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Childhood Trauma Associations with the Interpersonal Psychological Theory of Suicide and Social Cognitive Biases in Psychotic Disorders

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Abstract

Childhood trauma (CT) is associated with suicidal ideation and behaviors (SI/SB) in people with psychosis. The Interpersonal Psychological Theory of Suicide (IPT) suggests that there are four factors that increase suicide risk: thwarted belongingness, perceived burdensomeness, acquired capacity for suicide, and hopelessness. The IPT constructs and social cognitive biases are associated with SI/SB in psychotic disorders. However, the role of CT in IPT constructs and social cognitive biases has not been examined in psychosis. In an outpatient community sample of persons with psychotic disorders (N=96) assessed with the Childhood Trauma Questionnaire, the aims of this study were to (1) evaluate rates of CT in this sample, (2) determine the relationship between CT types and lifetime SI/SB, and (3) explore the relationship between CT types, IPT constructs, and social cognitive biases. All participants reported experiencing CT. Emotional abuse was associated with greater SI severity and higher rates of lifetime suicide attempts (SAs), as well as with greater perceived burdensomeness and more severe negative social cognitive biases. Other CT types were minimally associated with SI/SB or IPST constructs; hopelessness was not

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Informed consent was collected from study participants and the parent study in which the current study's data was drawn from has received institutional review board approval.

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associated. Overall, negative interpersonal beliefs and social cognitive biases may explain how CT increases suicide risk in psychosis.

Keywords

childhood trauma; interpersonal suicide risk factors; psychosis

Introduction

Suicide is common in people with schizophrenia and other psychotic disorders (Cassidy et al., 2018; Osby et al., 2000). Additionally, an estimated 43–79% of individuals with psychotic disorders experience suicidal ideation (SI) at least once in their lifetime (Cassidy et al., 2018; Duko & Ayano, 2018; Hawton et al., 2005; Skodlar et al., 2008). Much of the focus of suicide risk factor research in psychosis has been on the influence of psychotic symptoms (e.g., positive and negative symptoms) and cognition (Comparelli et al., 2018; Depp et al., 2016; Villa et al., 2018). However, the unique relationship between childhood trauma and risk for suicidal thoughts and behaviors in individuals diagnosed with a psychotic disorder has demonstrated importance (e.g., Cui et al., 2019; Roy, 2005).

Childhood trauma has been established as a risk factor for the development of and various impacts of psychosis (Baumeister et al., 2014; Carr et al., 2013; Lardinois et al., 2011; Mondelli et al., 2015; Read et al., 2005; Stanton et al., 2020; Varese et al., 2012); however, the literature is mixed on what types of trauma increase suicidal risk. Studies utilizing the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1997; Bernstein et al., 2003) – a standard in the field – show differential findings between the association of trauma subtypes (emotional abuse, emotional neglect, physical abuse, physical neglect, and sexual abuse) and increased risk for SI (Cui et al., 2019; Grattan et al., 2019; Xie et al., 2018), suicide attempts (SAs; Mohammadzadeh et al., 2019; Hassan et al., 2016; Roy, 2005; Tasmin et al., 2020), and the lethality of SAs (Ali et al., 2019). Turning to well-studied theories of suicide, such as the Interpersonal Psychological Theory of Suicide (IPTS), and well-studied constructs in suicide may help bridge the gap to explain the mixed literature on trauma type and their corresponding association with suicidal thoughts and behaviors in this population.

The IPTS is a commonly cited psychological theories which posits that perceived burdensomeness, thwarted belongingness, acquired capability for suicide, and hopelessness converge to foster a lethal SA (Van Orden et al., 2010; Chu et al., 2017). The IPTS posits that the desire for suicide stems from feeling like a burden to others (i.e., perceived burdensomeness) and not belonging (i.e., thwarted belongingness; Van Orden et al., 2010). The authors go on to highlight that since most individuals who have a desire to kill themselves do not attempt suicide, there must be a high fearlessness about death and the “acquired capability” for suicide to result in a person making a lethal SA. Moreover, hopelessness is an established risk factor for suicidal ideation and behavior and has subsequently been found to moderate the interaction between perceived burdensomeness and thwarted belongingness, providing further support of the importance of the combination of these constructs (Hagan, et al., 2015). However, this moderation has not been supported in

a sample of psychotic disorders (Schimanski et al., 2017) and more information is needed to understand all four constructs of the IPTS in psychosis.

Among persons with psychosis, the psychological risk factors of the IPTS have been studied in a limited fashion, though there is emerging research suggesting perceived burdensomeness, thwarted belongingness, and the acquired capability for suicide may be important to understanding suicide in psychosis. Among individuals in their first episode of psychosis, Heelis et al. (2016) reported perceived burdensomeness and thwarted belongingness related to psychotic experiences, while Wastler et al. (2020) found those constructs to have higher in those with recent SI. Further, Villa et al. (2018) found that perceived burdensomeness and thwarted belongingness were associated with SI and a history of SAs in a sample with schizophrenia. Acquired capability has been less studied; but, Silva et al. (2015) found positive associations among adult outpatients with schizophrenia and other psychotic disorders for acquired capability for suicide, in addition to perceived burdensomeness and thwarted belongingness. Thus, understanding these potential social cognitive constructs relationship to childhood trauma could help to uncover the mechanisms of suicide in psychosis.

Converging these literatures, it may be that childhood trauma increases negative interpersonal beliefs (Smith et al., 2018), but this is not clear in psychotic disorders. Additionally, although the IPTS has not received substantial study in psychosis, impairments in social cognition are well documented in psychosis (e.g., Mancuso et al., 2011) and a handful of recent studies have evaluated social cognitive biases and SI using ecological momentary assessment (EMA; Comparelli et al., 2018, Depp et al., 2018). In a prior study, we found that biased interpretations, specifically greater attribution of blame in ambiguous social situations, were associated with baseline SI, SI two weeks later, and that those individuals reporting SI across those time points had the most biased interpretations (Depp et al., 2018). There is evidence to suggest that the presence of childhood trauma may negatively impact emotion recognition, a measure of social cognition, in schizophrenia (Rokita et al., 2021), but the relationship to suicidal thoughts and behaviors and interpersonal risk factors for suicide is unknown.

In a sample of adults with psychotic disorders, this study aimed to (1) evaluate rates of childhood trauma, (2) determine the relationship between types of childhood trauma and lifetime suicidal ideation and behaviors, and (3) explore the relationship between childhood trauma types, the IPTS constructs factors (i.e., thwarted belongingness, perceived burdensomeness, acquired capability for suicide, and hopelessness), and social cognitive biases. There were two corresponding hypotheses: (1) Participants with childhood trauma experiences will be more likely to have a lifetime history of SI and SA as well as have more lifetime SAs, and (2) participants with childhood trauma experiences will report more severe thwarted belongingness and perceived burdensomeness, higher acquired capability for suicide and hopelessness, and more extreme social cognitive biases.

Methods

Setting

In an ongoing multi-site study evaluating the relationship between social cognition and suicide in serious mental illness across three university settings (Dallas n=37, Miami n=24, San Diego n=35) in the United States, data from the current study are derived from a subsample of participants (N=96) enrolled between July 2019 and March 2020 (for more information about the parent study, see Depp et al., 2021). The target sample size for the parent study is 300 and this subsample encompassed the first third of the full sample who completed their full in-person baseline evaluation and the first EMA period of the study.

Participants

The participants included in this subsample all had a DSM-5 diagnosis of Schizophrenia, Schizoaffective Disorder, Bipolar Disorder or Major Depressive Disorder and presented with lifetime or current psychotic symptoms, as defined by the Structured Clinical Interview for the DSM-5 (First et al., 2015; Table 1). Inclusion criteria required all participants be proficient in English, between the ages of 18 and 65, and not currently part of an inpatient program. Participants were in treatment in outpatient, partial hospitalization, or residential care. Participants could not have any hospitalizations or dose changes within the last 6 weeks. Additionally, individuals with history of head trauma with loss of consciousness of >15 minutes, a diagnosis of a neurological or neurodegenerative disorder, or a current substance use disorder were excluded.

Measures

The Childhood trauma questionnaire (CTQ).—The CTQ is a 28-item self-report questionnaire that retrospectively assesses childhood trauma experiences among adolescents and adults. The CTQ includes five subscales of maltreatment: emotional abuse, emotional neglect, physical abuse, physical neglect, and sexual abuse (Bernstein et al., 1997; Bernstein et al., 2003). Each subscale includes recommended threshold cutoff scores, the first being “none or minimal” childhood trauma experiences (Bernstein & Fink, 1998); this threshold was used to dichotomize each subscale based on data distribution (see Statistical Analysis section). Three additional items assess participants’ tendencies to minimize or deny abuse tendencies; scores range from 3 to 15 with higher scores reflecting greater minimization or denial. The CTQ total score (a sum of all items) was not utilized based on the literature and aims of this study.

Columbia-Suicide Severity Rating Scale (C-SSRS).—The C-SSRS is an interviewer-administered suicidality severity instrument that assesses lifetime SI as well as current (i.e., last month) SI (Posner et al., 2011). SI severity is based on the highest rated category of SI (i.e., wish to be dead, passive SI, active SI with a method but without plan and intent, active SI with some intent to act but no specific plan, and active SI with specific plan and intent). The C-SSRS also assesses lifetime and recent suicide behavior patterns (Note. SAs are collected as aborted, interrupted, and actual attempts). “Actual” SAs were used to determine the presence of at least one lifetime SA and the total count of SAs in the present study. A lethality score is used to assess actual attempts’ level of medical damage on 6-point

ordinal scale, ranging from 0 (“no physical damage”) to 5 (“death”); lethality scores in the current sample ranged from 0 to 4 (“severe physical damage”). As available, medical chart data were used to confirm SI/SA recall.

Interpersonal Needs Questionnaire (INQ-15).—The INQ is a 15-item self-report measure assessing interpersonal beliefs (i.e., thwarted belongingness and perceived burdensomeness) underlying the desire for suicide as part of the IPTS (Van Orden et al., 2012). The Thwarted Belongingness Subscale consists of nine items measuring participants’ sense of not belonging and the Perceived Burdensomeness Subscale consists of six items measuring participants’ view of themselves as burden to others. Higher scores indicate greater thwarted belongingness or perceived burdensomeness.

The Acquired Capability for Suicide Scale (ACSS).—The ACSS is a 7-item measure of self-reported acquired capability for suicide and fearlessness of death as part of the IPTS (Ribeiro et al., 2014; Van Orden et al., 2008). Total scores range from 0 to 28, with higher scores indicating greater levels of fearlessness about death and greater capability for suicide.

Beck Hopelessness Scale (BHS).—The BHS is a 20-item self-report measure that assesses three aspects of hopelessness: feelings about the future, loss of motivation, and future expectations (Beck et al., 1974). The possible range of scores is from 0 to 20 and higher scores indicate higher levels of hopelessness.

Ambiguous Intentions and Hostility Questionnaire (AIHQ).—The AIHQ was utilized to measure attribution style and hostile social cognitive biases by measuring blame, hostility, and aggression (Combs et al., 2007). Participants were asked to read and imagine five short vignettes as if they were happening to them and respond using a Likert scale on various items to indicate social attributions (e.g., blame, hostility, aggression). To calculate the Blame subscale, participants were asked how much they would blame the other person(s) in the vignettes and a sum of three Likert scale rated items are averaged over the five vignettes (range 3–16). For the current study, only the Blame Subscale was utilized due to previous literature demonstrating association between the Blame Subscale and SI (Depp et al., 2018).

Symptom Severity Covariate Measures.—The Positive and Negative Syndrome Scale (PANSS) is a brief interview that was used to assess psychosis related experiences. The PANSS is the gold standard for assessing schizophrenia and other psychotic disorders’ symptom severity (Kay et al., 1987). For the current study, the PANSS Positive Symptom Severity subscale and Negative Symptoms Severity subscale were utilized as covariates to account for current positive and negative psychotic experiences. The Montgomery-Åsberg Depression Rating Scale (MADRS) total score utilized to determine the severity of current depression. The MADRS is a ten-item self-report questionnaire (Montgomery & Åsberg, 1979) and has been found to be equivalent to other commonly used self-report depression questionnaires (e.g., the Beck Depression Inventory (Svanborg & Åsberg, 2001)).

Statistical Analysis

In these cross-sectional analyses, there were no missing data. We first calculated the frequencies of meeting criteria for the various CTQ subscales. CTQ subscales have previously been examined as continuous scales. However, given the nonnormal distribution of three CTQ subscales (physical abuse, physical neglect, sexual abuse), these scales were dichotomized based on the scoring cut off criteria of “none to minimal” and “low to extreme.” The remaining CTQ subscales (emotional abuse, emotional neglect) were explored as dichotomous predictors for continuity. We then evaluated the relationship of each CTQ subscale and any lifetime SI and any lifetime SA with separate logistic regression analyses, while SI Severity and SA Lethality utilized separate linear regression analyses. Each CTQ subscale was further used as a unique predictor in separate negative binomial count regressions for the SA count outcome. We then contrasted psychological suicide risk factors and social cognitive biases across each of CTQ subscales also using separate linear regression analyses. If demographic (i.e., gender, ethnicity, race, age) and clinical (i.e., primary diagnosis, symptom severity) variables were significantly associated with a given outcome, they were included as covariates in the relevant model in a stepwise fashion. Unless otherwise noted, these variables were did not significantly predict outcome variables. *P* value was set at .05 for all analyses.

Results

Descriptive Statistics of Childhood Trauma

All (100.0%, *N*=96) participants reported experiencing some degree of childhood trauma. The rate of each subscale above a “none to minimal” level is as follows: 68.7% (*n*=66) reported emotional abuse, 66.7% (*n*=64) reported emotional neglect, 63.5% (*n*=61) reported physical abuse, 66.7% (*n*=64) reported physical neglect, and 62.5% (*n*=60) reported sexual abuse. On average, emotional abuse (*M*=12.8, *SD*=5.8), emotional neglect (*M*=12.8, *SD*=5.4), and physical neglect (*M*=9.7, *SD*=4.1) were endorsed at a low to moderate rate. Physical abuse (*M*=11.0, *SD*=6.0) and sexual abuse (*M*=11.4, *SD*=7.2) were endorsed as moderate to severe. The Minimization/Denial Subscale had a range of 12 (*M*=7.5, *SD*=3.2).

Childhood Trauma and Lifetime Suicidal Thoughts and Behaviors

Childhood trauma experiences and the presence of suicidal thoughts and behaviors are reported in Table 2. A total of 84% of participants endorsed SI in their lifetime (Table 1). No childhood trauma scale significantly predicted the presence of lifetime SI; although, there was a trend for participants reporting emotional abuse (Table 2). There was a significant effect of the Emotional Abuse Subscale on greater SI Severity ($t=2.02$, $p=.046$), $F(1,94)=4.08$, $p=.046$, $R^2=.04$), and no other childhood trauma scale significantly predicted SI Severity (Table 2).

In terms of suicidal behavior, 64.6% of participants endorsed at least one SA in their lifetime (Table 1). Participants reporting emotional abuse were more likely to have reported a lifetime SA ($RR=0.40$, 95% $CI=0.17, 0.99$, $p=.047$), but no other childhood trauma scale significantly predicted the occurrence of a lifetime SA (Table 2). Participants reported an average of 3.4 (*SD*=5.5) SAs in their lifetime. A negative binomial regression revealed

women reported a statistically significant higher number of lifetime SAs ($RR=0.57$, 95% $CI=0.36, 0.91$, $p=.019$) as compared to men. Adjusting for gender, the Emotional Abuse Subscale significantly predicted the number of lifetime SAs ($RR=2.65$, 95% $CI=1.45, 4.85$, $p=.001$). No other childhood trauma scale significantly predicted the number of lifetime SAs (Table 2). There was also a significant effect of the Sexual Abuse Subscale ($t=3.55$, $p=.001$) on SA Lethality, $F(1,60)=12.59$, $p=.001$, $R^2=.16$, and no other childhood trauma scale significantly predicted SA Lethality (Table 2).

Childhood Trauma, IPTS Constructs, and Social Cognitive Biases

For the IPTS risk factors, first, a simple linear regression revealed the Perceived Burdensomeness Subscale decreased by 0.19 points for each increased year of age ($F(1,94)=4.45$, $p=.037$, $R^2=.05$). A separate linear regression also revealed the Perceived Burdensomeness Subscale increased by 0.03 points for each increase point on the MADRS total score ($F(1,93)=12.80$, $p=.001$, $R^2=.12$). There was a significant effect of the Emotional Abuse Subscale on Perceived Burdensomeness after adjusting for age and MADRS score, $F(3,91)=7.62$, $p<.001$, $R^2=.20$, with emotional abuse ($t=2.07$, $p=.041$), age ($t=-2.31$, $p=.023$), and MADRS score ($t=3.03$, $p=.003$) being significant. Next, separate simple linear regressions revealed the Thwarted Belongingness Subscale increased by 0.88 points and increased by 0.40 points for each increased point on the PANSS Negative Symptom Scale ($F(1,94)=8.31$, $p=.005$, $R^2=.08$) and on the MADRS total score ($F(1,93)=16.21$, $p<.001$, $R^2=.15$), respectively. There was a significant effect of the Emotional Neglect Subscale on Thwarted Belongingness after adjusting for the PANSS Negative Symptom Scale and the MADRS score, $F(3,91)=12.66$, $p>.001$, $R^2=.29$, with emotional neglect ($t=3.04$, $p=.003$), the PANSS Negative Symptom Scale ($t=2.95$, $p=.004$), and MADRS score ($t=4.10$, $p<.001$) being significant. Then, there was also a significant effect of the Physical Neglect Subscale ($t=2.05$, $p=.043$) on the ACSS Score, $F(1,94)=4.21$, $p=.043$, $R^2=.03$. No other childhood trauma scale significantly predicted the Perceived Burdensomeness, Thwarted Belongingness, or ACSS scores (Table 3). Finally, while separate simple linear regressions revealed the Hopelessness Score to increase by 0.14 points and 0.04 points for each increased score on the PANSS Negative Symptom Score ($F(1,94)=5.35$, $p=.023$, $R^2=.05$) and the MADRS total score ($F(1,93)=4.50$, $p=.037$, $R^2=.05$), respectively, no childhood trauma scale predicted the Hopelessness Score (Table 3).

As for social cognitive biases, there was a significant effect of the Emotional Abuse Subscale, $F(1,94)=7.56$, $p=.007$, $R^2=.07$ ($t=2.75$, $p=.007$) and the Physical Abuse Subscale, $F(1,94)=5.71$, $p=.019$, $R^2=.06$ ($t=2.39$, $p=.019$) on the Blame Subscale of the AIHQ. No other childhood trauma scale significantly predicted the Blame Subscale (Table 3).

Discussion

The current study aimed to understand the association between various forms of childhood trauma on suicidal thoughts and behaviors as well as suicide risk factors and social cognitive biases in people with psychotic disorders. With the entire sample reporting at least some degree of childhood trauma and around two-thirds of the sample endorsing each trauma type, these results underscore the high frequency of childhood trauma in psychosis.

Consistent with prior studies, childhood trauma is a risk factor for suicidality (Baumeister et al., 2014; Carr et al., 2013; Lardinois et al., 2011; Mondelli et al., 2015; Read et al., 2005; Stanton et al., 2020; Varese et al., 2012) and that risk applies in people with psychosis. Within types of previous trauma, emotional abuse and neglect were associated with higher rates of SI severity and suicidal behavior. Novel findings in this study were that associations between emotional trauma were associated with interpersonal constructs of greater perceived burdensomeness and thwarted belongingness as well as higher blame scores on a test of negative social cognitive biases. In contrast, physical neglect was associated with the acquired capability for suicide and CTQ scores were not associated with hopelessness; the latter has previously been reported to mediate suicide risk in psychosis (Schimanski et al., 2017). While preliminary and not prospective, childhood traumatic events occurred earlier in life while perceived burdensomeness and thwarted belongingness were examined contemporaneously. Thus, prior experiences of trauma precede current experiences of perceived burdensomeness and thwarted belongingness.

Endorsement of emotional trauma, versus other forms of abuse, in the current sample was a prominent predictor for SI severity and SAs as well as perceived burdensomeness and thwarted belongingness. Additionally, the presence of childhood physical neglect was related to an increased acquired capability for suicide. As such, different forms of childhood trauma may exert unique influences on interpersonal constructs related to suicidal ideation and behaviors. Studies exploring childhood trauma and the IPTS in samples that did not include individuals with psychotic disorders found similar results for the relationship between emotional trauma and the interpersonal elements of the IPTS (Puzia et al., 2014; Schönfelder et al., 2019; Smith et al., 2018) as well as the relationship between physical trauma and acquired capability for suicide (Schönfelder et al., 2019; Smith et al., 2018). This comparison between psychotic and non-psychotic samples highlight the importance of emotional trauma and the possibility of emotional trauma existing as a mediator between IPTS constructs and suicidal thoughts and behaviors.

Moreover, emotional abuse has been consistently supported as a major factor in SI and depression as well as low self-esteem (e.g., Mullen et al., 1996) possibly creating multiple pathways for feeling disconnected as an adult. These findings are very consistent with studies of the prospective development of posttraumatic stress disorder (PTSD) after a new trauma (Gould et al., 2021), in that childhood traumatic experiences predicted the severity of emotional reactions at the time of the new trauma which in turn predicted the development of PTSD. In that circumstance as well as the current study, childhood trauma could be viewed as a risk factor for subsequent reactions (e.g., more severe immediate trauma reaction; development of feelings of burdensomeness) which in turn increase risk of other adverse outcomes such as PTSD or SAs.

The negative finding relating to hopelessness is particularly notable given the IPTS focus on perceived burdensomeness and thwarted belongingness converging to create hopelessness, which then leads to the desire for suicide (Van Orden et al., 2010). But, a previous study examining the IPTS have questioned whether hopelessness is a moderator risk factor in psychosis (Schimanski et al., 2017). The distinction of types of trauma relating to the unique

parts of the IPTS warrant further exploration to help illuminate the link between childhood trauma and suicidality in persons experiencing psychosis.

Recent literature has suggested the connection of social cognitive biases and suicidal thoughts and behaviors in persons with psychosis (Depp et al., 2018; Villa et al., 2018). This is the first study to our knowledge to link childhood trauma with social cognitive biases in this fashion. Histories of childhood emotional and physical abuse were separately associated with increased blame of others in social settings. It is unclear if childhood trauma leads directly social cognitive biases, or if childhood trauma impacts social behavior (e.g., isolation; reduction of social supports), which may lead to maladaptive interpersonal beliefs. Research to date has also examined theory of mind, emotion recognition, and other social cognitive abilities in schizophrenia as a function of childhood trauma (e.g., Rokita et al., 2020, Rokita et al., 2021; Vaskinn et al., 2020), and therefore understanding the role of suicide among these constructs is vital.

Given that childhood trauma is a significant suicide risk factor, clinical assessments of suicide risk in psychosis should likely include evaluation of childhood trauma as a modifier of risk as included in current practice guidelines (Sall et al., 2019). In particular, the ongoing finding that types of trauma impact different samples uniquely may be worth considering during clinical assessment and treatment. Further investigations may seek to explore whether interventions that reduce social cognitive biases (e.g., social cognition training) or social recovery services that may counteract biases, may be useful as components of suicide prevention in psychosis, as they have been shown to affect directed violence (Jones & Harvey, 2020). It is noteworthy to highlight that this sample was recruited as part of a larger study evaluating the relationship between social cognition and suicide in serious mental illness. Given the high rates of childhood trauma and suicidal thoughts and behaviors, particular attention is warranted in clinical settings for individuals with psychosis who are presenting with either childhood trauma or suicidality.

This study had a number of limitations. This is a small sample comparatively and people with suicidal ideation and behaviors were over-represented, therefore the rates of childhood trauma were and would be expected to be higher than that in the general population. Moreover, the possibility of recall bias of childhood trauma is possible due to psychiatric diagnosis and mood state; we did control for psychiatric diagnosis, depression state, and current positive and negative psychosis symptom severity among the IPTS constructs and social cognitive biases. Additionally, this study was not powered to examine site differences and there are likely public health, societal, stigma, and resource differences across participants based on their locations. This is a cross-sectional study and by no means addresses prospective risk for suicidal ideation or behavior other than by the fact that childhood abuse occurred earlier in time compared to the contemporaneous assessment of the IPTS and social cognitive biases. All participants were outpatients, and a modest sample size may have masked differences. Further, due to the modest sample size we did not control for multiple comparisons nor were we able to explore the inter-relationships of these variables, or possible mediators or moderators. These findings need to be replicated. In spite of these limitations, this study suggests a need for further investigation into how childhood emotional trauma, interpersonal suicide risk constructs, and social cognitive

biases interrelate in understanding suicide in psychotic disorders, and that these constructs may be an important component of risk assessments and psychotherapies for suicide prevention.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Demographic and clinical variables.

Participant characteristics	<u>n</u>	<u>(%)</u>
Female	53	55.2%
Male	43	44.8%
	<u>Mean (SD)</u>	<u>Range</u>
Age (years)	43.86 (11.18)	19–65
	<u>n</u>	<u>(%)</u>
Race		
White	27	28.1%
Black or African American	46	47.9%
American Indian/ Alaskan Native	0	0.0%
Asian	4	4.2%
Native Hawaiian or Other Pacific Islander	1	1.0%
More than one race or Other:	18	18.8%
Ethnicity		
Not Hispanic	73	76.0%
Hispanic	23	24.0%
Primary Diagnosis		
Bipolar Disorder w/o psychotic features	0	0.0%
Bipolar Disorder with psychotic features	16	16.7%
Schizophrenia	37	38.5%
Schizoaffective Disorder	41	42.7%
Major Depressive Disorder with psychotic features	2	2.1%
Suicidal Thoughts and Behaviors		
Lifetime SI	81	84.4%
Active SI with plan and intent	49	51.0%
Lifetime SA	62	64.6%
SA with severe physical damage	62	64.6%
	<u>Mean</u>	<u>SD</u>
SA Count	3.4	5.5
Symptom Severity		
PANSS Positive Symptoms, M(SD), Range	17.9 (5.56)	7–34
PANSS Negative Symptoms, M(SD), Range	13.3 (4.11)	7–26
MADRS, M(SD), Range	15.9 (12.2)	0–39

Note. SI = suicidal ideation, SA = suicide attempt, SA Count = the number of lifetime suicide attempts, Active SI with plan and intent = highest SI severity, SA with severe physical damage = highest SA lethality score.

Table 2

Trauma type and suicidal thoughts and behaviors.

	Emotional Abuse % (n)		Emotional Neglect % (n)		Physical Abuse % (n)		Physical Neglect % (n)		Sexual Abuse % (n)	
	Yes; 68.8 (66)	No; 31.3 (30)	Yes; 66.7 (64)	No; 33.3 (32)	Yes; 63.5 (61)	No; 36.5 (35)	Yes; 66.7 (64)	No; 33.3 (32)	Yes; 62.5 (60)	No; 37.5 (36)
History of Any Lifetime SI	89.4 (59)	73.3 (22)	82.8 (53)	87.5 (28)	83.6 (51)	85.7 (30)	81.3 (52)	90.6 (29)	86.7 (52)	80.6 (29)
History of Active SI with a Plan and Intent	59.1 (39)	33.3 (10)	53.1 (34)	46.9 (15)	52.5 (32)	48.6 (17)	51.6 (33)	50.0 (16)	48.3 (29)	55.6 (20)
History of a Lifetime SA	71.2 (47)	50.0 (15)	65.6 (42)	62.5 (20)	70.5 (43)	54.3 (19)	64.1 (41)	65.6 (21)	65.0 (39)	63.9 (23)
	M (SD), n		M (SD), n		M (SD), n		M (SD), n		M (SD), n	
Lifetime Number of SAs	4.2 (6.3), 66	1.4 (2.3), 30	3.7 (6.1), 64	2.7 (4.3), 32	3.9 (6.1), 61	2.4 (4.3), 35	3.2 (5.6), 64	3.7 (5.4), 32	3.9 (6.2), 60	2.4 (4.1), 36
SA Lethality ^a	1.9 (1.3), 47	1.5 (1.3), 15	1.9 (1.3), 42	1.6 (1.4), 20	1.8 (1.3), 43	1.8 (1.3), 19	1.7 (1.3), 41	1.9 (1.3), 21	2.2 (1.2), 39	1.9 (1.2), 23

Note. SI = suicidal ideation, SA = suicide attempt, Bold = significant.

^aSA lethality score assesses SA attempts' level of medical damage on 6-point ordinal scale, ranging from 0 ("no physical damage") to 5 ("death"); lethality scores in the current sample ranged from 0 to 4 ("severe physical damage").

Table 3

Linear regression of trauma type and suicidal risk factors.

Emotional Abuse					
	M (SD)		Linear Regression		
	Yes (n=66)	No (n=30)	Test-statistic (df)	p-value	Cohen's D
Perceived Burdensomeness ^a	14.0 (10.3)	9.0 (5.3)	2.70 (3,91)	<.001	0.61
Thwarted Belongingness ^b	31.2 (13.1)	26.3 (11.2)	1.59 (3,91)	.115	0.40
Acquired Capability for Suicide	14.2 (6.0)	13.5 (5.9)	0.543 (1,94)	.595	0.12
Hopelessness ^b	10.8 (2.3)	10.1 (2.8)	1.06 (3,91)	.291	0.27
AIHQ Blame	45.5 (14.7)	36.8 (13.7)	2.75 (1,94)	.007	0.61
Emotional Neglect					
	Yes (n=64)	No (n=32)	Linear Regression		
Perceived Burdensomeness ^a	13.6 (9.8)	10.2 (7.9)	1.54 (3,91)	.127	0.38
Thwarted Belongingness ^b	32.3 (12.4)	24.3 (11.7)	3.04 (3,91)	.003	0.66
Acquired Capability for Suicide	14.6 (5.7)	12.7 (6.2)	1.52 (1,94)	.132	0.32
Hopelessness ^b	10.7 (2.7)	10.3 (1.9)	0.52 (3,91)	.607	0.17
AIHQ Blame	44.0 (15.1)	40.5 (14.4)	1.08 (1,94)	.282	0.24
Physical Abuse					
	Yes (n=61)	No (n=35)	Linear Regression		
Perceived Burdensomeness ^a	12.5 (10.0)	12.4 (8.1)	-0.29 (3,91)	.770	0.01
Thwarted Belongingness ^b	29.3 (13.2)	30.3 (12.0)	-0.33 (3,91)	.746	0.08
Acquired Capability for Suicide	14.2 (6.0)	13.4 (5.8)	0.65 (1,94)	.519	0.14
Hopelessness ^b	10.6 (2.1)	10.4 (3.1)	0.60 (3,91)	.552	0.08
AIHQ Blame	45.5 (15.0)	38.1 (13.7)	2.39 (1,94)	.019	0.52
Physical Neglect					
	Yes (n=64)	No (n=32)	Linear Regression		
Perceived Burdensomeness ^a	12.3 (8.9)	12.7 (10.2)	0.35 (3,91)	.726	0.04
Thwarted Belongingness ^b	29.6 (13.4)	29.6 (11.4)	0.34 (3,91)	.735	0.00
Acquired Capability for Suicide	14.8 (5.4)	12.2 (6.7)	2.05 (1,94)	.043	0.43
Hopelessness ^b	10.7 (2.8)	10.3 (1.6)	0.69 (3,91)	.491	0.18
AIHQ Blame	42.9 (15.9)	42.6 (12.9)	0.08 (1,94)	.939	0.02
Sexual Abuse					
	Yes (n=60)	No (n=36)	Linear Regression		
Perceived Burdensomeness ^a	13.0 (8.9)	11.5 (9.9)	0.80 (3,91)	.427	0.16
Thwarted Belongingness ^b	30.4 (12.2)	28.3 (13.6)	0.63 (3,91)	.529	0.16
Acquired Capability for Suicide	13.5 (5.5)	14.8 (6.5)	-1.06 (1,94)	.291	0.22

Hopelessness ^b	10.5 (2.8)	10.7 (1.8)	-0.72 (3,91)	.471	0.08
AIHQ Blame	44.8 (16.2)	39.5 (11.9)	1.68 (1,94)	.096	0.37

Note. AIHQ = Ambiguous Intentions Hostility Questionnaire. Bold = significant. t statistic reported is for the CTQ individual outcome parameter.

^a adjusting for age and the Montgomery-Åsberg Depression Rating Scale (MADRS) total score.

^b adjusting for the MADRS total score and the Positive and Negative Syndrome Scale (PANSS) - Negative Symptom Severity score.

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