

## Review

# Homelessness and severe mental illness in low- and middle-income countries: scoping review

Caroline Smartt, Martin Prince, Souci Frissa, Julian Eaton, Abebaw Fekadu and Charlotte Hanlon

## Background

Despite being a global problem, little is known about the relationship between severe mental illness (SMI) and homelessness in low- and middle-income countries (LMICs). Homeless people with SMI are an especially vulnerable population and face myriad health and social problems. In LMICs, low rates of treatment for mental illness, as well as differing family support systems and cultural responses to mental illness, may affect the causes and consequences of homelessness in people with SMI.

## Aims

To conduct a systematic, scoping review addressing the question: what is known about the co-occurrence of homelessness and SMI among adults living in LMICs?

## Method

We conducted an electronic search, a manual search and we consulted with experts. Two reviewers screened titles and abstracts, assessed publications for eligibility and appraised study quality.

## Results

Of the 49 included publications, quality was generally low: they were characterised by poor or unclear methodology and reporting of results. A total of 7 publications presented the prevalence of SMI among homeless people; 12 presented the prevalence of homelessness among those with SMI. Only five publications described interventions for this population; only one included an evaluation component.

## Conclusions

Evidence shows an association between homelessness and SMI in LMICs, however there is little information on the complex relationship and direction of causality between the phenomena. Existing programmes should undergo rigorous evaluation to identify key aspects required for individuals to achieve sustainable recovery. Respect for human rights should be paramount when conducting research with this population.

## Declaration of interest

None.

## Keywords

Psychotic disorders; low- and middle-income countries; homelessness.

## Copyright and usage

© The Royal College of Psychiatrists 2019. This is an Open Access article, distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike licence (<http://creativecommons.org/licenses/by-nc-sa/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the same Creative Commons licence is included and the original work is properly cited. The written permission of Cambridge University Press must be obtained for commercial re-use.

## Global evidence

There is a substantial body of literature exploring the relationship between severe mental illness (SMI; including non-organic psychotic disorders and bipolar affective disorder) and homelessness in high-income countries;<sup>1–5</sup> however, little is known about the situation in low- and middle-income countries (LMICs). In a systematic review and meta-regression of studies of homeless populations from high-income countries, the prevalence of psychotic disorders ranged from 3 to 42%, compared with approximately 1% in the general population.<sup>2</sup> Reviews from LMICs have thus far been limited to child/adolescent populations.<sup>6</sup>

People who are homeless are vulnerable to myriad health and social problems, which are exacerbated by the presence of mental illness,<sup>1,7</sup> and those with SMI who become homeless are at an elevated risk for long-term homelessness.<sup>1</sup> People with SMI may become homeless as a direct result of the symptoms of their illness, or as the consequence of eroded social and economic networks, or both.<sup>8,9</sup> In turn, the experience of homelessness can both precipitate and exacerbate symptoms of mental illness, whether alone or in the context of substance misuse.<sup>10</sup>

## Need for evidence from low- and middle-income countries

The prevalence of homelessness in high-income countries is affected by national-level differences in health and social care

infrastructure as well as the availability of housing stock. These factors are likely to be reduced in low-income countries and this compounded by low treatment coverage for SMI may lead to a higher prevalence of SMI among the homeless population in comparison with high-income countries.<sup>11</sup> On the other hand, differing family support systems, cultural responses to SMI and economic factors may influence the composition of the homeless population, and accordingly prevalence may be affected. The causes and consequences of homelessness in people with SMI in LMICs may thus differ from high-income country settings. Evidence from high-income countries supports the effectiveness of housing programmes for people with SMI who are homeless, where individuals are given accommodation and case management supportive services;<sup>12</sup> however, this type of intervention may not be feasible in lower-resourced settings.

A scoping review is appropriate for gathering information from a wide variety of sources, identifying gaps in the literature and informing future research, policy and interventions.<sup>13,14</sup> With these goals in mind, we set out to conduct a scoping review addressing the broad question: what is known about the causes, extent and impacts of co-occurring homelessness and SMI among adults living in LMICs and what responses are being implemented to address this issue? We focused on gaps in the evidence base and implications for future research and intervention development.

## Method

Our scoping review was conducted according to the guidelines described in the Joanna Briggs Institute handbook on scoping reviews.<sup>15</sup>

### Population

The target population for the review was adults with SMI who are homeless and living in LMICs. We operationalised homelessness as follows: (a) current (street) homelessness, (b) current residence in a homeless shelter/refuge, (c) current admission in psychiatric facilities or religious healing communities with immediately preceding homeless episode and/or no place of residence to go to post-discharge and (d) previous street homelessness.

This definition of homelessness excluded the following groups: (a) individuals described only as ‘unstably housed’, (b) ‘landless’ individuals or those living in accommodation with insecure tenancy, (c) individuals living in slums/shanty towns but in stable accommodation, (d) refugees or internally displaced people and (e) youth/child homeless populations <18 years of age.

SMI was operationalised broadly, as follows: any diagnosis of schizophrenia, schizoaffective disorder, bipolar affective disorder or major depression with psychotic features defined according to ICD-10 (1992)<sup>16</sup> or DSM-5 (2013)<sup>17</sup> guidelines or clinical assessment. The broader terms of SMI or psychosis were ascertained according to case notes or research assessment using the following methods: clinical assessment, brief interview and key informant report.

Studies were excluded if they investigated the following populations: (a) individuals who are homeless and diagnosed only with alcohol/substance use disorders, (b) individuals who are homeless and diagnosed with common mental disorders,<sup>18</sup> (c) populations affected by humanitarian crises and (d) migrant populations. When studies presented information about homeless populations with results stratified according to SMI versus these excluded conditions, they were retained in the review.

LMICs were defined using the World Bank classification of countries as low income, lower-middle income or upper-middle income at the time that the study was conducted. We excluded all Eastern European countries after the electronic search, regardless of country income bracket at the time of publication, as their health and social support systems differ from other LMICs. We had no restriction on the year of publication. The search was carried out between April and June 2018.

### Search strategy

We conducted an electronic search of the literature and consulted with experts in the field. The electronic search for literature was conducted in three phases: (a) an initial limited search of the MEDLINE and Cochrane library databases to finalise search terms, (b) a second search using all identified keywords and index terms in the databases Embase, MEDLINE, PsychInfo, PsychArticles, Global Health and Ovid Journals ([Journals@Ovid](mailto:Journals@Ovid)), and (c) a manual search of references in published full-text papers related to SMI and/or homelessness in LMICs.

The consultation phase of the review was conducted simultaneously and used a snowball-sampling method to identify and contact experts in the field. We also attempted to contact study authors for further information when data were incomplete or presented only as conference abstracts. Our search of the grey literature was limited to references identified in full-text papers and sources directed to us by expert consultation.

The detailed search strategy is presented in Supplementary File 1 available at <https://doi.org/10.1192/bjo.2019.32>.

## Data extraction and quality assessment

### Title and abstract screening

All citations from the searches were downloaded into EndNote and duplicates removed. Two reviewers (C.S. and S.F.) screened titles and abstracts of all citations based on the inclusion and exclusion criteria. Full-text articles for all potentially relevant citations were obtained.

### Full-text screening

All full-text articles were assessed for eligibility according to the inclusion and exclusion criteria detailed above. The reason for exclusion of articles was documented. Where there were disagreements, a third reviewer (C.H.) was consulted and consensus reached.

### Data extraction

Data charting forms included the following sections: (a) reference information, (b) study design, (c) study population, (d) study measures/variables, (e) study results, (f) quality appraisal and (g) references (relevant references and citations). See Supplementary File 2.

The two screeners (C.S. and S.F.) independently extracted data from two papers randomly selected in each category of study design (quantitative, qualitative and narrative studies) and compared their results. Because the extracted data were 100% consistent across both screeners, the lead author carried out the remaining data extraction thereafter and consulted the other reviewers if any uncertainty arose.

### Quality appraisal

Quality appraisal was assessed and consensus reached for each publication according to the Mixed Methods Appraisal Tool (MMAT) version 2011<sup>19</sup> for Windows and Mac by both C.S. and S.F. Use of MMAT allowed for ratings across heterogeneous study designs including quantitative, qualitative and mixed-methods approaches.

### Ethical appraisal

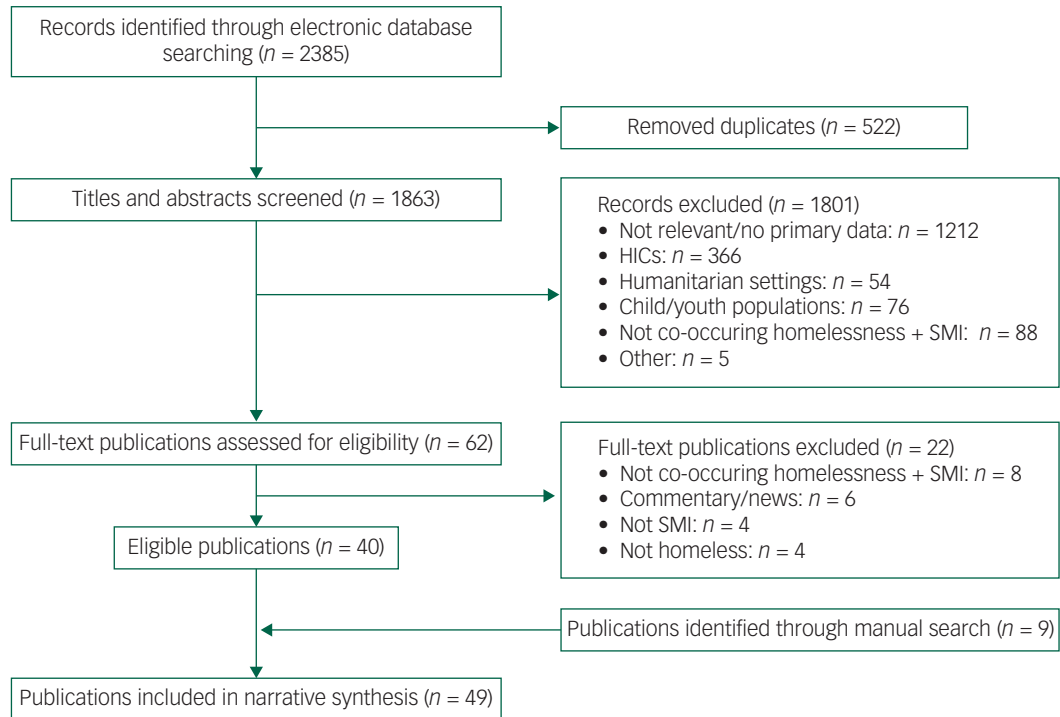
C.S. and S.F. evaluated each included publication presenting data collected from human research participants for the presence or absence of the following three ethical considerations: (a) whether ethical approval had been obtained before starting the research project, (b) whether informed consent of participants had been sought and documented, and (c) whether any additional measures had been taken to attend to the complexities of conducting research with such a vulnerable population (including but not limited to: appropriate assessment of capacity to consent to participate; respectful and consent-driven methods of study recruitment, including methods for in-patient commitment where relevant; and the provision of free medication or other medical treatment). The quality and ethical appraisals were used in the analysis; they were not used to exclude studies.

For the purposes of this review, the word ‘study’ refers to a discrete research project undertaken in a given setting and following a fixed methodology (including sample selection, etc.), whereas ‘publications’ refers to any written discussion of the study. We included only English-language publications.

## Results

### Eligible studies

Figure 1 details the search. A total of 49 publications from 34 studies met inclusion criteria and were included in the review.



**Fig. 1** PRISMA (Preferred Reporting for Systematic Reviews and Meta-Analysis) flow diagram. HICs, high-income countries; SMI, severe mental illness.

Reasons for exclusion at each stage of the of the selection process were documented in a hierarchical manner as follows: not relevant/no primary data ( $n = 1212$ ), high-income country settings ( $n = 366$ ), populations affected by humanitarian crises/migrant populations ( $n = 54$ ), child/youth homeless populations ( $n = 76$ ), not including variables specific to co-occurring homelessness and SMI ( $n = 88$ ) and other ( $n = 5$ : duplicates not identified electronically,  $n = 1$ ; publications not in English,  $n = 4$ ). The reasons for exclusion of full-text publications ( $n = 62$ ) were: not including variables specific to co-occurring homelessness and SMI ( $n = 8$ ), commentary/news articles ( $n = 6$ ), not meeting operational criteria for SMI ( $n = 4$ ) and not meeting operational criteria for homelessness ( $n = 4$ ). The references of all full-text papers were searched for relevant citations, and all papers referring to either SMI or homelessness in LMICs were retrieved and read; through this process and from expert consultation we identified a further nine publications.

A total of 24 publications were from Asia (China, 15 publications from 5 studies;<sup>20–34</sup> India, 8 publications from 7 studies;<sup>35–42</sup> Turkey, 1 publication/study<sup>43</sup>), 18 were from Africa (Nigeria, 7 publications from 7 studies;<sup>44–50</sup> Ethiopia, 7 publications from 4 studies;<sup>51–57</sup> Benin, Côte de Ivoire and Nigeria, 1 publication/study;<sup>58</sup> Egypt and Lesotho, 1 publication/study;<sup>59</sup> Ghana, 1 publication/study;<sup>60</sup> Mozambique, 1 publication/study<sup>61</sup>) and 7 were from South America (Brazil, 5 publications from 4 studies;<sup>62–66</sup> Colombia, 1 publication/study;<sup>67</sup> Peru, 1 publication/study<sup>68</sup>). At the time of publication, all of the South American and Asian study countries were middle income (lower or upper middle) and all of the African study countries were low income. In general, quality of the publications was low; they were characterised by poor or unclear methodology and reporting of results. Of the 38 publications assessed using MMAT, only nine were rated highly on all criteria.

The publications were classified according to base population under study (Table 1) and by the types of research questions guiding the studies (see Supplementary Table S1). A total of 15

publications from 3 studies were community-based cohorts of individuals with SMI; 16 publications from 15 studies drew samples from psychiatric facilities; 8 publications from 7 studies were from urban samples of individuals who were homeless at the time of assessment; and the remaining 10 publications from 10 studies were specific to populations with co-occurring homelessness and mental illness, and comprised interventions (intervention study  $n = 1$ ), programmes (programme descriptions  $n = 4$ ), qualitative appraisals of such services ( $n = 2$ ) and descriptive analyses of co-occurring homelessness and mental illness in LMIC settings ( $n = 3$ ). See Table 1 and Supplementary Table S1.

### Epidemiology of homelessness in LMICs

See Supplementary Table S1. In eight publications from seven studies, the prevalence of SMI in street and shelter homeless populations was assessed using various diagnostic approaches, with the estimated prevalence of SMI varying from 8.0 to 47.4%. In 17 publications from 6 studies, the point prevalence of homelessness was reported in individuals with SMI: 2.3–8.2% were homeless at the point of assessment, however, several studies conflated homelessness with individuals lost to follow-up for unknown reasons and/or of unknown whereabouts. In 26 publications from 17 studies, cross-sectionally ascertained characteristics of individuals with co-occurring homelessness and mental illness were reported.

Incidence of homelessness in those with SMI was presented in only one publication (one study): after 10 years of follow-up, there was an incidence rate of 0.9/100 person-years of homelessness in the cohort from rural China. Seven publications (seven studies) examined the course and outcome of SMI in people who were homeless; these were all follow-up studies drawn from case records of psychiatric in-patients who were homeless.

A number of publications included analytic components: 15 publications (7 studies) identified factors associated with homelessness among SMI populations; 3 publications (2 studies) assessed

**Table 1** Characteristics and quality appraisal of included studies

Country	Sample type	Sample size (n)	Study design	Reference	MMAT <sup>a</sup>
Population-based community studies					
China	Individuals with schizophrenia	510	Cohort:	Ran 2006 <sup>24</sup>	3
			10-year follow-up	Ran 2009 <sup>26</sup>	3
			Cohort:	Ran 2018 <sup>32</sup>	3
			10- and 14-year	Ran 2017 <sup>31</sup>	2
			follow-ups	Ran 2016 <sup>28</sup>	2
			Cohort:	Ran 2017 <sup>33</sup>	2
			14-year follow-up	Ran 2015 <sup>29</sup>	4
				Ran 2015 <sup>30</sup>	2
				Ran 2015 <sup>25</sup>	1
				Ran 2010 <sup>27</sup>	3
Ethiopia	Individuals with schizophrenia	321	Cross-sectional survey	Kebede <sup>54</sup>	4
			Cohort: 3.4 year follow-up	Alem <sup>51</sup>	4
			Cohort: 5-year follow-up	Teferra <sup>57</sup>	4
			Cohort: 10-year follow-up	Shibre <sup>56</sup>	4
			Individuals with schizophrenia, bipolar disorder or depression with psychosis	919	Cohort: 10-year follow-up
Mental health service-based studies					
Brazil	Out-patients with schizophrenic spectrum disorders	79	Cross-sectional survey	Da Silva <sup>66</sup>	2
China	Homeless and non-homeless in-patients with psychiatric disorders	500	Cross-sectional survey	Cao <sup>20</sup>	2
			Cross-sectional survey	Fu <sup>23</sup>	2
			Clinical records	Wang <sup>34</sup>	1
			Homeless and non-homeless in-patients with schizophrenia, bipolar disorder, schizoaffective disorder, affective disorder, paranoid disorders or intellectual disability	251	Clinical records
	Homeless and non-homeless in-patients with schizophrenia	3584	Cross-sectional survey	Chen 2015 <sup>21</sup>	1
	Homeless and non-homeless in-patients with schizophrenia or schizophreniform disorder	362	Clinical records	Chen 2014 <sup>22</sup>	2
India	Homeless in-patients unidentifiable at intake	78	Clinical records	Gowda <sup>37</sup>	3
			Clinical records	Gowda <sup>38</sup>	3
			Clinical records	Singh <sup>40</sup>	2
Nigeria	Homeless in-patients	140	Clinical records	Tripathi <sup>41</sup>	3
			Clinical records	Onofa <sup>50</sup>	2
			Cross-sectional survey	Ekpo <sup>46</sup>	1
			Double-blind randomised controlled trial	Martyns-Yellowe <sup>49</sup>	0
			Cross-sectional survey	Asuni <sup>45</sup>	n/a
	Homeless in-patients with SMI	25	3-month follow-up	Harding <sup>44</sup>	n/a
	Individuals with psychosis living with traditional healers	43	Cohort: 13-year follow-up	Gureje <sup>48</sup>	3
	Out-patients with schizophrenia	120			
Homeless at assessment					
Brazil	Street homeless with ≥1 year homeless	83	Cross-sectional survey	Heckert <sup>63</sup>	3
Colombia	Street homeless attending health clinic	426	Cohort study	Sarmiento <sup>67</sup>	0
Ethiopia	Street homeless with overt psychopathology	456	Cross-sectional survey	Ayano <sup>52</sup>	1
	Street homeless	217	Cross-sectional survey	Fekadu <sup>53</sup>	4
Peru	Street homeless older adults ≥60 years old	302	Administrative records	Moquillaza-Risco <sup>68</sup>	1
Turkey	Street homeless	n.d.	Cross-sectional survey	Binbay <sup>43</sup>	n/a
Brazil	Individuals residing in hostels for the homeless	330	Cross-sectional survey	Lovisi <sup>64</sup>	4
			Cross-sectional survey	Lovisi <sup>65</sup>	4
Homeless populations with mental illness: services/interventions, qualitative studies and conceptual analyses					
Brazil	Services for homeless people with mental illness	n.d.	Qualitative	Borysow <sup>62</sup>	1
Egypt, Lesotho	'Vagrant psychotics'		Conceptual, descriptive	Baasher <sup>59</sup>	n/a
Ghana	'Destitute mentally ill'		Conceptual	Aikins <sup>60</sup>	n/a
India	Homeless individuals with SMI	n.d.	Service description	Chatterjee and Roy <sup>42</sup>	
			Conceptual	Chatterjee <sup>35</sup>	n/a
			Service description	Rao <sup>39</sup>	3.5
	Qualitative	Gopikumar <sup>36</sup>	n/a		
Mozambique	Homeless individuals entering treatment	71	Intervention	Gouveia <sup>61</sup>	3
Nigeria, Côte d'Ivoire, Benin	Homeless individuals with SMI	n.d.	Service description	Eaton <sup>58</sup>	n/a
Nigeria	Homeless individuals with SMI	n.d.	Service description	Colwill <sup>47</sup>	n/a

Studies marked as 'n/a' were unable to be assessed with the MMAT because their designs were incompatible with the tool. MMAT, Mixed Methods Appraisal Tool; SMI, severe mental illness; n/a, not applicable; n.d., not determined.

a. MMAT is rated out of a total of four possible criteria, with higher scores reflecting higher quality.

**Table 2** Characteristics of programmes for adults with mental illness who are homeless in low- and middle-income countries

	Amaudo Itumbauzo (Nigeria) <sup>43,58</sup>	Association St. Camille (Benin, Côte d'Ivoire) <sup>58</sup>	Iswar Sankalpa (India) <sup>42</sup>	The Banyan (India) <sup>35,36,39</sup>	Gouveia study (Mozambique) <sup>61</sup>
Residential model					
Centre-based care	X	X	X <sup>a</sup>	X	X
Group living	X	X		X	
Family reintegration	X	X	X	X	X
Ongoing support	X	X	X	X	X
Medical/psychiatric treatment					
General medical care	X	X	X	X	
Psychiatric assessment	X	X	X	X	X
Medication provision	X	X	X	X	X
Psychological interventions <sup>b</sup>	X	X		X	X
Social support interventions					
Activities of daily living				X	X
Vocational training/support	X	X	X	X	X
Recreational activities	X			X	
Adult education	X				
Other activities					
Outreach	X	X	X	X	X
Government involvement	X			X	X
International volunteers	X	X			
Research activities				X	X

a. Only in cases that could not be managed in the community.

b. Including individual and group psychotherapy, psychoeducation and counselling.

factors associated with SMI among street and shelter homeless populations; 1 publication (1 study) studied predictors of homelessness among SMI cohorts; and 2 publications (2 studies) examined homelessness as a predictor of clinical outcomes in people with SMI. Detailed findings about physical health and disability, diagnostic profile, course of illness, treatment history and outcomes, social aspects of homelessness, family-related variables and sociodemographic characteristics are presented in Supplementary Files 3–11.

A total of 12 publications (12 studies) provided information about services, programmes, interventions and/or broader societal context surrounding the issue of co-occurring homelessness and mental illness in LMICs (these are described in Supplementary Table S1 as 'descriptive analyses').

### Programmes and interventions for individuals with mental illness who are homeless in LMICs

Table 2 lists the main components of the identified programmes and interventions.

We included studies of two religiously affiliated charities for homeless individuals with mental illness located in rural areas in three West African countries;<sup>47,58</sup> two non-governmental organisations for homeless individuals with mental illness in large cities in India;<sup>35,36,39,42</sup> and an intervention study from Mozambique, based out of the country's primary psychiatric hospital.<sup>61</sup> Despite their different settings, all but one of these initiatives described delivery of centre-based care of unlimited duration for residents to recover from prolonged periods of SMI and street homelessness, with eventual family reintegration as the main treatment objective. Assessment and treatment by mental health specialists (including provision of medication), limited psychological therapies and vocational/occupational training were provided by all programmes. The only non-residential programme was a social work-based outreach service for people living on the streets in urban India.<sup>42</sup> In this case, the programme first tried to engage and treat individuals within the communities in which they were living and moved them to other locations only where this first strategy was considered unfeasible. The Mozambique study was the only formally evaluated

intervention: 52.2% of study participants with schizophrenia were reintegrated with their families 3 months post-discharge. However, there was no control group and only individuals who were in regular contact with family members at baseline were eligible to participate, so this finding is limited by selection bias.

There were 46 publications (31 studies) that presented data collected from human research participants: of these, 27 publications (16 studies) reported having documented ethical approval for their research projects, 24 (14 studies) reported obtaining informed consent from participants and 10 (9 studies) reported taking additional ethical considerations or precautions when working with this population. The most common measure described was the provision of free medical and/or psychiatric treatment. Only three studies described precautions taken when approaching potential participants before engagement with research or treatment activities.<sup>42,53,69</sup> The results of the ethical appraisal are presented in Supplementary File 12.

## Discussion

In this scoping review we identified studies that were diverse in terms of their focus, design and setting. The heterogeneity of sampled populations, quality concerns and methods used for the assessment and categorisation of both mental illness and homelessness make comparisons across studies problematic and limits the generalisability of our findings. However, the study findings converge to indicate that individuals in LMICs who have mental illness and are homeless have high burdens of both mental and physical ill health and live socially marginalised lives with extensive unmet needs for care.<sup>53</sup> There is a lack of evidence about how best to meet these unmet needs and to guide the appropriate care of homeless people with SMI in LMICs.

Both the prevalence of SMI in homeless populations and the prevalence of homelessness in SMI cohorts are higher than would be expected by chance alone.<sup>69,70</sup> Moreover, the prevalence of homelessness among those with SMI was likely underestimated because samples were drawn from mainly clinical, help-seeking SMI sub-populations; selection bias is similarly likely to have



affected studies of SMI in people who are homeless where samples were recruited from those engaged with services for the homeless. Despite the limitations common to the studies, there remains strong evidence for an association between homelessness and SMI.

Definitions of SMI varied from study to study. Many of the studies were limited to individuals diagnosed with schizophrenia while bipolar disorder and schizoaffective disorder were inconsistently considered. Another problematic point of divergence among the studies was their varying approaches to dual diagnosis: whereas some studies explicitly accounted for dually diagnosed individuals, others excluded those with alcohol or substance use disorders. Mislabelling individuals with dually diagnosed SMI and substance misuse may have introduced misclassification bias.

### Gaps in the evidence base

The two most notable gaps in the evidence base we identified were the lack of information regarding the complex interrelationship and direction of causality between SMI and homelessness and the absence of rigorous evaluations of interventions for people with SMI who are homeless. None of the studies in the review addressed the issue of causality adequately: directionality between the two is very difficult to disentangle, and bi-directionality is probable. Rather than having a primary focus on populations with co-occurring homelessness and mental illness, the current literature overwhelmingly examines this problem from the lens of either clinical or homeless populations, which limits our ability to draw conclusions about pathways to and factors associated with homelessness. Better understanding of the underlying mechanisms might help in the design of preventive interventions and reduce the burden of co-occurrence.

There is a pressing need for rigorous evidence on how homelessness adversely affects access to mental healthcare in people with SMI; evidence is also needed on the quality, delivery and outcomes of such care. Similarly, better evidence on how the presence of SMI affects access to and the outcomes of optimal models of social care and rehabilitation for people who are homeless is crucial. There was also little information regarding how the specific needs of this population were being identified and met in LMIC settings; the few examples of programmes or interventions described in the included publications had weak evaluation, little evidence of a wider uptake and were overwhelmingly non-governmental.

### Ethical considerations

Preservation of the right to autonomy with respect to participation in research activities was commonly overlooked in the identified studies. In many publications containing data from human participants, there was no documentation of ethical approval or any attempt to obtain informed consent. Individuals who are homeless and have SMI may present a unique challenge in this respect, with researchers struggling with the need to determine who can give consent in a community setting. Researchers must put safeguards in place to protect research participants from abuse.

There was also little evidence of consideration of the circumstances determining when it might be appropriate to facilitate hospital admission for a homeless individual with mental illness to access treatment and the procedures that should be followed in such cases. In many LMICs, mental health legislation does not exist or, if it does, it may not be implemented effectively or consistently.<sup>71</sup> Where efforts are made to address street homelessness by governmental and non-governmental services, these initiatives may be politically motivated to ‘clean up the streets’ as much as to put people in a ‘safe place’, and often only serve to move people to other settings. Where they lead to hospital admission, legal justification may be inadequately considered and no

rehabilitation services provided. Potential ethical concerns need to be addressed when researchers collaborate with such initiatives.

Models of good ethical practice were identified in this review, for example, where people who were homeless were befriended before entering rehabilitation services.<sup>42,58</sup> This type of outreach can help to ensure that the rights of these individuals are not ignored during efforts to deliver housing and/or medical care, however well intentioned. Greater transparency and understanding is needed to inform this process in LMICs to ensure that the rights of people with SMI are upheld before admission to hospital, during treatment and after they are discharged back into the community or to other settings.

However, awareness about these complex issues is increasing and therefore appropriate resources are being developed.<sup>72</sup> When interpreting the Convention on the Rights of Persons with Disabilities, all of those responsible for decision-making need to balance the competing values of the right to personal autonomy versus the rights to housing and to health in the context of SMI.<sup>73</sup>

### Limitations

Funding and time limitations meant that our review was restricted to English-language publications and our search of the grey literature was not systematic or complete. An informal internet search identified several non-governmental organisations that are apparently active in providing support and care to people with mental illness who are homeless in a few LMICs, but we found no formal descriptions or evaluations of these programmes online or in published form. We did not undertake a mapping process of the locally available interventions in practice which did not make it into the literature. We were therefore likely to have missed many community-level assets. Future reviews should extensively search grey literature sources to identify interventions operating in LMICs which are not currently engaged in research/dissemination activities. We were also limited in our ability to contact and consult with experts; several authors of positively screened abstracts were contacted for further information but did not respond.

### Future directions

Programmes run by non-governmental organisations show that, even in low-resource settings, there is a commitment to support people with SMI who are homeless and that it is possible to establish comprehensive, integrated services that are driven by compassion. Rigorous evaluation of existing programmes, however, is sorely lacking. Evaluation of these programmes is needed to identify key aspects required for individuals to achieve social inclusion and sustainable recovery. There is also a need to evaluate potentially transferable models that have been found to be effective in high-income settings, such as those predominantly based around the provision of housing, welfare or livelihood activities. Programmes aimed at addressing extreme poverty or homelessness in LMICs could also be tailored to include this specific group. More information about operating costs and staffing structure of the existing models presented here would help to guide the development of feasible and acceptable responses to the unmet needs of people with SMI who are homeless in LMICs.

Promising initial results from the family reintegration study in Mozambique demonstrate that the psychiatric hospital setting is another potential site for intervention. It may require substantial political and institutional will to admit and treat individuals who are homeless in resource-constrained settings where psychiatric hospital beds are scarce; however, using pre-existing resources offered by such settings is likely to be cost effective. Reforms of healthcare services and systems currently underway in the field of

global mental health should consider this population and include special provisions.

More prospective studies following individuals with SMI who are homeless in LMICs are urgently needed to assess the factors that influence return to stable housing, favourable treatment outcomes and recovery from mental illness. It is not easy to recruit and follow-up such populations, but such research must be undertaken if we are to truly understand the unique experiences of people who are homeless and have mental illness and identify appropriate and effective points of intervention. Respect for human rights – including the rights to housing, health and personal autonomy – should be paramount when conducting research with this population.

**Caroline Smartt**, PhD Student, Centre for Global Mental Health, Health Service and Population Research Department, Institute of Psychiatry, Psychology and Neuroscience, King's College London, UK; **Martin Prince**, MD, PhD, Professor of Epidemiological Psychiatry and Assistant Principal for Global Health, Centre for Global Mental Health, Health Service and Population Research Department, Institute of Psychiatry, Psychology and Neuroscience, King's College London, UK; **Souci Frissa**, MD, PhD, NIHR ASSET Programme Coordinator, Centre for Global Mental Health, Health Service and Population Research Department, Institute of Psychiatry, Psychology and Neuroscience, King's College London, UK; **Julian Eaton**, MD, PhD, Co-Director, Centre for Global Mental Health, London School of Hygiene and Tropical Medicine; and CBM International, London, UK; **Abebaw Fekadu**, MD, PhD, Associate Professor, Department of Psychiatry, School of Medicine, College of Health Sciences, Addis Ababa University; Centre for Innovative Drug Development and Therapeutic Trials for Africa (CDT-Africa), College of Health Sciences, Addis Ababa University, Ethiopia; and Professor of Global Mental Health, Global Health and Infection Department, Brighton and Sussex Medical School, UK; **Charlotte Hanlon**, MD, PhD, Reader in Global Mental Health, Centre for Global Mental Health, Health Service and Population Research Department, Institute of Psychiatry, Psychology and Neuroscience, King's College London, UK; Adjunct Associate Professor, Department of Psychiatry, School of Medicine, College of Health Sciences, Addis Ababa University; and Centre for Innovative Drug Development and Therapeutic Trials for Africa (CDT-Africa), College of Health Sciences, Addis Ababa University, Ethiopia

**Correspondence:** Caroline Smartt, Centre for Global Mental Health, Health Service and Population Research Department, Institute of Psychiatry, Psychology and Neuroscience, King's College London, 8 De Crespigny Park, London SE5 8AF, UK. Email: [carolinesmartt@gmail.com](mailto:carolinesmartt@gmail.com)

First received 20 Dec 2018, final revision 16 Apr 2019, accepted 17 Apr 2019

## Supplementary material

Supplementary material is available online at <https://doi.org/10.1192/bjo.2019.32>.

## References

- Fazel S, Geddes JR, Kushel M. The health of homeless people in high-income countries: descriptive epidemiology, health consequences, and clinical and policy recommendations. *Lancet* 2014; **384**: 1529–40.
- 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 Med* 2008; **5**: e225.
- Bhugra D. *Homelessness and Mental Health*. Cambridge University Press, 2007.
- Hwang SW, Burns T. Health interventions for people who are homeless. *Lancet* 2014; **384**: 1541–7.
- Folsom DP, Hawthorne W, Lindamer L, Gilmer T, Bailey A, Golshan S, et al. Prevalence and risk factors for homelessness and utilization of mental health services among 10,340 patients with serious mental illness in a large public mental health system. *Am J Psychiatry* 2005; **162**: 370–6.
- Woan J, Lin J, Auerswald C. The health status of street children and youth in low- and middle-income countries: a systematic review of the literature. *J Adolesc Health* 2013; **53**: 314–21.
- Geddes JR, Fazel S. Extreme health inequalities: mortality in homeless people. *Lancet* 2011; **377**: 2156–7.
- Sullivan G, Burnam A, Koegel P. Pathways to homelessness among the mentally ill. *Soc Psychiatry Psychiatr Epidemiol* 2000; **35**: 444–50.
- Lovisi GM, Ferri CP, Amado KCO, Prince M. Pathways to homelessness among older people in Rio de Janeiro, Brazil. *Bull World Health Organ* 2007; **85**: 888–9.
- Bresnahan M, Collins PY, Susser E. Mental illness in an adult sample admitted to public hostels in the Rio de Janeiro metropolitan area, Brazil. *Soc Psychiatry Psychiatr Epidemiol* 2003; **38**: 499–501.
- Lora A, Kohn R, Levav I, McBain R, Morris J, Saxena S. Service availability and utilization and treatment gap for schizophrenic disorders: a survey in 50 low- and middle-income countries. *Bull World Health Organ* 2012; **9**: 47–54B.
- Pearson CL. *The Applicability of Housing First Models to Homeless Persons With Serious Mental Illness*. United States Department of Housing and Urban Development, Office of Policy Development and Research, 2007.
- Peters MD, Godfrey CM, Khalil H, McInerney P, Parker D, Soares CB. Guidance for conducting systematic scoping reviews. *Int J Evid Based Healthc* 2015; **13**: 141–6.
- Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005; **8**: 19–32.
- Peters M, Godfrey C, McInerney P, Soares C, Khalil H, Parker D. *The Joanna Briggs Institute Reviewers' manual 2015: Methodology for JBI Scoping Reviews*. The Joanna Briggs Institute, 2015.
- World Health Organization. *The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines*. World Health Organization, 1992.
- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders* (5th edn). American Psychiatric Publishing, 2013.
- Goldberg D, Huxley P. *Common Mental Disorders: A Bio-Social Model*. Tavistock/Routledge, 1992.
- Pluye P, Robert E, Cargo M, Bartlett G, O' Cathain A, Griffiths F, et al. *Mixed Methods Appraisal Tool (MMAT) Version 2011*. McGill University, Department of Family Medicine, 2011.
- Cao X-L, Fu Y-N, Jia F-J, Chiu HF, Ungvari GS, Ng CH, et al. Comparison of quality of life in homeless and non-homeless Chinese patients with psychiatric disorders. *Psychiatry Res* 2017; **249**: 115–9.
- Chen J, Chen J, Li S, Liu J, Ouyang G, Luo W, et al. Comparisons of family environment between homeless and non-homeless individuals with schizophrenia in Xiangtan, Hunan. *Shanghai Arch Psychiatry* 2015; **27**: 175–82.
- Chen Q, Wan M, Ban C, Gao Y. Retrospective assessment of the prevalence of cardiovascular risk factors among homeless individuals with schizophrenia in Shanghai. *Shanghai Arch Psychiatry* 2014; **26**: 149–56.
- Fu Y-N, Cao X-L, Hou C-L, Ng CH, Ungvari GS, Chiu HF, et al. Comparison of insight and clinical variables in homeless and non-homeless psychiatric inpatients in China. *Psychiatry Res* 2017; **255**: 13–6.
- Ran M, Chan C, Chen E, Xiang M, Caine E, Conwell Y. Homelessness among patients with schizophrenia in rural China: a 10-year cohort study. *Acta Psychiatr Scand* 2006; **114**: 118–23.
- Ran M-S, Chan C-W, Ng S-M, Guo L-T, Xiang M-Z. The effectiveness of psychoeducational family intervention for patients with schizophrenia in a 14-year follow-up study in a Chinese rural area. *Psychol Med* 2015; **45**: 2197–204.
- Ran M-S, Chan CL-W, Chen EY-H, Mao W-J, Hu S-H, Tang C-P, et al. Differences in mortality and suicidal behaviour between treated and never-treated people with schizophrenia in rural China. *Br J Psychiatry* 2009; **195**: 126–31.
- Ran M-S, Chen P-Y, Liao Z-G, Chan CL-W, Chen EY-H, Tang C-P, et al. Criminal behavior among persons with schizophrenia in rural China. *Schizophr Res* 2010; **122**: 213–8.
- Ran M-S, Chui CH, Wong IY-L, Mao W-J, Lin F-R, Liu B, et al. Family caregivers and outcome of people with schizophrenia in rural China: 14-year follow-up study. *Soc Psychiatry Psychiatr Epidemiol* 2016; **51**: 513–20.
- Ran M-S, Mao W-J, Chan CL-W, Chen EY-H, Conwell Y. Gender differences in outcomes in people with schizophrenia in rural China: 14-year follow-up study. *Br J Psychiatry* 2015; **206**: 283–8.
- Ran M-S, Weng X, Chan CL-W, Chen EY-H, Tang C-P, Lin F-R, et al. Different outcomes of never-treated and treated patients with schizophrenia: 14-year follow-up study in rural China. *Br J Psychiatry* 2015; **207**: 495–500.
- Ran M-S, Wong Y-LI, Yang S-Y, Ho PS, Mao W-J, Li J, et al. Marriage and outcomes of people with schizophrenia in rural China: 14-year follow-up study. *Schizophr Res* 2017; **182**: 49–54.
- Ran M-S, Xiao Y, Zhao X, Zhang T-M, Yu Y-H, Mao W-J, et al. Family history of psychosis and outcome of people with schizophrenia in rural China: 14-year follow-up study. *Asian J Psychiatry* 2018; **32**: 14–9.
- Ran M-S, Yang LH, Liu Y-J, Huang D, Mao W-J, Lin F-R, et al. The family economic status and outcome of people with schizophrenia in Xinjin, Chengdu, China: 14-year follow-up study. *Int J Soc Psychiatry* 2017; **63**: 203–11.
- Wang L, Zhang Z, Yan Q, Lu J, Gao B, Zhao Y, et al. Diagnostic dilemma of pulmonary tuberculosis among adults with severe mental illness in Beijing, China. *BMC Infect Dis* 2017; **17**: 83.
- Chatterjee R, Hashim U. Rehabilitation of mentally ill women. *Indian J Psychiatry* 2015; **57**: S345.
- Gopikumar V, Easwaran K, Ravi M, Jude N, Bunders J. Mimicking family like attributes to enable a state of personal recovery for persons with mental illness in institutional care settings. *Int J Ment Health Systems* 2015; **9**: 30.

- 37 Gowda GS, Gopika G, Kumar CN, Manjunatha N, Yadav R, Srinivas D, et al. Clinical outcome and rehabilitation of homeless mentally ill patients admitted in mental health institute of South India: 'Know the Unknown' project. *Asian J Psychiatry* 2017; **30**: 49–53.
- 38 Gowda GS, Gopika G, Manjunatha N, Kumar CN, Yadav R, Srinivas D, et al. Sociodemographic and clinical profiles of homeless mentally ill admitted in mental health institute of South India: 'Know the Unknown' project. *Int J Soc Psychiatry* 2017; **63**: 525–31.
- 39 Rao PN. Rehabilitation of the wandering seriously mentally ill (WSMI) women: the Banyan experience. *Soc Work Health Care* 2005; **39**: 49–65.
- 40 Singh G, Shah N, Mehta R. The clinical presentation and outcome of the institutionalized wandering mentally ill in India. *J Clin Diagn Res* 2016; **10**: VC13.
- 41 Tripathi A, Nischal A, Dalal P, Agarwal V, Agarwal M, Trivedi J, et al. Sociodemographic and clinical profile of homeless mentally ill inpatients in a north Indian medical university. *Asian J Psychiatry* 2013; **6**: 404–9.
- 42 Chatterjee D, Roy SD. *Iswar Sankalpa: Experience with the Homeless Persons with Mental Illness. The Palgrave Handbook of Sociocultural Perspectives on Global Mental Health*. Palgrave Macmillan, 2017.
- 43 Binbay T, Halis U, Hayriye E, Alptekin K. The psychosis epidemiology in Turkey: a systematic review on prevalence estimates and admission rates. *Turk Psikiyatri Dergisi* 2011; **22**: 40.
- 44 Harding T. Psychosis in a rural West African community. *Soc Psychiatry* 1973; **8**: 198–203.
- 45 Asuni T. Vagrant psychotics in Abeokuta. *J Natl Med Assoc* 1971; **63**: 173.
- 46 Ekpo M, Ansa V. Electrocardiographic screening in unmedicated vagrant psychotics on rehabilitation. *East Afr Med J* 2005; **82**: 488.
- 47 Colwill R. Psychiatric nursing. Amaudo—the village of peace. *Nurs RSA* 1993; **8**: 23.
- 48 Gureje O, Bamidele R. Thirteen-year social outcome among Nigerian outpatients with schizophrenia. *Soc Psychiatry Psychiatr Epidemiol* 1999; **34**: 147–51.
- 49 Martyns-Yellowe I. The decanoates of flupenthixol and clopenthixol in the treatment of chronic schizophrenic in-patients. Implications for community psychiatry. *West Afr J Med* 1993; **12**: 110–3.
- 50 Onofa L, Fatiregun A, Fawole O, Adebowale T. Comparison of clinical profiles and treatment outcomes between vagrant and non-vagrant mentally ill patients in a specialist neuropsychiatric hospital in Nigeria. *Afr J Psychiatry* 2012; **15**: 189–192.
- 51 Alem A, Kebede D, Fekadu A, Shibre T, Fekadu D, Beyero T, et al. Clinical course and outcome of schizophrenia in a predominantly treatment-naïve cohort in rural Ethiopia. *Schizophr Bull* 2008; **35**: 646–54.
- 52 Ayano G, Assefa D, Haile K, Chaka A, Solomon H, Hagos P, et al. Mental, neurologic, and substance use (MNS) disorders among street homeless people in Ethiopia. *Ann Gen Psychiatry* 2017; **16**: 40–45.
- 53 Fekadu A, Hanlon C, Gebre-Eyesus E, Agedew M, Solomon H, Teferra S, et al. Burden of mental disorders and unmet needs among street homeless people in Addis Ababa, Ethiopia. *BMC Med* 2014; **12**: 138–49.
- 54 Kebede D, Alem A, Shibre T, Negash A, Fekadu A, Fekadu D, et al. Onset and clinical course of schizophrenia in Butajira-Ethiopia. *Soc Psychiatry Psychiatr Epidemiol* 2003; **38**: 625–31.
- 55 Shibre T, Hanlon C, Medhin G, Alem A, Kebede D, Teferra S, et al. Suicide and suicide attempts in people with severe mental disorders in Butajira, Ethiopia: 10 year follow-up of a population-based cohort. *BMC Psychiatry* 2014; **14**: 150–62.
- 56 Shibre T, Medhin G, Alem A, Kebede D, Teferra S, Jacobsson L, et al. Long-term clinical course and outcome of schizophrenia in rural Ethiopia: 10-year follow-up of a population-based cohort. *Schizophr Res* 2015; **161**: 414–20.
- 57 Teferra S, Shibre T, Fekadu A, Medhin G, Wakwoya A, Alem A, et al. Five-year mortality in a cohort of people with schizophrenia in Ethiopia. *BMC Psychiatry* 2011; **11**: 165–74.
- 58 Eaton J, Des Roches B, Nwaubani K, Winters L. Mental health care for vulnerable people with complex needs in low-income countries: two services in West Africa. *Psychiatr Serv* 2015; **66**: 1015–7.
- 59 Baasher T, Elhakim A, El Fawal K, Giel R, Harding T, Wankiiri V. On vagrancy and psychosis. *Community Ment Health J* 1983; **19**: 27–41.
- 60 de-Graft Aikins A. *Mental Illness and Destitution in Ghana: A Social Psychological Perspective. Culture, Mental Illness and Psychiatric Practice in Africa*. Indiana University Press, 2014.
- 61 Gouveia L, Massanganhe H, Mandlate F, Mabunda D, Furmo W, Mocumbi AO, et al. Family reintegration of homeless in Maputo and Matola: a descriptive study. *Int J Ment Health Syst* 2017; **11**: 25.
- 62 da Costa Borysow I, Furtado JP. Access, equity and social cohesion: evaluation of intersectoral strategies for people experiencing homelessness. *Revista da Escola de Enfermagem da Universidade Sao Paulo* 2014; **48**: 1069–76.
- 63 Heckert U, Andrade L, Alves M, Martins C. Lifetime prevalence of mental disorders among homeless people in a southeast city in Brazil. *Eur Arch Psychiatry Clin Neurosci* 1999; **249**: 150–5.
- 64 Lovisi G, Mann A, Coutinho E, Morgado A. Mental illness in an adult sample admitted to public hostels in the Rio de Janeiro metropolitan area, Brazil. *Soc Psychiatry Psychiatr Epidemiol* 2003; **38**: 493–8.
- 65 Lovisi GM, Coutinho E, Morgado A, Mann AH. Social disablement among residents of hostels for the homeless in Rio de Janeiro, Brazil. *Int J Soc Psychiatry* 2002; **48**: 279–89.
- 66 da Silva TFC, Mason V, Abelha L, Lovisi GM, Cavalcanti MT. Quality of life assessment of patients with schizophrenic spectrum disorders from Psychosocial Care Centers. *J Bras Psiquiatr* 2011; **60**: 91–8.
- 67 Sarmiento JMH, Correa N, Correa M, Franco JG, Alvarez M, Ramirez C, et al. Tuberculosis among homeless population from Medellín, Colombia: associated mental disorders and socio-demographic characteristics. *J Immigr Minor Health* 2013; **15**: 693–9.
- 68 Moquillaza-Risco M, León E, Dongo M, Munayco CV. Socio-demographics characteristics and health conditions of older homeless persons of Lima, Peru. *Revista peruana de medicina experimental y salud publica* 2015; **32**: 693–700.
- 69 Whiteford HA, Degenhardt L, Rehm J, Baxter AJ, Ferrari AJ, Erskine HE, et al. Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *Lancet* 2013; **382**: 1575–86.
- 70 Tipler G, Speak S. *The Hidden Millions: Homelessness in Developing Countries*. Routledge, 2009.
- 71 World Health Organization. *Mental Health Atlas 2017*. World Health Organization, 2018.
- 72 World Health Organization. *WHO QualityRights Tool Kit: Assessing and Improving Quality and Human Rights in Mental Health and Social Care Facilities*. World Health Organization, 2012.
- 73 Freeman MC, Kolappa K, de Almeida JMC, Kleinman A, Makhshvili N, Phakathi S, et al. Reversing hard won victories in the name of human rights: a critique of the General Comment on Article 12 of the UN Convention on the Rights of Persons with Disabilities. *Lancet Psychiatry* 2015; **2**: 844–50.

