written informed consent provided by a parent or legal guardian. Approval from the NYSPI Institutional Review Board was obtained before any procedures were taken.

Demographic information, clinical psychiatric history, and information regarding SI, SB, and TH were collected at baseline by psychiatrists and/or psychologists at COPE, using the SIPS, SCID, and associated thorough clinical interview that was used to identify TH and suicidality. In particular, information on TH was obtained through the trauma checklist on the SCID, as well as the accompanying clinical interview, while SI, and SB were obtained via the SIPS (G2: Dysphoric mood), the SCID, and accompanying clinical interview with the patient. Clinical information obtained from the treating research psychiatrist, therapist, and/or parents were used to confirm or clarify ambiguous information. Individuals who endorsed significant risk for suicide during the interview were evaluated and clinically treated. The Structured Clinical Interview for DSM-IV Disorders (SCID; First et al., 2002), was used to identify Axis I disorders. The Global Functioning: Social (GF: S) scale was used to assess peer conflict, as well as quality of peer relationships, age-appropriate intimate relationships and family relationships (Cornblatt et al., 2007), and the Global Functioning: Role (GF: R) scale was used to assess performance in school, work, and other age-appropriate responsibilities (Cornblatt et al., 2007).

2.2. Statistical analyses

Descriptive statistics were performed to determine significant characteristic differences between groups, which were defined as individuals with or without SI, SB or TH. While multiple forms of trauma were assessed, for the purpose of this study the trauma variable was dichotomized (sexual vs non-sexual trauma) following evidence from several studies identifying sexual trauma, specifically, as a robust contributor and risk factor for the development of psychosis (Bebbington et al., 2011; Cutajar et al., 2010).

Independent samples *t*-tests were performed with continuous variables (e.g., age), while chi-square tests were used to examine relationships between categorical variables (e.g., presence of SI, SB, and TH). All statistical analyses were performed using SPSS version 23, and $p < 0.05$ was used to determine significance.

3. Results

3.1. Baseline sample characteristics

As detailed in Tables 1 and 2, 23.5% of the sample reported TH at baseline, with 10.5% reporting sexual trauma and 13% reporting non-sexual trauma. Notably, of those who reported any lifetime trauma, 44.7% reported sexual trauma, 55.3% reported non-sexual trauma, and 8.9% reported both sexual and non-sexual trauma (See Table 2). History of either type of trauma was found to be significantly more frequent among females ($\chi^2 = 8.480$, $p = 0.004$) and individuals of Hispanic/Latino ethnicity ($\chi^2 = 5.376$, $p = 0.020$). Age and race were not significantly different between those with and without TH.

3.2. Trauma and baseline suicidal ideation (SI) and suicidal behavior (SB)

Seven participants (14.9%) with TH, and six participants (3.9%) without TH, reported baseline SI, with 6.4% and 1.3% of these participants reporting baseline SB, respectively. While participants with TH were significantly more likely to report baseline SI compared to those without

Table 1
Demographic characteristics of the sample $N = 200$.

	No trauma ($n = 153$)	Any lifetime trauma ($n = 47$)
	Mean (SD)	Mean (SD)
Age in years at baseline	20.10 (3.83)	20.22 (3.99)
	Frequency (%)	Frequency (%)
Birth sex		
Female	35 (22.9)	21 (44.7)
Male	118 (77.1)	26 (55.3)
Race		
Asian/Pacific Islander	12 (07.8)	3 (06.4)
Black	31 (20.3)	13 (27.7)
White	75 (49.0)	16 (34.0)
Multi-racial	35 (22.9)	15 (31.9)
Ethnicity		
Hispanic/Latino(a)	41 (26.8)	21 (44.7)
Non-Hispanic/Latino(a)	112 (73.2)	26 (55.3)

Please cite this article as: Grivel, M.M., et al., Impact of lifetime traumatic experiences on suicidality and likelihood of conversion in a cohort of individuals at clinical high-r..., Schizophr. Res. (2017), http://dx.doi.org/10.1016/j.schres.2017.09.006