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Early Traumatic Experiences in those at Clinical High Risk for Psychosis

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Abstract

Aim—Several lines of evidence suggest a possible association between a history of trauma in childhood and later psychosis or psychotic-like-experiences. The purpose of this study was to determine the extent of childhood trauma and bullying in young people at clinical high risk (CHR) of developing psychosis.

Methods—The sample consisted of 360 individuals who were at CHR of developing psychosis and 180 age and gender matched healthy controls. All participants were assessed on past trauma and bullying. The CHR participants were also assessed on a range of psychopathology and functioning.

Results—Individuals at CHR reported significantly more trauma and bullying than healthy controls. Those who had experienced past trauma and bullying were more likely to have increased levels of depression and anxiety and a poorer sense of self.

Conclusions—These results offer preliminary support for an association between a history of trauma and later subthreshold symptoms.

Keywords

clinical high risk; psychosis; trauma; prodrome; risk

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INTRODUCTION

Several lines of evidence suggest a possible association between a history of trauma in childhood and later psychosis or psychotic like experiences.¹⁻¹⁰ Adolescents who report experiencing psychotic symptoms are six times more likely to have experienced physical abuse, ten times more likely to have witnessed domestic violence, and more likely to be both a victim and perpetrator of bullying.¹¹ Arseneault and colleagues recently reported that after controlling for SES, low IQ, early psychopathology and genetic susceptibility, maltreatment by an adult and bullying by peers were significantly associated with children's report of psychotic symptoms.⁹ Furthermore, a recent longitudinal prospective study showed that early and recent traumas were highly correlated and that they work additively to increase the risk of psychosis.¹² This is supported by results that indicated that total childhood trauma is significantly associated with psychosis in a dose response fashion, and that while rates of reported trauma appear to be highest for individuals with psychosis, the siblings of these patients also evidenced more traumas compared to healthy controls.¹³ In addition to this, a preliminary investigation of the impact of appraisals, trauma and psychosis found that interpersonal trauma was associated with more maladaptive appraisals of experiences, creating a more "paranoid" view of the world.¹⁴ Several theories including the stress-vulnerability model, genetic predisposition hypothesis, and attachment theory have attempted to understand these connections.¹⁵ However, despite the interest in this area of research it has been cautioned in the literature that much of the evidence in the area of trauma and psychosis is controversial and that several methodological issues still remain.^{2:6:16}

Most studies to date investigating trauma have focused on established psychotic disorders or non-clinical samples. Little is known about trauma for those individuals considered to be at clinical high risk (CHR) of developing psychosis. To date, there are two studies that examined the impact of trauma among a sample of CHR individuals.¹⁷⁻¹⁹ The first study reported that in a small sample of 30, 97% had experienced at least one general trauma and that total trauma was positively associated with severity of attenuated positive symptoms.¹⁹ A second study from Melbourne found that approximately 70% of their sample of 92 CHR individuals had experienced at least one type of trauma, and that the rates of conversion to psychosis significantly increased when the type of trauma was sexual abuse.¹⁷

The goal of this study was to first determine the extent of trauma that had been experienced in a large sample of individuals at CHR for psychosis relative to age and gender matched healthy controls, and secondly, to examine the relationship of past trauma to current psychopathology, cannabis use and functioning.

METHODS

Participants

The sample consisted of 360 CHR participants (210 male, 150 female) and 180 healthy controls (100 male, 80 female). All participants were recruited as part of the NIMH funded North American Prodrome Longitudinal Study 2 (NAPLS 2) and were drawn from the participating NAPLS2 sites (Emory University, Harvard University, University of Calgary, University of California Los Angeles, University of California San Diego, University of North Carolina, Yale University, and Zucker Hillside Hospital). The NAPLS 2 project was established to investigate predictors and mechanisms of conversion to psychosis. Details on ascertainment, inclusion and exclusion criteria has been described in detail elsewhere (Addington et al., in press). All CHR participants met the Criteria of Prodromal Syndromes (COPS) using the Structured Interview for Prodromal Symptoms (SIPS).²⁰ Participants were excluded if they met criteria for any current or lifetime axis I psychotic disorder, prior

history of treatment with an antipsychotic, IQ < 70 or past or current history of a clinically significant central nervous system disorder. In addition, control participants were also excluded if they had a first degree relative with a current or past psychotic disorder

Measures

The Structured Interview for Prodromal Symptoms (SIPS) and the Scale for Assessment of Prodromal Symptoms (SOPS)²⁰ were used to determine criteria for a prodromal syndrome and to determine severity of attenuated positive symptoms. Experience of trauma and abuse was assessed using a Childhood Trauma and Abuse scale,⁵ a semi-structured interview in which the interviewer enquires about trauma and abuse before the age of 16. The participant is asked about any emotional, physical, psychological or sexual abuse they may have experienced. In addition participants were also asked if they had experienced either psychological bullying or physical bullying.

Clinical measures included the Calgary Depression Scale for Schizophrenia,²¹ the Brief Core Schema Scale,^{22;23} the Social Interaction Anxiety Scale (SIAS) & Social Anxiety Scale (SAS),²⁴ the Perceived Discrimination scale,²⁵ and the Alcohol and Drug Use Scale.²⁶ Functioning was assessed with the Global Functioning Scale: Social and Role.²⁷

Procedures

The study was approved by Institutional Review Boards at all eight sites participating in NAPLS. Participants provided informed consent or assent (parental informed consent for minors). Participants were assigned a clinical rater who conducted semi structured interviews. Raters were experienced research clinicians who demonstrated adequate reliability at routine reliability checks. Gold standard post-training agreement on the determining the prodromal diagnoses was excellent ($\kappa=0.90$).

Statistical Analysis

Chi square tests were used to compare the groups on type of trauma. Mann-Whitney U tests were used for comparison of total traumas. Associations between type of trauma and total trauma to clinical variables were examined using Spearman correlations.

RESULTS

There were no significant differences between the groups on any of the demographic measures assessed. The average age of CHR participants was 18.98 (SD=4.18) and 19.54 (SD=4.78) for controls. The majority of the sample were male (55.2%), unmarried (94.4% for CHR, 95.0% for controls), currently enrolled as students (80.7% for CHR, 82.2% for controls), and Caucasian (55.0% for CHR, 58.9% for controls). Further clinical characteristics describing the CHR participants are provided in table 1.

Overall, CHR participants experienced significantly more types of trauma ($z=-8.68$, $p<0.05$) and bullying ($z=-4.89$, $p<0.05$) compared to controls. Chi square comparisons for each type of trauma revealed several significant differences. These results are presented in Table 1.

Compared to CHR males, CHR females reported significantly more trauma. There were no differences for bullying. There were no significant differences between male and female control participants on any kind of trauma or bullying. See Table 2.

There were several significant correlations particularly for the CHR group between clinical measures and traumas. Higher levels of anxiety and depression were observed in both groups as well as a negative sense of self and others. For the CHR group in particular trauma

and perceived discrimination were highly correlated. Poor social functioning was more likely to be related to bullying rather than other kinds of trauma. After Bonferroni corrections, several significant relationships remained. These results are presented in Table 3.

DISCUSSION

This paper examined the prevalence of past traumatic experiences in a large sample of individuals at CHR of developing psychosis. Relative to controls the CHR group reported having experienced significantly more trauma and bullying. Within the CHR group, females had more often experienced trauma but not bullying, relative to males. Furthermore, those who had experienced trauma were more likely to report anxiety and depression as well as a negative sense of self and others. Those who had experienced bullying generally had poorer functioning. These results fit with previous studies that suggest an association between a history of trauma in childhood and later experience of psychotic-like experiences. Our rates of reported trauma are similar to those reported by the Melbourne group.¹⁷ Furthermore, our CHR sample was twice as likely to report bullying and between four and 10 times more likely to report a range of other traumas. Unlike the small Corcoran study,¹⁹ we did not find a relationship between past experience of trauma and increased attenuated positive symptoms. However, it is not surprising that those who report more trauma also report higher levels of anxiety, depression and sense of self. However, in this cross-sectional report it is unclear whether this increased level of psychopathology is related to trauma, or to other causes such as being at CHR for psychosis. Furthermore, although significant the association is small which may be attributed to the fact the symptoms are current and we do not have details on the recency of the trauma.

The limitations of this study include the brief measure used, the lack of details on how often the trauma occurred, the age of the participant at the time of the trauma and that the raters were not blind to study group. There is as in any study on past trauma the possibility of recall bias. The study is cross-sectional and it is not known at present the role of trauma in conversion. The trauma measure used although brief was relatively non-invasive and had been used in many of the studies cited. The strengths of this study are the sample size and the well-defined sample. Future studies should assess not only the age that the trauma occurred but also the frequency of such trauma overtime. What will be important will be the role of trauma in later conversion to psychosis, and if associated, what is the relationship of trauma to other markers of conversion. These outcomes will be part of the longitudinal component of the NAPLS 2 project. Finally, based on the high reported rates of trauma in this population, it may be important to consider on an individual basis if addressing therapeutically the trauma may be an important aspect of prevention in these already vulnerable young people.

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Table 1

Clinical Characteristics of CHR Participants

Current Axis 1 Comorbid Diagnoses	n (%)	
<i>Mood Disorder</i>	168	(46.67%)
<i>Substance Use Disorder</i>	34	(9.4%)
<i>Anxiety Disorder</i>	241	(66.9%)
<i>Developmental Disorder</i>	94	(17.9%)
Axis 2 Personality Disorder		
<i>Avoidant</i>	36	(10.0%)
<i>Borderline</i>	12	(3.0%)
<i>Schizotypal</i>	62	(17.22%)
Self Reported Anxiety/Depression		
	M (SD)	Ranges
<i>Calgary Depression Scale for Schizophrenia (CDSS)</i>	5.98 (4.83)	0–27
<i>Social Interaction Anxiety Scale (SIAS)</i>	29.90 (16.91)	0–80
<i>Social Anxiety Scale (SAS)</i>	37.09 (10.40)	20–80
Current Functioning		
<i>GAF</i>	46.72 (10.85)	0–100
<i>Global Functioning: Social Scale</i>	6.20 (1.65)	0–10
<i>Global Functioning: Role Scale</i>	5.96 (2.19)	0–10

Table 2

Differences in Trauma for Clinical High Risk (CHR) Participants and Healthy Controls

Type of Trauma	CHR n (%)	Controls n (%)	χ^2
Psychological Bullying	178 (60.5%)	52 (36.1%)	23.14***
Physical Bullying	88 (29.8%)	21 (14.7%)	11.82***
Emotional Neglect	128 (44.0%)	11 (7.7%)	57.50***
Physical Abuse	80 (27.7%)	9 (6.3%)	26.47***
Psychological Abuse	118 (40.1%)	10 (7.0%)	51.03***
Sexual Abuse	47 (16.3%)	2 (1.4%)	23.68***
<i>Total Scores (Mann-Whitney)</i>			
	M (SD)	U	Z
<i>Total Bullying</i>	0.77 (0.93)	15632.5	-4.89***
<i>Total Trauma</i>	1.69 (1.70)	10594.0	-8.68***

*
p<0.0001

TABLE 3

Comparison of Males and Females on Trauma

Type of Trauma	CHR Male n (%)	CHR Female n (%)	χ^2	Control Male n (%)	Control Female n (%)	χ^2
Psychological Bullying	101 (34.4%)	77 (26.2%)	0.22	27 (18.8%)	25 (17.4%)	0.22
Physical Bullying	56 (19.0%)	32 (10.8%)	2.07	14 (9.8%)	7 (4.9%)	2.85
Emotional Neglect	58 (19.9%)	70 (24.1%)	15.29**	5 (3.5%)	6 (4.2%)	0.07
Physical Abuse	36 (12.5%)	44 (15.2%)	7.41*	5 (3.5%)	4 (2.8%)	0.00
Psychological Abuse	56 (19.0%)	62 (21.1%)	8.68*	5 (3.5%)	5 (3.5%)	0.00
Sexual Abuse	13 (4.5%)	34 (11.8%)	20.88**	1 (0.7%)	1 (0.7%)	0.00

* p<0.01,

** p<0.0001

Table 4
Relationship between Clinical Measures and Trauma for CHR individuals (N=360)

Measure	Spearman r									
	Psych. Bullying	Physical Bullying	Emotional Neglect	Psych. Abuse	Physical Abuse	Sexual Abuse	Total Bullying	Total Trauma		
SOPS-P	0.01	-0.03	-0.06	-0.03	0.00	-0.01	-0.01	-0.04		
SOPS-N	-0.06	-0.13*	-0.07	0.05	-0.02	-0.07	-0.11	-0.08		
CDSS	0.16**	0.18**	0.27 ***	0.13**	0.16**	0.07	0.19 **	0.26 ***		
SIAS	0.19 **	0.10	0.21 ***	0.16**	0.22 ***	0.11	0.17**	0.28 ***		
SAS	0.20 **	.017**	0.27 ***	0.25 ***	0.25 ***	0.21 ***	0.21 ***	0.34 ***		
Neg-Self	0.25 ***	0.21 ***	0.21 ***	0.27 ***	0.24 ***	0.14*	0.27 ***	0.33 ***		
Neg-Others	0.24 ***	0.19 **	0.17**	0.13**	0.13*	0.13*	0.27 ***	0.28 ***		
Cur. PD	0.22 ***	0.22 ***	0.19 ***	0.27 ***	0.21 ***	0.25 ***	0.25 ***	0.33 ***		
Lifetime PD	0.25 ***	0.30 ***	0.20 ***	0.27 ***	0.24 ***	0.24 ***	0.32 ***	0.37 ***		
GF-Social	0.02	-0.12*	-0.05	-0.09	-0.07	0.08	-0.05	-0.07		
GF: Role	-0.15*	-0.14*	-0.05	-0.10	-0.11	-0.02	-0.16**	-0.16**		
Cannabis	-0.05	0.09	0.11	0.09	0.10	-0.01	0.00	0.07		

* p<0.05,

** p<0.01,

*** p<0.0001 → Adjustment: 0.05/24 = 0.002

Psych.= Psychological, SOPS-P = SOPS Total Positive Symptoms, SOPS-N= SOPS Total Negative Symptoms, CDSS = Calgary Depression Scale for Schizophrenia, SIAS = Social Interaction Anxiety Scale, SAS = Social Phobia Scale, Neg-Self = Brief Core Schema Negative Self, Neg-Others = Brief Core Schema Negative Others, Cur. PD = Perceived Discrimination in Past Year, Lifetime PD = Perceived Discrimination in Lifetime, GF: Social = Global Functioning Scale: Social, GF: Role = Global Functioning Scale: Role