Ethnicity and excess mortality in severe mental illness: a cohort study

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Summary

Background Excess mortality in severe mental illness (defined here as schizophrenia, schizoaffective disorders, and bipolar affective disorders) is well described, but little is known about this inequality in ethnic minorities. We aimed to estimate excess mortality for people with severe mental illness for five ethnic groups (white British, black Caribbean, black African, south Asian, and Irish) and to assess the association of ethnicity with mortality risk.

Methods We conducted a longitudinal cohort study of individuals with a valid diagnosis of severe mental illness between Jan 1, 2007, and Dec 31, 2014, from the case registry of the South London and Maudsley Trust (London, UK). We linked mortality data from the UK Office for National Statistics for the general population in England and Wales to our cohort, and determined all-cause and cause-specific mortality by ethnicity, standardised by age and sex to this population in 2011. We used Cox proportional hazards regression to estimate hazard ratios and a modified Cox regression, taking into account competing risks to derive sub-hazard ratios, for the association of ethnicity with all-cause and cause-specific mortality.

Findings We identified 18 201 individuals with a valid diagnosis of severe mental illness (median follow-up 6·36 years, IQR 3·26–9·92), of whom 1767 died. Compared with the general population, age-and-sex-standardised mortality ratios (SMRs) in people with severe mental illness were increased for a range of causes, including suicides (7·65, 95% CI 6·43–9·04), non-suicide unnatural causes (4·01, 3·34–4·78), respiratory disease (3·38, 3·04–3·74), cardiovascular disease (2·65, 2·45–2·86), and cancers (1·45, 1·32–1·60). SMRs were broadly similar in different ethnic groups with severe mental illness, although the south Asian group had a reduced SMR for cancer mortality (0·49, 0·21–0·96). Within the cohort with severe mental illness, hazard ratios for all-cause mortality and sub-hazard ratios for natural-cause and unnatural-cause mortality were lower in most ethnic minority groups relative to the white British group.

Interpretation People with severe mental illness have excess mortality relative to the general population irrespective of ethnicity. Among those with severe mental illness, some ethnic minorities have lower mortality than the white British group, for which the reasons deserve further investigation.

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Introduction

The association between severe mental illness (defined here as schizophrenia, schizoaffective disorders, and bipolar affective disorders) and excess mortality has been well established worldwide. Such mortality is not restricted to suicide mortality but also encompasses mortality from natural causes, including cardiovascular and respiratory diseases.[1]

Few studies have assessed the nature of this inequality by ethnicity. In most studies, ethnicity is treated as a confounder or the sample size has been too small to allow stratified analysis. This concern is noteworthy because many mortality risk factors implicated in severe mental illness, such as cardiovascular disease and diabetes,[2,3] are also known to be more prevalent in some ethnic minority groups relative to white British, European, and non-Hispanic white American populations. Contrary to expectation, results from a 2015 study from the USA[4] implicated lower all-cause, natural-cause, and unnatural-cause mortality in ethnic minority groups (black non-Hispanic, Hispanic, and other ethnic groups) with schizophrenia than in the white non-Hispanic group with schizophrenia. These findings are yet to be replicated outside the USA.

In this study, we aimed to estimate the risk of all-cause, natural-cause, and unnatural-cause mortality for black Caribbean, black African, south Asian, Irish, and white British people with severe mental illness relative to the general population of England and Wales, and to assess the association of ethnicity and other clinical and sociodemographic factors with mortality risk. The present analysis forms part of a larger investigation into ethnic minority inequalities in severe mental illness.[5]

Methods

Study setting and participants

In this longitudinal cohort study, we included individuals with a valid diagnosis of severe mental illness from the case registry of the South London and Maudsley Trust (SLaM), a large secondary care mental health trust

Research in context

Evidence before this study
To assess the evidence for excess mortality in severe mental illness (defined here as schizophrenia, schizoaffective disorders, and bipolar affective disorders) in ethnic minority groups, we systematically searched MEDLINE, PsycINFO, and Embase from database inception to Aug 23, 2016, using the search term "((psychosis OR schizo* OR bipolar) AND (ethnic* OR race OR racial) AND mortality)" and no language restrictions. 294 abstracts were retrieved. After screening by abstract, 42 potentially relevant publications remained. Of these, 12 studies directly assessed the association of severe mental illness with mortality outcomes in individuals with schizophrenia and specifically provided detail on mortality outcomes in severe mental illness by racial or ethnic group. Only one study presented findings relating to cause-specific mortality, and most of the studies focused on suicide or all-cause mortality. With the exception of two studies, most had few individuals from ethnic minority groups, affecting the ability to report on associations for these populations. No adequately powered studies have been done outside the USA that assessed all-cause, natural-cause, and unnatural-cause mortality in ethnic minority groups with severe mental illness.

Added value of this study
Our findings suggest that people with severe mental illness, irrespective of ethnicity, have excess mortality compared with the general population. This observation was evident for all mortality outcomes, including suicide mortality, non-suicide unnatural-cause mortality, respiratory mortality, cardiovascular mortality, and cancer mortality. However, among people with severe mental illness, those from ethnic minority groups (black African, black Caribbean, and south Asian) had lower mortality than the reference white British population. Unlike previous work, we adjusted for the possibility that first-generation migrants might return to their country of origin prior to death (which could erroneously give the impression of so-called healthy migrant effects), since we assessed the effect of emigrations out of the cohort as a competing risk in sensitivity analyses. However, despite taking this possibility into account, observed differences in mortality persisted.

Implications of all the available evidence
Excess mortality is a concern in all people with severe mental illness irrespective of ethnicity. The reduced mortality in black African, black Caribbean, and south Asian groups relative to the white British group in this UK-based population with severe mental illness deserves further investigation. Our findings are consistent with results from a US study of mortality outcomes in schizophrenia, which also indicated reduced mortality in black, Hispanic, and other ethnic groups compared with non-Hispanic white Americans for most causes of death, excluding unnatural causes. These findings might indicate differential factors that might have relevance in improving mortality outcomes in people with severe mental illness.

serving roughly 1·36 million people in an ethnically diverse catchment area of London, UK.[6,7] Since 2006, electronic health records have been used for routine patient care in the Trust. The SLaM Clinical Record Interactive Search system, established in 2008, allows search and retrieval of fully anonymised patient records for secondary analysis.[6,7] Electronic health records predating its establishment have also been incorporated into the system.[7]

Mental health teams within SLaM are required to assign psychiatric diagnoses according to ICD-10 for all patients.[6,8] Searches for diagnoses were done within structured fields and supplemented by a natural language-processing application developed with Generalised Architecture for Text Engineering[9] to identify diagnosis of mental disorders according to ICD-10 in case notes and correspondence, including schizophrenia spectrum disorders (F2*) and bipolar disorders (F30 and F31). We included individuals older than age 15 years at the time of diagnosis who had any contact with SLaM services (including inpatient, outpatient, or emergency department contacts). Individuals with comorbid dementia before their diagnosis of severe mental illness were excluded. The observation period for the study was from Jan 1, 2007, to Dec 31, 2014. At-risk periods in the study were from the date of severe mental illness diagnosis to the date of death or emigration (whichever came first) or to the censor date (Dec 31, 2014) for individuals who were still alive.

Permission to conduct secondary analysis of the Clinical Record Interactive Search system was granted by the Oxfordshire Research Ethics Committee C (reference 08/H0606/71+5). Separate approvals to examine linked mortality data with approved researcher status were obtained from the UK Health & Social Care Information Centre.

Measures

Information on mortality for the general population of England and Wales was linked to the cohort using data from the UK Office for National Statistics with the National Health Service (NHS) number, which is a unique patient identifier for all NHS health records within the UK. The NHS unique patient identifier was also used to link to all records relating to emigrations and so-called cancelled ciphers. The cancelled cipher code is ascribed to individuals who have not consulted with a general practitioner within a 3 year period if younger than 75 years or within a 1 year period if aged 75 years or above.[10,11] Individuals are sent a letter to the last known postal address and if they do not respond within 6 months their registration is cancelled.[10] Methodological work undertaken by the Office of National Statistics using

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