Violent Crime and Dimensions of Delusion: A Comparative Study of Criminal and Noncriminal Delusional Patients

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Some aspects of delusional disorders appear to be related to the occurrence of violent crime. A retrospective study was conducted comparing two groups of 30 psychotic, delusional patients. The study group consisted of delusional patients imprisoned in a high-security forensic hospital in the state of São Paulo, Brazil, and the patients in the comparative group were enrolled in common psychiatric wards. The PANSS (Positive and Negative Syndrome Scale), the MINI (Mini International Neuropsychiatric Interview), and the MMDAS (MacArthur-Maudsley Delusion Assessment Schedule) scales were used. Regarding the dimensions of delusions, the study group had lower scores in two categories: refraining from acting because of belief, and negative affect. Delusions that induce inhibition of actions apparently also reduce the potential for violent acts and, contrary to current beliefs, delusional patients who are frightened or who have other negative affects associated with delusional ideas appear to commit fewer violent acts. Intrinsic factors inherent in some dimensions of delusion may be relevant in the occurrence of violent crimes committed by psychotic patients.

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The relationship between serious mental illness and violence is very complex, and despite advances in the methodology used in psychiatric research, the subject continues to generate much debate.[1–3] Because there is often a considerable time interval between crimes and adequate evaluation of subjects who committed the crimes, including their mental states, diagnoses, and environmental conditions, it is quite difficult for researchers to establish reliable relationships between crime and psychopathology.

It is currently posited that some individuals with schizophrenia are more likely to be violent than those in the general population. Nevertheless, the percentage of all social violence attributed to psychosis and schizophrenia is rather small, generally below 10 percent.[2,4]

A serious act of violence committed by a person with a severe mental disorder is a relatively rare event.[5] Moreover, studies reported in the literature on severe mental disorders and violence are prone to methodological difficulties due to unreliable diagnostic evaluations, the presence of comorbidities (particularly the use and abuse of psychoactive substances), and cultural variations in the perception and construction of what in fact constitutes a criminal act, as well as the lack of a precise definition of violence itself.[6,7]

Studies performed in different countries (United States, Great Britain, Australia, and The Czech Republic) in prisoners who had committed violent crimes have indicated a higher prevalence of schizophrenia in this group (imprisoned) in comparison with that of the general population. Selection bias, however, prevents generalization of the data from such studies.[8–15] Other studies have indicated a negative association between psychosis and violence. Stuart and Arboleda-Florez[16] reanalyzed data from an investigation performed in Canada, in 1992, in which the prevalence of mental disorders among prisoners was evaluated, and concluded that only a small proportion of violent criminal behavior is

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attributable to psychiatric patients. In Great Britain, Taylor *et al.*[17] studied patient populations of three special psychiatric hospitals, characterized as high-security and offering treatment to patients considered to have a high risk of violence. The records of 1,750 patients were examined and the majority (53%) was found to have schizophrenia and delusional disorder. Among all psychotic patients, both positive and negative symptoms were significantly present at the time of the crime, as well as affective symptoms (principally blunted or incongruent affect). They noticed that the main triggering factors for the crimes were delusional symptoms, which led more often to violent acts than to trivial acts. Hallucinations did not have the same effect when delusional activity was not present.

Link and Stueve[18] compared the presence and consequences of psychotic symptoms in a psychiatric and a community sample. They concluded that having delusions with control or paranoid content, called threat/control override (TCO) symptoms, is strongly associated with acts of violence. Similar findings were also reported by Cheung *et al.*,[19] who investigated 31 schizophrenic patients defined as violent and compared them with 31 nonviolent patients with the same diagnosis. In both groups, comorbidity of psychoactive substance abuse was not present. The phenomenology of auditory hallucinations was meticulously evaluated with the MUPS (Mental Health Research Institute Unusual Perceptions Schedule) and the delusions with the MADS (Maudsley Assessment of Delusions Schedule). Patients in the violent group were more affected by persecutory delusions than were those in the nonviolent group, whereas patients in the nonviolent group were more affected by delusions of grandeur than were those in the violent group.

To evaluate the profile of mental symptoms and clinical characteristics of the psychotic patients with a history of violence, Appelbaum *et al.*[20] examined delusional patients with an evident history of violence and found a high degree of conviction in grandiose and religious delusions. Nevertheless, in another study to confirm previous findings that related the type and content of delusion with violent crime, Appelbaum *et al.*[21] conducted a prospective study and found negative results. This investigation followed up 1,136 patients for one year after discharge from the hospital. When the MMDAS (MacArthur-Maudsley Delusion Assessment Schedule) was used, no difference was found in the rate of violence between delusional and nondelusional patients. Moreover, the relationship between violence and delusions of persecution and control that had been found in previous studies was not confirmed.

To determine possible associations between schizophrenia, delusion, and crime, investigators in many studies have used medical records or police documents, generally retrospectively and usually long after the occurrence of the violent act. These difficulties are still more serious when we consider violent crimes that occur during the prodromic period of a state of schizophrenia, when the symptom phenomenology is not clear.[22]

Despite such methodological limitations, some aspects of the acute mental state appear to be related to the presence of violent behavior among psychotic patients. As some studies have shown that delusions with threat/control-override symptoms may trigger violent behavior, it has been suggested that inherent aspects of different dimensions of delusions are involved in some criminal acts.[18,21,23,24] Therefore, the current study was conducted to evaluate possible relationships between type and dimensions of delusions and violent crime.

Methods

This is a retrospective and comparative study in which two groups of 30 delusional men were investigated. The study group consisted of delusional patients imprisoned in a high-security forensic hospital in the state of São Paulo, Brazil, and the patients in the comparative group were enrolled in common psychiatric wards.

The patients were selected because they had committed violent crimes related to delusional activity and had a diagnosis of schizophrenia spectrum disorder. The comparative group was composed of patients with schizophrenia spectrum disorders with clear delusional activity who had never committed violent crimes. The subjects were selected on the basis of their history of violent crimes, the occurrence of past and present delusions, and the diagnosis of a schizophrenia spectrum disorder. All patients were interviewed by a psychiatrist (E.H.T.) at the institution to which they were referred.

To identify delusional activity in these groups, the patients had their past and present symptoms confirmed at the beginning of the interview. The inclusion criteria required that all patients remain delu-

sional even under medication. An additional inclusion criterion for the study group required that the selected patients from the forensic hospital have the same delusional content both at present and during the crime period. The relationships between delusional ideas and violent acts were obtained both from direct interview, legal/medical records, and direct information from the mental health staff.

The study group was selected from patients at a Forensic State Psychiatric Hospital in the town of Franco da Rocha in the state of São Paulo, Brazil. This establishment receives the inmates who have been considered not guilty by reason of insanity. In Brazil, mental patients who have committed offenses and crimes are not sent to high-security wards in mental hospitals or to psychiatric wings of prisons. They are sent to forensic hospitals, designated as hospitals of custody and psychiatric care.[25]

Patients in the comparative group were selected in the psychiatric wards of two university hospitals (UNICAMP and PUC) and at a mental hospital in the same area in São Paulo State. The subjects were selected both on the basis of a received diagnosis of schizophrenia spectrum disorder with delusional ideas and on the basis of data from direct interview (conducted by E.H.T.) and family history showing that they had not committed violent crimes in the past. All information was confirmed by the psychiatric staff and records at each hospital.

Violent crime was defined according to MacArthur criteria as a crime that resulted in death or severe harm to the victim, such as murder or rape, or as repeated instances of serious threat of violence, such as having committed various muggings.[18]

Because substance-induced psychosis and brief psychotic episodes (frequent in developing countries) were excluded, patients were only considered for this study if they had had a diagnosis of a schizophrenia spectrum disorder for a minimum period of 5 years. To avoid chronic patients with substantial memory impairment, the selected patients had to have less than 20 years of disease. All subjects were men, the predominant sex in the institution in which the study group was selected.

No patients were considered for the study if they had a history of head injury, brain damage, or mental retardation. Ten patients in the study group refused to participate. The reasons given for the active refusal of the patients to participate were principally lack of interest, inability to see any benefit in being interviewed, and fear that their answers could affect the report defining termination of their status as dangerous. Some interviews were interrupted because the patients were so severely compromised that the interview was impossible (cognitive damage or incoherent thought).

The subjects were enrolled in the study only after having given their signed consent. Each subject received a copy of an informed-consent form, read or had it read to them, and was given the opportunity to ask any questions before signing. All subjects were informed about the nature of the study and were given a full guarantee of confidentiality. The study was approved by the Institutional Ethics Review Board of UNICAMP on December 17, 2002.

The selection of the instruments used in the study was based on a literature review, bearing in mind that these patients were delusional and, for the study group, in addition to being delusional they also had a history of violent crime. Therefore, instruments were selected that, whenever possible, had undergone studies to ensure validity and reliability. The MMDAS[20,21,26] (MacArthur-Maudsley Delusion Assessment Schedule), MINI[27] (Mini International Neuropsychiatric Interview), and PANSS[28] (Positive and Negative Syndrome Scale) were chosen. Although the MMDAS was not fully validated in Brazil, after the translation (by E.H.T. and P.D.) a back-translation was conducted by an American psychiatrist trained in the United States with extensive clinical experience in Brazil (Sílvio Saindemberg, MD). Moreover, during the interviews performed by the first author (E.H.T.), special attention was paid to the understanding of questions and terms by the patients. In general, the MMDAS was well accepted and understood by the patients in the investigation.

To measure sociopathy we used questions from the item sociopathic personality disorder from the MINI; for example, "Did you used to behave in ways that others considered irresponsible: not paying your debts, or acting on impulse, or not wanting to work to provide for yourself? Do you often do illegal things (even if you don't get arrested), like destroying other people's property, stealing, selling drugs, or committing a crime? Have you often been physically violent, including to your wife or children? Have you often lied, conned someone, or deceived someone to obtain money or pleasure? Have you ever exposed someone to danger without worrying about them? Have you ever felt absence of guilt after lying to,

Table 1 Alcohol and Drug Abuse in the Two Groups

	Study Group (n = 30) (At Time of Violent Act)		Control Group (n = 30) (At Time of Admission)			
	Yes	No	Yes	No	Missing	p
Alcohol	07 (53.8)	06 (46.1)	07 (43.7)	09 (56.2)	31	.5884*
Cannabis	07 (70.0)	03 (30.0)	03 (25.0)	09 (75.0)	38	.0836†
Cocaine	01 (33.3)	02 (66.7)	02 (50.0)	02 (50.0)	53	NS

NS, nonsignificant
*χ^2 test.
†Fisher test.

hurting, mistreating, or stealing from someone, or destroying other people's property?" The answers from both the study and the comparative group were checked with data in the regular clinical and legal records.

Results

The whole population hospitalized in the Franco da Rocha Institute at the beginning of the study consisted of 498 patients, 91 (18%) women and 407 (82%) men, with an overrepresentation of psychotic disorders that included schizophrenia, delusional disorders, acute psychotic episodes, and schizoaffective disorders (n = 288, 57.8%).[29]

The mean age of the study group was 38.0 ± 9.5 years and of the control group, 38.9 ± 9.5 years. Most of the patients in both groups were unmarried (study group, 90%; control group, 93.3%) and white (study group, 60%; control group, 73.3%). The mean duration of the disease in the study group was 15.8 ± 7.5 years and in the control group, 16.5 ± 9.1 years. In the study group, the interval between the patient's evaluation (including the evaluation of delusions) and the crime episode was 6.3 ± 4.3 years.

According to the diagnostic criteria of the International Classification of Diseases, 10th edition (ICD-10), and the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR),[30] 21 patients in the study group (70%) had paranoid schizophrenia, 4 (13.3%) had undifferentiated schizophrenia, and 5 (16.7%) had delusional disorder. In the control group, 29 (96.7%) had paranoid schizophrenia and one (3.3%) had undifferentiated schizophrenia.

The two groups were compared by using the MINI, taking into consideration alcohol and drug abuse and dependence at the time of admission (control group) and at the time of the criminal act (study group), and no statistically significant differences were found between the two groups (Table 1). Furthermore, no statistically significant differences were found with respect to suicidal, auto-aggressive, or antisocial behavior.

According to the PANSS, the two groups had very similar scores, as shown in Table 2.

The persecutory type of delusion was the most common form present in both groups. In the study group, 21 (70%) patients had this type of delusion and 9 (30.0%) did not. In the control group, 23 (76.7%) patients had this form of delusion and 7 (23.3%) did not. The next most common form of delusion was the control or influence type, followed by the grandiose type. There was no statistically significant difference between the groups. Even when only the three main forms of delusion were considered (persecutory, control or influence, and grandiose), there were still no statistically significant differences between the two groups (Table 3).

According to the MMDAS, of the six dimensions of delusion studied, statistically significant differ-

Table 2 Comparison of the Psychiatric/Psychotic Symptoms Between the Two Groups

	Study Group (n = 30)	Control Group (n = 30)	P*
PANSSG	35.7 ± 9.4 (21.0–62.0)	34.3 ± 8.6 (20.0–55.0)	.5860
PANSSP	18.7 ± 6.5 (8.0–33.0)	18.5 ± 6.3 (7.0–32.0)	.8769
PANSSN	17.3 ± 6.6 (9.0–35.0)	15.8 ± 5.2 (10.0–30.0)	.5505

PANSSG (global psychopathology); somatic concern, anxiety, tension, habits and posture, depression, motor defects, and lack of cooperation.
PANSSP (positive symptoms): delusion, conceptual disorganization, hallucinatory behavior, excitation, grandeur, and distrust.
PANSSN (negative symptoms): blunted affect, emotional withdrawal, poor contact, and passive/apathetic social withdrawing.
*Mann-Whitney test.

Table 3 Type of Delusion According to Content in the Study and Control Groups

	Study		Control	
Type of Delusion	*n*	(%)	*n*	(%)
Persecutory	21	(72.4)	23	(76.7)
Grandiose	3	(10.3)	4	(13.3)
Control/influence	5	(17.3)	3	(10.0)
Total	29	(100.0)	30	(100.0)

ences were found between the two groups for three dimensions: negative affect, acting on belief, and refraining from acting because of belief. In the case of negative affect, the patients in the study group scored 1.1 ± 1.2 (mean ± SD) points, whereas those in the control group scored a mean of 2.5 ± 3.9 points (p = .0124). With respect to acting on belief, the patients in the study group scored a mean of 4.6 ± 0.9 points, whereas those in the control group scored a mean of 1.7 ± 1.3 points (p = .0001). With reference to refraining from acting because of belief, the mean was 1.9 ± 1.6 points for the study group and 3.3 ± 2.0 points for the control group (p = .0076; Table 4).

According to univariate logistic regression analysis, of the six dimensions studied, three showed a statistically significant difference between the groups: negative affect, acting on belief, and refraining from acting because of belief (Table 5). When multivariate logistic regression was used for the six dimensions, considering the presence or not of a violent act, a statistically significant difference was found in the stepwise selection of the dimension refraining from acting because of belief. For each additional point in this dimension, the chance of belonging to the study group was 31 percent lower.

Discussion

When both sociodemographic and clinical data are considered, the two samples investigated in this study were very similar. Therefore, they are comparable groups in relation to the purpose of the study (i.e., to evaluate which factors are associated with having a delusion and committing a criminal act).

In the assessment of the comorbidity of psychoactive substance, alcohol, and drug abuse and indicators of sociopathy, it is possible that some of the patients tried to hide or deny symptoms, since some of them may have believed that the interview would indirectly affect their release or alter their prison sentences. Knowing the importance of these comorbidities for admission or for the occurrence of crime, this concern was meticulously studied. Therefore, regarding substance use and abuse, a careful review of the clinical and legal records was performed. Such assessment difficulties have been recognized as frequent limitations in similar studies performed in this type of psychiatric population.[6,7,10]

In the present study, the hypothesis of some researchers regarding a possible effect of alcohol in violent criminal acts by psychotic patients (and delusional activity) was not confirmed.[10,11] Indeed, the present study tends to suggest an association between the psychopathology of the delusion and the violent act, often irrespective of alcohol or drug use. However, a possible bias must be considered: some patients could have tried to hide or deny involvement with substances or engaging in sociopathic behavior (Table 1).

When the clinical diagnostic profile found in both groups is considered, the fact of having five individuals with a diagnosis of delusional disorder in the study group and none in the control group may suggest a certain diagnostic heterogeneity between the two groups. Nevertheless, the absolute number of subjects with a diagnosis of delusional disorder was fairly low. This result may suggest that in the study group, since individuals with delusional disorders are less compromised in terms of personality and general personality structure, they would also have a greater propensity toward committing violent acts. However, no differences were found between the two

Table 4 Comparison of the Six Dimensions of the MMDAS Between Groups

	Study Group (n = 29)	Control Group (n = 30)	p*
Conviction	5.9 ± 1.6 (2.0–8.0)	5.3 ± 1.7 (2.0–8.0)	.2024
Negative affect	1.1 ± 1.2 (0.0–4.0)	2.5 ± 3.9 (0.0–4.0)	**.0048**
Acting on belief	4.6 ± 0.9 (1.0–5.0)	1.7 ± 1.3 (0.0–5.0)	**<.0001**
Refraining from acting because of belief	1.9 ± 1.6 (0.0–8.0)	3.3 ± 2.0 (0.0–8.0)	**.0069**
Preoccupation	2.4 ± 0.9 (1.0–4.0)	2.5 ± 0.9 (1.0–4.0)	.6191
Pervasiveness	1.9 ± 0.7 (1.0–3.0)	2.2 ± 0.5 (1.0–3.0)	.2598

Bold data represent significant differences.
*Based on the Mann-Whitney test.

Table 5 Univariate Logistic Regression of the Six Dimensions of the MMDAS

Variable	Study Group (*n*)	Control Group (*n*)	*p*	OR	95% CI
Conviction	29	30	.2202	1.224	(0.886–1.690)
Negative affect	29	30	**.0124**	**.502**	**(0.292–0.861)**
Acting on belief	29	30	**<.0001**	**4.091**	**(2.220–7.539)**
Refraining from acting because of belief	29	30	**.0076**	**.644**	**(0.466–0.889)**
Preoccupation	29	30	.5322	.841	(0.488–1.449)
Pervasiveness	29	30	.2282	.600	(0.261–1.377)

Bold data represent significant differences.

groups with respect to general psychopathology as evaluated by the PANSS. In fact, they were very similar, and the study group scored higher in the subscale of negative symptoms, although this difference was not statistically significant. Therefore, it is improbable that the presence of patients with delusional disorders in the study group represents any significant difference between the groups.

With respect to suicidal thoughts in the past (having considered killing themselves at some time in their lives), a high frequency of this condition was found in both groups (56.7% in the study group and 73.3% in the control group), and there was no statistically significant difference between the groups. This fact may be related to the condition imposed by severe mental illness itself.

Evaluation of the mental state of these patients according to the PANSS showed, as previously mentioned, that the groups were fairly homogeneous. In the evaluation of positive and negative symptoms, patients in both groups were found to be quite symptomatic.[31]

In the evaluation in which the MMDAS was used, concerning the content of delusion, the persecutory form was the most frequent one in both groups (70% in the study group and 76.7% in the control group). This profile has been found in various studies in which delusional disorders and violence were evaluated.[4,21] In the study group, the second most frequent form of delusion was the control or influence form, followed by the grandiose form. In the control group, the second most common form of delusion was the grandiose form followed by control or influence. There were no statistically significant differences between the two study groups.

Concerning the dimensions of delusion studied in this scale (conviction, acting on belief, negative affect, refraining from acting because of belief, pervasiveness, and preoccupation), the results were similar to those found in previous studies of delusional patients of different diagnostic categories.[20]

Of the six dimensions evaluated, the difference with respect to acting on belief was expected, since the patients were in the study group by definition. With respect to refraining from acting because of a belief (e.g., refraining from watching television, eating, or going to work or to the doctor because of a delusion), the control group scored significantly higher. Moreover, the results of a multivariate logistic regression performed on the MMDAS data, considering the presence or absence of a violent act, reached statistical significance in the stepwise selection for the dimension refraining from acting because of a belief (i.e., for each additional point for the item, the probability that the individual was a patient in the study group decreased by 31 percent). This result suggests that in delusional patients whose actions are inhibited by the context of delusions, there may be a tendency toward a protective effect from harmful actions potentially associated with the delusion itself.

Negative affect was defined as feeling unhappy, frightened, anxious, or angry as a result of a delusion, and higher scores were also found in the control group. This result questions the widely promoted and frequent idea in medical, psychological, and psychiatric circles that the more frightened, anxious, or terrified the delusional patient feels, the more likely he or she is to commit a violent crime. The findings of the present study suggest the opposite.

It is also possible that negative affect may be indicative of depression and poor self-esteem and that this is in some way related to less aggressive acts. Another possibility is that the delusional patient who commits a violent crime is so intensely immersed in delusion, without criticism, that negative affects would be meaningless.

Conclusions

The dimension negative affect appeared relevant and showed that patients in the study group tended

to be less frightened, anxious, unhappy, or angry as a result of the delusion. The dimension refraining from acting because of a belief was found to be clearly significant. It is possible that delusions that result in a greater inhibition of the actions of the subject in some way also inhibit aggressive and potentially violent actions resulting from the delusion.

In general, the present study failed to confirm findings reported in the literature that dealt with the topic of delusion and violent crime with respect to the comorbidity of alcohol and drug use and type of delusion, and adds new aspects to the delusion and its dimensions, which, albeit modest, appear to be relevant.

Continuation of this line of research, with the objective of identifying aspects of symptomatology that may in some way be related to potentially violent behavior, may contribute toward understanding this phenomenon and toward developing preventive actions.

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