Associations of Anxiety-Related Symptoms With Reported History of Childhood Sexual Abuse in Schizophrenia Spectrum Disorders

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Objective: Research suggests that persons with schizophrenia tend to experience significant levels of anxiety and that history of childhood sexual abuse may predispose some with schizophrenia to experience significant levels of persistent anxiety. It is unclear whether childhood sexual abuse is more closely linked to specific forms of anxiety including symptoms of posttraumatic stress disorder (PTSD).

Method: Data were gathered from April 2004 through November 2004 on trauma history, PTSD symptoms, social anxiety, and state and trait anxiety from 45 men with a SCID-I–confirmed diagnosis of schizophrenia or schizoaffective disorder and 11 with a SCID-I–confirmed diagnosis of PTSD with no history of psychosis. Participants with schizophrenia spectrum disorders (schizophrenia group) were divided into those with and without history of childhood sexual abuse. Five participants in the schizophrenia group with a history of adult but not childhood sexual assault were excluded from analyses.

Results: Analysis of variance comparing the childhood sexual abuse (N = 21) and nonabused (N = 19) schizophrenia groups and the PTSD group on all anxiety assessments revealed that the sexually abused schizophrenia group had significantly higher levels of dissociation, intrusive experiences, and state and trait anxiety than the non-abused schizophrenia group. The schizophrenia groups did not differ statistically on levels of anxious arousal, defensive avoidance, or social anxiety. When compared with participants with PTSD and no psychosis, the sexually abused schizophrenia group had significantly lower levels of state anxiety, anxious arousal, intrusive experiences, and fearful social avoidance but failed to differ statistically on other scores.

Conclusion: These results, if replicated, could lead to identification of those at risk for anxiety and PTSD and to targeted interventions.

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An unexpectedly high incidence of childhood sexual abuse has been found among individuals with schizophrenia spectrum disorders, with studies generally finding one third to two thirds of women and one fourth to one third of men with schizophrenia spectrum disorders reporting they were sexually abused as children.[1,2] Consistent with this finding, in a sample of over 700 participants with severe mental disorders, two thirds of whom had schizophrenia spectrum disorders, 29% of men and 49% of women reported having been a victim of childhood sexual abuse.

This unusually high incidence of childhood sexual abuse in schizophrenia may also be linked to a pattern of particularly grave clinical and psychosocial deficits,[4] paralleling studies of the impact of childhood sexual abuse over time on persons without psychosis.[5–7] Childhood sexual abuse has been linked to homelessness,[8] greater service utilization, higher cost of care,[9] and poorer rehabilitation outcomes.[10,11] Childhood sexual abuse in schizophrenia has also been found to predict reports of greater emotional instability, stormy interpersonal relationships, and heightened sensitivity to rejection.[12,13] Regarding the traditional clinical features of illness, history of childhood sexual abuse has also been correlated with more severe positive symptoms and neurocognitive deficits in the domains of flexibility in abstract thinking and processing speed.[14,15]

Taken together, these findings have led many to wonder whether childhood sexual abuse leads to a co-occurring and possibly often undetected anxiety disorder in schizophrenia.[16] Support for this possibility can be found in the report of Mueser and colleagues[3] that childhood sexual abuse predicted heightened risk for posttraumatic stress disorder (PTSD) symptoms, although as

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much as one third of this sample included persons without schizophrenia. Both Meyer and colleagues[17] and Gearon and colleagues[18] have also reported finding that 50% of their psychiatric samples including persons with schizophrenia experienced PTSD symptoms. In a recent study,[11] we found that childhood sexual abuse in patients with schizophrenia was linked to consistently higher levels of anxiety using the anxiety item of the Positive and Negative Syndrome Scale[19] as assessed biweekly over the course of 16 weeks of participation in vocational rehabilitation.

While these and other studies strongly point to the possibility that persons with schizophrenia and a history of childhood sexual abuse suffer from greater levels of anxiety relative to persons with schizophrenia and no abuse history, it remains unclear whether there are specific forms of anxiety that are particularly elevated and just how elevated those symptoms are relative to symptoms in others with PTSD. Put another way, is childhood sexual abuse in schizophrenia a predictor of some or all of the key symptoms of PTSD? Is it related to trait versus state anxiety as well as social anxiety? While relatively high anxiety levels have long been observed in schizophrenia, it remains unclear in what pattern or clusters these anxiety levels appear.[20]

To explore these questions, we surveyed a broader sample than the samples obtained in the past and assessed trauma history and concurrent levels of the PTSD-related symptoms of anxious arousal, intrusive reexperiencing of trauma, defensive avoidance, and dissociation among persons with schizophrenia spectrum disorders and a comparison group of persons enrolled in treatment for PTSD. We also included measures of state and trait anxiety and social anxiety, given that these forms of anxiety have been observed to exist in high levels in schizophrenia[21] and because either might be intuited to be related to abuse history. While we predicted that the sexually abused group with schizophrenia would have higher levels of anxiety overall than the non-abused schizophrenia group, we considered the examination of specific levels of anxiety and comparisons with the PTSD group to be exploratory in nature. Given that expression of trauma may be affected by gender, we surveyed male participants only.

Of note, while trauma may impact the lives of persons with schizophrenia, some doubt the accuracy of trauma self-reports, given the difficulties with reality testing experienced by many with psychosis. We have nevertheless chosen to assess history of trauma using self-report because, while mentally ill persons hold some beliefs that others view as implausible, they certainly hold many more beliefs that are plausible. Research has suggested that psychiatric patients tend to underreport rather than overreport abuse histories,[22] although their reports tend to have good test-retest reliability.[23] Further, incorrect allegations of sexual abuse appear to be no higher among people diagnosed with schizophrenia than in the general population.[24] Finally, we have also recently reported that in a sample of persons with schizophrenia enrolled in rehabilitation, levels of awareness of illness were significantly greater among abuse reporters than abuse deniers.[11]

METHOD

Participants

Fifty-six male participants with a Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)[25]–confirmed diagnosis of schizophrenia (N = 28), schizoaffective disorder (N = 17), or PTSD (N = 11) were recruited from an outpatient psychiatry service for a study of prevalence of anxiety symptoms in schizophrenia spectrum disorders. Participants had a mean age of 49.67 (SD = 7.91) years and had 13.10 (SD = 9.50) years of education. Patients with schizophrenia spectrum disorders had a mean of 8.07 (SD = 7.16) lifetime psychiatric hospitalizations, with the first occurring at age 25.34 (SD = 7.58) years. Patients with PTSD had a mean of 2.70 (SD = 1.76) lifetime psychiatric hospitalizations, with the first occurring at age 39.44 (SD = 14.25) years. All participants were in a post-acute phase of illness, defined as having no hospitalizations or changes in medication or housing in the month before entering the study. Participants with schizophrenia spectrum disorders or PTSD were excluded if they had a diagnosis of mental retardation or an active substance abuse condition. Participants with PTSD were excluded if they had a diagnosis in their clinical record of a psychotic disorder. Data were collected from April 2004 through November 2004.

Instruments

State Trait Anxiety Inventory (STAI) Form Y. The STAI Form Y[26] is a widely used 40-item questionnaire that asks participants to rate the extent to which they experience various manifestations of anxiety states. Items are scored to produce 2 scores: state anxiety, or anxiety in response to a perceived stressor, and trait anxiety, or anxiety that reflects a stable and enduring proneness to anxiety. Evidence of reliability and validity has been reported elsewhere.[26]

Liebowitz Social Anxiety Scale (LSAS) (self-report version). The self-report version of the LSAS-SR[27] is a 24-item questionnaire that asks about degree of fear and avoidance of social situations. It has been used successfully with persons with multiple disabilities including severe mental illness[21] and found to be reliable and valid.[28,29]

Trauma Assessment for Adults (TAA) (brief revised version). The brief revised version of the TAA[30] is a 13-item questionnaire that has been used successfully to screen for traumatic experiences with populations including those with severe mental illness. It contains 2 items related specifically to childhood sexual abuse: "Did you

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ever have sexual contact with anyone who was at least 5 years older than you before you reached the age of 13?" and "Before you were age 18, has anyone ever used pressure or threats to have sexual contact with you?" It also contains a general item regarding unwanted sexual contact as a child or adult: "At any time in your life, whether you were an adult or a child, has anyone used physical force or threat of force to make you have some type of unwanted sexual contact?" Other items assess different forms of trauma including assault, accidents, natural disasters, and the witnessing of a murder. It has been used with groups of persons with severe mental illness, and endorsement of the items has been linked with impairments in function and health.[30]

Trauma Symptom Inventory (TSI). The TSI[31] is a 100-item questionnaire intended to detect lasting sequelae of trauma, including childhood sexual abuse. Items ask about symptoms related to multiple dimensions potentially associated with trauma and can be additively scored to produce 3 validity and 10 clinical scores. For the purposes of this study, we were interested in the 3 validity scores that bear on test-taking attitude (atypical response, response level, and inconsistent response) and the 4 clinical scores that correspond to the PTSD symptoms of interest (anxious arousal, intrusive experiences, defensive avoidance, and dissociation.) The atypical response validity scale measures the frequency with which the participant endorses uncommonly endorsed items. The response level validity scale measures the extent to which items in general are given high ratings by the participant, and the inconsistent response validity scale measures the extent to which related items are given similar ratings by the participant. The evidence of internal consistency and factorial and convergent validity of the TSI has been reported elsewhere.[31,32]

Procedures

The appropriate research review committees of Indiana University and the Roudebush VA Medical Center approved all procedures. After participants signed the informed consent, Axis I diagnoses of schizophrenia, schizoaffective disorder, and PTSD were confirmed using the SCID-I.[25] Participants next completed the TAA, TSI, STAI, and LSAS with a research assistant available to assist if there were difficulties reading or understanding the questionnaires.

Following all assessments, participants with schizophrenia or schizoaffective disorder were classified as having reported childhood sexual abuse if they endorsed 1 of 2 items on the TAA: having had sexual contact with someone older as a child and/or being forced to have sexual contact as a child. We next identified those who did not endorse childhood sexual abuse in 1 of the above items but did indicate on the TAA that they had experienced sexual coercion as adults or children. In order to be able to compare the schizophrenia childhood sexual abuse group to a schizophrenia non–sexually abused group, these participants were excluded from subsequent analyses.

RESULTS

Twenty-one participants with schizophrenia spectrum disorders (schizophrenia group) endorsed at least 1 of the 2 childhood sexual abuse items from the TAA and were classified as having reported a history of childhood sexual abuse. Nineteen endorsed none of the TAA sexual abuse items and were classified as not abused. Five indicated sexual coercion as adults or children but did not endorse either childhood sexual abuse item and were excluded from analyses resulting in a schizophrenia spectrum disorders sample of 40. Proportions of participants with schizoaffective disorder versus schizophrenia among the childhood sexual abuse and non-abused groups did not differ. The most frequently endorsed forms of trauma on the TAA other than childhood sexual trauma among those in the schizophrenia group were being in a "bad accident" ($N = 23$, 58%) and being "attacked with a weapon" ($N = 21$, 52%). Among the PTSD group, the most commonly mentioned traumas were combat ($N = 9$, 82%), a bad accident ($N = 10$, 91%), and witnessing someone terribly injured ($N = 11$, 100%). Seven patients (64%) in the PTSD group also endorsed some form of childhood sexual abuse.

Comparisons of educational level between the sexually abused and non-abused schizophrenia groups and the PTSD group revealed no significant differences. Differences in age, however, were noted ($F = 8.66$, $p < .01$), with post hoc tests ($p < .01$) revealing that the PTSD group was significantly older (mean age = 57.36, SD = 4.68 years) than the sexually abused (mean age = 48.10, SD = 5.51 years) and non-abused (mean age = 46.95, SD = 9.00 years) schizophrenia groups. The age of the schizophrenia group participants did not differ between abused and non-abused groups.

To examine whether those in the schizophrenia group reporting childhood sexual abuse tended to report other kinds of abuse more frequently than the non-abused schizophrenia group, the number of nonsexual trauma items endorsed on the TAA was summed for both groups. No significant difference between groups was found in the number of nonsexual trauma items endorsed. When the frequency of endorsement of each nonsexual trauma item on the TAA was compared between the childhood sexual abuse versus non-abused schizophrenia groups, a χ^2 test revealed that the abused group reported a higher frequency of being attacked with a weapon than the non-abused group (71% vs. 32%; $\chi^2 = 6.35$, $p < .05$). Groups did not differ on the frequency of endorsement of other forms of trauma. To examine the test-taking attitudes of all 3 groups, analyses of variance were conducted

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Table 1. Anxiety Symptom Scores in Patients With Schizophrenia Spectrum Disorders With and Without a History of Childhood Sexual Abuse Compared With Patients With Posttraumatic Stress Disorder (PTSD)

	Schizophrenia Spectrum Group								
	Non-Abused (group A) (N = 19)		Abused (group B) (N = 21)		PTSD Group (group C) (N = 11)				
Test Subscale	Mean	SD	Mean	SD	Mean	SD	ANOVA[a]	p	Group Comparisons (p < .05)
STAI									
State anxiety	36.84	9.31	47.14	14.14	57.27	9.16	10.74	< .001	C > B > A
Trait anxiety	43.68	8.19	54.14	9.16	60.45	10.08	13.47	< .001	C, B > A
TSI									
Anxious arousal	9.21	5.66	12.33	5.66	18.64	4.30	10.61	< .001	C > A, B
Intrusive experiences	8.79	5.48	13.29	6.60	19.36	4.80	11.45	< .001	C > B > A
Dissociation	8.74	5.10	12.67	5.50	15.91	5.61	6.51	< .01	C, B > A
Defensive avoidance	11.53	5.50	13.71	4.54	17.18	5.00	4.43	< .05	C > A
LSAS									
Fear	23.68	15.26	32.00	15.88	44.64	19.32	5.66	< .01	C > A, B
Avoidance	27.11	13.61	31.71	13.84	42.36	18.69	3.63	< .05	C > A

[a]Controlling for age; overall MANOVA, Wilks Λ = 2.18, p < .05.
Abbreviations: ANOVA = analysis of variance, LSAS = Liebowitz Social Anxiety Scale, MANOVA = multivariate analysis of variance, STAI = State Trait Anxiety Inventory , TSI = Trauma Symptom Inventory.

controlling for age, comparing the validity scores of the TSI. No differences approaching significance were found between groups.

Mean scores on the TSI, STAI, and LSAS are presented in Table 1. Relative to nonpsychiatric norms published in the TSI manual, responses of the PTSD group to anxious arousal, intrusive experiences, defensive avoidance, and dissociation items were elevated by between 2.3 and 3.2 standard deviations above expected population means. Elevations for the schizophrenia childhood sexual abuse group were from 1.2 to 1.8 standard deviations, and elevations for the non-abused group were from 0.5 to 0.9 standard deviations. On state anxiety, mean elevations from population means published in the STAI manual were approximately 2.0, 1.0, and 0 standard deviations for the PTSD, schizophrenia abused, and schizophrenia non-abused groups, respectively. On trait anxiety, mean elevations above population means were approximately 2.5, 2.0, and 1.0 standard deviations for the PTSD, schizophrenia abused, and schizophrenia non-abused groups, respectively. On the LSAS, when compared with patients with social anxiety disorder and community controls from a recent report,[28] all groups were more than 3.0 standard deviations above community controls and within 1.0 standard deviation of participants with social anxiety disorders on both the fear and avoidance subscales.

Given that groups differed on age, we next correlated anxiety scores within each group with age. This resulted in only 1 significant correlation, with lesser age in the schizophrenia abuse group being linked with greater dissociation (r = –0.47, p < .05). Given a general lack of relationship within groups between age and anxiety levels, we determined there was no need to covary for age when comparing anxiety levels between groups. A multivariate analysis of variance comparing TSI, STAI, and LSAS scores revealed overall differences in anxiety scores between all 3 groups (Wilks Λ = 2.18, p < .05). Given this significant omnibus test, individual analyses of variance and multiple comparisons were then performed. These are detailed in Table 1. Finally, given multiple differences in levels of anxiety between the childhood sexual abuse and non-abused schizophrenia groups, a discriminate function analysis was conducted. The TSI intrusive experiences, defensive avoidance, and dissociation subscale scores and STAI state and trait anxiety scores were entered in a stepwise procedure to predict whether participants with schizophrenia spectrum disorders were in the abused or non-abused group. This produced a significant equation (F = 14.38, p < .001) in which trait anxiety entered alone and correctly classified 75% of the sample correctly: 15 (71%) of 21 of the abused group and 15 (79%) of 19 of the non-abused group were correctly classified.

DISCUSSION

Replicating previous findings, participants with schizophrenia spectrum disorders reported generally greater levels of anxiety than would be expected from persons without psychiatric illness. The levels of trait anxiety and social anxiety reported by the childhood sexual abuse and non-abused schizophrenia groups were both at least 1.0 standard deviation above the population mean. When compared with the non-abused schizophrenia group, participants in the abused schizophrenia group had significantly higher levels of dissociation, intrusive experiences, and state and trait anxiety but did not differ statistically on levels of anxious arousal, defensive avoidance, or social anxiety. When compared with persons with PTSD and no psychosis, the schizophrenia childhood sexual abuse group had significantly lower levels of state anxiety, anxious arousal, and intrusive experiences and lower levels of fearful social avoidance. Participants in this group failed

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to differ statistically on other scores, even though their mean scores on all measures were arithmetically lower than those of the PTSD group. When all anxiety measures that were significantly elevated in the schizophrenia childhood sexual abuse group versus the non-abused group were entered into a discriminate function analysis, trait anxiety was able to correctly classify 3 of 4 participants in the schizophrenia group as having versus not having a history of childhood sexual abuse.

While this study, in its limited scope, cannot assess causality, its findings are consistent with the hypotheses of Read and Ross[16] that a history of sexual abuse may represent a significant risk factor or even acquired vulnerability for grave psychopathology and dysfunction. In particular, one possible interpretation of these findings is that some forms of anxiety seen at higher levels may be partially explained as the sequelae of childhood sexual abuse. In other words, history of childhood sexual abuse may be a factor alongside other biological and social forces that contributes to the disabling anxiety that may further impair the lives of persons within this group. The confirmation of such a hypothesis by future research would argue even further for the need for treatments sensitive to the needs of childhood sexual abuse survivors with schizophrenia.

From a related angle, results also suggest some speculations that could guide future research about the needs of persons with schizophrenia and childhood sexual abuse. For one, though exploratory, results may suggest that childhood sexual abuse may be more closely linked with certain forms of anxiety than with others, especially higher levels of dissociation, intrusive experiencing of the trauma, and an enduring proneness to anxiety and worry. If these results are replicated, these symptoms may be particular foci for newly developing treatment efforts. As for why these symptoms may be the distinguishing features and not others, we would also like to offer hypotheses for future research. It has been widely held that sexual abuse may predispose persons to dissociate[33,34] and hallucinate[35] and that persons with schizophrenia experience disruptions in the ability to think about their own thinking and narrate the stories of their lives in a coherent manner.[36,37] Thus, it also seems intuitively possible that disruptions in self-experience combined with abuse could leave a person with an even more degraded sense of the boundaries around self and affects, resulting in particularly debilitating levels of intrusive experiences and dissociation. Neuroticism, or the personality dimension linked to emotional instability, is also recognized as a risk factor for schizophrenia.[38] Thus, it is possible that higher levels of neuroticism combined with childhood sexual abuse might leave someone especially prone to chronic worry and anxiety. Again, all of these notions are speculation at this point and demand future research before they are given any weight.

There were unexpected findings as well. In particular, no differences were found in levels of social anxiety between the sexually abused and non-abused schizophrenia groups. This may suggest that social anxiety in schizophrenia has an entirely different set of etiologic roots relative to enduring levels of high anxiety. Additionally, while the schizophrenia groups differed on state and trait anxiety, they did not differ on anxious arousal. One possible explanation for this is that the STAI assessments of state and trait anxiety factor in the ability to remain calm and relaxed, while anxious arousal as assessed on the TSI is sensitive only to the frequency of particularly high levels of anxiety. Thus, the sexually abused participants with schizophrenia spectrum disorders may not necessarily have experienced higher levels of anxious arousal but may have had more difficulty finding fewer tense moments in their daily lives. It is also possible that this pattern of results suggests that persons with schizophrenia who have a history of trauma experience symptoms of PTSD in ways that are dissimilar from those without schizophrenia.

Of note, our comparison within the schizophrenia group was based on a history of childhood sexual abuse and not directly on PTSD symptoms, although our interpretation is primarily in terms of PTSD. While childhood sexual abuse is an important predictor of PTSD, not all individuals who were sexually abused as children develop PTSD, and some people develop PTSD secondary to other traumas in childhood, adolescence, or adulthood. Thus, a lack of findings here may be more related to the fact that the groups compared were based on exposure to traumatic experiences rather than psychological reactions to such experiences. As with all negative findings, however, future research is necessary and overinterpretation should be avoided.

Importantly, there are limitations to this study. Participants were male and generally middle-aged and involved in treatment. It may be that a different relationship exists between abuse history, neurocognition, symptoms, and rehabilitation among females, younger males with schizophrenia, or persons who decline treatment. We also employed an a priori rational for categorizing participants and did not take into account severity of sexual trauma, age at trauma, identity of perpetrator, or the presence of other trauma. Further research is necessary to determine the impact of all of these variables on symptoms and outcome.

Lastly, symptoms, like all complex social behavior, are influenced by a myriad of factors. Therefore, the relationships found in this study may have been mediated by other factors that were not measured. Such factors could include substance abuse, experience of stigma, availability of family and community supports, and the attitudes and availability of appropriate treaters. Future research is necessary to replicate the results reported here using

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broader samples and settings as well as a wider range of instrumentation.

Finally, with replication, these findings may have practical applications. In particular, it may be that treatment programs could identify persons at risk for poorer outcome on the basis of sexual trauma history and develop or implement appropriate rehabilitative and restorative interventions targeted at the problems they are likely to have. Scant literature exists with regard to validated treatments for survivors of sexual trauma among persons with schizophrenia. It certainly appears that one possible consideration is a dual approach to treatment, including directed psychotherapeutic treatment of both disorders. The latter approach is likely to be particularly beneficial if unaddressed issues of sexual trauma remain a barrier to effective psychosocial function.

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