Life expectancy and years of potential life lost in schizophrenia: A protocol for a systematic review and meta-analysis

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Background
Schizophrenia is a severe and debilitating mental illness. Studies and meta-analyses have consistently reported increased mortality related to various causes, including cardiovascular diseases and suicide. Previous reviews have focused primarily on predictors of this increased mortality. Such studies typically yield relative-risk estimates, which have a lot of merit in establishing risk factors that may be used in prevention efforts. However, absolute mortality estimates would be of significant value as well. These include measures such as life expectancy and years of potential life lost (YPLL). To our knowledge, the magnitude of this in populations with schizophrenia has not previously been systematically combined in systematic reviews or meta-analyses. Similarly, there have not been systematic evaluations regarding potential changes in these parameters over time, or variations thereof relating to geographical area or comorbid risk-factors such as substance use disorders or somatic conditions.

With the present systematic review and meta-analysis, we aim to:

1. Identify studies and synthesize their findings relating to life expectancy in people with schizophrenia
   a. If applicable, stratify these findings by calendar period, geographical location, comorbid conditions and other risk factors, and risk of bias in included studies
2. Identify studies and synthesize their findings relating to YPLL in people with schizophrenia
   a. If applicable, stratify these findings by calendar period, geographical location, comorbid conditions and other risk factors, and risk of bias in included studies

Methods
We will search the following bibliographical databases for published studies: Medline (through PubMed), Psycinfo, Embase, Cinahl, and Web of Science, without restrictions regarding year of publication, geographical location, or language of publication. An example of the search strategy as it would look in PubMed is given below:

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<tr>
<td>1.</td>
<td>&quot;Schizophrenia&quot;[Mesh]</td>
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<td>&quot;Mental Disorders&quot;[Majr]</td>
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<td>3.</td>
<td>&quot;Mortality&quot;[Mesh]</td>
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<td>&quot;Life Expectancy&quot;[Mesh]</td>
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<td>5.</td>
<td>&quot;Survival rate&quot; [Mesh]</td>
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**Inclusion criteria**
Studies reporting data on either life expectancy or years of potential life lost in patients diagnosed with schizophrenia according to either ICD, DSM, or RDC will be selected.

**Study selection**
One author (CH) will do an initial screening of the study titles to exclude obviously irrelevant papers. Consequently, two authors (AES and CH) will screen the abstract and full texts of the remaining papers to determine which papers should be included. Discrepancies will be resolved by dialogue between these two authors, and if consensus cannot be reached, the remaining authors (JM and MN) will function as arbiters.

**Data extraction**
The following data will be extracted from the included studies:

- Diagnostic system used to establish diagnosis of schizophrenia
- Total number of patients with schizophrenia
- Mean / median age, sex distribution, etc.
- Country or region of data, classified according to the World Bank as high- middle- or low-income
- Study period
- Source of data (e.g. clinical samples or nationwide registers)
- Overall life expectancy
- Overall YPLL
- Subgroups for data, e.g. gender, ethnicity, etc.
- Life expectancy for each subgroup
- YPLL for each subgroup
- Percentage of expected life lost

We will contact authors if background variables, life expectancy, and / or YPLL is missing from publication, with the intention of requesting said data.

**Risk of bias**
Risk of bias will be established using the Newcastle-Ottawa Scale. In particular, selection bias is potentially important, e.g. whether clinical samples truly reflect all patients with schizophrenia in the population. We
do not expect publication bias to be a possibility, but will establish whether there e.g. are areas that have no reported data.

**Synthesis of data**
Data will be presented graphically with distributions of both life expectancy and YPLL. Data will be pooled according to weights relating to the size of the individual study populations. Furthermore, sub-analyses will be made according to regions, study periods, subgroups, and low versus high risk of bias.