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Prevalence, demographic and clinical correlates of suicide attempts in Chinese medicated chronic inpatients with schizophrenia

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ABSTRACT

The high prevalence of suicide in schizophrenia may be related to its demographic and clinical characteristics. Because suicide prevalence and its associations with clinical variables are less well characterized in Chinese than European patients with schizophrenia, we assessed the suicide attempts in 520 Chinese inpatients with schizophrenia. The suicide attempt data were collected from medical case notes and interviews with the patients and their family members. Patients were rated on the Positive and Negative Syndrome Scale (PANSS), the Simpson and Angus Extrapyramidal Symptom Rating Scale (SAES), and the Abnormal Involuntary Movement Scale (AIMS). Smoking severity was evaluated using clinician-administered questionnaires and the Fagerstrom Test for Nicotine Dependence (FTND). We found a suicide attempt rate of 9.2% in these schizophrenic inpatients. The attempters were single, had a significantly younger age but more hospitalizations, had higher depressive symptoms, and began smoking at an earlier age, smoked more cigarettes each day and had higher FTND total scores than patients without suicide attempts. The logistic regression analysis also indicated that suicide attempts were associated with the number of hospitalizations, depressive symptoms and FTND total scores. These results suggest that Chinese inpatients with schizophrenia attempt suicide more often than the general population. Further, some demographic and clinical variables are risk factors for suicide attempts in schizophrenia.

1. Introduction

Individuals with schizophrenia are at high risk for suicide (Hawton et al., 2005; Pompili et al., 2007; Hor and Taylor, 2010; Balhara and Verma, 2012). Suicide has been shown to represent the major single cause of premature death among patients with schizophrenia spectrum disorders (Montross et al., 2005, 2008; Lopez-Morinigo et al., 2012). Almost 50% of patients with schizophrenia will make a suicide attempt (SA) within their lifetime (Bolton et al., 2007). The lifetime prevalence of completed suicide ranges from 10% to 15% (Fenton et al., 1997; Xiang et al., 2008), which is approximately 8.5–20 times higher than in the general population (Gan et al., 2001; Kasckow et al., 2011). Risk factors for suicide in schizophrenia are similar to those in the general population (Hawton et al., 2005). There are, however, other risk factors that are specific to the disorder (Siris, 2001). Risk of suicidal behavior (including suicide, SA and self-harm) has been associated with male gender, younger age at onset of illness, unmarried status, unemployment, higher social class, longer duration of untreated psychosis (DUP), substance use, depressive symptoms, a greater level of insight and previous suicidal ideation and attempts (Verdoux et al., 2001; Nordentoft et al., 2002; Power et al., 2003; Warman et al., 2004; Harvey et al., 2008; Clarke et al., 2006; Bertelsen et al., 2007; Hor and Taylor, 2010; Brugnoli et al., 2012). The majority of schizophrenic patients who commit suicide have at least one previous attempt (Harkavy-Friedman et al., 1999), which indicates that a suicide attempt is an important risk factor for completed suicide (Drake et al., 1985). The high risk of suicide persists throughout the lifespan of schizophrenic patients (Ran et al., 2005).

The suicide rate and risk factors differ between cultures, and cross-cultural studies lead to a deeper understanding of suicidal

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behaviors (Medina et al., 2012; Tarik Yilmaz and Riecher-Rossler, 2012; van Bergen et al., 2012). For example, socio-economic factors, mental health problems or gender pattern difference influence suicidal behavior differently in different countries. A recent study showed that although there is no significant difference in prevalence of serious suicidal expressions among young people in Cambodia as compared to Nicaragua, the associated factors behave differently, including gender, mental health syndromes, or mental distress (Medina et al., 2012). Another recent study compared the reasons for the suicide attempt in Turkish immigrants to Swiss suicide attempters, showing that cultural and immigration-specific issues play a role in the suicide behavior of immigrants (Tarik Yilmaz and Riecher-Rossler, 2012). A similar study examined the suicidal behavior in Surinamese, Turkish, and Moroccan immigrant young women in the Netherlands, showing that suicidal behavior was influenced by cultural values of self-sacrifice and protection of honor (van Bergen et al., 2012). Taken together, these studies suggest that trans-cultural issues and socio-cultural factors have a strong influence on the suicide rate and suicidal behavior.

While some studies have suggested that specific demographic and clinical variables are associated with suicide attempts in schizophrenia, these associations are often inconsistent (Hawton et al., 2005). Previous reports regarding risk factors for suicide in schizophrenia have been inconclusive (Reutfors et al., 2009). Quantifying risk of suicide amongst schizophrenic patients is not well defined and needs further investigation. Attempted suicide often precedes completed suicide and seems to serve as a reasonable behavioral "marker" of suicide. However, few investigators during the last decade have focused on studying attempted suicide among schizophrenic patients (Barak et al., 2008).

To date, the majority of studies examining suicide attempts in schizophrenia have focused on Caucasian patients, and only a few systematic studies have investigated the socio-demographic and clinical correlates of suicide attempts in Chinese schizophrenics. Ran et al. (2005) reported that schizophrenic attempters in a Chinese rural community had a significantly younger age, higher level of education, higher rate of lifetime depressed mood and hopelessness, and a larger number of positive symptoms than patients without suicide attempts. One recent study by Xiang et al. (2008) examined the socio-demographic, clinical and quality of life (QOL) correlates of suicide attempts among Chinese schizophrenic outpatients. They found that early age at onset, poor physical QOL, use of clozapine and benzodiazepines, and study site (Hong Kong vs. Beijing) were significant contributors to suicide attempts. A more recent study reported that suicide attempts were independently associated with rural residence, having major medical conditions and better social functioning among Chinese outpatients with schizophrenia (Yan et al., 2013).

The objective of this study was to investigate the prevalence of suicide attempts among Chinese schizophrenic inpatients and to determine the socio-demographic and clinical correlates of suicide attempts. We hypothesized that: (1) the rates of suicide attempts will be significantly higher in schizophrenic patients than the general population; (2) the same demographic characteristics and clinical symptoms reviewed above will significantly correlate with suicide attempts.

2. Methods

2.1. Setting and subjects

The study was conducted at the Beijing Hui Long Guan Hospital, which is one of the largest psychiatric hospitals in China with more than 1300 inpatients and which is located 30 km from central Beijing and serves a catchment area population of 30 million people. We approached all inpatients using a cross-sectional naturalistic design. The recruitment criteria included: 1) age 25–75 years, Han Chinese; 2) confirmed DSM-IV diagnosis of schizophrenia; 3) with at least 5 years of illness; 4) had been receiving stable doses of oral antipsychotic drugs for at least 6 months before entry into the study; 5) could provide written informed consent and were able to take part in a psychopathological assessment. Diagnoses were made for each patient by two independent experienced psychiatrists and confirmed by the Structured Clinical Interview for DSM-IV (SCID). The mean age of the patients was 49.4 ± 11.1 years. All patients were of the chronic type, with a mean illness course of 24.8 ± 11.3 years. Antipsychotic drug treatment consisted mainly of monotherapy with clozapine ($n = 210$), risperidone ($n = 136$), chlorpromazine ($n = 27$), sulpiride ($n = 32$), perphenazine ($n = 34$), haloperidol ($n = 19$), quetiapine ($n = 28$), aripiprazole ($n = 8$), olanzapine ($n = 7$), and depot antipsychotics ($n = 19$) including pipotiazine palmitate ($n = 11$) and haloperidol decanoate ($n = 8$). Mean antipsychotic dose (in chlorpromazine equivalents) was 492 ± 534 mg/day. The patients had been on their respective medication for 42 ± 56 months at the time of the investigation.

The Institutional Review Board (IRB) of Beijing HuiLongGuan hospital approved this study, and each subject gave written informed consent for participating after the study had been fully explained.

2.2. Clinical measures

2.2.1. Socio-demographic characteristics

Research staff administered a detailed questionnaire that asked for the general information, socio-demographic characteristics, smoking and alcohol drinking behavior, history of suicide attempts, and medical and psychological conditions. Additional information was collected from available medical records and collateral data (from family and/or treating clinician).

According to the report of the World Health Organization (WHO), the outcome-based term "fatal suicidal behavior" or "completed suicide" has been proposed for suicidal acts that results in death, and similarly, "non-fatal suicidal behavior" for suicidal actions that do not result in death. Such actions are also often called "attempted suicide" (Krug et al., 2002). However, there has been much disagreement about the most suitable terminology to describe suicidal behavior (Silverman et al., 2007a,b). Hence, in this study, we defined a suicide attempt as an intentionally self-destructive act performed with at least some intent to die (Kao et al., 2011), but not resulting in death. During the research interview, all subjects were asked about previous suicide attempts with the following details: the number of attempts, the exact date for each suicide attempt, and the methods. The main question was "In your entire lifetime did you ever attempt suicide?" Responses were coded as yes or no. History of suicide attempts were confirmed by a review of medical records supplemented by a clinical diagnostic interview of patients and, whenever possible, their relatives by a qualified psychiatrist. Additional visits were requested for subjects with missing or ambiguous data.

2.2.2. Clinical measures

Four psychiatrists, who had simultaneously attended a training session in the use of the Positive and Negative Syndrome Scale (PANSS) before the study began, assessed patient psychopathology using the PANSS. Medication side effects were assessed by the same clinical psychiatrists. Parkinsonism and akathisia were measured with the Simpson and Angus Extrapyramidal Symptom Rating Scale (SAES), and tardive dyskinesia with the Abnormal Involuntary Movement Scale (AIMS). After training, repeated