Violent behavior and aggression in schizophrenia: Prevalence and risk factors. A multicentric study from three Latin-America countries

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ABSTRACT

Objective: The aim of the present study was (i) to assess the prevalence of Violent Behavior in Schizophrenia (VBS) in a sample of community-dwelling outpatients in three middle-income countries of Latin America and (ii) to determine the clinical and socio-demographical risk factors associated with VBS and aggression level.
Methods: The study included 253 stabilized outpatients with schizophrenia and their principal caregivers from 3 public ambulatory psychiatric care centers in Bolivia (N = 83), Chile (N = 85), and Peru (N = 85). VBS was defined according to the Overt Aggression Scale (OAS) score and the aggression level was measured by the aggression subscore of the Agitated Behavior Scale of Corrigan. We collected socio-demographic information and clinical data. Multiple linear and logistic regressions were performed to determine which variables were associated with VBS and aggression level.
Results: The prevalence of VBS differed statistically between the three countries (p < 0.001) with 3.5% in Chile, 14.6% in Peru and 55.4% in Bolivia. After adjustment for confounding factors, VBS was associated with a younger age, a more severe psychotic symptomatology, a lower family income and unemployment. After adjustment for confounding factors, aggression level was associated with a more severe psychotic symptomatology, a lower family income, a younger age at illness onset and higher number of hospitalizations in the last 3 years.
Conclusion: These results may guide future health policies to specifically provide social support and rehabilitation care to VBS patients in middle-income countries, including psychoeducation and a more integrated work between the treating medical team and the social workers.

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1. Introduction

There is consensus in the literature concerning a modest but consistent association between violent behavior, aggression and schizophrenia (SZ) (Fazel et al., 2009; Large and Nielssen, 2011, Witt et al., 2013; Knezevic et al., 2015; Fleischman et al., 2014; Iozzino et al., 2015; Dack et al., 2013). Violent Behavior in Schizophrenia (VBS) evaluation is crucial for social and clinical prognosis of schizophrenia as well as for personalized care of VBS patients.

A recent meta-analysis assessed the VBS-associated socio-demographical variables (Witt et al., 2013). Overall, VBS was moderately associated with homelessness, being male, and weakly associated with non-white ethnicity and a lower socio-economic status. VBS was also strongly associated with psychotic symptomatology (including delusions, hallucinations, hostility, lack of insight and mood symptomatology). However, most of the included studies were carried out in inpatient samples. Including only inpatients is associated with a potential recruitment bias and with VBS risk factors associated with hospitalization (e.g., involuntary hospitalization) (Hodgins and Müller-Isberner, 2014).

Outpatients' studies are therefore needed to correctly evaluate VBS prevalence and associated risk factors in the real world. However, only a small number of VBS studies have been carried out in community-dwelling SZ patients. In the USA, a subgroup analysis of the CATIE study in 1410 SZ outpatients concluded that minor violence (estimated in 19.1% of the sample) was associated with co-occurring substance abuse and interpersonal and social factors (Swanson et al., 2006). Serious violence (3.6%) was associated with psychotic and depressive symptoms, childhood conduct problems, and victimization in this

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study. In Spain, 5% of 895 SZ outpatients were found to have shown verbal violence in the last week, and 47% were defined as VBS according to the study's criterion (Bobes et al., 2009). In this study, VBS was associated with more past episodes of violence, higher psychotic relapses and lower satisfaction with treatment. In the UK, a study conducted in 251 SZ outpatients concluded that VBS (20.1% of the sample) was significantly and positively associated with childhood conduct disorder, current use of illicit drugs, positive, threat-control-override, and depression symptoms (Hodgins and Riaz, 2011). Similar findings come from a study of 421 SZ Japanese outpatients (Imai et al., 2014). More recently, another study carried out in 331 SZ outpatients in France found that self-reported higher aggression level was associated with younger age, lower education level, and higher psychotic symptomatology independent of type of treatment (Fond et al., 2015). In this last study, no VBS prevalence was determined because there was no cut-off on the self-reported scale used to assess aggression level. Moreover most of the VBS studies to date were carried out in North America and in Europe, with none in Latin America.

The aim of the present study was (i) to assess the prevalence of VBS in sample of community-dwelling SZ outpatients in three middle-income countries of Latin America (Bolivia, Chile, and Peru) and (ii) to determine the clinical and socio-demographical risk factors associated with VBS and aggression level.

2. Method

2.1. Study participants

Overall, 253 stabilized outpatients with schizophrenia and their primary caregivers were consecutively recruited between May 2012 and February 2013 in three public ambulatory psychiatric care centers of three areas: Arica, northern Chile (N = 85, 33.6%), Tacna, southern of Peru (N = 85, 33.6%), and La Paz, Central-Western of Bolivia (N = 83, 32.8%). The three centers shared similar characteristics in terms of size, type of treatment given to patients, professionals and free access of care.

2.1.1. Inclusion criteria

All stabilized community-dwelling patients diagnosed with schizophrenia according to the criteria of International Classification of Diseases (ICD), 10th version (WHO, 1992) were included in this study.

2.1.2. Non-inclusion criteria

Patients with a history of neurological disorders (including stroke, epilepsy and head injury) or other illnesses affecting the central nervous system (blindness, deafness) were not included in the present study.

2.2. Procedures

Two psychologists, who were part of the research team, trained for scale evaluation, and supervised by the principal researcher (AC-U), conducted the evaluations of the participants under the auspices of the mental health services of each country. The length of time of the evaluation was between 20 and 30 min.

2.3. Data collection

2.3.1. Demographic and illness characteristics variables

The variables assessed were sex, age, ethnicity (Aymara and non-Aymara), educational level (≥12 years or <12), employment status (unemployed or employed), marital status (single or in couple), family income (measure of the total salary per month for all members of the family, expressed in US dollars), age at onset of the disorder, duration of untreated psychosis (DUP), the number of hospitalizations in the last 3 years. All patients were administered antipsychotics. The presence or absence of add-on integrated treatment (defined by psychotherapy,

family psychoeducation, and/or day care hospital in addition to pharmacological treatment) was also reported.

Concerning ethnicity, the Aymara is the largest ethnic group in the region, with a population of 2 million people, and has lived in the Andes Mountains for centuries. Recent generations of Aymara have undertaken a massive migration from rural towns to large cities and, thus, receive healthcare services from the same clinics as non-Aymara individuals (Köster, 1992; Van Kessel, 1996; Gundermann et al., 2007; Núñez & Cornejo, 2012).

2.3.2. Psychotic symptomatology

Psychotic symptomatology was evaluated with the Positive and Negative Syndrome scale for Schizophrenia (PANSS) (Kay et al., 1987). This 30-item, 7-point (1–7) rating scale is specifically developed to assess psychotic symptoms in individuals with schizophrenia and comprises 5 different subscales: positive, negative, cognitive, depressive and excitement scales (Fresán et al., 2005a). The PANSS has been translated into Spanish and validated in Spain by Peralta and Cuesta (1994) and in Mexico by Fresán et al. (2005a). Insight into illness was specifically assessed by the G12 item of the PANSS. G12 is a global clinical assessment of lack of judgment and insight. It measures one's level of insight by assessing one's ability to recognize psychiatric illness, need for treatment, decision-making, and planning.

2.3.3. VBS and aggression assessment

The patient's overall level of violence and aggression was assessed by the caregivers using two widely used and validated scales: the *Overt Aggression Scale* (*OAS*) (Yudofski et al., 1986) and the *Agitated Behavior Scale* (*ABS*) (Corrigan, 1989). VBS was defined according to the OAS score (Yudofski et al., 1986). The OAS is a standardized behavioral checklist that rates episodes of aggression in four main categories, representing escalating violent behavior: 1) verbal aggression, 2) physical aggression against self, 3) physical aggression against objects, and 4) physical aggression against others. Scores range from 0 to 4 where 0 indicates nonaggression and 4 indicates extreme aggression. The individual total OAS scores are calculated by adding the scores of the four subcategories of OAS, ranging from 0 to 16. This instrument is widely used due to its documented reliability and validity. The Spanish version of this scale was utilized (Páez et al., 2002; Fresán et al., 2004). As recommended in the validation study, the VBS group (VBS+) was defined by a score ≥7 (sensitivity: 0.80; specificity: 0.97) (Fresán et al., 2004). Patients with a score <7 were not considered as violent (VBS−).

The aggression level was measured by the aggression subscore of the ABS (Corrigan, 1989). The ABS is a 14-item instrument to objectively assess the agitation of patients in three domains: disinhibition, aggression and lability. In this study work, we utilize the aggression subscale as an indicator of VBS. This measure uses a rating of severity from 1 (absent) to 4 (present to an extreme degree). No cut-off score was defined in the validation study (Corrigan, 1989).

The OAS and ABS has been developed to evaluate aggressive behavior during a specific period of time (Yudofski et al., 1986; Corrigan, 1989). In this study, the period was the 4 weeks before evaluation.

2.3.4. Attitude towards treatment

The *Drug Attitude Inventory* (*DAI-10*) (Hogan et al., 1983) is a 10-item self-report scale that assesses the current attitude, experience and beliefs about antipsychotic drugs. The DAI-10 is considered to be a good predictor of adherence to treatment in schizophrenia (Hogan et al., 1983; Nielsen et al., 2012). Scores ranged from −10 (very poor attitude) to +10 (best possible attitude). It is a simple and easy-to-use self-report instrument with satisfactory psychometric properties that assesses a clinical dimension relevant to nonadherence (Nielsen et al., 2012). DAI-10 scores that are analyzed here were obtained from patients. The DAI-10 is a time point report of the patient's attitude towards treatments and has no specific period of time.