International Journal of Mental Health Systems

RESEARCH

Open Access

Prevalence and risk factors for non-secure housing in inpatients of mental health hospitals: findings from a survey in North rhine - Westphalia, Germany

Jürgen Zielasek[1,2†], Ida Haussleiter[3,4†], Josephine Heinz[1], Isabell Lehmann[1], Bianca Ueberberg[3], Thea Kreyenschulte[1], Ana Staninska[1], Georg Juckel[3,4†] and Euphrosyne Gouzoulis-Mayfrank[1,5*†]

Abstract

Background Little is known about uptake of mental healthcare services by homeless people and even less is known about those living in precarious housing. The "WohnLos" study determined the prevalence of non-secure housing (defined as homelessness or precarious housing) among inpatients of two groups of public mental health hospitals in the state of North Rhine-Westphalia (NRW), Germany.

Methods We conducted a questionnaire survey in the two hospital groups, which provide in- and out-patient mental healthcare for a population of about ten million people. Clinical staff filled in a questionnaire for every inpatient on two record dates in 2020 and 2021. The questionnaire included sociodemographic variables, clinical variables, information on psychiatric care, and information on the individual housing situation.

Results Fifteen of the twenty hospitals participated in the study and provided information on 4252 inpatients (return rate per hospital on average 59%). The prevalence of non-secure housing was on average 16.5% of all cases (7.9% homeless (houseless or roofless) and 8.6% precarious housing (insecure or inadequate)). The prevalence of non-secure housing was highly variable between the hospitals. The highest rates were found in hospitals located in large cities in the Rhineland and the lowest rates in the Ruhr industrial area. Among the patients with non-secure housing, the sociodemographic and clinical characteristics were similar in the subgroups of patients living in homelessness and patients living in precarious housing. Diagnoses of schizophrenia and substance use disorders, younger age, male gender, unemployment and migration background were important factors associated with non-secure housing. Social support was an important protective factor.

†Jürgen Zielasek and Ida Haussleiter contributed equally to this work.

†Georg Juckel and Euphrosyne Gouzoulis-Mayfrank contributed equally to this work.

*Correspondence:
Euphrosyne Gouzoulis-Mayfrank
Euphrosyne.Gouzoulis-Mayfrank@lvr.de

Full list of author information is available at the end of the article

Conclusions We identified implementable features of services for mental health inpatients with housing needs, like discharge management initiating psychosocial support from families and professional social services, the implementation of services bridging the gap between inpatient and outpatient settings, and the networking with housing-oriented post-discharge services like housing first and residential care facilities. Our study draws special attention to mentally ill patients living in precarious housing conditions, who constitute half of all mental healthcare inpatients with housing needs in our study, and who have similar psychosocial burden and housing needs as homeless patients.

Keywords Homelessness, Precarious housing, Mental healthcare, Psychiatric care, Social psychiatry

Background

Mental disorders are highly prevalent among homeless people and people living in insecure and precarious housing conditions with prevalence rates ranging from 60 to 90%. High prevalence rates are found for diagnoses of substance use disorder and depression [1–13]. According to a German study, the prevalence of mental disorders may be even higher in people who are in danger to lose their home compared to persons who are already homeless (79.3% vs. 68.6%) [11]. As living in precarious housing or being homeless may lead to a number of barriers for mental healthcare utilization [6, 13], providing healthcare for individuals with serious mental disorders who live in non-secure housing (i.e., homelessness and precarious housing) is a major challenge [14]. Homelessness has been increasing in the past years in Germany. In 2018, the number of homeless persons increased compared to the previous year by 19% to approximately 678,000 persons [15]. In North Rhine-Westphalia (NRW), the most densely populated federal state in Germany with about 18 million inhabitants, about 50,000 homeless people were registered in 2020. The highest prevalence of precarious housing conditions and homelessness in NRW can be found in highly urbanized metropolitan areas like the cities of Cologne, Düsseldorf or Dortmund [16].

So far, only few studies have addressed the prevalence of homelessness or non-secure housing among mental health service users. Also, little is known about the clinical and sociodemographic factors characterizing these groups of psychiatric inpatients. Given the high rate of precarious housing and homelessness in NRW, we decided to address these questions by surveys in mental hospitals of two major regional mental health service providers. We collected detailed information on the housing situation and on clinical and sociodemographic as well as socioeconomic characteristics for every inpatient on two record dates within the framework of the regional WohnLos Study.

The WohnLos study funded by the Ministry of Labour, Health and Social Affairs of the federal state NRW aimed to develop recommendations for clinicians and institutions dealing with homeless people with mental disorders based on empirical data. In a previous study, we analyzed patient-related factors associated with homelessness based on routine data from the 20 public mental health hospitals of the two regional councils of the federal state NRW (LVR: Landschaftsverband Rheinland, with nine mental health hospitals based in the Rhineland region, and LWL: Landschaftsverband Westfalen-Lippe, with eleven mental health hospitals based in the region of Westphalia-Lippe) [17]. The hospitals are located in different regions all over NRW including large, middle-sized and small cities as well as few semi-rural regions. They are responsible for providing in- and out-patient mental healthcare for approximately half of the population of NRW, i.e. for about nine million people. The main findings were that homelessness among inpatients was associated with male gender, younger age, diagnoses of schizophrenia and substance use disorders, and more severe mental illness indicated by higher comorbidity and treatment complications such as involuntary admission and coercive measures [17]. A WohnLos project case study of 76 patients who had been admitted to inpatient psychiatric services from homelessness or precarious housing showed that nearly half of these patients was discharged to unsecured housing or homelessness and that insecure housing situations delayed discharge in about one third [18]. Another WohnLos study showed that among residents of residential care facilities, psychotic disorders and substance use disorders were the most frequent mental illnesses, and that preexisting social support seemed to be a major protective factor against non-secure housing [19].

Methods

Questionnaire

The questionnaire used in this study was developed by the research team and was pretested by a physician, a psychologist and a social worker of one LVR hospital. It included items on ***(a) sociodemographic and socioeconomic characteristics***: age, gender, marital status, partnership and other sources of social support, educational level, vocational training, employment situation, history of migration, economic situation (debt; yes/no), legal guardianship (yes/no); ***(b) clinical aspects***: psychiatric and somatic diagnoses according to the World Health Organization International Classification of Disorders (10th revision, ICD-10), symptom severity measured with

the Clinical Global Assessment – Severity Scale (CGI-S) at admission, psychosocial functioning measured by the Global Assessment of Functioning Scale (GAF) at admission; ***(c) aspects of care trajectories***: number of previous psychiatric inpatient stays, legal status of inpatient stay (voluntary vs. involuntary), care setting (secured/open ward), experience of coercive measures in the course of the present inpatient stay (restraint, seclusion), expected barriers for discharge due to the housing situation (yes/no); and ***(d) housing situation at the time of admission to the hospital***: The items were adapted according to the five categories of the European Typology of Homelessness and Housing Exclusion (ETHOS) of the European Federation of National Organizations working with the Homeless [20]. These categories are *secure* (living in own apartment, either independently or with outpatient support; or living in residential care, *insecure* (living temporarily with other people without legal tenancy, or living under the threat of eviction or domestic violence), *inadequate* (living in housing unfit for habitation, makeshift shelters such as garages, or in extreme overcrowding), *houseless* (temporary in institutions for the homeless, for immigrants or women´s shelter) and *roofless* (sleeping in public spaces or in night shelters).

Data collection

Data of inpatients were collected in the departments of adult psychiatry (including geriatric psychiatry and addiction medicine) of the LVR and LWL hospitals on two record dates (November 2, 2020, and June 1, 2021). For each patient, a questionnaire was filled out by the individually responsible clinical personnel (psychiatrists, psychologists or social workers) using existing documentations in the electronic Hospital Information System (HIS) and their knowledge of the respective case. Data were anonymized and returned to the study centers by using an electronic patient survey tool.

Statistics

Data from both record dates were merged. In order to obtain sufficiently large groups for statistical analyses, the five ETHOS housing categories were condensed into three categories: *secure housing*, *precarious housing* (included insecure and inadequate housing), and *homeless* (included houseless and roofless). For some analyses, the categories "precarious housing" and "homelessness" were combined in the category "non-secure housing". The prevalences of these housing categories were calculated for each provider location and for the total of all 15 participating providers.

Descriptive and explorative two-sided statistical tests were performed using *p*-values of 0.05 as an indicator of statistically significant differences. The differences between prevalences of non-secure housing and its subtypes in various provider locations were tested using the Mann-Whitney U test. Associations of the three types of housing situation with sociodemographic variables, with clinical variables obtained at admission to inpatient psychiatric treatment, and with aspects of psychiatric care trajectories were analyzed by means of variance analyses (ANOVA) for continuous variables (age, CGI score, GAF score) and Chi^2-tests for categorical variables (all remaining variables). Given the structure of the variables, the initial statistical tests were Chi^2 tests on higher-order contingency tables. We performed Bonferroni-adjusted post-hoc Chi^2 tests based on the "calculating residuals procedure" for categorical variables. For the continuous variables, we used Tukey post-hoc tests. To identify risk factors for precarious housing situations and homelessness, we assessed two models using logistic regression analyses: model a), precarious housing vs. secure housing, and model b), homelessness vs. secure housing. Types of distribution and multicollinearity were tested via a correlation matrix. Analyses were conducted using IBM SPSS Statistics® Version 27.

Results

Data basis

Twelve hospitals participated on the first record date (November 2, 2020) and fifteen hospitals on the second record day (June 1, 2021). On the first record date, we received 1926 questionnaires (return rate 58%), and on the second record date 2326 questionnaires (return rate 60%). After plausibility analyses, the data sets of both record dates were merged. Four patient cases were excluded because of implausible information and 254 patient cases were excluded because data on the housing situation were missing. The remaining 3994 cases were used for further analyses. 215 of these cases were double cases either because of a long-term stay over both record dates or because they had been readmitted.

Prevalence of homelessness and precarious housing

Outlier analyses were conducted by calculating Z-Scores for the prevalence rates. This led to an exclusion of the data of one hospital on the first record date with 66 cases ($Z = 2.890$, $p < 0.05$). Another 16 cases were excluded because information on the provider location was missing. Hence, analyses of the prevalence of homelessness and precarious housing were performed on 3912 cases. Table 1 shows the mean prevalences of the three housing conditions and the range over the 15 hospitals.

Prevalence rates of the three housing conditions for the 15 hospitals are presented in Fig. 1.

The mean prevalence of non-secure housing was higher in the LVR (mean 19.3%, SD 8.9%, $n = 9$) than in the LWL (mean 11.9%, SD 8.2%; $n = 5$), but the difference was not statistically significant (Mann Whitney U-Test, U = 16, z =

Table 1 Prevalence of various housing conditions among psychiatric inpatients

Housing condition	Prevalence		
	n	% (average of 15 hospitals)	% (range in 15 hospitals)
Secure	3266	83.5%	63.1–98.1%
Non-secure (sum of precarious and homeless)	646	16.5%	1.9–37.0%
• Precarious (insecure and inadequate)	338	8.6%	1.9–18.5%
• Homeless (houseless and roofless)	308	7.9%	0.0–18.5%

Legend to Table 1: The prevalence of different housing conditions is given as an average and range of the percentage of 3912 psychiatric inpatient cases in the WohnLos Study in the state of Northrhine Westphalia, Germany, on two record dates in 2020 (Nov 1) and 2021 (June 1). Shown are merged data of both record dates

-1.296; $p = 0.224$). The lowest prevalences were observed in the three participating cities of the Ruhr Valley industrial area. The highest prevalences were observed in two metropolitan areas of the Rhineland and one LWL hospital in a semirural region (the latter with only 17 inpatient cases of whom data were reported).

Sociodemographic and clinical variables

For descriptive analyses of sociodemographic and clinical variables, we included all 3994 cases from the first and second record date. No imputation of missing variables was performed. The results of the descriptive analyses are shown in Table 2. Details of post-hoc tests are shown in Supplementary Material 1.

Non-secure housing was associated with younger age, male gender, financial debts, low rates of employment and retirement pensions, and lack of school diplomas and vocational qualification. Secure housing conditions were associated with being married or widowed, living in a partnership and receiving social support from family and friends. Patients in precarious housing received more social support than homeless patients. Homeless patients and patients living in precarious housing more often had a legal guardian, they had less often given somebody power of attorney and they were more often migrants or refugees compared to patients living in secure housing. In addition, patients in precarious housing came more often from families with a migration background. Finally, homeless patients had lower German language skills compared to homeless patients and to patients living in secure housing.

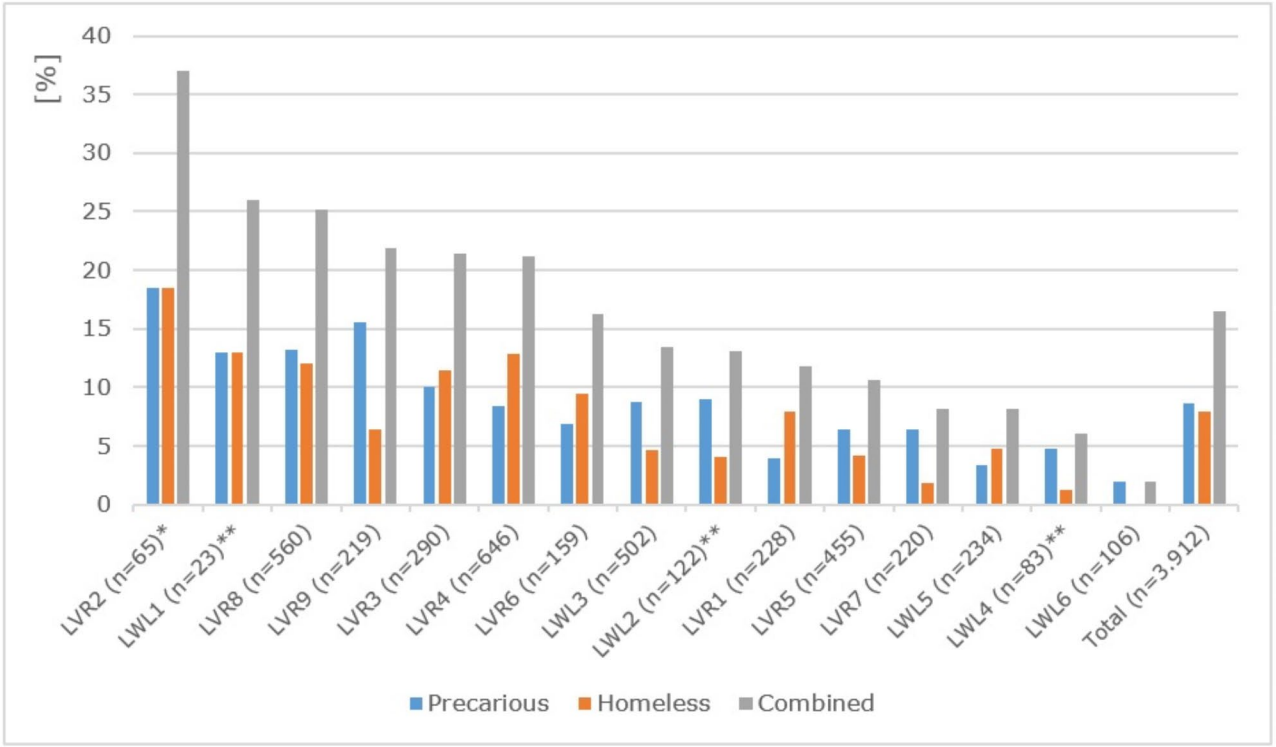

Fig. 1 Prevalence of various housing conditions among psychiatric inpatients. Legend to Fig. 1: Prevalence of precarious housing conditions (blue bars), homelessness (orange bars), and the combination of both (black bars) among inpatients in psychiatric LVR- and LWL-hospitals. Data were collected on two record dates in 2020 (Nov 1) and 2021 (Jun 1) in the framework of the WohnLos Study in the state of Northrhine Westphalia, Germany. Shown are merged data of both record dates. * Data from this provider location were only used on the second record date due to the exclusion of data from the first record date after an outlier analysis. ** Participation only on the second record date

Table 2 Sociodemographic variables according to housing situation

	Housing situation			*P*[1]	Post hoc tests[2,3]
	Secure (S)	Precarious (*P*)	Homeless (H)		
Age [years, mean (SD)]	49.8 (19.1) Median = 50	39.2 (15.28) Median = 37	42.0 (13.57) Median = 41	**< 0.001**	S: ↑ P and H: ↓
Gender [N (%[4])]					
Male	1552 (46.9)	221 (63.3)	219 (66.6)	**< 0.001**	S: ↑female, ↓male P and H: ↑male, ↓female
Female	1756 (53.1)	128 (36.7)	110 (33.4)		
Marital status [N (%[4])]					
Single	1591 (53.0)	250 (76.5)	237 (78.8)	**< 0.001**	S: ↓single, ↑married, ↑widowed P: ↑single, ↓married, ↓widowed H: ↑single, ↓married
Married	763 (25.4)	21 (6.4)	17 (5.6)		
Divorced	472 (15.7)	52 (15.9)	41 (13.6)		
Widowed	176 (5.9)	4 (1.2)	6 (2.0)		
Educational level [N (%[4]]					
School education ongoing	24 (1.2)	4 (1.6)	2 (0.9)	**< 0.001**	S: ↓no school degree, ↑high school degreee P: ↑no school degree H: ↑no school degree, ↓high school degree
No school degree	127 (6.3)	34 (13.9)	45 (21.2)		
Lower secondary school degree	658 (32.6)	82 (33.7)	76 (35.9)		
Secondary school degree	516 (25.5)	58 (23.8)	41 (19.3)		
High school degree	662 (32.7)	63 (25.8)	43 (20.3)		
Other	35 (1.7)	3 (1.2)	5 (2.4)		
Vocational qualification [N (%[4])]					
Vocational education ongoing	129 (5.8)	12 (4.6)	5 (2.1)	**< 0.001**	S: ↓no vocational qualification, ↑professional qualification, ↑college/university degree P: ↑no vocational qualification, ↓professional qualification H: ↑no vocational qualification, ↓professional qualification, ↓college/university degree
No vocational qualification	671 (30.2)	146 (55.5)	157 (66.2)		
Professional qualification	1085 (48.8)	86 (32.7)	58 (24.6)		
College/university degree	285 (12.8)	18 (6.8)	11 (4.6)		
Other	54 (2.4)	1 (0.4)	6 (2.5)		
Employment situation [N (%[4])]					
Employed	688 (23.3)	27 (8.6)	5 (1.7)	**< 0.001**	S: ↑employed, ↓unemployed, ↑retirement pension P and H: ↓employed, ↑unemployed, ↓retirement pension
Unemployed	796 (27.0)	183 (58.5)	187 (63.6)		
Disability pension	393 (13.3)	35 (11.2)	54 (18.4)		
Retirement pension	655 (22.2)	23 (7.4)	12 (4.1)		
Other	355 (12.0)	43 (13.7)	35 (11.9)		
Economic situation (debt) [N (%[4])]					
Yes	271 (16.3)	84 (46.2)	75 (49.7)	**< 0.001**	S: ↓yes, ↑no P and H: ↑yes, ↓no
No	1394 (83.7)	98 (53.8)	76 (50.3)		
Partnership [N (%[4])]					
Yes	1145 (40.8)	71 (23.1)	37 (13.4)	**< 0.001**	S: ↑yes, ↓no P and H: ↓yes, ↑no
No	1663 (59.2)	237 (76.9)	240 (86.6)		
Social support [N (%[4])]					
Yes	2683 (80.9)	275 (78.8)	178 (54.1)	**< 0.001**	S: ↑yes, ↓no P: N. S. H: ↓yes, ↑no
No	633 (19.1)	74 (21.2)	151 (45.9)		
Legal guardianship [N (%[4])]					
Yes	877 (27.1)	136 (39.2)	178 (55.8)	**< 0.001**	S: ↓yes, ↑no P: ↑yes, ↓no H: ↑yes, ↓no
No	2363 (72.9)	211 (60.8)	141 (44.2)		
Power of attorney [N (%[4])]					

Table 2 (continued)

	Housing situation			*P*[1]	Post hoc tests[2,3]
	Secure (S)	Precarious (*P*)	Homeless (H)		
Yes	344 (14.1)	11 (4.3)	7 (2.9)	**< 0.001**	S: ↑yes, ↓no P and H: ↓yes, ↑no
No	2097 (85.9)	247 (95.7)	232 (97.1)		
Migration background [N (%[4])]					
None	2326 (77.5)	205 (61.4)	198 (64.5)	**< 0.001**	S: ↑none, ↓patient himself/herself, ↓at least one parent P: ↓none, ↑ patient himself/herself, ↑at least one parent H: ↓none, ↑ patient himself/herself
Patient himself/herself is a refugee or migrant	427 (14.2)	72 (21.6)	81 (26.4)		
Second generation refugee or migrant (at least one parent)	249 (8.3)	57 (17.1)	28 (9.1)		
German language skills of patients who were refugees or migrants [N (%[4])]					
sufficient	363 (76.3)	64 (86.5)	55 (63.2)	**< 0.001**	S: N.S./ P: N. S. / H: ↓sufficient, ↑limited
limited	59 (12.4)	9 (12.2)	26 (29.9)		
Other	54 (11.4)	1 (1.4)	6 (6.9)		

[1] Significance level for ANOVA (continuous variables) or Chi^2 (categorical variables)

[2] Arrows indicate the direction of statistically significant associations of housing variables with the sociodemographic variables as found in post hoc tests. S = Secured housing, *P* = Precarious Housing, H = Homelessness. N.S. not significant

[3] Post hoc Chi^2 test for categorical variables and post hoc Bonferroni corrected Chi^2 test for continuous variables

[4] Column-percentage, related to the total in each column

Clinical variables

There were significant associations between the housing situation and the primary psychiatric diagnosis, the number of comorbid disorders and the GAF score at admission (Table 3). Patients who were homeless or who lived in precarious housing at the time of admission were most frequently affected by schizophrenia or other psychotic disorders (ICD-10 F2, 54%), and by substance use disorders (ICD-10 F1, 24%). They had more psychiatric and less somatic comorbid disorders compared to patients who lived in secure housing, Patients who were homeless or who lived in precarious housing less often had a primary diagnosis of an organic mental disorder (ICD-10 F0) or an affective disorder (ICD-10 F3). Homeless patients had slightly lower GAF-scores at admission compared to the other two patient groups, and this difference reached statistical significance.

Aspects of care trajectories

There were significant associations of the housing situation and various aspects of psychiatric care trajectories (Table 4). Details of the post-hoc tests are presented in Supplemental Table 1.

Living in homelessness or precarious housing conditions was associated with a history of several previous psychiatric inpatient stays, with involuntary admission or detention during the course of the inpatient stay, and with an increased rate of coercive measures. Precarious housing and homelessness were also associated with admission to a department for substance use disorders. Homeless patients were more often hospitalized in closed wards compared to other types of services. The rate of the housing situation as an expected barrier for discharge was highest for homeless patients (35%) and similar for patients in precarious housing (22%). The difference of the rates between patients in precarious housing and homelessness was not significant.

Risk factors for precarious living situations and homelessness: logistic regression

We used two logistic regression models to test the influence of several independent variables (sociodemographic, clinical and care trajectories) on the dependent variables *precarious housing condition* and *homelessness*, respectively. The variables entered into both logistic regressions are shown in Supplementary Material 2. Statistical requirements (types of distribution and lack of multicollinearity) were fulfilled. The explanatory power for homelessness was higher than the explanatory power for precarious housing (Hosmer-Lemeshow test for homelessness: $p = 0.863$, Nagelkerke's R^2 0.304; precarious housing: $p = 0.548$, Nagelkerke's R^2 0.185).

Homelessness

Out of a total of 3583 cases (3274 in secure housing situations, 309 homeless), complete information about all variables was available for 2347 cases (65.5%, 2154 in secure housing, 193 homeless). The results of the logistic regression for these 2347 cases are shown in Supplementary Material 3, including 95% confidence intervals for odds ratios (ORs) and *p*-values. Odds ratios for significant risk and protective factors are shown in Fig. 2.

The strongest predictors of homelessness were being a refugee or a first generation migrant (OR 2.8) and being

Table 3 Clinical variables of inpatients differentiated according to their housing situation at admission

	Housing situation			*P*[1]	Post hoc tests[2,3]
	Secure (S)	Precarious (*P*)	Homeless (H)		
Primary diagnosis of a mental disorder according to ICD-10 chapter F [N (%[4])]					
F00-F09	343 (10.6)	17 (4.9)	12 (3.8)	**< 0.001**	S: ↑F00-F09, ↓F10-F19, ↓F20-F29, ↑F30-F39 P and H: ↓F00-F09, ↑F10-F19, ↑F20-F29, ↓F30-F39
F10-F19	478 (14.8)	81 (23.5)	76 (24.1)		
F20-F29	802 (24.8)	147 (42.6)	170 (53.8)		
F30-F39	1319 (40.8)	64 (18.6)	40 (12.7)		
F40-F48	83 (2.6)	9 (2.6)	3 (0.9)		
F50-F59	1 (0.0)	0 (0.0)	0 (0.0)		
F60-F69	141 (4.4)	19 (5.5)	12 (3.8)		
F70-F98	47 (1.5)	6 (1.7)	3 (0.9)		
G30-G32	22 (0.7)	2 (0.6)	0 (0.0)		
Psychiatric comorbidity [mean (SD)] [5]	0.80 (1.06) Median = 0	1.15 (1.42) Median = 1	1.09 (1.29) Median = 1	**< 0.001**	S: ↓ P and H: ↑
Somatic comorbidity [mean (SD)] [6]	0.93 (1.48) Median = 0	0.53 (1.16) Median = 0	0.56 (1.17) Median = 0	**< 0.001**	S: ↑ P and H: ↓
CGI-Score at admission [MW (SD)] [7]	2.4 (0.7) Median = 2	2.5 (0.7) Median = 2.5	2.41 (0.7) Median = 2	0.662	N.s.
GAF-Score at admission [MW (SD)] [8]	30 (10) Median = 30	29 (9) Median = 30	28 (9) Median = 29	**0.007**	S: ↑ P: N.s H: ↓

[1] Significance level for ANOVA (continuous variables) or Chi² (categorical variables)

[2] Arrows indicate the direction of statistically significant associations of housing variables with the sociodemographic variables as found in in post hoc tests. S = Secured housing, *P* = Precarious Housing, H = Homelessness. N.S. not significant

[3] Post hoc Chi² test for categorical variables and post hoc Bonferroni corrected Chi² test for continuous variables

[4] Column-percentage, related to the total in each column

[5] Number of psychiatric secondary diagnoses

[6] Number of somatic secondary diagnoses

[7] Clinical Global Impression - severity (data only from LVR hospitals)

[8] Global Assessment of Functioning (data only from LVR hospitals)

unemployed (OR 2.7). Further variables associated with an increased risk of being homeless were a history of two or more inpatient psychiatric stays in the previous 12 months (OR 2.2), a main diagnosis of schizophrenia (ICD-10 F2) (OR 2.1), and a higher number of comorbid additional psychiatric disorders (OR 1.3). Patients who experienced coercive measures during their inpatient stay (OR 1.8) and patients who were admitted against their will (OR 1.6) were more likely to be homeless. The risk of being homeless was lower in female patients (OR 0.699), in patients who lived in a partnership (OR 0.35), and in those who were treated in departments for General Psychiatry (OR 0.53) or Geriatric Psychiatry (OR 0.23).

Precarious housing conditions

Of 3613 cases (3274 in secure housing situations, 339 in precarious housing conditions), complete information about all variables was available for 2388 cases (66.1%, 2154 in secure housing, 234 in precarious housing). The results of the logistic regression for these 2388 cases are shown in detail including 95% confidence intervals for ORs in Supplementary Material 4. Odds ratios for significant risk and protective factors are shown in Fig. 3.

Being unemployed (OR 2.4) and being admitted involuntarily (OR 2.4) were associated with increased odds of living in a precarious housing situation. Female gender (OR 0.7), higher age (OR 0.97), living in a partnership (OR 0.7) and a main psychiatric diagnosis of an affective disorder (OR 0.5) were associated with decreased odds of living in precarious housing.

Discussion

The prevalence of non-secure housing in inpatient psychiatry

In this questionnaire survey on two record dates in the years 2020 and 2021, we found high rates of homelessness (8.6%) and precarious housing (7.9%) among inpatients of public mental health hospitals in the federal state of North Rhine Westphalia, Germany. In a previous retrospective study, we had analyzed the prevalence of homelessness in inpatients during the years 2016 to 2019 as documented in the clinical routine data of the electronic Hospital Information System (HIS) of the same two groups of hospitals and we had found a much lower prevalence of homelessness of only 2.4% in average [17]. This discrepancy may be due to an increase of homelessness in this population, since we also found an increase in routine data from 2016 to 2019 averaging approx. 14% [17]. However, the magnitude of the discrepancy indicates considerable underreporting of homelessness in clinical routine data. There is no standardized documentation of precarious housing in the HIS in German hospitals. Consequently, precarious housing conditions, which often represent an intermediate stage on the path to homelessness, cannot be detected with routine hospital data. This may further aggravate the underestimation of non-secure housing conditions among psychiatric inpatients.

There was marked variability in the prevalence of non-secure housing among patients who were hospitalized in the different hospitals participating in our study. We found higher rates of non-secure housing in patients of hospitals located in big cities and in the LVR hospitals which serve the Rhineland region of NRW compared to the LWL hospitals which serve the Westphalia-Lippe

Table 4 Care trajectory characteristics of patients differentiated according to their housing situation at admission

	Housing situation			P[1]	Post hoc tests[2,3]
	Secure (S)	Precarious (P)	Homeless (H)		
Previous inpatient stays within the last 12 months [N (%[4])]					S: ↓yes, several, ↑none P and H: ↑yes, several, ↓none
Yes, one	656 (20.1)	85 (24.6)	73 (22.5)	**< 0.001**	
Yes, several	644 (19.7)	101 (29.3)	140 (43.2)		
None	1962 (60.1)	159 (46.1)	111 (34.3)		
Department treating the patient [N (%[4])]					S: ↑geriatric psychiatry, ↓substance use disorders department P and H: ↓geriatric psychiatry, ↑substance use disorders department
General psychiatry	2016 (61.3)	224 (64.7)	195 (60.2)	**< 0.001**	
Geriatric psychiatry	722 (22.0)	29 (8.4)	19 (5.9)		
Substance use disorders department	550 (16.7)	93 (26.9)	110 (34.0)		
Care setting [N (%[4])]					S: ↓acute care, ↑regular care P: N.S. H: ↑acute care, ↓regular care
Acute care (closed ward)	1240 (37.9)	163 (47.7)	197 (61.0)	**< 0.001**	
Regular care (open ward)	2027 (62.0)	179 (52.3)	125 (38.7)		
StäB [5]	1 (0.0)	0 (0.0)	0 (0.0)		
SuL [6]	3 (0.1)	0 (0.0)	1 (0.3)		
Legal status at admission [N (%[4])]					S: ↑voluntary, ↓involuntary P and H: ↓voluntary, ↑involuntary
Voluntary	2479 (76.2)	203 (59.2)	186 (57.6)	**< 0.001**	
Involuntary (PsychKG[7] or BTB[8])	775 (23.8)	140 (40.8)	137 (42.4)		
Legal status in the course of inpatient stay [N (%[4])]					S: ↑voluntary, ↓involuntary P and H: ↓voluntary, ↑involuntary
Voluntary	2423 (77.5)	212 (65.8)	182 (59.3)	**< 0.001**	
Involuntary (PsychKG[7] or BTG[8])	702 (22.5)	110 (34.2)	125 (40.7)		
Coercive measures in the course of inpatient stay [N (%[4])]					S: ↓yes, ↑no P and H: ↑yes, ↓no
Yes	300 (9.4)	60 (17.8)	90 (28.6)	**< 0.001**	
No	2888 (90.6)	277 (82.2)	225 (71.4)		
Expected barriers for discharge from hospital due to housing situation (estimation by the care personnel on the record date) [N (%[4])]					S: ↓yes, ↑no, ↓not known or uncertain P and H: ↑yes, ↓no, ↑not known or uncertain
Yes	96 (4.0)	74 (22.0)	112 (34.6)	**< 0.001**	
No	2231 (93.2)	192 (57.0)	134 (41.4)		
Not known or uncertain	67 (2.8)	71 (21.1)	78 (24.1)		

[1] Significance level for ANOVA (continuous variables) or Chi^2 (categorical variables)

[2] Arrows indicate the direction of statistically significant associations of housing variables with the sociodemographic variables as found in in post hoc tests. S = Secured housing, *P* = Precarious Housing, H = Homelessness. N.S. not significant

[3] Post hoc Chi^2 test for categorical variables and post hoc Bonferroni corrected Chi^2 test for continuous variables

[4] Column-percentage, related to the total in each column

[5] Home Treatment, equivalent to inpatient treatment (German: Stationsäquivalente Behandlung)

[6] Flexible switches from inpatient to intensive outpatient treatment (care model according to § 64b German Social Code V)

[7] Mental Health Act (German: Psychisch-Kranken-Gesetz)

[8] Guardianship act (German: Betreuungsgesetz)

region. Similar variability - at a lower level overall - was also found with regard to homelessness in our earlier study using routine data, i.e. clinics with a high prevalence in the routine data mostly also had a high prevalence in the current survey [17]. We assume that the survey data should closely reflect the actual extent of the problem and the apparent variability between sites. The differences between the LVR and LWL hospitals may be due to more effective social psychiatric care services with a higher number of residential home places in the Westphalia-Lippe compared to the Rhineland region of NRW [19, 21–24]. The hospitals with a high proportion of patients living in non-secure housing conditions belong to the most densely populated cities of NRW (Düsseldorf, Münster, Cologne, Bonn) with approx. 300,000 to 1,000,000 inhabitants and relatively high numbers of homeless people [16]. Our findings support the idea that homelessness is a predominantly urban phenomenon [25]. In urban areas, there is often shortage of housing and especially shortage of inexpensive housing,

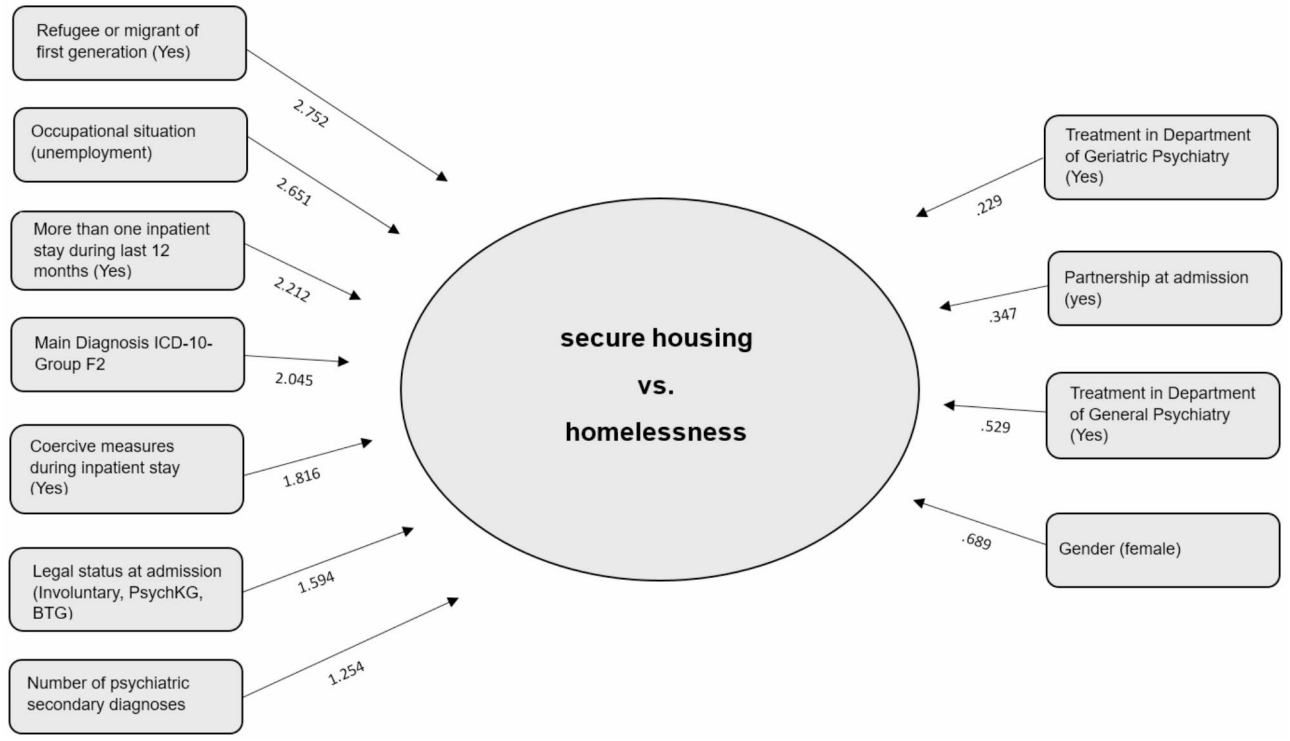

Fig. 2 Odds ratios of significant predictors of homelessness tested in logistic regression. Risk factors are displayed on the left, protective factors on the right. ICD-10: International Statistical Classification of Diseases and Related Health Problems; F2: Schizophrenia, schizotypal and delusional disorders; PsychKG: Psychisch-Kranken-Gesetz NRW (Mental Health Act); BTG: Betreuungsgesetz (guardianship act)

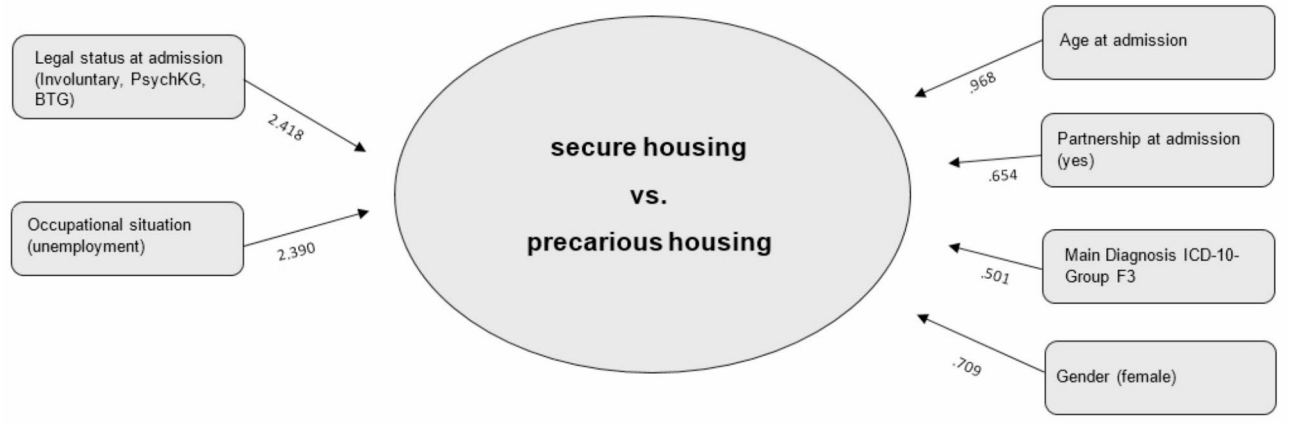

Fig. 3 Odds ratios of significant predictors of precarious housing tested in logistic regression. Risk factors are displayed on the left, protective factors on the right. ICD-10: International Statistical Classification of Diseases and Related Health Problems; F3: Mood [affective] disorders; PsychKG: Psychisch-Kranken-Gesetz NRW (Mental Health Act); BTG: Betreuungsgesetz (guardianship act)

which is an obstacle for disadvantaged groups to find adequate and affordable accommodation [26]. However, our data also show that three psychiatric hospitals from major cities of the densely populated Ruhr region have the lowest rates of psychiatric inpatients in non-secure housing conditions independent of their association with one of the two state council regions LVR and LWL. This may be due to a different organization of municipal care for homeless people in this area, which may have a stronger effect than the degree of urbanization.

To compare our findings with other studies about homelessness in psychiatric inpatients, relatively few studies are available from western European countries: Two older studies from Copenhagen reported a prevalence of homelessness of 6–8% among inpatients with mental disorders [27, 28]. In a more recent prospective study from the United Kingdom with nearly 4,400

consecutively admitted female patients, a much higher prevalence of homelessness of 16% was reported [29]. For Germany, an older study by Wessel and coworkers (1997) [30] systematically recorded the housing situation of all patients consecutively admitted over 12 months to a psychiatric clinic in a large city of approx. 300,000 inhabitants in NRW. Of the 3174 cases, around 10.5% were living in homelessness, and another 6% were documented as having a 'housing emergency', which may correspond to the criteria of unsecured and inadequate housing of the precarious housing conditions in our study. The more recent WOHIN study interviewed 540 in- and day-patients of a mental health clinic serving a socially disadvantaged part of Berlin about their living situation prior to admission [31]. The study reported the prevalence of homelessness based on a definition that includes roof- and houselessness, but also 'improvised shelters', which is a kind of inadequate housing according to the ETHOS typology. On that basis, a prevalence of 'homelessness' of 18% was reported among in-patients [31]. Taken together, the prevalence of non-secure housing conditions among inpatients of mental health hospitals in a major city in North Rhine Westphalia and in the metropolitan area of Berlin was previously shown to be similar to the prevalence found in our study among inpatients in LVR and LWL clinics at urban sites.

Risk factors for non-secure housing

We found several differences in sociodemographic, clinical and care trajectory characteristics between patients living in secure housing and those living in homelessness or in precarious housing conditions. The strongest risk factors for homelessness according to the regression analysis were being a refugee or first generation migrant, being unemployed, having had two or more inpatients stays during the last 12 months, having a main diagnosis of schizophrenia or other psychosis and psychiatric comorbidities, and having been admitted involuntarily and experienced coercive measures. Being unemployed and having been admitted involuntarily were also risk factors for precarious housing. Similarly, being female and living in a partnership were associated with low risks for both types of non-secure housing (homelessness and precarious housing).

Partnership support

The strongest sociodemographic factor related to secure housing conditions among psychiatric inpatients was living in a stable partnership. People living in non-secure housing were often single and, in addition, homeless people had little social support [8, 12]. To our knowledge, this aspect has rarely been systematically investigated in psychiatric inpatients. We have previously shown in the framework of the WohnLos project that psychosocial support is a crucial topic for mentally ill homeless persons in residential homes [29]. Considering the high importance of partnership and other (professional) types of social support in times of mental crises and for mental well-being, the lack of this support is another significant stress factor for the particularly vulnerable group of mentally ill people living in non-secure housing.

Migration

The strongest risk factor for being homeless – but not for living in precarious housing – was being a first generation migrant or refugee. This finding must be viewed against the backdrop of refugee immigration in Germany in recent years. In 2019, the Federal Association for Assistance to the Homeless [15] reported a 4.2% increase in the total annual number of homeless persons (from 2017 to 2018); this included a much larger increase in the number of homeless recognized refugees compared to the number of homeless persons without the inclusion of recognized refugees (5.9% vs. 1.2%). According to estimates, the number of homeless persons without inclusion of homeless refugees was about 237,000, while the number of homeless recognized refugees was estimated to be about 441,000 persons [15]. These figures indicate that homelessness in Germany is significantly associated with refugee migration. The results of our WohnLos study show that this problem still persists five to six years after the peak of refugee migration - and prior to the current increasing numbers of refugees from the Ukraine - and continues to be highly relevant for the care of the particularly vulnerable group of mentally ill refugees and migrants.

Gender effects

We found a predominance of men among inpatients of mental health hospitals who lived in non-secure housing, which is in line with findings from our previous analysis of routine data from the LVR and LWL hospitals [17] and findings from the Berlin WOHIN study [13, 17]. Other studies from Europe and the USA also confirm a male predominance among homeless persons with mental disorders [27, 32, 33, 34] and they are also in line with a male predominance among homeless persons in general [5, 35]. Some studies suggested that women are more likely to live in hidden, unsafe and precarious housing (e.g., informal housing, temporarily with other persons, in women's shelters, living with domestic and sexual abuse) and may be overlooked when studying the phenomenon of homelessness [13, 36]. However, in the present study we found no noteworthy difference in gender distribution among patients living in homelessness and those living in precarious housing. Nevertheless, gender differences should be considered when evaluating and planning to

improve the housing situation of persons with mental health problems.

Age effects

In our study, inpatients who lived in non-secure housing were about 40 years of age and therefore about 10 years younger than inpatients living in secure housing. According to the regression analysis, higher age was a significant risk factor only for precarious housing. Nevertheless, the descriptive data are in line with our earlier routine data analysis which compared homeless vs. non-homeless inpatients [17], and they are also in line with other German and European studies showing that homeless persons tend to be younger [13, 27, 31, 33, 34]. Although this difference was not statistically significant, it appears interesting and may allow for some interpretations: Among patients living in non-secure housing, we found a preponderance of mental disorders like schizophrenia and substance use disorders, which typically begin in the second or third decade of life. These disorders are associated with severe, chronic disease course and considerable psychosocial impairment. Thus, age-specific prevalences of some mental disorders may have contributed to financial strain and the housing problems in the younger age group [32]. It is also plausible that formerly homeless patients of older age have received (and accepted) more extended psychosocial services and are more frequently placed in secure (supported) housing. Finally, the slightly younger age of patients living in precarious housing is in line with the idea that precarious housing may be an intermediate stage on the way to homelessness as the impairment of social functioning increases.

Psychiatric care trajectories

Regarding the burden of disease, the risk of homelessness increased with the number of psychiatric diagnoses indicating a dose-response relationship between the burden of mental disorders and homelessness. Similarly, the association of homelessness with a history of numerous previous inpatient stays, involuntary admission and experiences of coercive measures also indicate a higher burden of mental disorders among homeless psychiatric inpatients compared to those living in secure housing. We were not able to assess the duration of inpatient stays in this part of the WohnLos project. Previous studies including one study from the WohnLos project indicated complex interrelationships between the duration of psychiatric inpatient stays and the housing situation [18]. Assessing the individual cumulative duration of inpatient stays may be an appropriate way to further characterize the burden of mental disorders in homeless people. Interestingly, we found less somatic comorbidities in inpatients who lived in non-secure compared to secure housing. This finding is in line with a study from Switzerland [33] and it may be explained by the younger age of the patient group in non-secure housing. However, living on the streets is associated with high rates of acute and chronic infectious, musculoskeletal, cardiovascular and respiratory diseases [37, 38]. Therefore, the finding of a lower number of somatic diagnoses may also point to underdiagnosis of somatic disorders in patients coming to the hospital from non-secure housing situations.

Limitations

We used two record dates during the Covid pandemic and we cannot exclude that the pandemic had an impact on the results. However, as the results of our study compare well with previously published studies about mental health of the homeless, we think that the pandemic probably only had a limited effect in our study. We did not study the changes of the prevalence of homeless people and people living in precarious housing conditions over longer periods of time. As rates of homelessness are rising in Germany, we expect that the prevalence of precarious housing situations and homelessness among psychiatric inpatients will increase in the future underscoring the need to initiate further longterm studies. Our conclusions are based on a regional study in one federal state of Germany. However, comparisons with previous studies indicate that our study may be well representative of the situation in Germany and even other countries in western Europe. Methodologically, our study relied on the experience, knowledge and trustworthiness of the documentations of mental healthcare professionals. As we asked professionals to report information on their current patients, we estimate that errors due to unknown variables or imprecise memories were not a major issue. Our observation that more than 90% of all returned questionnaires had complete data on the housing situation of the patients indicate that the professionals were a knowledgeable current source of the necessary information and their assessments yielded more credible prevalence rates of homelessness or precarious housing conditions among psychiatric inpatients than routine clinical data. As regards the response rate of 60%, our study may have been skewed towards patients with known housing situations and may have underestimated the rate of non-secure housing. The clinical assessments relied on the global scales CGI and GAF, which are used in the standard documentation in the LVR hospitals, but they are not tailored to specific mental health conditions. The high level of significance in the bivariate analyses may partly reflect the effect of the large sample size, despite adjustments using Bonferroni corrections and follow-up with multivariate logistic regression modeling. Finally, while our questionnaires addressed numerous patient characteristics associated with homelessness, more in depth understanding may be achieved

by additional qualitative interviews with both professionals and patients. This was beyond the scope of this study and may be addressed in future investigations.

Conclusion

16.5% of inpatients of public mental health hospitals in the most densely inhabited federal state of Germany were found to be homeless or to live in precarious housing conditions. This finding calls for measures to prevent and help overcome non-secure housing in this vulnerable group of persons with severe mental illness. The considerable overlap of risk and protective factors for homelessness and for living in precarious housing conditions supports the view of common causative factors and common mediators of transition between the two variants of non-secure housing. The "hidden" homelessness in precarious housing may well reflect a step-wise development from secure via precarious housing to homelessness, which may be amenable to preventive interventions initiated during inpatient psychiatric stays. Overall, the two groups of patients should be considered together, for example by providing early interventions that take several possible risk factors into account. Based on our study, these may include age, gender, vocational status, migration background, and the mental disorder. Social support is a major protective factor, as we have found in our present study from the perspectives of the psychiatric inpatient staff and in another WohnLos subproject from the perspectives of residential care facilities staff [29]. There is an obvious common set of risk and protective factors for non-secure housing in mentally ill persons in psychiatric hospitals and residential home care settings.

With findings from our and other studies, characteristics, warning signs and risk factors for non-secure housing should be more adequately perceived and taken into account by mental healthcare providers (e.g., in discharge management). Barriers encountered when accessing mental healthcare need to be identified by interview surveys of both professionals and homeless or precariously housed individuals with the aim to identify areas for service improvement. A wider implementation of promising approaches of non-residential care such as housing first should be considered on a supra-regional basis [39, 40]. Sensitization and training of staff in mental health hospitals and community social psychiatric institutions in recognizing and dealing with the problem of non-secure housing without stigmatizing their clients is crucial. Moreover, there is a need for systematic collaboration of clinic personnel with local and regional services for the homeless, as well as for stronger collaboration between addiction aid, social psychiatric services and communal social services. Models to improve psychosocial care for psychiatric inpatients and to continue this care after discharge from a psychiatric hospital are available and one of these models was implemented in one of the participating LVR clinics with promising results [34].

Finally, at the level of cities and municipalities, it is necessary to provide sufficient affordable housing *and* sufficient suitable residential housing for people with the most severe mental disorders. Especially in urban regions with a dense population, it can sometimes be challenging to find living environments with sufficient tolerance for people with 'difficult' and socially maladjusted behavior. Here, we see an important municipal task in meeting this need through effective planning and investment.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s13033-025-00664-y.

Supplementary Material 1

Supplementary Material 2

Supplementary Material 3

Supplementary Material 4

Acknowledgements

The authors gratefully acknowledge the cooperation of the mental healthcare professionals of the mental health hospitals of the LWL and LVR.

Author contributions

E.G.M., J.Z, I.L. and G.J. designed the study and contributed to the study protocol. I.H., I.L., B.U. and J.H. managed the collection and preparation of data, A.S., T.K., J.H. and I.L. conducted the analyses and J.Z. and E.G.M. supported the interpretation of data. I.L. and T.K. wrote the first draft of the manuscript. All authors revised and approved the final manuscript. J.Z. and I.H. contributed equally to this work.

Funding

This study was supported by a research grant of the Ministry of Labour, Health and Social Affairs of the federal state of North Rhine-Westphalia (Ministerium für Arbeit, Gesundheit und Soziales des Landes NRW).

Data availability

Due to data protection regulations, the primary data are not available but aggregated statistical analyses are provided by reasonable request to the corresponding author.

Declarations

Ethics approval and consent to participate

This study was approved by the ethics committees of the North Rhine Medical Association and the Ruhr University Bochum. Data protection regulations of the German Federal and the North Rhine Westphalia State Data Protection Acts as well as the German data protection regulation were taken into account in the data protection concept of this study. The data protection concept was approved by the responsible data protection officers of the LVR and the LWL.

Competing interests

Euphrosyne Gouzoulis-Mayfrank: President of the German Society of Psychiatry, Psychotherapy and Psychosomatic Medicine (DGPPN. Medical Director of one of the clinics that participated in the present study.

Author details

[1]Section Research, LVR-Institute for Research and Education, Wilhelm-Griesinger-Strasse 23, 51109 Cologne (Köln), Germany
[2]Medical Faculty, Heinrich Heine University, Düsseldorf, Germany

[3]Research Institute for Mental Health, Ruhr-University Bochum, LWL University Hospital, Bochum, Germany
[4]Dept. of Psychiatry, Ruhr University Bochum, LWL University Hospital, Bochum, Germany
[5]LVR Clinic Cologne, Wilhelm-Griesinger-Str. 23, 51109 Cologne, Germany

Received: 27 March 2024 / Accepted: 21 February 2025
Published online: 10 March 2025

References

1. Babidge NC, Buhrich N, Butler T. Mortality among homeless people with schizophrenia in Sydney, Australia: a 10-year follow-up. Acta Psychiatr Scand. 2001;103:105–110. https://doi.org/10.1034/j.1600-0447.2001.00192.x.
2. Bäuml J, Brönner M, Baur B, Fischer A, Pitschel Walz G, Jahn T. Wohnungslosigkeit oder seelische Erkrankung– was war zuerst? Ergebnisse der Münchner SEEWOLF-Studie (Seelische Erkrankungsrate in den Einrichtungen der Wohnungslosenhilfe im Großraum München). Gesundheitswesen. 2016;78-V83. https://doi.org/10.1055/s-0036-1578898.
3. Braun E, Gazdag G. Prevalence of psychiatric disorders in homeless population. Psychiatr Hung. 2015;30:60–67.
4. Briner D, Jäger M, Kawohl W, Baumgartner-Nietlisbach G. Psychische Krankheit und subjektive Gesundheit bei Wohnungslosen in Zürich [Mental Disorder and Self-Rated Health Among Homeless People in Zurich - First Epidemiological Data from Switzerland]. Psychiatr Prax. 2017;44:339–347. https://doi.org/10.1055/s-0042-111742.
5. Bundesarbeitsgemeinschaft Wohnungslosenhilfe. Steigende Zahl Wohnungsloser im Wohnungslosensektor, Wohnungslosigkeit anerkannter Geflüchteter sinkt. 2021. https://www.bagw.de/de/themen/zahl-der-wohnungslosen/uebersicht (Accessed 2 February 2024)
6. Canavan R, Barry MM, Matanov A, Barros H, Gabor E, Greacen T, Holcnerová P, Kluge U, Nicaise P, Moskalewicz J, Díaz-Olalla JM, Strassmayr C, Schene AH, Soares JJ, Gaddini A, Priebe S (2012) Service provision and barriers to care for homeless people with mental health problems across 14 European capital cities. BMC Health Serv Res 12:222. https://doi.org/10.1186/1472-6963-12-222.
7. Fazel S, Khosla V, Doll H, Gesses J. The prevalence of mental disorders among the homeless in western countries: systematic review and meta-regression analysis. PLoS Med. 2008;5(12):e225. https://doi.org/10.1371/journal.pmed.0050225.
8. Kellinghaus C, Eikelmann B, Ohrmann P, Reker T. Wohnungslos und psychisch krank. Fortschr Neurol Psychiat. 1999;67:108–121. https://doi.org/10.1055/s-2007-993988.
9. Nielsen SF, Hjorthøj CR, Erlangsen A, Nordentoft M. Psychiatric disorders and mortality among people in homeless shelters in Denmark: A nationwide register-based cohort study. Lancet. 2011;377:2205–2214. https://doi.org/10.1016/S0140-6736(11)60747-2.
10. Nilsson S, Laursen T, Hjorthøj C, Thorup A, Nordentoft M. Risk of psychiatric disorders in offspring of parents with a history of homelessness during childhood and adolescence in Denmark: a nationwide, register-based, cohort study. Lancet Public Health. 2017;2:e541-550. https://doi.org/10.1016/S2468-2667(17)30210-4.
11. Salize HJ, Arnold M, Uber E, Hoell A. Verbesserung der psychiatrischen Behandlungsprävalenz bei Risikopersonen vor dem Abrutschen in die Wohnungslosigkeit. Psychiat Prax. 2017;44:21–28. https://doi.org/10.1055/s-0035-1552764.
12. Salize HJ, Horst A, Dillmann-Lange C, Killmann U, Stern G, Wolf I, Henn F, Rössler W. Needs for mental health care and service provision in single homeless people. Soc Psychiatry Psychiatr Epidemiol. 2001;36(4):207–216. https://doi.org/10.1007/s001270170065.
13. Schreiter S, Bermpohl F, Krausz M, Leucht S, Rössler W, Schouler-Ocak M, Gutwinski S. Prävalenzen psychischer Erkrankungen bei wohnungslosen Menschen in Deutschland. Eine systematische Übersichtarbeit und Meta-analyse. Dtsch. Ärzteblatt. 2017;11:543–551. https://doi.org/10.3238/arztebl.2017.0665.
14. Jäger M, Theodoridou A, Hoff P, Rössler W. Schnittstelle psychiatrische Akutstationen und betreute Wohneinrichtungen– Charakteristika von Patienten mit langen Klinikaufenthalten. Psychiat Prax. 2013;40:439–446. https://doi.org/10.1055/s-0033-1349461
15. BAGW - Bundesarbeitsgemeinschaft Wohnungslosenhilfe e.V. (Federal Association for Assistance to the Homeless) Wohnungslosigkeit: Kein Ende in Sicht - BAG Wohnungslosenhilfe stellt aktuelle Schätzung für das Jahr 2018 vor. 2019. https://www.bagw.de/de/presse/show?tx_netnews_newsview%5Baction%5D=show&tx_netnews_newsview%5Bcontroller%5D=News&tx_netnews_newsview%5Bnews%5D=173&cHash=1a0ea4ab3c5a1779367658bc9a76068c (Accessed 26 June 2023).
16. Landschaftsverband Westfalen-Lippe (LWL)– LWL-Statistik. Wohnungslosigkeit am 30.06.2021 in NRW. 2021. https://www.statistik.lwl.org/de/zahlen/wohnungslosigkeit/ (Accessed 2 February 2024).
17. Haussleiter IS, Lehmann I, Ueberberg B, Heinz J, Zielasek J, Gouzoulis-Mayfrank E, Juckel G. Homelessness among psychiatric inpatients in North Rhine-Westphalia: a retrospective routine data analysis. BMC Psychiatry. 2022;22:132. https://doi.org/10.1186/s12888-022-03786-6.
18. Zielasek J, Ueberberg B, Heinz J, Kreyenschulte T, Lehmann I, Haussleiter I, Juckel G, Gouzoulis-Mayfrank E. [Care trajectories of homeless or precariously housed mentally ill patients from two psychiatric-psychotherapeutic hospitals in North Rhine-Westphalia]. Psychiatr Prax. 2023 Dec 22. https://doi.org/10.1055/a-2193-8913. Article in German.
19. Ueberberg B, Heinz J, Haussleiter IS, Lehmann I, Zielasek J, Gouzoulis-Mayfrank E, Juckel G. Homeless and Mentally Ill: An Analyses from the Perspective of the Residential Care Facilities. J. Psychosoc. Rehabil. Ment. Health. 2023; https://doi.org/10.1007/s40737-022-00326-z.
20. Edgar W, Doherty J, Meert H. Third Review of Statistics on Homelessness in Europe. Developing an Operational Definition of Homelessness. Brussels 2004: FEANTSA. https://www.feantsaresearch.org/download/3-20041762990330054027965.pdf (Accessed 26 June 2023)
21. Landschaftsverband Rheinland. Daten und Informationen 2022. 2022. https://publi.lvr.de/publi/PDF/976-23_1759-Daten-und-Informationen-barrierefrei_2023.pdf (Accessed 2 February 2024)
22. Landschaftsverband Rheinland. Gebiet und Mitglieder. 2024. https://www.lvr.de/de/nav_main/derlvr/organisation/gebietundmitglieder/gebietundmitglieder_1.jsp (Accessed 2 February 2024)
23. Landschaftsverband Westfalen-Lippe. Bevölkerung in Westfalen-Lippe. 2024. https://www.statistik.lwl.org/de/zahlen/bevoelkerung/ (Accessed 2 February 2024)
24. Landschaftsverband Westfalen-Lippe. Der LWL in Zahlen. 2024. https://www2.lwl.org/de/LWL/portal/der-lwl-im-ueberblick/der-lwl-zahlen/ (Accessed 2 February 2024)
25. Demaerschalk E, Hermans K, Steenssens K, Van Regenmortel T. Homelessness merely an urban phenomenon? Exploring hidden homelessness in rural Belgium. European Journal of Homelessness, 2019;13:1.
26. Diakonie Deutschland. Wohnungslose Menschen brauchen ein Zuhause– Diakonie fordert ein bundesweites Aktionsprogramm gegen Wohnungslosigkeit. 2021. https://www.diakonie-wissen.de/web/kommunikation-in-der-diakonie/blog/-/blogs/wohnungslose-menschen-brauchen-ein-zuhause-diakonie-fordert-ein-bundesweites-aktionsprogramm-gegen-wohnungslosigkeit?doAsUserId=961rWX2ll0m6Md36a2%2BA9g%3D%3D&_33_redirect=%2Fhome%3Fp_p_id%3D122_INSTANCE_UDtiC98yOfty%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-3%26p_p_col_count%3D1%26doAsUserId%3D961rWX2ll0m6Md36a2%252BA9g%253D%253D%26p_r_p_564233524_resetCur%3Dtrue%26p_r_p_564233524_categoryId%3D715446 (Accessed 2 February 2024).
27. Nordentoft M, Knudsen HC, Jessen-Petersen B, Krasnik A, Saelan H, Brodersen AM, Treufeldt P, Løppenthin P, Sahl I, Ostergård P. Copenhagen Community Psychiatric Project (CCPP): characteristics and treatment of homeless patients in the psychiatric services after introduction of community mental health centres. Soc Psychiatry Psychiatr Epidemiol. 1997;32:369–378. https://doi.org/10.1007/BF00788176.
28. Nordentoft M, Knudsen HC, Schulsinger F. Housing conditions and residential needs of psychiatric patients in Copenhagen. Acta Psychiatr. Scand. 1992;85:385–389. https://doi.org/10.1111/j.1600-0447.1992.tb10324.x.
29. Tulloch AD, Khondoker MR, Fearon P, David AS. Associations of homelessness and residential mobility with length of stay after acute psychiatric admission. 2012;12:21. https://doi.org/10.1186/1471-244X-12-121.
30. Wessel T, Pörksen N, Zechert C. Wohnungslose Patienten in der Psychiatrischen Klinik. Psychiatr Prax. 1997;24:167–71.
31. Schreiter S, Heidrich S, Zulauf J, Saathoff U, Brückner A, Majic T, Rössler W, Schouler-Ocak M, Krausz M, Bermpohl F, Bäuml J, Gutwinski S. Housing situation and healthcare for patients in a psychiatric centre in Berlin, Germany: a cross-sectional patient survey. BMJ Open. 2019;9:e032576. https://doi.org/10.1136/bmjopen-2019-032576.

32. Elbogen EB, Lanier M, Wagner HR, Tsai J. Financial Strain, Mental Illness, and Homelessness: Results from a National Longitudinal Study. Med Care. 2021;59:S132-138. https://doi.org/10.1097/MLR.0000000000001453
33. Lauber C, Lay B, Rössler W. Homelessness among people with severe mental illness in Switzerland. Swiss Med Wkly. 2005.135:50–56. https://doi.org/10.4414/smw.2005.10815.
34. Reinhardt I, Heinz J, Zielasek J, Engemann S, Gouzoulis-Mayfrank E. [Person-Centered Psychosocial Complex Care for People with Severe Mental Illness: Implementation and Evaluation of a Cross-Sectoral Care Model at a Psychiatric Hospital]. Psychiatr Prax. 2023;50(1):10–19. https://doi.org/10.1055/a-1706-0217. Article in German.
35. National Alliance to end homelessness. Demographic Data Project: Gender and Individual Homelessness. https://endhomelessness.org/demographic-data-project-gender-and-individual-homelessness/ (Accessed 2 February 2024)
36. Casey R, Goudie R, Reeve K. Homeless women in public spaces: Strategies of resistance. Hous Stud. 2008;23:899–916. https://doi.org/10.1080/02673030802416627.
37. Henwood BF, Lahey J, Rhoades H, Winetrobe H, Wenzel SL. Examining the health status of homeless adults entering permanent supportive housing. J Public Health (Oxf). 2018;40:415–418. https://doi.org/10.1093/pubmed/fdx069.
38. Kaduszkiewicz H, Bochon B, van den Bussche H, Hansmann-Wiest J, van der Leeden C. The medical treatment of homeless people. Dtsch. Arztebl.Int. 2017;114:673–679. https://doi.org/10.3238/arztebl.2017.0673.
39. Gerull S. Endbericht Evaluation des Modellprojekts „Housing First Berlin". Berlin: Alice Salomon Hochschule für Sozialarbeit und Sozialpädagogik. 2022.
40. Gerull S. Support Processes in the Housing First Approach– a Paradigm Shift in Social Work? European Journal of Homelessness. 2023;75–86.

Publisher's note