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Sociodemographic features related to violent behavior in schizophrenia

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Introduction. It has been proposed that some sociodemographic variables may predict violent behavior in schizophrenic patients. The aim of this study was to investigate the relationship of violent behavior with sociodemographic and clinical features in schizophrenic patients.

Method. We included 106 schizophrenic patients. Sociodemographic and clinical characteristics of each patient were recorded in a previously designed record. Violent behaviors were assessed with the Overt Aggression Scale (OAS).

Results. From the total sample, 49.1 % of the patients were classified as violent. Marital status, alcohol abuse, number of previous psychiatric hospitalizations and age of first hospitalization were predictive variables for violent behavior in schizophrenia.

Discussion. Predictive sociodemographic variables for violence in schizophrenia are easy to measure during the first interview with the patient and can be useful for the prevention of future violence.

Key words:
Violent behavior. Schizophrenia. Sociodemographic features.

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Características sociodemográficas asociadas a la conducta violenta en la esquizofrenia

Introducción. Se ha propuesto que algunas variables sociodemográficas pueden predecir el comportamiento violento en pacientes con esquizofrenia. El objetivo del presente estudio es investigar la relación de las variables sociodemográficas y clínicas del padecimiento con la conducta violenta en pacientes con esquizofrenia.

Método. Se incluyeron 106 pacientes con el diagnóstico de esquizofrenia. Se registraron las principales características demográficas y clínicas de cada uno de los pacientes en un formato diseñado previamente. Se utilizó la Escala de Agresión Explícita (EAE) para la evaluación de la conducta violenta.

Resultados. El 49,1 % de los pacientes fueron clasificados como violentos. El estado civil, el abuso de alcohol, el número de hospitalizaciones psiquiátricas previas y la edad de la primera hospitalización fueron variables predictoras para la conducta violenta en esquizofrenia.

Discusión. Las variables sociodemográficas predictoras de violencia en esquizofrenia son fáciles de evaluar en la primera entrevista con el paciente y pueden ser de utilidad para prevenir conductas violentas posteriores.

Palabras clave:
Conducta violenta. Esquizofrenia. Características sociodemográficas.

INTRODUCTION

Violent behavior arises as an emotional reaction precipitated by stimuli that generate rage¹ or as a behavior deliberately aimed at causing physical damage to persons or properties².

The results of different clinical studies in the psychiatry area indicated that schizophrenia is one of the main diagnoses associated with violence, considering the diagnosis as one of the causes for the appearance of violent behavior³⁻⁶. However, there are contradictory results to this posture, which indicate that this association is limited to several risk factors that these individuals have⁷⁻¹².

These results suggest that there is no clear association between violent behavior and the diagnosis of schizophrenia^{6,13} and that these differences may lie in the definition and methodological approach used for their evaluation. However, the stigma of dangerousness and violence in schizophrenia is a trait that deteriorates the life of those persons

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suffering it¹⁴⁻¹⁸ and makes it necessary to perform specific studies to evaluate this phenomenon.

The social factors associated with violent behavior are well-known and are related with social margination effects, family background and antisocial childhood behavior. However, risk factors that are relatively stable, such as sociodemographic characteristics, form a part of the commonly used elements to evaluate risk of violence¹⁹.

It has been found that the diagnosis of schizophrenia in men is associated with greater levels of violence when compared with the general population^{3,20-23}. This association is not totally clear, since there are results that indicate that a greater prevalence of violent behaviors does not exist among men diagnosed of schizophrenia²⁴ in comparison with women who suffer it^{10,25,26}. In spite of these differences, different studies have found that the influence of gender on violent behavior in schizophrenia is clearer when the patient's age is considered, finding that most of the violent patients are young males under 35 years of age^{10,11,27,28}.

In the same way, low socioeconomic level and unemployment have been considered as demographic factors associated to violent behavior in schizophrenia, considering that lack of economic resources as well as lack of maintenance of an activity level predict appearance of violence^{10,12}.

Even though these demographic factors are useful for the identification of a subject with high risk of violence in the clinical practice²⁹, it is necessary to include some characteristics of the patient's clinical picture, such as onset age of the condition, duration of the untreated psychosis (DUTP) and number of previous hospitalizations, which have been associated with the presence of violent behaviors in schizophrenia³⁰⁻³². Comorbidity with substance abuse, mainly alcohol, should be included in the initial evaluation of a patient, since it has been documented that subjects with schizophrenia comorbidity and substance abuse tend to be more violent than those patients with schizophrenia without substance abuse^{24,33-36}.

The demographic and clinical characteristics of the condition may be useful to predict and prevent violence in the schizophrenia patient. Thus, the objective of study is to investigate the relationship of sociodemographic and clinical variables of the condition with violent behavior in schizophrenia patients.

METHOD

Subjects

A total of 106 patients with the diagnosis of schizophrenia who came consecutively to the Out-patient Service of the National Institute of Psychiatry Ramón de la Fuente in Mexico City were included according to the DSM-IV diagnostic criteria³⁷.

Patients with the following diagnoses were included: paranoid schizophrenia ($n = 82$, 77.4 %), undifferentiated schizophrenia ($n = 13$, 12.3 %) and disorganized schizophrenia ($n = 11$, 10.3 %). Average age of the sample was 30.3 ± 7.7 years (16-45 years). Onset age of the condition was 20.5 ± 5.7 years (11-42 years), the period of untreated psychosis was 139.0 weeks (1-1352 weeks) and 17.9 % ($n = 19$) reported alcohol abuse. A total of 62.3 % ($n = 66$) of the patients reported having been hospitalized at some time during their illness course. Average psychiatric hospitalization was 4.0 ± 3.4 (1-16 hospitalizations). Average age of first psychiatric hospitalization was 24.4 ± 6.2 years (14-42 years).

Instruments

The initial diagnosis was performed with the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)³⁸.

Sociodemographic data and comorbidity with alcohol abuse were recorded in the previously designed format, which is made up of several items in which the information necessary for the main demographic and clinical characteristics of each one of the patients evaluated is recorded and concentrated. To apply this format, questioning aimed at both the patient and relative with whom a close contact is kept and better knowledge on the evolution of the study patient's disease is necessary³⁹.

The Explicit Aggression Scale (EAS) was used for the evaluation of violent behavior. It was designed to evaluate the severity of aggressive behaviors by observation and description of the patients' aggression episodes. The scale is made up of 4 main areas: *a*) verbal aggression; *b*) aggression against objects; *c*) self-aggression, and *d*) heterodirected physical aggression. In each one of these areas, there are four severity grades to qualify the aggressive behavior. Verbal aggression includes behaviors that go from shouting with anger to making clear threats of violence towards others or towards oneself. Aggression against objects includes actions such as hitting the door to throwing objects; the area of self-aggression includes behaviors that go from hair pulling without any physical injury to self-mutilations and deep cuts caused by the subject him/herself. Heterodirected physical aggression includes making threatening gestures towards others to direct attack against other persons that cause severe physical injury. In addition, the type of intervention used by the responsible medical personnel is quantified. The interventions used go from «none», in which the patient calms down by him/herself to the use of physical restraint or in which the injury caused by the patient requires medical treatment by other persons. The total score of the EAS is obtained with the sum of the scores obtained in each one of the areas and the most restrictive intervention that was used in the patient⁴⁰. The EAS has shown adequate reliability, validity and time stability in a Mexican psychiatric population⁴¹. The sample was divided into violent and non-violent patients according to a 7 point cut-off (sensitivity 0.80, specificity 0.97) in the global grading of the EAS⁴².

Procedure

Informed consent was requested from each one of the patients to participate in the study. In the case of agitated patients in whom it was difficult to obtain the consent, the informed consent was requested from the patient's relatives. Once their participation in the study was approved, the study evaluation was performed.

The sociodemographic data recording was performed by a previously trained independent rater who was blind to the score obtained in the EAS. In the same way, the EAS was administered by a previously trained independent rater who was blind to the sociodemographic data recorded.

Statistical analysis

The general description of the sociodemographic and clinical characteristics was performed with frequencies and percentage for the categoric variables and with means and standard deviations (\pm) for the continuous variables. Chi squared (χ^2) was used for categoric contrasts and the Student's *t* test for independent samples for continuous contrasts between violent and non-violent patients.

Logistic regression was used with the forward stepwise selection method for the calculation of the likelihood that violence would occur. Sociodemographic variables were classified (dummy coding) in auxiliary variables with values of «0» or «1» to perform this analysis. Thus, for example, the «age» variable was represented by two values based on the mean score of the sample: «older than 30 years» and «age less than or equal to 30 years».

Eleven predictor variables were chosen: gender (male or female), age at the time of study (defined from the sample's mean score), socioeconomic level (middle or low), civil status (with or without partner), occupation (it was only distinguished if there were work activities, paid or unpaid, in the 6 months prior to the study), schooling (defined from the sample's mean score), onset age of illness, age at first psychiatric hospitalization, total number of hospitalization, duration of the untreated psychosis (defined from the sample's mean score) and alcohol abuse (present or absent in the 6 months prior to the study).

RESULTS

Demographic and clinical characteristics of the sample

A total of 59.4 % (*n* = 63) of the sample were men and 40.6 % (*n* = 43) were women. The average schooling years were 10.5 ± 3.1 years (1-19 years), 90.6 % (*n* = 96) had no partner, 57.5 % (*n* = 61) were unemployed at the time of their inclusion in the study and 62.3 % (*n* = 66) had low socioeconomic level.

Using the EAS cut-off, 49.1 % (*n* = 52) of the patients were classified as violent and 50.9 % (*n* = 54) as non-

violent. No significant differences were found between both groups in terms of gender, socioeconomic level, schooling, illness onset age, age of first psychiatric hospitalization and duration of untreated psychosis. The violent patients were younger, unemployed, without partner, with a greater number of previous hospitalizations and had the background of greater alcohol abuse in comparison with the non-violent patients (table 1).

Predictor variables of violent behavior in schizophrenia

The logistic regression equation was capable of correctly classifying 76.4 % of the cases. The equation was generally more exact on predicting violent patients (81.5 %) than non-violent ones (71.2 %).

The stepwise procedure only included four predictor variables for violent behavior in schizophrenia. These variables are: a) civil status, in which the patients without partner have a

Table 1	Demographic and clinical characteristics between violent and non-violent patients		
	Violent patients <i>n</i> = 52	Non-violent patients <i>n</i> = 54	Statistics
Gender			
Men	29 (55.8)	34 (63.0)	$\chi^2 = 0.51$; 1 gl; <i>p</i> = 0.45
Women	23 (44.2)	20 (37.0)	
Age*	28.5 (7.9)	32.2 (7.0)	<i>t</i> = 2.5; 104 gl; <i>p</i> = 0.01
Civil status			
Without partner	51 (98.1)	45 (83.3)	$\chi^2 = 6.7$; 1 gl; <i>p</i> < 0.01
With partner	1 (1.9)	9 (16.7)	
Socioeconomic level			
Middle	20 (38.5)	20 (37.0)	$\chi^2 = 0.2$; 1 gl; <i>p</i> = 0.88
Low	32 (61.5)	34 (63.0)	
Occupation			
Unemployed	35 (67.3)	26 (48.1)	$\chi^2 = 3.9$; 1 gl; <i>p</i> = 0.04
Employed	17 (32.7)	28 (51.9)	
Schooling*	10.3 (3.4)	10.6 (2.8)	<i>t</i> = 1.6; 104 gl; <i>p</i> = 0.68
Alcohol abuse			
Yes	14 (26.9)	5 (9.3)	$\chi^2 = 5.6$; 1 gl; <i>p</i> = 0.01
No	38 (73.1)	49 (90.7)	
Illness onset age*	19.6 (5.0)	21.4 (6.2)	<i>t</i> = 3.6; 104 gl; <i>p</i> = 0.09
Duration of untreated psychosis*	161.2 (261.7)	117.6 (164.6)	<i>t</i> = 2.5; 104 gl; <i>p</i> = 0.30
No. of hospitalizations*	4.8 (3.7)	2.3 (1.8)	<i>t</i> = 9.6; 64 gl; <i>p</i> = 0.001
Age of 1st hospitalization*	24.0 (6.5)	25.3 (5.5)	<i>t</i> = 0.1; 64 gl; <i>p</i> = 0.40
* DE: desviación estándar; %: porcentaje.			

risk that is 26.4 times greater of being violent in comparison with those with a partner; *b*) age of the first psychiatric hospitalization, in which an early age of hospitalization meant a risk that was 5.03 times greater for being violent; *c*) the patients with alcohol abuse had a 3.40 times greater risk of being violent than those who did not consume alcohol, and *d*) the number of previous psychiatric hospitalizations, in which the patients with more hospitalizations had a 2.65 times greater risk of being violent than those with fewer hospitalizations during the illness (table 2).

DISCUSSION

The objective of the present study was to investigate the relationship of the sociodemographic and clinical variables of the illness with violent behavior in schizophrenia patients.

When the sociodemographic and clinical characteristics were analyzed between violent and non-violent patients, similar findings were found to those reported in the literature^{10,11,28,43}. It was observed that the violent patients were younger, unemployed, without partner, with a greater number of previous psychiatric hospitalizations and with the presence of an alcohol abuse background.

Even though different studies support the relationship between violent behavior and gender in schizophrenia patients^{22,23,44}, the results of the present study indicate that a greater prevalence of violent behaviors does not exist in men with schizophrenia in comparison with women who suffer

it^{10,24,26}. This result supports the idea that the population that presents violent behaviors is heterogeneous and that the influence of gender will depend on the specific type of behavior that is being evaluated as well as the subject's cultural patterns⁴⁵.

The difference found in terms of age, that indicates that young patients are more violent in comparison with the older ones, is indicative that age when the violent conduct is seen, more than the onset age of the psychiatric illness, may define a subject subgroup with different violence patterns having different etiology. Those subjects who manifest violence easily may develop a stable pattern of antisocial behaviors that are manifested before the onset of the schizophrenia⁴⁶. These behaviors may be maintained during the illness, regardless of the time in which specialized care is received. Until now, it is unknown if the subjects with mental disease who manifest violent behavior early have the same associated personality and disorder characteristics as those subjects who are violent but do not have a mental disease⁴⁷.

Some studies have reported an association with low socioeconomic level and the appearance of violent behaviors in normal population⁴⁸. This association has not been reproduced in subjects with mental disease, because individuals with a low socioeconomic level are included in most of them²⁸. Our results show that the socioeconomic level is not a variable that differentiates violent schizophrenics from non-violent ones. However, it was observed that unemployed patients were more violent than those having work activity. Lack of a work activity level, regardless of the professional level and schooling level existing, seems to differentiate violent patients from non-violent one. This indicates the therapeutic importance of having a work activity¹².

Regarding the first of the predictor variables, the high predictive for violence of the civil status variable value stands out. It is known that family problems and being in an anti-therapeutic setting that creates stigma or lack of understanding towards mental disease imply reciprocal friction and violence⁴⁸. Maintaining social links outside the family nucleus is a complex process that depends on the person's capacity to maintain a reciprocal interaction with others and to tolerate disagreements arising during the relationship⁴⁹. According to the above, the implications of having a partner on violent behavior would not be the legal consideration of the civil status but rather the underlying socialization process and the practical reality of having company¹².

Alcohol abuse as a predictor variable of violence in schizophrenia patients agrees with the results of different studies, which have demonstrated that patients with alcohol abuse comorbidity are more violent than those patients without this comorbidity^{3,24,50}. However, it should be emphasized that alcohol abuse increases risk for violence more than being a causal agent^{51,52}. In the same way, it has been proposed that alcohol abuse may be an intermediary between exacerbation of the psychotic symptoms and violent behavior

Table 2	Predictive variables of violent behavior in schizophrenia				
Variable	B	gl	Odds ratio	95% CI	p
Gender	-0.53	1	0.58	0.20-1.70	0.32
Age	0.98	1	2.67	0.97-7.37	0.06
Civil status	3.31	1	27.42	2.05-365.69	0.01
Socioeconomics level	-0.18	1	0.83	0.29-2.35	0.73
Occupation	0.74	1	2.09	0.73-5.97	0.16
Schooling	-1.04	1	0.35	0.03-3.23	0.35
Alcohol abuse	1.48	1	4.40	1.12-17.32	0.03
Onset age of illness	0.92	1	2.52	0.75-8.46	0.13
Duration of untreated psychosis	-0.02	1	0.98	0.28-3.32	0.97
No. of hospitalizations	1.29	1	3.65	1.01-13.41	0.05
Age at 1st hospitalization	1.79	1	6.03	1.93-18.84	0.002

B: standardized beta coefficient; gl: degrees of freedom; CI: confidence interval; p: probability.

(indirect causal relationship) and that persons suffering schizophrenia who are prone to being violent are also prone to the use of alcohol (non-causal association based on causality or probably originated from the personality traits)⁵³, approaches that should be examined in future studies.

The predictor clinical variables of violent behavior were age of the first psychiatric hospitalization and number of previous hospitalizations. It is important to mention that many patients did not act aggressive or agitated at the onset of the illness. This may lead to a delay in the search for specialized care because the illness symptoms do not call the attention of either the patient or his/her relatives. However, the presence of violent behaviors from the onset of the illness may lead to an early search for care because it is a behavior that rapidly calls attention and due to the individual and social implications associated to their presence. The difference found in regards to hospitalization number supports the proposal that the patients who are undergoing symptomatic remission tend to be less violent, while relapses or exacerbation of the psychotic symptoms increase the risk of violence in schizophrenia patients⁵⁴. Even though it has been reported that a greater number of psychiatric hospitalizations and an earlier age of hospitalization in violent patients may be indicative that violent behavior is associated to a long term poor prognosis^{55,56}, studies that go deeper into this point must be carried out.

The present study aims to contribute to the knowledge of those factors associated to violent behavior in schizophrenia, and even though it presents some methodological limitations inherent to the performance of a cross-sectional study, the results found are similar to those reported in the literature.

Even though there are different predictor factors of violence explained by other authors, such as severity of psychotic symptoms and personality traits, the present study has practical implications for the detection of violent behavior in schizophrenia, since they offer variables that are easy to evaluate in the first interview with the patient and may be useful to prevent subsequent violent behaviors. On the other hand, it is essential to evaluate these variables in order to create new approaches for the early identification and intervention of violence in schizophrenia.

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