Prevalence and risk factors for HIV, hepatitis B, and hepatitis C in people with severe mental illness: a total population study of Sweden

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Summary

Background Severe mental illness is associated with increased morbidity and mortality. The elevated risk of blood-borne viruses (BBVs) in people with severe mental illness is of concern, but the full extent of this problem is unclear. We aimed to determine the prevalence of and risk factors for BBVs in people with severe mental illness.

Methods In this nationwide, population-based, cross-sectional study, we estimated the point prevalence of HIV, hepatitis B (HBV), and hepatitis C (HCV) in people with severe mental illness, including the total adult (≥18 years) Swedish population. We defined severe mental illness as a clinical diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or other psychotic illness according to the Swedish version of the International Statistical Classification of Diseases version 8, 9, or 10. We used multivariable logistic regression to determine the odds of BBVs in individuals with severe mental illness, relative to the general population, and to identify independent risk factors (age, sex, immigration status, socioeconomic status, education, and substance misuse) for BBV infection. We also did a sensitivity analysis excluding BBV diagnoses made before the introduction of the Register for Infection Disease Control (1997).

Findings Of 6815 931 adults in Sweden, 97 797 (1.43%) individuals had a diagnosis of severe mental illness. Prevalence of BBVs was elevated in people with severe mental illness, of which 230 (0.24%) had HIV, 518 (0.53%) had HBV, and 4476 (4.58%) had HCV. After accounting for sociodemographic characteristics, the odds of HIV were 2.57 (95% CI 2.25–2.94, p<0.0001) times higher in people with severe mental illness than in the general population, whereas the odds of HBV were 2.29 (2.09–2.51, p<0.0001) times higher and the odds of HCV were 6.18 (5.98–6.39, p<0.0001) times higher in people with severe mental illness than in the general population. Substance misuse contributed most to the increased risk of BBV; after adjustment, odds ratios were 1.61 (1.40–1.85, p<0.0001) for HIV, 1.28 (1.16–1.41, p<0.0001) for HBV, and 1.72 (1.67–1.78, p<0.0001) for HCV.

Interpretation Our results highlight the need to address the issue of higher prevalence of BBVs in people with severe mental illness and identify interventions preventing infection. Targeting of comorbid substance misuse would have particular effect on reduction of BBV prevalence in this population.

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Introduction

Severe mental illness is commonly defined as a mental disorder that is persistent and disabling in nature, such as schizophrenia, schizoaffective disorder, bipolar disorder, and other psychoses. Increased mortality rates of 2–3 times the general population are well documented among people with severe mental illness, and translate into a reduction in life expectancy of up to 20 years. Approximately 60% of this excess in mortality has been attributed to poor physical health. Although much attention has been focused on addressing cardiovascular, respiratory, and cancer health inequalities, infectious diseases have been largely neglected in mental health research and policy. This situation is problematic as meta-analytic evidence suggests blood-borne virus (BBV) prevalence is elevated amongst individuals with severe mental illness. In North America, the pooled prevalence of BBVs in populations with severe mental illness is estimated to be as high as 6% for HIV, 2–2% for hepatitis B virus (HBV), and 17.4% for hepatitis C virus (HCV). Therefore, HIV and HCV are ten times, and HBV around five times, more common in people with severe mental illness than in the general population. Although lower, similar patterns are evident in people with severe mental illness in European countries (Germany, Belgium, Spain, Greece, Italy), with combined prevalence estimates of 1.9% for HIV, 2.7% for HBV, and 4.9% for HCV. However, the true scale of the problem is unclear, because previous studies have used small, unrepresentative convenience samples recruited from treatment settings. As far as we are aware, no population-based studies have been done of BBV prevalence in severe mental illness, and no studies have examined prevalence in northern European countries.
Articles

Research in context

Evidence before this study
We searched PubMed, PsychINFO, and Embase for studies examining the association between severe mental illness and blood-borne viruses (BBVs) published in English from Jan 1, 1980, to Aug 1, 2016. We used the search terms “severe mental illness”, “serious mental illness”, “schizophrenia”, “schizoaffective disorder”, “bipolar disorder”, “psychosis”, “blood-borne viruses”, “human immunodeficiency virus”, “HIV”, “Hepatitis B”, “HBV”, “Hepatitis C”, and “HCV”. Additionally, we did a hand search of electronic journals. We identified a recent meta-analysis, which reviewed the literature on the prevalence of HIV, hepatitis B (HBV), and hepatitis C (HCV) in people with severe mental illness until Jan 1, 2015. We identified no additional studies. Evidence suggests infection with BBVs in people with severe mental illness is higher than in the general population in places where the prevalence of BBVs is low, and on par with the general population in places where prevalence of BBVs is high. In North America, the pooled prevalence of BBVs in people with severe mental illness is as high as 6.0% (range 0.24–22.9) for HIV, 2.2% (0.78–4.0) for HBV, and 17.4% (2.7–38.0) for HCV. In the limited number of European studies, the pooled prevalence rates were 1.9% (range 0.5–5.1) for HIV, 2.7% (2.4–8.6) for HBV, and 4.9% (2.7–10.7) for HCV. However, the available studies are of moderate to low quality, with small sample sizes, and are likely to overestimate the prevalence owing to use of unrepresentative convenience samples from treatment settings. Furthermore, there is a paucity of research in northern European countries.

Added value of this study
To the best of our knowledge, this study is the first to investigate the prevalence of and risk factors for HIV, HBV, and HCV infection in people with severe mental illness (schizophrenia, bipolar disorder, schizoaffective disorder, and non-organic psychosis) using a nationwide, population-based sample, and the first study to investigate the relationship between BBV and severe mental illness prevalence in northern Europe. The study is based on the entire adult Swedish population, comprised of 6,815,931 people. This sample size allowed us to generate more precise and representative estimates compared with previous studies and augmented the sparse research available on the topic. Compared with previous European studies of patients with severe mental illness, prevalence of HIV and HBV was lower, but HCV was similar. All BBVs were increased in individuals with severe mental illness compared with the general population. Furthermore, we assessed the risk factors associated with this increase in prevalence of HIV, HBV, and HCV in people with severe mental illness. We found substance misuse history conveys the greatest risk in all BBV (approximately four times the risk of HIV and HBV, and 25 times the risk of HCV).

Implications of all the available evidence
Individuals with severe mental illness are at greater risk of infection with BBVs, which probably contributes to the excess of morbidity and mortality observed in this population. This problem has not been widely addressed. Effective drug treatment is available for both severe mental illness and BBV, but additional support might be required in this population to ensure treatment adherence and manage comorbidities. Management of sexual health and substance misuse in people with severe mental illness is needed to tackle the increased risk of infection. Facilitation of access to sexual health clinics for people with severe mental illness and targeted BBV screenings in mental health services might provide potential pathways to address this issue. However, given the substantial risk substance misuse poses for infection with BBVs in the severe mental illness population, helping people manage their substance misuse and implementing harm reduction strategies should be the major focus of any intervention. Future research should focus on identifying the most effective interventions to address the excess of HIV, HBV, and HCV infection in people with severe mental illness.

Methods

Study design and population
We did a nationwide, population-based, cross-sectional study using longitudinal data from Swedish national registers held by Statistics Sweden and the Swedish National Board of Health and Welfare. Registers were linked using the unique personal identification number assigned to each Swedish citizen at birth or to immigrants on arrival in Sweden who have been granted at least 12 months’ residency; it is not dependent on having a Swedish address. The only people missing from the registers would have been recent immigrants with unconfirmed status. Personal identification numbers are recorded in all contacts with health-care, social, and administrative services (both private and state). We compared the prevalence of BBV in those with severe mental illness and in the general population. We included all individuals aged 18 years or older who were alive on Dec 31, 2010. The study was approved by the research ethics committee at the Karolinska Institute, Stockholm, reference numbers 2010/1185-31/5 and 2013/1118-32.
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