

The effects of childhood trauma in patients with first-episode schizophrenia

Üçok A, Bıkmaz S. The effects of childhood trauma in patients with first-episode schizophrenia

Objective: To evaluate the impact of childhood trauma on psychopathology in 57 patients with first-episode schizophrenia.

Method: Psychopathology was assessed by Brief Psychiatric Research Scale (BPRS), Scale for the Assessment of Positive Symptoms (SAPS) and Scale for the Assessment of Negative Symptoms (SANS) at first admission. Childhood trauma was assessed by Childhood Abuse Questionnaire and Childhood Trauma Questionnaire (CTQ) after discharge.

Results: Frequencies of childhood sexual abuse (CSA), emotional abuse (CEA) and physical abuse (CPA) were reported by 29.8%, 40.9% and 13.6% of the patients respectively. Histories of childhood emotional neglect (CEN) and physical neglect were found in 29.5% and 20.5% of the patients respectively. The patients reporting CSA had higher SAPS scores at admission, and had more suicide attempts before admission. The patients with history of CEA had more hallucinations and delusions of mind reading at admission. CPA, CEA and mean scores of CTQ correlated with the number of siblings.

Conclusion: Our findings suggest that childhood trauma may alter the presentation of schizophrenia in first admission.

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Key words: schizophrenia; first episode; childhood abuse; trauma; birth order

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Significant outcomes

- There is a high prevalence of childhood trauma in patients with first-episode schizophrenia.
- Childhood trauma was found associated with positive but with not negative symptoms.
- Severity of childhood trauma also correlated with severity of positive symptoms.

Limitations

- A retrospective and self-report measure of childhood trauma was employed.
- There was no control group.
- Role of potential confounding variables was not extensively studied.

Introduction

Child abuse and neglect have been found to be causally related to an increased risk of a wide range of psychiatric disorders including anxiety disorders, mood disorders, substance abuse and eating disorders (1–3). An association between childhood sexual abuse (CSA) and psychosis was strongly reported in most of the studies (4–7) in contrast to a recent prospective study by Spataro et al. (8). In a recent review, it has been reported that the prevalence of childhood trauma among adults with

psychotic disorders greatly exceeds that of the general population (9). Although the rates vary depending on the characteristics of the study populations and definition of abuse, overall lifetime exposure to sexual or physical abuse ranges from 12% to 85% across studies.

It has been reported that patients with childhood trauma demonstrated poorer psychosocial functioning (10) and work performances (11); additionally, they were more likely to report suicidal attempts (12), sexual promiscuity (6), and dissociative symptoms (6, 13), and had more previous

hospitalizations, and an earlier age of first hospitalization (7).

Both psychotic and non-psychotic symptoms (6, 7, 9) in schizophrenia are related to childhood trauma. Voices commenting, ideas of reference, thought insertion, paranoid ideation, visual hallucinations and delusions of mind reading have been shown to be particularly related to childhood abuse in patients with schizophrenia (14). However, the relationship between childhood trauma and psychotic symptoms is not limited to schizophrenia. An association between childhood trauma and auditory hallucinations was reported in bipolar patients (15) and in community samples (16, 17).

There are two studies about childhood trauma and first-episode psychosis. Patients with affective and non-affective psychosis were included in both studies. Greenfield et al. (18) reported that 52% of the 38 patients had history of childhood abuse and, no difference was found on severity of psychiatric symptoms between the patients with and without history of childhood abuse. Compton et al. (19) found a relationship between childhood abuse and substance dependency, but the rates were not reported ($n = 18$).

Studies regarding childhood trauma and schizophrenia have some methodological problems which lead to interpretational pitfalls (20, 21). Some of them have focused exclusively on CSA (10, 11) or included only women (6, 13) or men (19). Some others have studied patients with different psychotic disorders (7, 13, 19), or with chronic illness (6, 7, 13) or only in-patients (22). Particularly, chronicity affects symptoms of schizophrenia directly and indirectly. Chronic patients are exposed to longer antipsychotic treatment, have multiple hospitalizations and other negative life events, generally have more negative and less positive symptoms. Chronicity confounds the link between symptoms at certain point and effects of past experiences upon these symptoms. Moreover, as the nature of the illness left patients (particularly women) more vulnerable to abuse (23), to comment on casual relationship between high rates of past trauma and schizophrenia is also difficult. We tried to eliminate the effects of these confounding variables by studying the patients with first-episode schizophrenia (FES).

Aims of the study

The aim of our study was to examine the prevalence of different forms of childhood victimization in patients with FES and to evaluate their impact on psychopathology and clinical parameters at first

admission. We hypothesized that, history of childhood abuse and neglect are common in patients with FES, and lead more prominent positive symptoms at first admission.

Material and methods

Subjects

Subjects in this study were recruited from an ongoing prospective study, namely First-episode Schizophrenia Follow-up Project, since 1996. Inclusion and exclusion criteria for this project have been described in detail in previous reports (24, 25). All the patients with schizophrenia were treated for their first psychotic episode in the in-patient clinic, and followed up as out-patients. Patients were diagnosed for schizophrenia at a consensus meeting incorporating clinical, and Structured Clinical Interview for DSM-IV (SCID) data (26). All SCID interviews were made by a trained senior interviewer (AU). In suspected cases, the patients were examined by Dissociative Disorders Program in our department. A patient was accepted in his/her first psychotic episode if all of the following conditions were fulfilled: no past diagnosis of non-affective psychosis; no previous antipsychotic treatment and in-patient care. The date of onset of the first identifiable positive symptoms was timed by the senior psychiatrist (AU) on the basis of a best estimate approach using data gathered from multiple sources including medical records, the patient and a family interview. We defined DUP as the period from the onset of the first positive symptoms to the first hospitalization. Mean DUP was 6.9 months. Data on history of suicide attempts were gathered from medical records, the patient and a family interview as well. As history of substance/alcohol abuse was an exclusion criterion, we could not study its relationship with childhood trauma. We questioned the history of substance/alcohol abuse in parents and as we detected only two fathers with history of past/present alcohol abuse, we could not study this confounding variable. We did not apply a structured interview to study family history of psychiatric illness, but gathered information from medical records and family members.

Seventy-five patients were eligible. Eleven patients dropped out before the assessment for childhood trauma. Four patients refused to participate in the study, and three of them were excluded as they did not meet the remission criteria. The remaining 57 (29 men, 28 women) patients formed the study group. The study group had lower Brief Psychiatric Research Scale (BPRS-guilt) (2.1,

SD=0.7 vs. 3.6, SD=1.1, $Z = -2.9$, $P = 0.04$) and BPRS-suspiciousness scores (3.9, SD=1.2 vs. 4.7, SD=1.3, $Z = -2.27$, $P = 0.05$) at admission than others. There was no difference between the study group and the patients who did not take part in the study, in terms of age, gender, age of onset, DUP, education (years) and total BPRS, Scale for the Assessment of Negative Symptoms (SANS), Scale for the Assessment of Positive Symptoms (SAPS) scores at admission and discharge.

The majority of the patients were of paranoid subtype ($n = 39$). There were six disorganized, one catatonic and 11 undifferentiated patients. Sixty-eight per cent of the patients were receiving atypical, and the remaining conventional antipsychotics when interviewed for childhood trauma. Socioeconomic status (SES) of the participants was measured based on the definition of the Turkish Statistics Institute (27). This definition is based on the rating of total monthly income of household, household assets and education and employment status of the person. Fourteen per cent of the patients were in the lower SES, 78% of them were in the middle and 8% in the higher SES.

Measures

We evaluated the psychopathology at admission, and then during monthly visits using the BPRS (28), SAPS (29) and SANS (30). All measures were collected by two trained raters. Inter-rater reliabilities for the BPRS, SANS and SAPS total scores were acceptable ($\kappa = 0.78$, 0.76 and 0.83 respectively).

Remission was described as being rated 3 or below on all items of the of BPRS-Positive subscale which consists of hallucinations, unusual thought content and conceptual disorganization for at least 2 months.

We assessed the presence of childhood abuse and neglect by using Childhood Abuse Questionnaire (CAQ), and the severity of childhood trauma was assessed by the Childhood Trauma Questionnaire's short version (CTQ). CAQ was developed by Sar et al. (31) in our department and was used in similar studies (32). The aim of CAQ is to detect physical, sexual, emotional abuse and physical and emotional neglect. To elicit data on past abuse, specific questions were raised, with subsequent probes used to clarify responses which were unclear. The patients were asked, as children (before 18 years of age), whether they experienced an adult exposing him/herself and whether an adult had threatened them with intercourse, had touched their genitals or had had intercourse with them. If the answer is 'yes', we asked the identity

and age of the abuser. Verbal abusive behaviors were not counted as CSA. To evaluate physical abuse, we asked the participants whether they have ever been beaten, kicked, slapped/hit with a fist, choked, punched or burned by an adult. Isolated single episodes of physical violence were not regarded in the assessment of repeated violent behavior. To evaluate emotional neglect, we asked the participants whether they had experienced feelings such as not being able to get any attention or support from the family members, not being listened to and being ignored. To evaluate past physical neglect, we asked the participants whether they had experienced difficulties in finding enough food, clothing and getting enough health care when they were ill in childhood. Examples of emotional abuse were lesser treatment compared with sibling, being sworn at/humiliated, unjustified punishment and blackmail. When the participants' answer is 'yes' to any categories of physical or emotional neglect, they were considered as members of the neglected group.

Childhood Trauma Questionnaire is an instrument developed by Bernstein and Fink (33), which evaluates childhood emotional, physical and sexual abuse and childhood physical and emotional neglect. CTQ's short form is a Likert-type (one to five points), self-report questionnaire with 28 items. The scale also demonstrated good test-retest reliability over 2–6 months (intraclass correlation 0.88) (31). We calculated a mean CTQ score as well as five subscale scores for different kind of childhood trauma. Although severity of trauma was categorized as mild, moderate to severe and severe to extreme in previous studies (13) according to the criteria recommended by the developers of CTQ (33), we did not categorize the total or subscores but sought correlation with clinical variables.

Procedure

After discharge, we followed up the patients with monthly visits. Six months after discharge, the patients were reinterviewed by SCID to confirm the diagnosis. Then, if the patient met the remission criteria, CTQ and CAQ interviews were completed by the first author (AU). All subjects gave written informed consent after procedures had been fully described to them.

Statistics

The Mann–Whitney U -test was used for not normally distributed continuous variables, and chi-squared test was used for categoric variables.

As CTQ scores were not normally distributed, Spearman's correlation analyses were used to examine the relationship between CTQ scores and clinical measures at admission. All tests of significance were two tailed. The statistical software used was SPSS for Windows, version 10.0 (SPSS Inc., Chicago, IL, USA).

Results

Reported rates of abuse and neglect are presented in Table 1. Thirty (52%) patients reported at least one kind of childhood abuse, and 25 (43%) patients reported at least one kind of childhood neglect. There was no gender difference between patients in terms of reported trauma.

Childhood sexual abuse

The CTQ score for CSA was higher (8.4, SD = 3.5 vs. 6.6, SD = 3.6, $Z = 2.08$, $P = 0.03$) in those who attempted suicide at least once before the admission ($n = 12$). One patient reported a long-standing incestuous relationship with her father (she committed suicide after her father got released from prison). One patient reported that a far relative abused him once, and then he was abused by a stranger when he was living abroad. Another patient reported that abuser was her cousin, and abuser was an older friend of a friend of hers from neighborhood for another patient. The abusers were strangers for the rest of the patients with CSA. SAPS scores at admission were higher in CSA(+) group compared with others (Table 2). There were more patients in paranoid subtype in CSA(+) group (93.5% vs. 63.2%, $\chi^2 = 5.25$, d.f. = 1, $P = 0.02$). There was no correlation between the severity of CSA and clinical measurements.

Childhood physical abuse

Severity of CPA in childhood correlated with SAPS score at admission ($r = 0.285$, $P = 0.04$) and number of siblings ($r = 0.343$, $P = 0.01$) and negatively correlated with years in education ($r = -0.29$, $P = 0.03$). However, we found no

difference on clinical measurements between patients with and without history of CPA. Most of the abusers reported were family members living in the same home with the patient.

Childhood emotional abuse

The differences on special SAPS items, DUP and number of siblings between the patients with and without CEA are shown in Table 2. Severity of CEA also correlated with total SAPS score at admission ($r = 0.278$, $P = 0.04$), SAPS scores for visual hallucinations ($r = 0.289$, $P = 0.03$), delusions of reference ($r = 0.385$, $P = 0.005$), mind reading ($r = 0.381$, $P = 0.006$), number of siblings ($r = 0.331$, $P = 0.01$) and birth order ($r = 0.363$, $P = 0.006$).

Childhood emotional neglect

The patients who reported childhood emotional neglect (CEN) had higher BPRS (69.6, SD = 15.9 vs. 60.3, SD = 13, $Z = -2$, $P = 0.04$), SAPS scores for delusions of reference and shorter DUP (Table 2). SAPS scores at admission correlated with severity of CEN ($r = 0.273$, $P = 0.05$).

Childhood physical neglect

Scale for the Assessment of Positive Symptoms-tactile and SAPS-visual hallucination scores were higher in patients who reported childhood physical neglect (CPN, Table 2). SAPS total score at admission correlated with CTQ subscore for CPN ($r = 0.31$, $P = 0.02$).

The mean CTQ score which gives a general impression about severity of neglect and abuse correlated with total SAPS ($r = 0.459$, $P = 0.001$), SAPS scores for delusions of reference ($r = 0.431$, $P = 0.002$), mind reading ($r = 0.342$, $P = 0.01$), visual ($r = 0.268$, $P = 0.05$) and audial ($r = 0.271$, $P = 0.05$) hallucinations at admission.

We found no relationship between BPRS-suicidality item and SANS score at admission, and childhood trauma. History of psychotic disorder in first-degree relatives ($n = 6$) was also found to be unrelated to childhood trauma, and symptoms. On the other hand, SAPS-tactile hallucination score was found to be higher in those ($n = 14$) who had a first- or second-degree relative with a psychotic disorder (0.9, SD = 1.4 vs. 0.18, SD = 0.21, $Z = 2.26$, $P = 0.02$). Although SAPS-visual hallucination score was also higher in this subgroup, the difference was not statistically significant ($P = 0.067$).

Table 1. Rates of childhood trauma in patients with first-episode schizophrenia

	Total	Men	Women
Childhood physical abuse	8 (14)	2 (6.8)	6 (14.2)
Childhood emotional abuse	18 (31.6)	11 (37)	7 (25)
Childhood sexual abuse	17 (29.8)	8 (27.5)	9 (32.1)
Childhood emotional neglect	20 (35.1)	13 (44.8)	7 (25.9)
Childhood physical neglect	11 (19.3)	7 (24.1)	4 (14.2)
Physical and sexual abuse	6 (10.5)	2 (6.8)	4 (14.2)

Values are given as n (%).

Table 2. Clinical variables in patients with and without history of childhood trauma

	CEA (+) (n = 18)	CEA (-) (n = 39)	Z	CSA (+) (n = 17)	CSA (-) (n = 40)	Z	CPA (+) (n = 8)	CPA (-) (n = 49)	Z	CEN (+) (n = 20)	CEN (-) (n = 37)	Z	CPN (+) (n = 11)	CPN (-) (n = 46)	Z
SAPS at admission	42.1 (18.4)	35.2 (16.3)	1.4	44.7 (14.6)	34.9 (18.5)	2.1***	39.7 (15.3)	37.3 (18)	0.6	43.3 (21)	34.3 (15.2)	1.7	41.3 (20)	36.8 (17.1)	0.7
Visual hallucination	1.6 ± 1.8	0.5 ± 1.2	2.7*	0.9 (1.7)	0.9 (1.5)	0.2	1.2 (1.8)	0.8 (1.5)	0.9	1.4 (1.8)	0.6 (1.3)	1.1	1.9 (2.1)	0.6 (1.2)	2.1***
Audial hallucination	2.3 ± 1.9	1.3 ± 1.7	1.9****	2.1 (1.8)	1.4 (1.9)	1.2	1.5 (1.6)	1.7 (1.9)	0.8	1.6 (1.9)	1.7 (1.8)	0.1	2 (1.8)	1.6 (1.9)	0.5
Commenting voices	2.2 ± 1.7	1.3 ± 1.5	1.9****	1.7 (1.6)	1.1 (1.7)	1.1	1.3 (1.7)	1.2 (1.7)	0.16	1.3 (1.8)	1.3 (1.7)	0.1	1.6 (1.9)	1.3 (1.7)	0.5
Tactile hallucination	0.6 (1.3)	0.5 (1.1)	0.4	0.4 (0.7)	0.7 (1.3)	1.3	0.1 (0.3)	0.6 (1.2)	0.74	0.9 (1.5)	0.3 (0.9)	1.7	1.3 (1.6)	0.4 (1.1)	2.1**
Mind reading	2.5 ± 1.8	1.6 ± 1.4	2.1****	0.4 (1.7)	1.7 (1.6)	1.3	1.2 (1.8)	2 (1.6)	0.9	2.3 (1.7)	1.7 (1.6)	1.1	2 (1.9)	1.9 (1.6)	0.1
Delusions of reference	3.2 (1.7)	2.6 (1.7)	1.1	3 (1.6)	2.8 (1.7)	0.3	3.1 (1.5)	2.8 (1.7)	0.2	3.4 (1.5)	2.5 (1.7)	-2***	3.4 (1.8)	2.7 (1.6)	1.2
Derailment	1 (1.5)	0.8 (1.3)	0.4	1.1 (1.5)	0.8 (1.3)	0.9	1 (1.6)	0.9 (1.4)	0.08	1.3 (1.5)	0.7 (1.3)	1.3	1.3 (1.6)	0.8 (1.3)	1.1
DUP	3.8 ± 4.2	7.7 ± 7.7	2.1****	6.3 (6.4)	6.9 (7.6)	0.2	3.8 (2.5)	7.2 (7.7)	0.7	3.9 (4.5)	7.9 (7.8)	-2.2**	5.3 (3.9)	7 (7.8)	0.7
Number of siblings	3.7 ± 2.4	2.4 ± 1.3	2.2**	3.3 (1.8)	2.6 (1.8)	1.3	3.8 (1.9)	2.7 (1.8)	1.8	3.2 (2.4)	2.6 (1.4)	1.1	2.3 (1.4)	2.9 (1.9)	0.9
Birth order	2.8 ± 2	1.6 ± 0.9	2.3**	2.1 (1.5)	2 (1.3)	0.4	2.6 (2)	1.6 (0.9)	1.1	2.4 (2)	1.8 (1)	1.5	1.8 (1.4)	2.1 (1.5)	0.5

CEA, childhood emotional abuse; CSA, childhood sexual abuse; CPA, childhood physical abuse; CEN, childhood emotional neglect; CPN, childhood physical neglect. *P = 0.006, **P = 0.02, ***P = 0.03, ****P = 0.04, *****P = 0.05.

Discussion

In this study, we investigated the frequency of childhood trauma, and the relationship of these traumas with clinical features of patients with FES at admission. By studying the FES group, we tried to eliminate the possible effects of chronicity and antipsychotic use on both reliability of retrospective self-report and symptoms of schizophrenia. We found high rates of childhood abuse as well as neglect as hypothesized. This confirms previous studies reviewed by Read et al. (9). Especially striking, however, were the high rates of emotional abuse and neglect, which have been less frequently studied than sexual and physical abuse. We also found a dose-response relationship between childhood trauma and psychotic symptoms as in previous studies (7, 34, 35). However, rates of abuse/neglect were lower than those reported by previous studies (9). As our rates were higher than the rates of general population in Turkey (36), we believe that this difference cannot be explained by cultural factors. As some patients with FES dropped out before we assessed the childhood trauma, and we excluded some patients who did not meet the remission criteria, our sample consisted of those who may be relatively more compliant and having better prognosis. This bias might have a role on relatively lower rates of childhood trauma.

Our findings show that history of childhood trauma is related to more positive, but not to negative symptoms at first admission. Presence and severity of emotional abuse, and presence of physical neglect, were particularly found to be related to severity of hallucinations. This is compatible with the findings of previous studies (9). While our results show that the link between having a history of childhood trauma and hallucinations is strong and graded, they do not show the actual mechanism. Repeated childhood trauma causes structural and neurochemical abnormalities in the brain and has cognitive consequences (37); and because of these abnormalities one may become more vulnerable to later stressful events (38).

We found higher SAPS scores in patients with CSA, but contrary to our expectations, the results of this study did not support the relationship between history of CSA and hallucinations or any other specific symptoms. There may be two possible explanations for this negative finding. First, as mentioned above, our sample consisted of patients who might have better prognosis. If we had interviewed all the patients with FES, possibly we could have found such a relationship. Secondly,

although our FES sample was larger than the samples of previous two reports (20, 21), the number of the patients is still relatively low. Our negative findings may be due to type II error. However, as CSA was found to be related to suicide attempts before the first admission, we believe that CSA affects the course of schizophrenia negatively.

We found that both emotional and physical abuse were seen more in patients who had more siblings and were later-born. Birth order also appeared as the only variable related to any (sexual, emotional or physical) kind of abuse in logistic regression. Similarly, Wahlbeck et al. (39) reported that the total number of siblings in a household during childhood is associated with schizophrenia. These authors concluded that the number of siblings may have nutritional, environmental and psychosocial effects. Our findings suggest that crowded family environment also increases the likelihood of emotional/physical abuse. We found no relationship between childhood trauma and SES or severe psychiatric illness in first-degree relatives. But we believe that we have to take the confounding variables into account when interpreting the relationship between past trauma and psychosis.

The patients who reported emotional neglect and/or abuse, surprisingly had shorter DUP. In general, neglecting attitude of the family causes longer DUP. As both found related to higher SAPS scores at admission, it seems that they have an indirect effect on earlier admissions by causing more flamboyant psychotic symptoms.

Limitations

This study has some limitations. As there was no control group in our study, we do not know whether our findings are specific to patients with schizophrenia or not. Our findings about childhood trauma rely on retrospective self-reports. The absence of interview with the family members is one of the deficiencies. If we had interviewed them, we could have gathered more reliable data about childhood experiences. Although self-report of childhood trauma has been criticized because of the susceptibility to memory deficiencies, it has been shown that reports on trauma by psychiatric patients appear remarkably reliable (9, 23). To increase the reliability, the patients were interviewed when they were in remission. We questioned the traumatic experiences before the age of 18 years, but as events were not dated we could not study the relationship between the timing of the event and the symptoms at admission.

Despite these limitations, our findings provide important data for FES. Although causality cannot be ascertained from the results of this study, the findings in our FES sample are consistent with the concept that childhood trauma alter the presentation of schizophrenia. Although we know that victims are typically reluctant to disclose their histories of abuse and mental health professionals are often reluctant to inquire it in routine interviews (40), clinicians should be alerted by the high prevalence of abuse and neglect in FES population and a routine assessment of trauma history should be a part of standard clinical care.

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