TECHNICAL COMMENTARY

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SCHIZOPHRENIA LIBRARY

Prevalence in homeless populations

Introduction

Prevalence quantifies the proportion of individuals in a population who have a disease during a specific time period. Many studies have reported a high prevalence of various health problems, including mental health problems, among homeless people. This summary table presents the available evidence on the prevalence of schizophrenia in homeless populations. However, the rate of schizophrenia in this population may be difficult to measure due to diversity between studies in the definitions of homelessness and the diagnostic criteria used.

Method

We have included only systematic reviews with detailed literature search, methodology, and inclusion/exclusion criteria that were published in full text, in English, from the year 2000. Reviews were identified by searching the databases MEDLINE, EMBASE, and PsycINFO. Reviews with pooled data are prioritized for inclusion. Reviews reporting fewer than 50% of items on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA[1]) checklist have been excluded from the library. The evidence was graded guided by the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group approach[2]. The resulting table represents an objective summary of the available evidence, although the conclusions are solely the opinion of staff of NeuRA (Neuroscience Research Australia).

Results

We found five systematic reviews that met our inclusion criteria[3-7].

- Moderate to high quality evidence suggests the prevalence of schizophrenia spectrum disorders is around 12.4% in homeless populations in high-income countries. The prevalence rate of schizophrenia is higher in developing countries (22%).
- Moderate quality evidence suggests the overall prevalence rate of any psychotic disorder in homeless people is around 21%.
- Moderate quality evidence shows rates of schizophrenia in homeless populations varied across US cities, with rates higher in Los Angeles than in New York, which had higher rates than Philadelphia. Rates were generally higher in younger than older age-groups, higher in chronically homeless people, and higher in women than in men.

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Ayano G, Tesfaw G, Shumet S

The prevalence of schizophrenia and other psychotic disorders among homeless people: A systematic review and meta-analysis

BMC Psychiatry 2019; 19: 370

View review abstract online

Comparison	**Prevalence of psychotic disorders in homeless populations.**
Summary of evidence	**Moderate quality evidence (large sample, mostly inconsistent, appears imprecise, direct) suggests overall prevalence rate of any psychotic disorder in homeless people is around 21%. The prevalence rate of schizophrenia is lower, around 10%, which is highest in developing (22%) than developed (9%) countries.**
Prevalence of schizophrenia and other psychotic disorders	
31 studies, N = 51,925 Prevalence of any psychotic disorder = 21.21%, 95%CI 13.73 to 31.29%, I^2 = 99.43% Prevalence of schizophrenia = 10.29%, 95%CI 6.44 to 16.02%, I^2 = 98.76% Prevalence of schizophreniform disorder = 2.48%, 95%CI 6.16 to 28.11%, I^2 = 88.84% Prevalence of schizoaffective disorder = 3.53%, 95%CI 1.33 to 9.05%, I^2 = 31.63% Prevalence of psychotic disorders not otherwise specified = 9%, 95%CI 6.92 to 11.62%, I^2 = 33.38% The prevalence of schizophrenia was highest in developing (22.15%) than developed (8.83%) countries.	
Consistency in results‡	Mostly inconsistent
Precision in results§	Appears imprecise
Directness of results‖	Direct

Fazel S, Khosla V, Doll H, Geddes J

The prevalence of mental disorders among the homeless in western countries: systematic review and meta-regression analysis

PLoS Medicine / Public Library of Science 2008; 5(12): e225

View review abstract online

Comparison	**Prevalence of psychotic disorders in homeless populations in western countries.**
Summary of evidence	**Moderate to high quality evidence (large sample, inconsistent, appears precise, direct) suggests overall prevalence rate of any psychotic disorder is around 13% in western countries. This rate varied between countries; 19% in the UK, 16% in Australia, 12% in Europe, and 9% in the US.**
Prevalence of non-affective psychosis	
29 studies, N = 5,684 Prevalence = 12.7%, 95%CI 10.2% to 15.2%, I^2 = 88.6%, Q*p* < 0.001 *Subgroup analysis investigating prevalence rates in different regions;* UK: 6 studies, prevalence = 19%, 95%CI 9% to 29%, I^2 = 92.4%, Q*p* < 0.0001 Australia: 8 studies, prevalence = 16%, 95%CI 10% to 22%, I^2 = 82.4%, Q*p* < 0.001 Mainland Europe: 8 studies, prevalence = 12%, 95%CI 7% to 16%, I^2 = 83.4%, Q*p* < 0.0001 US: 10 studies, prevalence = 9%, 95%CI 6% to 11%, I^2 = 86.7%, Q*p* < 0.0001 In a meta-regression model, lower response rates were associated with lower prevalence rates. There were no effects of study size (<200 vs. >200) or interviewer (clinician vs. lay).	
Consistency in results	Inconsistent
Precision in results	Appears precise
Directness of results	Direct

Folsom D, Jeste DV

Schizophrenia in homeless persons: a systematic review of the literature

Acta Psychiatrica Scandinavica 2002; 105(6): 404-413

View review abstract online

Comparison	**Prevalence of schizophrenia and related psychotic disorders in homeless populations.**
Summary of evidence	**Moderate quality evidence (large sample, inconsistent, unable to assess precision, direct) suggests overall prevalence rates of schizophrenia or related psychotic disorder is around 11%. Rates varied across regions, with rates higher in Los Angeles than New York, which had higher rates than Philadelphia. Rates were generally higher in younger than older age-groups, higher in chronically homeless people, and higher in women than men.**

Prevalence of schizophrenia

10 studies, N = 3,805

Overall, 11% of homeless people met the diagnostic criteria for schizophrenia or related disorders.

Los Angeles

18 to 49 years: 44% report clinical psychotic symptoms

18 to 30 years: 13% have a diagnosis of schizophrenia

31 to 40 years: 21% have a diagnosis of schizophrenia

41 to 60 years: 8% have a diagnosis of schizophrenia

> 50 years: 25% report clinical psychotic symptoms

New York

17 to 29 years: 21% have a diagnosis of schizophrenia

30 to 40 years: 13% have a diagnosis of schizophrenia

> 40 years: 14% have a diagnosis of schizophrenia

Philadelphia

18 to 30 years: 4% are treated for schizophrenia

31 to 45 years: 7% are treated for schizophrenia

> 45 years: 9% are treated for schizophrenia

Schizophrenia was more common in homeless women than in homeless men in;

Melbourne: 35% of the homeless women were diagnosed with schizophrenia vs. 8% of men

Munich: 34% of the homeless women were diagnosed with schizophrenia vs. 12% of men

Baltimore: 17% of homeless women were diagnosed with schizophrenia vs.12% of men

Philadelphia: 11% of homeless women received treatment for schizophrenia vs. 7% of men

There were no differences in;

St Louis: 4% of the homeless women were diagnosed with schizophrenia vs. 6% of men

Madrid: there were similar rates of schizophrenia in women and men

Length of homelessness;

In Los Angeles, 18% of people who were classed as long-term homeless (time not specified) had a diagnosis of schizophrenia vs. 13% of cyclically homeless, and 2% of newly homeless.

In New York, 27% of the chronically homeless had a diagnosis of psychosis compared with 14% in newly homeless.

In Brazil, authors report that the duration of homelessness was longer in persons with schizophrenia than in the homeless sample as a whole.

Treatment;

In Paris, 68% of homeless people with schizophrenia received treatment in the previous year.

In St Louis, 31% of the homeless persons with schizophrenia received treatment in the previous year, 24% reported seeking treatment but were unable to obtain it and 45% did not seek treatment.

In Toronto, 82% received some psychiatric treatment over their lifetime.

In Edinburgh 75% received some psychiatric treatment over their lifetime.

In London, 66% of homeless people with schizophrenia were not receiving current treatment.

Consistency in results	Appears inconsistent
Precision in results	No measure of precision is reported.
Directness of results	Direct

Gutwinski S, Schreiter S, Deutscher K, Fazel S

The prevalence of mental disorders among homeless people in high-income countries: An updated systematic review and meta-regression analysis

PLoS Medicine 2021; 18(8) e1003750

View review abstract online

Comparison	**Prevalence of schizophrenia spectrum disorders in homeless populations in high-income countries.**
Summary of evidence	**Moderate to high quality evidence (large sample, inconsistent, appears precise, direct) suggests the prevalence of schizophrenia spectrum disorders is around 12.4% in high-income countries.**
Prevalence of schizophrenia	
39 studies, N = 8,049 35 studies reported schizophrenia, prevalence = 12.4%, 95%CI 9.5% to 15.7%, I^2 = 93% A multivariable model with sample size, proportion of female participants, and study location in Germany accounted for a small share of the heterogeneity (R^2 = 16%).	
Consistency in results	Inconsistent
Precision in results	Appears precise
Directness of results	Direct

Saha S, Chant D, Welham J, McGrath J

A systematic review of the prevalence of schizophrenia

PLoS Medicine / Public Library of Science 2005; 2(5): e141

View review abstract online

Comparison	**Distribution rates of the prevalence of schizophrenia in homeless populations.**
Summary of evidence	**Moderate quality evidence (large samples, unable to assess consistency or precision, direct) suggests that the prevalence of schizophrenia varies between 13% in Los Angeles to 30% in Sydney.**
Prevalence of schizophrenia in homeless people	
N = population level studies In Los Angeles, prevalence estimates 131 per 1,000 homeless people have schizophrenia. In Sydney, prevalence estimates 300 per 1,000 homeless people have schizophrenia.	

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Prevalence in homeless populations

Consistency in results	No measure of consistency is reported.
Precision in results	No measure of precision is reported.
Directness of results	Direct

Explanation of acronyms

b = correlation coefficient, I^2 = the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance), N = number of participants, *p* = statistical probability of obtaining that result ($p < 0.05$ generally regarded as significant), Q = Q statistic (chi-square) for the test of heterogeneity, se = standard error, vs. = versus

Explanation of technical terms

* Bias has the potential to affect reviews of both RCT and observational studies. Forms of bias include; reporting bias – selective reporting of results; publication bias - trials that are not formally published tend to show less effect than published trials, further if there are statistically significant differences between groups in a trial, these trial results tend to get published before those of trials without significant differences; language bias – only including English language reports; funding bias - source of funding for the primary research with selective reporting of results within primary studies; outcome variable selection bias; database bias - including reports from some databases and not others; citation bias - preferential citation of authors. Trials can also be subject to bias when evaluators are not blind to treatment condition and selection bias of participants if trial samples are small[8].

† Different effect measures are reported by different reviews.

Prevalence refers to how many existing cases there are at a particular point in time. Incidence refers to how many new cases there are per population in a specified time period. Incidence is usually reported as the number of new cases per 100,000 people per year. Alternatively some studies present the number of new cases that have accumulated over several years against a person-years denominator. This denominator is the sum of individual units of time that the persons in the population are at risk of becoming a case. It takes into account the size of the underlying population sample and its age structure over the duration of observation.

Reliability and validity refers to how accurate the instrument is. Sensitivity is the proportion of actual positives that are correctly identified (100% sensitivity = correct identification of all actual positives) and specificity is the proportion of negatives that are correctly identified (100% specificity = not identifying anyone as positive if they are truly not).

Weighted mean difference scores refer to mean differences between treatment and comparison groups after treatment (or occasionally pre to post treatment) and in a randomised trial there is an assumption that both groups are comparable on this measure prior to treatment. Standardised mean differences are divided by the pooled standard deviation (or the standard deviation of one group when groups are homogenous) that allows results from different scales to be combined and compared. Each study's mean difference is then given a weighting depending on the size of the sample and the variability in the data. 0.2 represents a small effect, 0.5 a medium effect, and 0.8 and over represents a large effect[8].

Odds ratio (OR) or relative risk (RR) refers to the probability of a reduction (< 1) or an increase (> 1) in a particular outcome in a treatment group, or a group exposed to a risk factor, relative to the comparison group. For example, a RR of 0.75 translates to a reduction in risk of an outcome of 25% relative to those not receiving the treatment or not exposed to the risk factor. Conversely, a RR of 1.25 translates to an increased risk of 25% relative to those not receiving treatment or not having been exposed to a risk factor. A RR or OR of 1.00 means there is no difference between groups. A medium effect is considered if RR > 2 or < 0.5 and a large effect if RR > 5 or < 0.2[9]. lnOR stands for logarithmic OR where a lnOR of 0 shows no difference between groups. Hazard ratios

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measure the effect of an explanatory variable on the hazard or risk of an event.

Correlation coefficients (eg, r) indicate the strength of association or relationship between variables. They can provide an indirect indication of prediction, but do not confirm causality due to possible and often unforseen confounding variables. An r of 0.10 represents a weak association, 0.25 a medium association and 0.40 and over represents a strong association. Unstandardised (*b*) regression coefficients indicate the average change in the dependent variable associated with a 1 unit change in the independent variable, statistically controlling for the other independent variables. Standardised regression coefficients represent the change being in units of standard deviations to allow comparison across different scales.

‡ Inconsistency refers to differing estimates of effect across studies (i.e. heterogeneity or variability in results) that is not explained by subgroup analyses and therefore reduces confidence in the effect estimate. I^2 is the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance) - 0% to 40%: heterogeneity might not be important, 30% to 60%: may represent moderate heterogeneity, 50% to 90%: may represent considerable heterogeneity and over this is considerable heterogeneity. I^2 can be calculated from Q (chi-square) for the test of heterogeneity with the following formula[8];

$$I^2 = \left(\frac{Q - df}{Q}\right) \times 100\%$$

§ Imprecision refers to wide confidence intervals indicating a lack of confidence in the effect estimate. Based on GRADE recommendations, a result for continuous data (standardised mean differences, not weighted mean differences) is considered imprecise if the upper or lower confidence limit crosses an effect size of 0.5 in either direction, and for binary and correlation data, an effect size of 0.25. GRADE also recommends downgrading the evidence when sample size is smaller than 300 (for binary data) and 400 (for continuous data), although for some topics, these criteria should be relaxed[10].

‖ Indirectness of comparison occurs when a comparison of intervention A versus B is not available but A was compared with C and B was compared with C that allows indirect comparisons of the magnitude of effect of A versus B. Indirectness of population, comparator and/or outcome can also occur when the available evidence regarding a particular population, intervention, comparator, or outcome is not available and is therefore inferred from available evidence. These inferred treatment effect sizes are of lower quality than those gained from head-to-head comparisons of A and B.

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References

1. Moher D, Liberati A, Tetzlaff J, Altman DG, PRISMAGroup (2009): Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *British Medical Journal* 151: 264-9.
2. GRADEWorkingGroup (2004): Grading quality of evidence and strength of recommendations. *British Medical Journal* 328: 1490.
3. Fazel S, Khosla V, Doll H, Geddes J (2008): The prevalence of mental disorders among the homeless in western countries: systematic review and meta-regression analysis. *PLoS Medicine / Public Library of Science* 5: e225.
4. Folsom D, Jeste DV (2002): Schizophrenia in homeless persons: a systematic review of the literature. *Acta Psychiatrica Scandinavica* 105: 404-13.
5. Saha S, Chant D, Welham J, McGrath J (2005): A systematic review of the prevalence of schizophrenia. *PLoS Medicine* 2: e141.
6. Ayano G, Tesfaw G, Shumet S (2019): The prevalence of schizophrenia and other psychotic disorders among homeless people: A systematic review and meta-analysis. *BMC Psychiatry* 19: 370.
7. Gutwinski S, Schreiter S, Deutscher K, Fazel S (2021): The prevalence of mental disorders among homeless people in high-income countries: An updated systematic review and metaregression analysis. *PLoS Medicine* 18(8): e1003750.
8. CochraneCollaboration (2008): Cochrane Handbook for Systematic Reviews of Interventions. Accessed 24/06/2011.
9. Rosenthal JA (1996): Qualitative Descriptors of Strength of Association and Effect Size. *Journal of Social Service Research* 21: 37-59.
10. GRADEpro (2008): [Computer program]. Jan Brozek, Andrew Oxman, Holger Schünemann. *Version 32 for Windows*