Suicide in first episode psychosis: A nationwide cohort study

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ABSTRACT

Background: Relatively little is known about suicide in diagnostic subtypes of first episode psychosis (FEP). Our aim was to assess suicide rates and potential risk factors for suicide in FEP.
Methods: This is a national register-based cohort study of patients born in 1973–1978 in Sweden and who were hospitalized with a FEP between ages 15 and 30 years (n = 2819). The patients were followed from date of discharge until death, emigration, or 31st of December 2008. The suicide rates for six diagnostic subtypes of FEP were calculated. Suicide incidence rate ratios (IRRs) were calculated to evaluate the association between suicide and psychiatric, familial, social, and demographic factors.
Results: In total 121 patients died by suicide. The overall suicide rate was 4.3 (95% confidence interval [CI] 3.5–5.0) per 1000 person-years. The highest suicide rates were found in depressive disorder with psychotic symptoms and in delusional disorder. In an adjusted model, the strongest risk factors for suicide were self-harm (IRR 2.7, CI 1.7–4.4) or a conviction for violent crime (IRR 2.0, CI 1.3–3.2). Also having a first-degree relative with a schizophrenia/bipolar diagnosis (IRR 2.1, CI 1.2–3.6) or substance use disorder (IRR 2.0, CI 1.2–3.2) were significant risk factors for suicide.
Conclusions: Impulsive behavior such as self-harm as well as having a family history of severe mental disorder or substance use are important risk factors for suicide in FEP.

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1. Introduction

Patients with a first episode psychosis (FEP) have an elevated suicide risk and higher all-cause mortality (Allebeck, 1989; Craig et al., 2006; Dutta et al., 2010; Bjorkenstam et al., 2013). In a cohort study of FEP patients in England and Scotland the suicide mortality was increased 12 times compared to the general population (Dutta et al., 2010). Previous studies have identified depressive symptoms, suicidal ideation/intent, negative events, non-suicidal self-harm, and depressive symptoms as risk factors for suicide in FEP (Fedyszyn et al., 2012). Dutta et al. (2011) also found male gender and presence of more pronounced psychiatric symptoms to be predictors of suicide in FEP. In a recent literature review, a substantial proportion of psychotic patients examined after violent suicide attempts, self-mutilation, homicide, and assault resulting in serious injury were found to be in their first episode of psychosis (Nielssen et al., 2012). Moreover, a substantial proportion of first-episode patients committed an act of less serious violence or

attempted suicide prior to initial treatment (Nielssen et al., 2012). A history of violent offending has also been shown to be a risk factor for suicide among people diagnosed with schizophrenia (Webb et al., 2011). However, to the best of our knowledge, no earlier study has investigated the role of violent offending on suicide risk in FEP.

Although a delay in the clinical diagnosing of schizophrenia is common, most studies of suicide risk and risk factors for suicide in FEP have been performed on patients with established schizophrenia (Foley et al., 2008; Pompili et al., 2011). However, self-harm has been shown to be common during the pre-treatment phase of first-episode psychosis (Harvey et al., 2008; Nielssen et al., 2012) and one can assume that some patients may die by suicide early in the course of mental illness, before they have developed or been formally diagnosed with schizophrenia. Moreover, most studies of suicide in FEP have not been population based and have included a relatively small number of patients and suicides (Radomsky et al., 1999; Bertelsen et al., 2007). For these reasons, more knowledge is needed about suicide rates and risk factors for suicide in FEP and in specified subtypes of FEP. Because the suicide risk is most increased in the early phase of psychotic disorder (Osby et al., 2000), this time period is particularly important to study.

We performed a nationwide register study of completed suicide across the broad spectrum of patients with a first inpatient diagnosed

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psychotic disorder in a cohort of young adults. Our aims were, first, to calculate suicide rates and second, to assess the significance of a range of potential risk factors for suicide across different FEP diagnoses.

2. Methods

2.1. Study population

National registers make it possible to study the entire Swedish population and to perform linkage of data between different registers on an individual level. In the present study, the unique personal identity number assigned to each permanent resident in Sweden was used to link information from ten population-based registers. The Medical Birth Register, established in 1973 and held by the Swedish National Board of Health and Welfare, includes information on almost all births in Sweden. The National Patient Register includes all individuals admitted to psychiatric or general hospitals, with nearly complete coverage for psychiatric care since 1973 and for somatic care since 1987 (Ludvigsson et al., 2011). Through the Multi-Generation Register one is able to link children and parents (biological and adoptive) together. The Causes of Death Register comprises information on all deaths of Swedish residents since 1952. The Register of Court Convictions contains information on all court convictions in Sweden for persons 15 years of age or older. The Swedish Register of Children and Young Persons subjected to child welfare measures were used to obtain records on out-of-home care foster family and residential care. The Total Enumeration Income Survey contains data on the income of and governmental benefits provided to all Swedish residents. The Total Population Register, established in 1968, includes information such as age, sex, and place of residence. Finally, the National School Register, administered jointly by the Swedish National School Administration and Statistics Sweden, encompasses information on each individual's educational achievement, i.e. grades by subject as well as grade point average, for all students graduating from both compulsory school (years 1–9) and secondary school (years 10–12) since 1988. The selection of the study population is illustrated in Fig. 1. We identified all individuals born between 1973 and 1978 in the Medical Birth Register (n = 604 072). Individuals who died (n = 7097) or emigrated (n = 17 508) before age 15 were excluded. We only included individuals with at least one biological parent born in Sweden and for whom we also could obtain the personal identity number for the biological mother (excluding another 40087 individuals). Of the remaining 551590 individuals, we identified as the study cohort all individuals with a first diagnosis of hospital-treated psychosis (as defined by the International Classification of Disease (ICD) ICD-9: 291–292, 295, 296A, 296C, 296D, 296E, 296W, 297B, 297C, 297W, 297D, 298; ICD-10: F10.5–F19.5, F10.7–F19.7, F20–F31, F32.3, F33.3) sometime between the age 15 to 30 years (n = 2819). Thus, the diagnoses were given between the years 1988 and 2003. Seven diagnostic groups were created: (1)

schizophrenia and schizoaffective disorder (ICD-9: 295; ICD-10: F20, F25), (2) bipolar disorder (ICD-9: 296A, 296C–296E, 296W; ICD-10: F30–F31), (3) depressive disorder with psychotic symptoms (ICD-10: F32.3, F33.3), (4) persistent delusional disorder (ICD-9: 297B–297C, 297W; ICD-10: F22), (5) psychotic disorder due to substance use (ICD-9: 291, 292; ICD-10: F10.5–F19.5, F10.7–F19.7), (6) acute and transient psychotic disorder (ICD-9: 298; ICD-10: F23), and (7) other psychoses (ICD-9: 297D, 298; ICD-10: F21, F24, F28–F29).

2.2. Outcome

Suicide was identified in the Cause of Death Register (ICD-9: E950–E959, E980–E989; ICD-10: X60–X84, Y10–Y34) as an underlying cause of death. To reduce spatial and secular trends in detecting and classifying cases of suicide (Linsley et al., 2001), our definition of suicide includes deaths with undetermined intent. The patients were followed from date of discharge after a first-time psychosis until date of death, emigration, or until the end of the follow-up period, i.e. 31st of December 2008.

2.3. Risk factors

We categorized potential risk factors for suicide occurring before the first diagnosis of FEP into five main categories: psychiatric factors, familial factors, social factors, premorbid intellectual functional level, and other risk factors.

2.4. Psychiatric factors

We created three dichotomous variables for having a history of hospitalization (i.e. before first diagnosis for psychosis) with the following diagnoses: (1) any psychiatric diagnosis (ICD-8/ICD-9: 290–319; ICD-10: F00–F99), (2) deliberate self-harm (ICD-8/ICD-9: E950–E959; ICD-10: X60–X84), and (3) depression (ICD-8: 296.00, 300.40; ICD-9: 296B, 300E, 311; ICD-10: F32–33). Substance use disorder was defined as a hospitalization with a primary or secondary diagnosis of a substance use disorder (ICD-9: 291, 292, 303–305 and ICD-10: F10–F19) or a conviction for an alcohol or drug-related offense.

2.5. Familial factors

We created dichotomous variables for familial mental disorders, i.e. psychiatric diagnoses among first-degree relatives (biological parents or siblings) and who had been hospitalized any time between 1973 and the study subjects' first psychiatric diagnosis. Through the National Patient Register we identified the following diagnoses: schizophrenia and bipolar disorder (ICD-8/ICD-9: 295, 296A, C, D, E, W; ICD-10: F20, F25, F30–F31), substance use disorder (ICD-9: 291, 292, 303–305; ICD-10: F10–F19) or other mental disorders. As a separate risk factor,
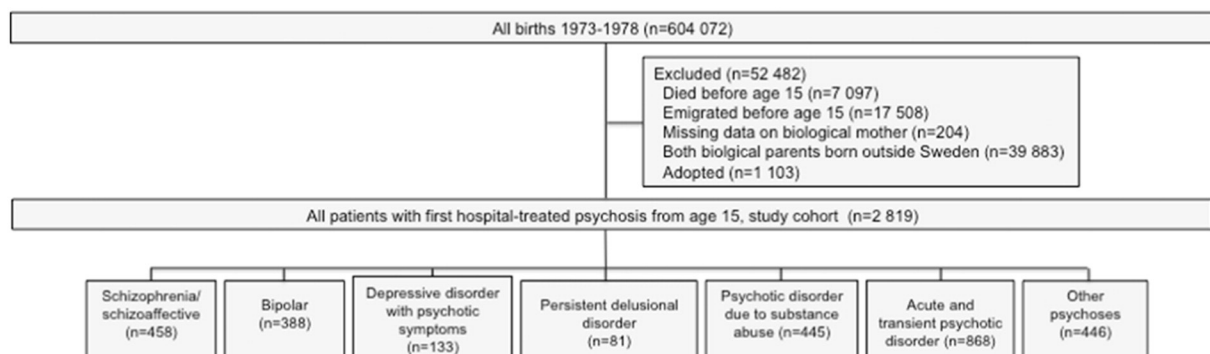

Fig. 1. Flow chart for the study population.