A comprehensive examination of associations between childhood trauma and psychosis in African Americans

Rebekah Hobbs

Wellesley College

Department of Psychiatry, Boston Children’s Hospital

PSYC 350: Research or Individual Study

Dr. Christen Deveney, Dr. Josephine Mollon, Dr. David C. Glahn

December 28, 2020
Abstract

Background While there is a clear relationship between experiences of childhood trauma and psychosis, the exact nature of that relationship is unclear, with conflicting evidence surrounding the specific associations between types of trauma and psychotic symptoms.

Methods Using data from a case-control study of African American adults (N = 428) who completed the Childhood Trauma Questionnaire and the Lifetime Dimensions of Psychosis Scale, we tested associations between 1) overall trauma and diagnosis (i.e., controls with no diagnosis, controls with a psychiatric diagnosis, patients with affective psychosis, and patients with non-affective psychosis), 2) specific trauma subtypes (i.e., physical neglect, emotional neglect, physical abuse, emotional abuse, and sexual abuse) and overall psychosis diagnosis, and 3) specific trauma subtypes and psychotic symptoms (i.e., delusions, hallucinations, positive symptoms, and negative symptoms).

Results We found significant associations between overall childhood trauma and diagnosis, such that patients with affective psychotic disorders reported the most trauma, followed by patients with non-affective psychotic disorders, controls with non-psychotic psychiatric disorders, and controls with no diagnoses reporting the least trauma. Identical associations were found between all five childhood trauma subtypes and diagnosis, with sexual abuse having the strongest association with diagnosis. Finally, we found significant associations between physical neglect, physical abuse, emotional abuse, sexual abuse, and positive symptoms. There were significant associations between all three types of abuse and delusions. Interestingly, while there were significant associations between physical neglect, physical abuse, emotional abuse, and hallucinations there was no significant association between sexual abuse and hallucinations. There were no significant associations involving trauma subtypes and negative symptoms.
**Conclusion** These findings suggest a strong relationship between trauma and psychosis, as well as a more general relationship between trauma and psychiatric diagnoses. Findings from specific associations between trauma subtypes and psychotic symptoms suggest strong relationships between abuse and delusions, as well as between most subtypes and positive symptoms. However, our lack of association between sexual abuse and hallucinations highlights the need for further research into trauma and psychosis in African Americans, as well as other underrepresented groups in psychiatric research.
Introduction

Childhood trauma is strongly associated with adult health risks and psychiatric outcomes (Albott et al., 2018; Copeland et al., 2018; Kessler et al., 2010). Multiple studies show an association between adverse events during childhood and diagnoses of cancer, heart disease, lung disease, liver disease, and diabetes (Bellis et al., 2015; Felitti et al., 1998). Studies have also found associations between specific types of trauma and psychiatric outcomes. For example, Afifi et al. (2006) found that patients who endorsed physical punishment during childhood had a greater association with the risk of being diagnosed with major depressive disorder, substance use, and externalizing problems than those who did not endorse physical punishment. Studies have also found a strong association between childhood sexual abuse and risk of being diagnosed with a psychiatric disorder, especially major depressive disorder, anxiety disorders, and substance use (Fergusson et al., 1996; Hailes et al., 2019; Mandelli et al., 2015; Zarse et al., 2019). Studies have specifically found a high prevalence of childhood trauma in patients with a psychotic disorder (Heins et al., 2011; Larsson et al., 2013).

Multiple studies show that exposure to any trauma increases risk of presenting with psychotic symptoms (Ayesa-Arriola et al., 2020; Croft et al., 2019; Garcia et al., 2016; Loewy et al., 2019; Schäfer et al., 2012; Trauelsen et al., 2015). For example, Ramsay et al. (2011) conducted a study involving predominantly African American patients with first episode psychosis and found that almost every participant (96%) endorsed at least one traumatic event. Turner et al. (2020) found that 4 out of 5 Australians with psychosis reported at least one experience of childhood adversity. Bonoldi et al. (2013) reviewed twenty-three studies and found a consistent report of childhood trauma from patients with psychosis. One heavily cited meta-analysis comes from Varese et al. (2012). The group included 18 case-control studies in their meta-analysis and
reported not only a strong association between childhood trauma and psychosis, but also that the number of people with psychosis in the analysis would decrease by 33% if the childhood adversities studied were removed from the population (Varese et al., 2012).

Furthermore, studies have found evidence for an association between childhood trauma and worse psychotic symptoms and outcomes. Schenkel et al. (2005) examined childhood maltreatment and treatment outcomes in adult schizophrenia patients, finding that schizophrenia patients who experienced trauma were more likely to have more hospitalizations at an earlier age, as well as more severe symptoms (Schenkel et al., 2005). Thomas et al. (2019) reviewed seven studies in a meta-analysis to find that psychotic patients who experienced maltreatment during childhood had poorer treatment outcomes than patients who did not endorse childhood maltreatment. Overall, there is a consensus that the experience of childhood trauma increases risk for diagnosis of psychotic disorders, as well as for greater severity of symptoms, and worse treatment outcomes.

As studies continue to show associations between childhood trauma and psychosis, researchers have begun to ask more specific questions about this relationship. One question is if specific types of trauma are associated with psychosis diagnoses. Some studies have found that there are no specific associations. Varese et al (2012) examined associations between multiple types of childhood trauma or adversity – sexual abuse, physical abuse, emotional abuse, neglect, parental death, and bullying – and a psychosis diagnosis, but found no specific associations trauma type and psychosis diagnosis. Croft et al. (2019) examined associations between exposure to trauma and increased risk of psychosis by 18 years-old, and associations between trauma type – physical abuse, emotional abuse, sexual abuse, domestic violence, emotional neglect, and bullying – and increased risk. They found that all types of trauma were significantly associated with psychotic
experiences (Croft et al., 2019). After multivariate analysis, Croft et al. (2019) found persisting evidence for associations between sexual abuse, physical abuse, bullying and neglect, and increased risk. Larsson et al. (2013) found no specific associations but noted that emotional neglect was the most reported subtype of trauma in their cohort. Furthermore, researchers have posited that specific types of trauma do not have direct associations with psychotic symptoms, but rather are related through the effects childhood trauma has on general psychopathology (Isvoranu et al., 2017).

Studies have also examined whether there are associations between types of trauma and specific psychotic symptoms. Some studies have focused on positive and negative symptoms, and the results of these studies vary. While some studies have found that there is an association between neglect and negative symptoms (Bailey et al., 2018; Ramsay et al., 2011), others have found an association between negative symptoms and abuse (Comacchio et al., 2019). Regarding positive symptoms, some research has found an association with all types of abuse (Heins et al., 2011), while others only found an association with emotional abuse (Ramsay et al., 2011). Most studies focused on more specific types of psychotic symptoms, such as delusions and hallucinations. One commonly examined association is between sexual abuse and hallucinations (Bentall et al., 2012; Misiak et al., 2016; Turner et al., 2020). Studies have found associations specifically between sexual abuse and auditory hallucinations in people with bipolar affective disorder (Hammersley et al., 2003). Shevlin et al. (2007) found that rape was associated with auditory hallucinations, while both neglect and rape were associated with visual hallucinations. In terms of delusions, some studies found an association with physical abuse (Bentall et al., 2012), while others did not report a significant relationship between trauma and delusions (Hammersley et al., 2003).
There are three main limitations of prior research on trauma and psychosis. First, many studies focused on the broader topic of overall trauma and psychosis, resulting in limited research on specific associations. Second, the studies that do focus on trauma subtypes show contradictory findings and methodology varies between studies. Third, participants tend to be primarily of European descent. Research shows that African Americans tend to be overrepresented among inpatients with diagnoses of schizophrenia (Barnes, 2004, 2008). For example, in one study that examined the relationship between perceived discrimination and psychotic experiences in African Americans, Latinos, and Asians, participants who endorsed psychotic experiences were more likely to be African Americans than any other ethnic group (Oh et al., 2014). Thus, studies of psychotic disorders and trauma should include more African Americans to be more representative of the population they are serving.

In this study, we examined associations between types of childhood trauma and specific psychotic symptoms in a population-based, case-control study of African American adults with psychotic disorders. The aims of this study were to 1) gather more data on childhood trauma in African American adults with psychotic disorders, 2) test whether the association between trauma and mental health is general or stronger in psychotic disorders than other psychiatric disorders, 3) determine if specific childhood traumas are associated with psychosis overall, and 4) determine if there are any specific associations between childhood trauma subtypes and severity of psychotic symptoms. We hypothesized that the participants with psychotic disorders will have experienced more childhood trauma than controls with and without non-psychotic psychiatric diagnoses. Additionally, we hypothesized two specific associations: between neglect and severity of negative symptoms, and between sexual abuse and severity hallucinations.

**Methods**
**Subjects**

All participants (N=561) were African American and from the Hartford, Connecticut area. We excluded anyone that did not complete the entirety of the Childhood Trauma Questionnaire (N=123), those who did not complete the Lifetime Dimensions of Psychosis Scale (N=8), and anyone with a deferred diagnosis (N=2), leaving a total of 173 patients and 255 controls. Patients had various psychotic diagnoses, as described in Table 1. Neither patients nor controls were excluded for having a non-psychotic psychiatric diagnosis. Subjects with a history of major non-psychiatric medical disorders (history of strokes, HIV/AIDS, history of traumatic brain injury, epilepsy, hepatitis, chronic myelogenous leukemia, cancer, history of seizures, history of coma or unconsciousness, and severe tremors) or with an intelligence quotient (IQ) of below 70 were excluded. We made Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV diagnoses using the Structured Clinical Interview for DSM-IV-TR Axis I Disorders (SCID) (First et al., 2002) and a consensus process (Glahn et al., 2007). All subjects provided informed consent. The review boards at Hartford Hospital and Yale University approved the study. All sample characteristics are provided in Table 1.

**Measures**

**Childhood Trauma**

Participants completed the Childhood Trauma Questionnaire (CTQ) (Bernstein et al., 1998), a self-administered questionnaire that determines presence of traumatic experiences in childhood and early adolescence. The CTQ is widely used and has been shown to be both reliable and valid (Liebschutz et al., 2018). The CTQ has a five-factor structure and measures physical neglect, emotional neglect, physical abuse, emotional abuse, and sexual abuse. The five-factor structure
has been tested and is considered the most reliable model for the CTQ (Christine D. Scher et al., 2001). Assessment items, fit, and factor info are provided in Table 2a.

Psychotic Symptoms

Participants completed the Lifetime Dimensions of Psychosis Scale (LDPS) (Levinson et al., 2002), a 20-item rating scale that measures presence, severity, and duration of psychotic and mood symptoms. The LDPS is considered to be a reliable assessment of psychotic symptoms (Levinson et al., 2002). We chose to look at presence and severity of four types of symptoms: delusions, hallucinations, positive symptoms, and negative symptoms. For all four types of symptoms, severity was calculated by the sum of the severity score for each subcategory. These severity scores were standardized, and z scores were used in all subsequent analyses. Scoring descriptions are provided in Table 2b.

Statistical Analyses

All analyses were carried out using the statistical programming language R (R Core Team, 2020). Descriptive statistics were generated using the package “psych” (Revelle, 2020). CTQ factor analysis was conducted using the package “lavaan” (Rosseel, 2012). Data visualization was created using the package “ggplot2” (Wickham, 2016). Participants were broken down into four groups: controls with no diagnosis (N=91), controls with a non-psychotic psychiatric diagnosis (N=164), patients with affective psychosis (N=88), and patients with non-affective psychosis (N=85).

To determine if there is a stronger association between trauma and psychosis vs. other psychiatric disorders, we conducted a one-way ANOVA, with group (i.e., controls with no diagnosis, controls with a psychiatric diagnosis, patients with affective psychosis, and patients with non-affective psychosis) as the independent variable and overall trauma (i.e., mean of the
five CTQ factor scores) as the dependent variable. To see if any specific traumas are associated with overall psychosis, we conducted 5 additional ANOVAs, with the five trauma subtype factor scores (i.e., physical neglect, emotional neglect, physical abuse, emotional abuse, and sexual abuse) as dependent variables and diagnosis grouping (i.e., controls with no diagnosis, controls with a psychiatric diagnosis, patients with affective psychosis, and patients with non-affective psychosis) as independent variables. When looking for any specific association between childhood trauma subtypes and psychotic symptoms, linear regressions were conducted with severity of symptoms (z score) as the dependent variable and trauma subtype factor scores as the independent variable. FDR corrections were implemented to control for type I errors. Linear regressions were only conducted using patients with psychosis. We adjusted for age and sex in the main analyses, and subsequently also for substance use, and type of psychosis during the regression analyses. As this sample is entirely African American, we did not need to adjust for race.

Results

Association between overall trauma and overall psychosis

Every participant rated at least one item on the CTQ higher than 1. There was a significant effect of diagnosis on overall trauma \( [F(3,422) = 50.53, p<0.001] \). Visualization of overall trauma by diagnosis can be seen in Figure 1. Patients with affective psychosis showed the most overall trauma (\( \bar{x} = 0.55, \text{se} = 0.05 \)), followed by patients with non-affective psychosis (\( \bar{x} = 0.23, \text{se} = 0.06 \)), controls with a psychiatric diagnosis (\( \bar{x} = -0.09, \text{se} = 0.04 \)), and controls with no diagnosis (\( \bar{x} = -0.34, \text{se} = 0.05 \)). Overall trauma differed significantly between all four groups, with a large difference between patients with affective psychosis and controls with no psychiatric diagnosis (\( \text{diff}=0.89, 95\%CI [0.69, 1.09], p<0.001 \)), a medium difference between patients with affective
psychosis and controls with a psychiatric diagnosis (diff = 0.64 95%CI [0.46, 0.82], p<0.001), as well as patients with non-affective psychosis and controls with no diagnosis (diff = 0.57 95%CI [0.37, 0.78], p<0.001). There was a small difference between patients with non-affective psychosis and controls with a psychiatric diagnosis (diff = 0.36 95%CI [0.13, 0.50], p<0.001) and a small difference between patients with non-affective psychosis and patients with affective psychosis (diff = -0.32 95%CI [-0.53, -0.11], p<0.001). Despite both groups being control groups, controls with a psychiatric diagnosis and controls with no psychiatric diagnosis did differ in overall trauma (diff = 0.26 95%CI [0.08, 0.44], p = 0.001).

After we controlled for substance use, there was still a significant effect of diagnosis on overall trauma [F(3,421) = 50.716, p <0.001]. Post hoc results were similar to original analyses, with a large difference between patients with affective psychosis and controls with no diagnosis (diff = 0.89 95%CI [0.69, 1.10], p<0.001), medium differences between patients with affective psychosis and controls with a psychiatric diagnosis (diff = 0.64 95%CI [0.46, 0.82], p<0.001), and patients with non-affective psychosis and controls with no diagnosis (diff = 0.57 95%CI [0.37, 0.78], p<0.001). Small differences remained between patients with non-affective psychosis and controls with a psychiatric diagnosis (diff = 0.32 95%CI [0.13, 0.50], p<0.001), both patient groups (diff = -0.32 95%CI [-0.53, -0.11], p<0.001), and both control groups (diff = 0.26 95%CI [0.08, 0.44], p=0.001).

**Associations between specific traumas and overall psychosis**

There was a significant effect of diagnosis on all five specific trauma subtypes. This effect was strongest for sexual abuse [F(3,422) = 50.27, p<0.001], and weakest for emotional neglect [F(3,422) = 26.08, p<0.001]. Emotional abuse had an almost similar effect to sexual abuse [F(3,422) = 49.53, p<0.001], while physical abuse [F(3,422) = 41.17, p<0.001] and physical
neglect \[F(3,422) = 37.76, p<0.001\] had similar effects. **Table 3** shows associations between specific traumas and overall psychosis and post hoc pairwise comparisons. Visualization of sexual abuse by diagnosis group can be seen in **Figure 2**.

We observed similar results after adjusting for substance use. Sexual abuse still had the strongest effect \[F(3,421) = 50.33, p<0.001\] and emotional neglect the weakest \[F(3,421) = 26.11, p<0.001\]. Emotional abuse \[F(3,421) = 49.67, p<0.001\], physical abuse \[F(3,421) = 41.37, p<0.001\], and physical neglect \[F(3,421) = 37.88, p<0.001\] also produced similar results. Post hoc pairwise comparisons can be seen in **Table 3**.

**Specific associations between severity of trauma subtypes and psychotic symptoms**

**Table 4** shows effects of each childhood trauma subtype on severity of each psychotic symptom. Trauma was most consistently associated with positive symptoms, with statistically significant associations between physical neglect (\(\beta = 0.12, p = 0.023\)), physical abuse (\(\beta = 0.16, p = 0.001\)), emotional abuse (\(\beta = 0.20, p = 0.001\)), sexual abuse (\(\beta = 0.18, p = 0.005\)), and positive symptoms, all surviving FDR correction. Abuse was consistently associated with delusions, with statistically significant associations between physical abuse (\(\beta = 0.09, p = 0.002\)), emotional abuse (\(\beta = 0.13, p = 0.010\)), sexual abuse (\(\beta = 0.13, p = 0.013\)) and delusions, all surviving FDR correction. While there were significant associations between physical neglect (\(\beta = 0.10, p = 0.023\)), emotional abuse (\(\beta = 0.12, p = 0.029\)), physical abuse (\(\beta = 0.12, p = 0.007\)), and hallucinations only the latter survived FDR correction. Physical neglect (\(\beta = 0.09, p = 0.028\)), emotional neglect (\(\beta = 0.11, p = 0.044\)), physical abuse (\(\beta = 0.08, p = 0.046\)), and emotional abuse (\(\beta = 0.11, p = 0.038\)) were significantly associated with negative symptoms; however, none of these results survived FDR correction.
Table 4 presents effects of each childhood trauma subtype on severity of each psychotic symptom after adjusting additionally for substance use and diagnosis. Results pertaining to positive symptoms remained the same with significant associations between physical neglect ($\beta = 0.13, p = 0.007$), physical abuse ($\beta = 0.17, p < 0.001$), emotional abuse ($\beta = 0.22, p = 0.003$), sexual abuse ($\beta = 0.19, p = 0.002$), and positive symptoms. Similarly, results pertaining to delusions remained the same, with significant associations between physical abuse ($\beta = 0.10, p = 0.007$), emotional abuse ($\beta = 0.13, p = 0.004$), sexual abuse ($\beta = 0.13, p = 0.007$), and delusions. Associations involving hallucinations were more robust after adjusting for substance use and diagnosis, with significant associations that survived FDR correction between physical neglect ($\beta = 0.11, p = 0.01$), physical abuse ($\beta = 0.13, p = 0.002$), emotional abuse ($\beta = 0.14, p = 0.011$), and hallucinations. There were no significant associations between negative symptoms and trauma subtypes.

Discussion

Findings

In the current study, we conducted a comprehensive examination of childhood trauma and psychosis in African American adults. When examining overall trauma and diagnosis, we found that patients with psychotic disorders showed more overall trauma than controls, consistent with prior literature. Patients with affective psychotic disorders showed more overall trauma than all other groups, including patients with non-affective psychotic disorders, while controls with a non-psychotic psychiatric disorder showed more overall trauma than controls with no diagnosis. Additionally, when examining relationships between childhood trauma subtypes and psychosis, patients were more likely to experience more trauma within all five subtypes, with sexual abuse having the strongest relationship with diagnosis. Lastly, we found a strong association between
all childhood abuse subtypes and delusions. We did not find an association between sexual abuse and hallucinations, which is a consistent finding in prior literature.

Our findings are important in several ways. Findings regarding patients being more likely to have experienced more overall trauma than controls fits with prior findings in the literature (Heins et al., 2011; Larsson et al., 2013; Rosen et al., 2017; Turner et al., 2020). Controls with a non-psychotic, psychiatric disorder showing more overall trauma than controls with no diagnosis is in line with findings that trauma is associated with increased risk for a number of mental disorders (Albott et al., 2018). Specifically, trauma is associated with mood disorders and substance use (Afifi et al., 2006). While it is important to note that patients with affective psychotic disorders may be more likely to report more trauma rather than experience more trauma, this group simultaneously experiencing affective and psychotic symptoms may explain our finding of the group with the most trauma reported. Moreover, patients with affective psychosis would be more likely to report a higher level of trauma than patients with non-affective psychosis. Similarly, 57% of controls have some type of substance use disorder, and 12% have an affective disorder, which likely underlies our finding that controls with a psychiatric diagnosis reported more trauma than controls without a diagnosis. One limitation of the study is that we did not have the necessary sample size to fully analyze the associations between controls; therefore, future studies should be sure to do so. Regardless, both outcomes – patients with affective psychotic disorders showing more overall trauma than patients with non-affective psychotic disorders, and controls with non-psychotic psychiatric disorders showing more overall trauma than controls with no diagnosis – are clearly apparent in our study.

The finding that patients were also more likely to experience more of all five childhood trauma subtypes is consistent with prior findings (Croft et al., 2019; Varese et al., 2012). Prior findings
CHILDHOOD TRAUMA AND PSYCHOSIS IN AFRICAN AMERICANS

also show that childhood sexual abuse had a high rate of reporting in patients with psychosis (Comacchio et al., 2019; Hailes et al., 2019). Additionally, sexual abuse is strongly associated with depression (Fergusson et al., 1996; Hailes et al., 2019), which could explain why patients with affective psychosis were more likely to have a higher factor score than patients with non-affective psychosis, as well as why controls with a psychiatric diagnosis were more likely to have a higher factor score than controls with no diagnosis. As all five types of trauma are highly correlated, it is hard to disentangle the associations between specific subtypes and psychotic disorders. Nevertheless, all types of childhood trauma are associated with psychosis, as well as psychiatric disorders more generally.

When looking at specific relationships between trauma subtypes and psychotic symptoms, our observations are consistent with some reports and contradict others. For example, the associations between physical neglect, physical abuse, emotional abuse, sexual abuse, and positive symptoms fit with prior findings (Heins et al., 2011; Ramsay et al., 2011). Heins et al. (2011) also had similar findings regarding the lack of associations between trauma subtypes and negative symptoms, and Bailey et al. (2018) noted that 7 of the studies that were reviewed did not report any associations involving negative symptoms. However, our finding of a lack of association between sexual abuse and hallucinations contrasts with a number of prior studies (Hammersley et al., 2003; Misiak et al., 2016; Shevlin et al., 2007; Turner et al., 2020; Varese et al., 2012). There are a few reasons as to why our results may differ. While the studies cited above reported associations between sexual abuse and hallucinations, others fail to observe this association (Bailey et al., 2018; Comacchio et al., 2019; Heins et al., 2011; Ramsay et al., 2011). Moreover, previous studies that found an association between sexual abuse and hallucinations either had a primarily white sample (Shevlin et al., 2007), reported nationality rather than race
(Comacchio et al., 2019), or did not report race/ethnicity demographics at all (Hammersley et al., 2003, 2003; Misiak et al., 2016). Interestingly, the one study that features a predominantly African American study (Ramsay et al., 2011) does not report an association between sexual abuse and hallucinations. Future studies should focus on replicating this study in multiple populations to have a better understanding of the associations between specific trauma subtypes and psychotic symptom groups.

This study also adds important knowledge about trauma and psychosis in African Americans, an underrepresented population in psychiatry research. Recently, Roberts et al. (2020) conducted an analysis of over 26,000 articles to understand trends of racial representation in the fields of cognitive, developmental, and social psychology. Findings showed that articles rarely highlighted race, had participants that were rarely people of color, were primarily written by white authors, and published in journals with white editors (Roberts et al., 2020). While the aforementioned study does not analyze racial representation in clinical psychology, there are examples of lack of diversity in research samples, as well as the clinical psychology workforce. In terms of racial representation in research samples, Nagendra et al. (2020) analyzed papers regarding schizophrenia studies in various psychiatric journals and compared how frequently papers included information on race and ethnicity to prior studies. The study found that, of the 474 analyzed papers, only 59% reported sample descriptions and an even fewer 9% directly analyzed race and ethnicity (Nagendra et al., 2020). When looking at doctoral programs, white students are the majority at an average of 67.64% of the student population (Callahan et al., 2018). Moreover, African American students, along with other underrepresented racial/ethnic populations, have lower population rates but higher attrition rates in psychological doctoral programs (Callahan et al., 2018), resulting in less diversity in the post-doctoral workforce. Lack
of diversity in researchers, along with the lack of diversity in the many prominent studies cited in this paper, show similar patterns observed in the study by Roberts et al. (2020). While African Americans are underrepresented in research, they are highly prevalent in clinical populations. African Americans are more likely to be diagnosed with a psychotic disorder compared to white Americans (Schwartz & Blankenship, 2014). Additionally, African Americans are more likely to be hospitalized with a psychotic disorder (Muroff et al., 2008). Oh et al. (2014) examined the relationship between perceived discrimination and psychotic experiences amongst multiple ethnic groups in the United States, reporting that African Americans were more likely to endorse perceived experiences of discrimination and psychotic experiences. It is important to devote more research into underrepresented populations in psychiatry, especially when attempting to understand psychosis.

**Limitations**

This study has several strengths, including a large sample size and the use of comprehensive, reliable, and valid measures of trauma and psychotic symptoms. However, there are a few limitations to this study. First, due to the cross-sectional nature of this study, no causal relationships can be drawn from this study. Additionally, the CTQ is a retrospective measure of childhood trauma. Future longitudinal studies should attempt to examine the relationship between trauma and psychosis, and whether one may lead to the other. Nevertheless, the nature of this relationship is likely to be complex, and our findings highlight the importance of considering trauma when conceptualizing psychiatric disorders, but particularly psychosis. Moreover, participants are likely to endorse multiple groups of symptoms. For example, only 16 (9%) patients endorsed hallucinations without endorsing delusions, while 21 (12%) endorsed delusions without endorsing hallucinations. The complexity of psychotic symptoms makes
studying specific symptom groups more difficult. Further research should include replication of this study with more participants who experience only hallucinations or delusions for clearer results. Finally, while our sample consisted entirely of African Americans, more studies are needed of this and other underrepresented populations in order to replicate findings from predominantly white samples.

Conclusion

In conclusion, we found a strong relationship between childhood trauma and psychotic disorders. Specifically, we found strong specific associations between all subtypes of childhood abuse and delusions. The implications of these strong relationships between trauma and psychosis are that patients presenting with psychotic symptoms should be screened for experiences of childhood trauma.

Our findings also suggest differences in the relationship between trauma subtypes and psychosis symptomatology in different racial and ethnic groups, highlighting the importance of conducting more diverse studies to obtain a better representation of all populations affected by psychiatric disorders.
References


Felitti, V. J., MD, FACP, Anda, R. F., MD, MS, Nordenberg, D., MD, Williamson, D. F., MS, PhD, Spitz, A. M., MS, MPH, Edwards, V., BA, Koss, M. P., PhD, Marks, J. S., MD, & MPH. (1998). Relationship of


