ORIGINAL ARTICLE

The relationship of antisocial personality disorder and history of conduct disorder with crime incidence in schizophrenia

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Background: Commission of crime and hostility and their forensic consequences in a patient with schizophrenia can worsen the patient's condition and disturb his family, society, and even the psychiatrist. Based on previous research, patients with schizophrenia are at a higher risk for crime. It is not clear whether this is due to the nature of schizophrenia, comorbidity of antisocial personality disorder, or the history of conduct disorder in childhood. In this study, we investigated this hypothesis. **Materials and Methods:** In this case–control study, 30 criminal and 30 non-criminal patients with schizophrenia, who had been referred by the court to the Forensic Medicine Center of Isfahan, were evaluated for antisocial personality disorder, history of conduct disorder, and psychopathy checklist-revise (PCL-R) score. **Results:** Frequency distribution of antisocial personality disorder (73.3%), history of conduct disorder in childhood (86.7%), and score of PCL-R ≥25 (indicating high probability of hostility) in patients (40%) were significantly higher in criminal patients than in non-criminals (10%, 30% and 0%, respectively; $P < 0.001$). **Conclusions:** More prevalence of antisocial personality disorder, history of conduct disorder, and high score of PCL-R (≥25) in criminal schizophrenic patients may indicate that in order to control the hostility and for prevention of crime, besides treating acute symptoms of psychosis, patients might receive treatment and rehabilitation for comorbidities too.

Key words: Antisocial personality disorder, conduct disorder, crime, psychopathy checklist-revise, schizophrenia

INTRODUCTION

Committing a crime and its legal penalties in mental patients has always been a controversial issue among psychiatrists and lawyers. Mental patients receive legal penalties for many different crimes.

Commission of crime and hostility and their forensic consequences can worsen patient's condition and disturb his family and society and even make legal engagements for the psychiatrist.

There is no exception in this for patients with schizophrenia. Based on previous studies, these patients have a high risk for non-violent crimes and have a very higher risk for violent crimes; and being single, unemployed, having active symptoms of psychosis, and not accepting the treatment could boost the condition.[1-4]

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However, recently forensic psychiatrists have wondered whether the nature and the course of schizophrenia would increase the prevalence and severity of crimes among these patients or its comorbidity with antisocial and aggressive traits. So, many studies have been conducted recently to predict the risk factors. These include antisocial personality traits and determining the probability of hostility based on psychopathy checklist-revise (PCL-R); its sensitivity has been confirmed in many studies and currently is being used widely.[5,6]

In a study by Hodgins *et al*. in 1996 on schizophrenic criminals, it was revealed that due to reasons of committing a crime and their association with antisocial personality disorder, patients with schizophrenia receive legal penalties for 28.6% of the crimes they commit; this is a considerable number. In that study, the prevalence of antisocial personality disorder in criminal patients with schizophrenia was 62%, which was significantly higher than its prevalence among non-criminal patients (23%).[7]

Loeber *et al*. conducted a study in 2001 about the age prevalence of crime in patients with schizophrenia. The study revealed that the prevalence of antisocial personality disorder and score of PCL-R were significantly higher in patients who had committed crime under 18 years of age.[8]

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In a study by Moran *et al*. in 2004, it was mentioned that the first hospitalized male patients with schizophrenia and antisocial personality disorder had longer history of antisocial behaviors including non-violent crimes, drug abuse, and impulsive disorder, which all increase the risk of hostility.[9]

Hodgins *et al*. in 2005 studied the outcomes of conduct disorder in 248 male patients, aged about 39 years old, with schizophrenia or schizoaffective disorder. Results showed that these patients had higher risk for committing crime than the normal population.[10]

Evidence showed a relation between personality traits and committing crime among patients with schizophrenia.

In this regard, Fresan *et al*. in 2007 studied 102 patients with schizophrenia. Results showed that high novelty seeking in temperament and low cooperativeness would increase the risk of hostility.[11]

Abushua'leh *et al*. in 2006 conducted a study on 35 patients with schizophrenia in which 19 had violent and 16 had non-violent behaviors. They used PCL-R for evaluating psychopathic characteristics and Brief Psychopathy Rating Scale (BPRS) for evaluating symptoms. In violent patients, 3 (16%) had a PCL-R score of >30. High hostility rate in BPRS and behavioral part (factor 2) in PCL-R can be significant predictors of violent behaviors in male patients with schizophrenia. High psychopathic scores showed the existence of violence. In men with high score of psychopathy, even treating the symptoms of the disease cannot eliminate the probability of violence.[12]

In a study in 2008, Swanson *et al*. investigated the relation between antisocial behaviors in childhood and aggression in adults. Aggression was more common among those who had history of conduct disorder; this aggression was associated with drug abuse. In the group with no history of conduct disorder, positive signs of psychosis were related with violence.

In general, they had two reasons for violence in patients with schizophrenia; one is the history of conduct disorder and antisocial personality disorder and the other is the psychopathology of acute schizophrenia.[13]

In a study by Maghsoodloo *et al*. in 2002 on criminal mental patients, it was accidentally revealed that most of the schizophrenic criminal patients had antisocial personality disorder. This made the researchers to conduct another study to evaluate this relationship.[14] The aim of this study was to determine whether the existence of antisocial personality disorder and history of conduct disorder among patients with schizophrenia increase the risk for violence.

MATERIALS AND METHODS

In this prospective case–control study, characteristics of antisocial personality disorder, history of conduct disorder, and the score of PCL-R were compared between criminal and non-criminal patients with schizophrenia. Case group included patients who had committed a crime and were referred to the court. Control group consisted of patients who had no criminal legal issues.

Inclusion criteria

1. Being referred to Forensic Psychiatry Unit and were diagnosed with schizophrenia based on Diagnostic and Statistical Manual of mental disorders DSM-IV-TR standards.
2. Being at least 18 years old.
3. Not having seizure disorder and Mental Retardation.
4. Not having mood disorder with psychotic feature, organic psychosis, or psychotic disorder (not any other specified by reviewing the medical history); in doubtful cases, organic evaluations like EEG and/or brain computer tomography were used.

Exclusion criteria

After reviewing medical and legal history of patients, those who were selected as control but had criminal records were excluded from the study.

Sampling

Samples were selected using convenience nonrandom sampling method. All the patients who were referred to Forensic Psychiatry Unit of Forensic Medicine Center in Isfahan between 2006 and 2009 were selected. After semi-structure clinical interview, studying evidences and medical documents of patients, if the unit's psychiatrist diagnosed the patient with schizophrenia, the patient would be included in the study. If the patient was referred to the unit after committing a crime, he would enter the case group; otherwise, he would enter the control group. This was continued until 30 patients were assigned to each group and informed written consent was taken from all patients and controls.

Then, during structured clinical interviews, symptoms of antisocial personality disorder and conduct disorder were asked from the patients and their escorts, preferably their parents or older siblings, based on DSM-IV-TR criteria, and then diagnosis of these disorders was made. Also, all patients completed the PCL-R questionnaire. This questionnaire included 20 items; each could get a score of 0–2: 0 meant never, 1 meant sometimes, and 2 meant most of the times. Questions were divided into two groups of factor 1 and factor 2; factor 1 evaluated interpersonal and emotional aspects and factor 2 evaluated lifestyle and social

deviations. All of the PCL-R's items were asked openly from the patients by a psychiatrist (executer and the main colleague of the study who was totally familiar with the questionnaire) and then they were confirmed by one of the patient's escorts who had been with him all the time; then, the forensic psychiatrist chose one of the scores from 0 to 2 based on the answers.

The score of 25 or more was considered as psychopathic. Since it was the first time that this questionnaire was used in Iran, its standardization was carried out as follows: the accuracy of questionnaire's translation was evaluated by five psychiatrists using back translation method. A couple of psychiatrists studied the content of the questionnaire to evaluate its content validity. To evaluate its reliability, a pilot study was conducted on 40 patients with schizophrenia; it led to some changes on item 1 of the PCL-R questionnaire. Then, the Cronbach's α of 87% was reached and the study was continued. Also, another questionnaire was completed for each patient, including demographic data, criminal records of the patient and his family, starting time of the crimes according to the onset of the disease, type of the committed crimes, alcohol and drug abuse, age at the onset of crimes, age at the onset of the disease, hospitalization experience, total hospital admission, treatment adherence, etc.

Each group consisted of 30 samples which means 60 patients were studied in total. The research protocol was approved by the ethics committee of Isfahan University of Medical Sciences (research project number: 184090). The research protocol was approved by the research and ethics committee of legal medicine organization of Iran.

Data analysis

Chi-square test was used to evaluate the difference of the frequency distribution of antisocial personality disorder and conduct disorder between the schizophrenic patients with crime and those with no crime. Student's *t*-test was used to compare the mean score of factor 1 and 2 between criminal and non-criminal patients. Also, to compare criminal and non-criminal patients regarding the score of 25 or more in PCL-R questionnaire, chi-square test was used.

RESULTS

In this study, 30 criminal and 30 non-criminal patients with schizophrenia who were referred to the forensic center were investigated. Demographic characteristics were not significantly different. Mean age of the case group was 34 years and mean age of the control group was 41 years. 70% in the case group and 73.2% in the control group had high school diploma. 86.7% of the case group and 76.7% of the control group were unemployed. In both groups, being single had the highest frequency (66.7% in the case group and 53.3% in the control group). Frequency of committing a crime according to the onset of the disease revealed that 73.3% of criminal patients (22 cases) had committed their first crime after the onset of the disease, 23.2% (7 cases) before the onset, and 3.3% (1 case) at the onset. Eleven criminal patients (36%) had committed a severe crime, mostly murder, 50% had committed tolerable crimes, and 13% had committed mild crimes. Frequency of committing a crime among criminal patients showed a repetitive pattern; some had even 10 criminal records. The mean number of committing crime was 3.4 times for each patient. Of the 30 criminal patients in the case group, 26 had a history of conduct disorder while this number was 9 in the control group; the difference was significant [Table 1]. Twenty-two patients of the case group had antisocial personality disorder traits, while this number was two in the control group, and the difference was also significant [Table 1].

40% of criminal patients had a score of 25 or more on PCL-R questionnaire. This was significantly higher than that of the control group in which no one had a score of 25 or more. This also meant that the probability of committing a crime again existed in 40% of cases [Table 1]. Factor 1 had eight questions and its score ranged from 0 to 16. The mean of this score in the case group was not only higher than the total mean score (which was 8), but also was significantly higher than the mean score of the control group [Table 2]. Factor 2 had 10 questions and its score ranged from 0 to 20. The mean score of factor 2 was 11.8. In the case group, it was higher than the total mean (which was 10) and also significantly higher than the mean score of the control group (which was 7.3) [Table 2].

DISCUSSION

The present study was conducted on 30 criminal and 30 non-criminal patients with schizophrenia to evaluate the relation between committing a crime and the history of conduct disorder, antisocial personality disorder, and the score of PCL-R. The mean age of the criminal group was 34 years and that of non-criminal group was 41.1 years. This result was in agreement with the results of another study about prevalence and severity of crimes in mental patients;

Table 1: Frequency distribution of history of conduct disorder, antisocial personality disorder, and high score of PCL-R between criminal and non-criminal schizophrenic patients

	Case group *n* (%)	Control group *n* (%)	*P* value
History of conduct disorder	26 (86.7)	9 (30e)	<0.001
Antisocial personality disorder	22 (73.3)	3 (10)	<0.001
PCL-R ≥ 25	12 (40)	0	<0.001

Table 2: Comparing the mean scores of factor 1 (interpersonal and emotional aspects) and factor 2 between the case and control groups

	Mean score of factor 1	SD	*P* value	Mean score of factor 2	SD	*P* value
Case group (*n* = 30, criminal schizophrenic patients)	8.9	3.1	<0.001	11.8	2.8	<0.001
Control group (*n* = 30, non-criminal schizophrenic patients)	4.8	2.6		7.3	3.6	

in that study, criminal patients with schizophrenia were mostly between 25 and 40 years old.[15] Also, in a study by Pera *et al*. in 2005 about committing murder by mental patients, the most common age of committing a crime, especially violent crimes, in schizophrenic patients with axis II disorder (all types of cluster B personality disorders) was 31.64 years, which was in agreement with the results of the present study.[16] Most of the patients in both groups were single (66.7% in the case group and 53.2% in the control group), unemployed (86.7% in the case group and 76.7% in the control group), and did not have high school diploma (70% in the case group and 73.3% in the control group); these can be justified by the effect of this disease on social, individual, and professional operation of the patient.

Prevalence of drug abuse was 66.7% in the criminal group and 36.7% in the non-criminal group. This was also mentioned in the results of Erkiran *et al*. that drug abuse would increase the risk of violent behavior in patients with schizophrenia.[17] Also, Valenca *et al*. revealed that there is a significant relation between homicide and mental disorders, especially disorders related to drugs, alcohol, and personality traits.[18] It has been shown in Putkonen *et al*.'s study that 74% of criminal patients with schizophrenia used drugs.[19] Another important issue was to know in which period, the prevalence of committing a crime was higher in patients with schizophrenia. This topic is important because sometimes, after committing a crime, criminals try to mimic psychosis symptoms to flee from legal punishments. But this study revealed that in 73.3% of cases, the crime occurred after the onset of the disease, and the criminals had hospitalization and treatment records before committing a crime; only in one case, the diagnosis was made right after committing a crime. These results are in agreement with Hodgins *et al*.'s results. They studied 232 patients with schizophrenia who were released from legal units. They mentioned that 77.8% of the patients who were released from legal units had previous records of hospitalization in psychiatric units.[20]

It is also mentioned in Meehan *et al*.'s study that the disease of 56% of criminal schizophrenic patients was diagnosed 12 months before they committed a crime; the time interval was 1 month for murdering. 28% had no previous contact with psychiatrist (it was 23% in the present study).[21]

One aim of this study was to investigate the relation between committing a crime and conduct disorder. In this study, 6.7% of criminal patients had history of conduct disorder in their childhood, which was significantly higher than 30% in the control group ($P < 0.001$). In a study by Swanson *et al*. about the relation between antisocial traits in childhood and violence in adulthood in patients with schizophrenia using National Institute of Mental health (NIMH) Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) criteria, it was revealed that the prevalence of violence was higher among those patients who had a history of conduct disorder. History of conduct disorder was accompanied by drug abuse and not having a history of conduct disorder was accompanied by positive symptoms of psychosis. They mentioned conduct disorder as one of the most important factors of showing violence in patients with schizophrenia.[13] Hodgins *et al*. also confirmed that the association of conduct disorder with major psychiatric disorders would increase the risk of aggressive behavior and violent crimes.[22] Also, in another study by Hodgins *et al*. which investigated the outcomes of conduct disorder in 248 male patients with schizophrenia, it is mentioned that conduct disorder increases the risk of committing violent and non-violent crimes, but it has no relation with murdering. Also, there was a relationship between conduct disorder and early onset of schizophrenia, the first hospitalization, and its duration; in general, it is considered as a parallel comorbidity with schizophrenia.[10] Another controversial matter is to know whether schizophrenia increases the prevalence of committing a crime by its nature or its simultaneous traits like its comorbidity with antisocial personality disorder would lead to this increase.

In the present study, 22 patients (73.3%) of the criminal group had antisocial personality traits, while only 3 patients (10%) in the control group showed these traits; the difference was significant ($P < 0.001$). Schug *et al*. in a study showed that comorbidity of antisocial personality disorder with schizophrenia personality disorder's spectrum would increase the criminal behaviors significantly.[23] Laajasalo *et al*. studied 125 schizophrenic murderers and mentioned that positive symptoms of psychosis had no significant relation with severe hostile behaviors and other reasons for hostility should be studied here, besides clinical reasons, like different comorbidities.[24] Fresan *et al*. in a study on 102 patients with schizophrenia showed a significant relation between personality traits and committing a crime. Their results revealed that high novelty seeking in temperament and low cooperativeness in personality traits increased the risk for violent behaviors in the patients.[11]

Van Damme *et al*. in their study investigated the relation between personality traits and committing a crime in four groups of patients with schizophrenia using Cloninger's Temperament and Character questionnaire. These groups were as follows:

1. Patients with schizophrenia who committed a murder.
2. Patients with schizophrenia who had no history of hostile behaviors.
3. Paranoid murderers.
4. Murderer prisoners who did not provide any psychiatric records.

Results showed that the score of self-transcendence was significantly higher in murderer schizophrenic patients; this could mean that aggressive and violent behaviors of these patients could be predicted.[25] Moran and Hodgins mentioned in a study that the prevalence of antisocial personality disorder is higher in patients with schizophrenia than in normal population. In their study on 232 male schizophrenic patients, 75% who had committed a crime at least once showed antisocial personality traits. Those patients who had longer history of antisocial behaviors including non-violent crimes, drug abuse, and impulsive disorder, all had increased risk for violence.[9] These results were in line with the results of the present study. One of the important objectives of this study was to evaluate the score of Hare Psychopathy Checklist in patients with schizophrenia. This checklist is used to predict re-offense risk and the probability of criminals' rehabilitation.

In the present study, 12 criminal patients with schizophrenia (40%) had PCL-R score of 25 or more, which is considered as a psychopathic characteristic; no one in the control group had a score of 25 or more and the difference was significant ($P < 0.001$). Also, comparing the mean score of factor 1, which evaluates individual and emotional aspects of PCL-R, it was significantly higher in the case group than in the control group (8.9 vs. 4.8, $P < 0.001$). Moreover, the mean score of factor 2, which evaluates lifestyle and social deviations of PCL-R, in the case group was significantly higher than in the control group (11.8 vs. 7.2, $P < 0.001$). In a study by Carmen *et al*. on 120 male prisoners, it was revealed that the high score in factor 2 was significantly related to antisocial personality disorder and conduct disorder, while the score of factor 1 was just significantly related to antisocial personality disorder. High score of factor 2 means being impulsive and irresponsible, and having no long-term goal.[26] Abushua'leh *et al*. in a study on 35 hospitalized male patients with schizophrenia observed that the score of PCL-R was significantly higher in those who had committed violent crimes. They also revealed that high score of factor 2 was a significant predictor of violent behaviors in male patients with schizophrenia. High scores of psychopathic factors led to violence. In male patients with high score of psychopathy, sometimes, even treating the symptoms cannot reduce the risk for violence.[12]

Recommendations

- Pay special attention to criminal schizophrenic patients. Only hospitalizing them for a while to treat psychotic symptoms or imprisoning them cannot prevent future crimes. Addressing the treatment, psychotherapy, and rehabilitation of comorbid personal disorders are important too. Associations with substance abuse and treatment compliance may be the focus of these interventions.[28]
- It is recommended that in a cohort study on patients with schizophrenia, the effect of rehabilitation, psychotherapy, and treating comorbid disorders (conduct disorder, antisocial personality disorder, and high score of PCL-R) on preventing crimes in high-risk patients needs to be investigated.

Limitations

Since this study had a case–control design, strong relationship was not possible to be found between the variables and outcome. Further studies are necessary to establish such a relationship.

CONCLUSIONS

Results of the present study showed that history of conduct disorder in childhood, antisocial personality disorder, and high score of psychopathy in PCL-R were significantly more prevalent in schizophrenic patients with criminal history compared with non-criminal schizophrenic patients. This means that besides the type of clinical symptoms and their severity, which can lead to hostile behaviors[10] and homicidal reactions,[27] other factors must also be considered to prevent criminal behaviors and worsening patient's condition. This has a significant effect on schizophrenic patients' rehabilitation, predicting crimes, and preventing re-offense.

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