Predictors of suicide in Asian patients with first episode psychosis

Natasha Mitter [a,*], Mythily Subramaniam [a], Edimansyah Abdin [a], Lye Yin Poon [b], Swapna Verma [b]

[a] Research Division, Institute of Mental Health, Buangkok Green Medical Park, 10 Buangkok View, Singapore 539747, Singapore
[b] Early Psychosis Intervention Programme (EPIP), Institute of Mental Health, 10 Buangkok View, Singapore 539 747, Singapore

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ABSTRACT

High rates of suicide have been reported in psychotic disorders, particularly in the early phases. Studies examining suicide risk during the first episode of psychosis (FEP) are lacking, especially in the Asian context. The present study aims to investigate the prevalence of completed suicides and associated risk factors in a multi-ethnic Asian society.

Method: Data from 1397 patients accepted into a local Early Psychosis Intervention Programme (EPIP) was collected. This included sociodemographic and clinical data. Cox proportional-hazards regression models were performed in order to explore factors associated with time to completed suicide.

Results: The sample comprised of 1397 FEP patients, with 687 females and 710 males. The mean age was 28.2 years. The prevalence of suicide in this sample was 1.9%. Of the 26 FEP patients who committed suicide, data on time to suicide was available for 23 of them. 56.5% committed suicide during the first year of follow-up. A higher risk of suicide was associated with an older age (Hazard Ratio (HR) = 1.31, 95% CI, 1.05–1.63), longer DUP (HR = 1.05, 95% CI, 1.02–1.11), higher PANSS positive (HR = 1.91, 95% CI, 1.37–2.67), higher GAF symptomatology (HR = 1.16, 95% CI, 1.04–1.30) and GAF disability scores (HR = 1.12, 95% CI, 1.02–1.22).

Conclusion: Older patients with longer DUPs, higher PANSS positive and negative scores and better functioning appear to be at higher risk of suicide in this sample. Early intervention services should focus on a thorough risk assessment in order to reduce the risk of suicide during FEP.

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1. Introduction

Suicidal behaviour reportedly occurs frequently in patients with psychosis. Indeed, it is one of the major causes of death in schizophrenia (Brown, 1997). Recently, there has been evidence suggesting that suicidal behaviour differs during various phases of the illness (Nordentoft et al., 2002; Addington et al., 2004; Clarke et al., 2006; Upthegrove et al., 2010). Differences in suicide rates have been noted between patients experiencing first-episode psychosis (FEP) and those with long-term psychotic illnesses, with risk being the highest during the early phases (Palmer et al., 2005; Clarke et al., 2006; Barrett et al., 2010). In a comprehensive meta-analysis of 61 studies, Palmer et al. (2005) found that the lifetime prevalence rate of completed suicide among the first-admission or illness onset group was 5.6%, thrice as much as those with chronic schizophrenia. Moreover, the rate of suicide attempts in patients experiencing FEP has been high, ranging from 10 to 20% (Verdoux et al., 2001; Addington et al., 2004; Clarke et al., 2006; Robinson et al., 2009).

The implications of these rates are worrying and hence most of the early psychosis detection and intervention programmes focus on reducing the risk of suicide in patients with FEP. To this end, studies have tried to elucidate the risk factors associated with suicidality in

FEP. Findings have been somewhat inconsistent; however, some factors have emerged more prominently than others. Studies have shown that a younger age of onset of psychosis is associated with suicide attempts (Nordentoft et al., 2002; Bertelsen et al., 2007; Barrett et al., 2010). Clarke et al. (2006) even reported a younger age of onset to be the only significant predictor of suicide attempts at 4-year follow-up. Previous suicidal behaviour, particularly a history of suicide attempts, has also been documented to be one of the most robust predictors of suicidal risk during FEP (Hawton et al., 2005) with a number of studies reporting a past history of suicidal behaviour to be significant in predicting risk in patients with FEP (Verdoux et al., 2001; Nordentoft et al., 2002; Melle et al., 2006; Harvey et al., 2008; Robinson et al., 2009). The association between comorbid disorders and suicide in patients with FEP has been examined in several studies. A number have found drug and alcohol misuse, particularly polysubstance abuse, to increase the risk of suicidal behaviour (Verdoux et al., 1999; Hawton et al., 2005; Barrett et al., 2010; Pompili et al., 2011). Indeed, in an examination of the link between suicidality and substance use in 64 FEP subjects, Verdoux et al. (1999) found that a history of drug use, particularly poly substance abuse, was the most robust predictor of suicidality. Various findings have also attested to the occurrence of depression in psychosis, with previously diagnosed as well as current depression having significant correlation with suicide risk in these patients (Hawton et al., 2005; Upthegrove et al., 2010). Upthegrove et al. (2010) noted the presence of clinically significant depression in

different phases of FEP, with a combination of depression and suicidal thinking occurring in up to 63% of the sample. Findings for the association between the duration of untreated psychosis (DUP) and suicidal behaviour in FEP have been mixed (Nordentoft et al., 2002; Addington et al., 2004; Hawton et al., 2005; Clarke et al., 2006; Barrett et al., 2010). While some have reported a significant correlation between the two (Clarke et al., 2006; Barrett et al., 2010), others have found no such relationship (Nordentoft et al., 2002).

While most studies have looked at risk factors associated with a range of suicidal behaviour; few have focused on those associated with completed suicide specifically in FEP. As reported by Pompili et al. (2011), there is a problem in differentiating "risk factors for suicide attempts and completed suicide because there are no studies… which can be used for this purpose". In a nested case–control design, Nordentoft et al. (2004) reported reduction in suicide mortality rate, and found an elevated rate of suicide in the first year of treatment among younger patients, with the highest occurring post hospitalisation or discharge. In relation to patients in other points of the illness, those in the first year of treatment have been noted to be at a 60% elevated risk of suicide (Nordentoft et al., 2004). Several other studies have reported male gender, previous suicide attempts and depression to be predictive of suicide in patients with schizophrenia, but these studies have not examined FEP specifically (Roy, 1982; Rossau and Mortensen, 1997; De Hert et al., 2001).

In the Asian context, Thong et al. (2008), in a case–control study in Singapore, examined suicide in psychiatric patients and found schizophrenia to be the most common key diagnosis in this group, occurring in 46.3% of the patients. However, even in Asia, there has generally been a lack of research on suicidality specific to FEP. Given the dearth of studies examining predictors of completed suicide, our study aims to examine the prevalence of and risk factors associated with completed suicides in patients with FEP in a multi-ethnic Asian society in Singapore.

2. Subjects and methods

Singapore is an island city-state nation in South-East Asia. In 2009, the population was just under 5 million of which 3.7 million were Singapore residents. Of its residents, 74.2% are of Chinese descent, 13.4% are Malays, and 9.2% are of Indian descent. The Singapore Early Psychosis Intervention Programme (EPIP) was initiated in April 2001. It is a comprehensive, integrated, and patient centred programme led by a multidisciplinary team of psychiatrists, psychologists, case managers, social workers, nurses and occupational therapists. Targeted at individuals island-wide, EPIP aims to improve the outcome of patients with psychosis and reduce the burden of care for their families (Verma et al., 2012). From 2001 to 2011, EPIP screened 3098 individuals and accepted 2124 patients. However, we have data for 1970 patients in our database after excluding 154 patients who had disengaged from the service one to two weeks after joining the programme. There were 1397 (70.9%) patients who completed 2 years follow-up with the programme included in this analysis — after excluding 235 (11.9%) patients who were discharged early or had moved to other services, 213 (10.8%) patients who had defaulted appointments, 8 (0.4%) patients who were identified as being at high-risk of psychosis without the full-fledged disorder, 10 (0.5%) cases who were identified as a non-psychotic patients, and 108 (5.4%) patients who were missing key demographic variables such as age, gender and ethnicity. Patients fulfilled the following inclusion criteria at intake: 1) age between 15 and 41 years, 2) first episode psychotic disorder with no prior or minimal treatment, 3) no current history of substance abuse, and 4) no history of major medical or neurological illness.

All patients were assessed at baseline (i.e. within 72 h of starting antipsychotics), 3 months, 6 months and every 6 months thereafter for 2 years. Patient diagnoses were assessed using the Structured Clinical Interview for DSM-IV, patient version (SCID-P) (First et al.,

1996), the severity of psychopathology was assessed using the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987) and functioning by the Global Assessment of Functioning Scale (GAF) (Endicott et al., 1976). These ratings were done by experienced psychiatrists who were trained in the use of the rating instruments. All raters participated in periodic inter-rater reliability sessions to avoid rater drift. The inter-rater reliability was assessed to be 0.94. The duration of untreated psychosis (DUP) was operationalised as the time in months between onset of psychotic symptoms (delusions, hallucinations, disorganised behaviour) and the time when a definitive diagnosis and treatment were established. Patients and the primary caregivers were interviewed by clinicians and asked to date the onset of psychotic symptoms and the DUP was estimated after combining information from the interviews. In most cases, there was consensus among the patients and the primary caregivers as to the time of onset of psychotic symptoms; however, in cases where there was disagreement, we favoured the patient's report of onset of symptoms over that of the caregivers. Sociodemographic data was obtained using a semistructured questionnaire.

All patients even the ones that default are regularly contacted by case managers. So in almost all cases the clinical team was contacted/ informed by family members about the suicide. In a few cases, clinicians become aware about it when police wrote to the treating doctor for medical report since all unnatural deaths in Singapore become a police case and require investigation by police.

Analyses were performed using SAS version 9.2 (SAS Institute, Cary, NC). Mean and standard deviations were calculated for continuous variables, and frequencies and percentages were calculated for categorical variables. Normality of continuous data was checked using the Kolmogorov–Smirnov 1-sample test. Differences in baseline demographic and clinical characteristics between two groups were tested by independent t-test and Mann–Whitney test for normal and non-normal continuous variable whenever appropriate. Survival curve was generated using Kaplan–Meier estimates. We performed Cox proportional-hazards regression models in order to explore significant factors associated with time to completed suicide. We included all socio-demographic and clinical variables (i.e. age, gender, education level, employment status, marital status, DUP, diagnosis as assessed by SCID, PANSS negative, positive and general psychopathology scores, GAF disability and symptoms scores) as predictors in a Cox regression model. All predictors were checked for 2-way interactions. We did not include ethnicity in the model due to low number of cases of completed suicides among Malays (n = 1) as compared to Chinese (=24). There were no cases of completed suicides among Indians and 'Other' ethnic groups. Interaction and main effects were included in the final Cox regression model.

3. Results

Baseline demographic and clinical characteristics of the subjects are presented in Table 1. The sample comprised 687 females (49.2%) and 710 males (50.8%) with a mean (SD) age of 27.7 years (6.6) and range from 15 to 41 years. Twenty six patients (1.9%) had completed suicides. There were slightly more males (57.7%) than females (42.3%) in suicide patients. The majority were Chinese (96%) and single (72%). Their median DUP was 6.5 months. Their mean (SD) PANSS total score and GAF scale total score at baseline were 62.0 (15.3) and 43.0 (16.8), respectively. Majority of the suicide patients had a diagnosis of schizophrenia spectrum and delusional disorder (73.1%) and followed by affective psychosis (19.2%) while, in the control group, majority was diagnosed with schizophrenia spectrum and delusional disorder (78.8%) and followed by brief psychotic disorder and psychosis NOS (14.6%). There were no statistically significant differences between the two groups in terms of age, gender, race, marital status, education, employment status, DUP and GAF scores except for PANSS positive scores at baseline (Table 1). The mean PANSS positive scores were