PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Housing situation and health care for patients in a psychiatric centre in Berlin, Germany – A cross-sectional patient survey
AUTHORS	Schreiter, Stefanie; Heidrich, Sascha; Zulauf, Jamie; Saathoff, Ute; Brückner, Anne; Majic, Tomislav; Rössler, Wulf; Schouler-Ocak, Meryam; Krausz, Michael; Bermpohl, Felix; Bäuml, Josef; Gutwinski, Stefan

VERSION 1 – REVIEW

REVIEWER	Philip Yanos John Jay College, City University of New York USA
REVIEW RETURNED	21-Aug-2019

GENERAL COMMENTS	It is important to obtain a better understanding of the housing situation among people with mental illness outside of North America and the UK. The focus of the study described in the manuscript is therefore important. Below are some issues which, if addressed, could improve the impact of the article. In the introduction, it is unclear if the focus of the study is specifically on homeless persons with mental illness, or more broadly on what the housing situation of people with mental illness is (the title suggests a broader focus). If this is the case, then the authors might want to briefly summarize what is known about the housing situation of people with mental illness in North America and the UK, rather than just focusing on studies regarding homelessness in the review (e.g., Robbins, Pamela Clark; Petrila, John; LeMelle, Stephanie; Monahan, John; The Use of Housing as Leverage to Increase Adherence to Psychiatric Treatment in the Community.Administration and Policy in Mental Health and Mental Health Services Research, Vol 33(2), Mar, 2006 pp. 226-236., which reported on the housing situation of people with mental illness in 5 US cities and found great variability in housing situation, but only 2-5% homeless). At the end of the background section, the authors could also state more clearly the purpose of the study (to describe the housing characteristics of people with mental illness in Berlin to describe what characteristics are associated with more unstable housing and the health care use patterns associated with different housing types). Something else that could be mentioned in the introduction could relate to the ability of people with mental illness receiving public support to afford market-rate housing in Berlin. In the Robbins et al. study cited above, the authors noted that people with mental illness on public support could not afford market-rate housing without extra subsidy in any major city in the US. Understanding this aspect of the

	Berlin context might also be helpful in situating it within the international landscape. Regarding the recruitment method, it is unclear if the approach taken included outpatient services, which is by far the largest sector of care for people with mental illness. Perhaps “day clinics” are outpatient services, so this should be clarified. If not, then there might be concerns about the representativeness of the sample if the investigators only recruited participants who had inpatient hospitalizations, as the majority of people with mental illness live in the community without regular hospitalization. On a related not, the authors state that that recruitment occurred “after admission,” but this would only make sense for the participants recruited from the inpatient units. Did this also apply to participants recruited from the “day clinics”? If not, the authors should clarify how they recruited participants differently from those receiving ongoing services. Regarding the major study variable (housing status) could the authors explain more how they confirmed what type of housing the participant lived in? Often people are unclear on what type of housing they live in if it is not their own apartment (for example, not knowing the difference between a shelter and a community residence or other group-based housing situation). In this instance it can be helpful to check the address against a list of known residences or something similar. The authors might want to explain such a strategy was employed and discuss it as a limitation if not. Regarding results, I found it very odd that the authors do not report ethnicity or immigration background of the participants. I know that this is not unusual in studies conducted in homogeneous European settings, but they clearly state at the outset that the community studied has a high concentration of immigrants, and immigration status ended up being an important variable related to homelessness (yet it was not studied, only inferred). The authors should clarify why they did not investigate this important background characteristic. Considering factors such as immigration status also has implications for how the findings of the study are interpreted. Studies of the characteristics of people who are homeless have been criticized and suffering from “Type III error,” (Schwartz & Carpenter (1999). The Right Answer for the Wrong Question: Consequences of Type III Error for Public Health Research. American Journal of Public Health, 89, 1175-1180.) in that they focus on individual characteristics associated with homelessness, suggesting that it is the result of individual failings or choices. If immigration status turns out to be the most important predictor of homelessness, it could suggest that policies impacting the ability of immigrants with psychiatric or substance use problems to obtain housing might be a causal factor. This also has implications for what interventions are needed to address the problem of homelessness among people psychiatric problems in Berlin. For example, are immigrants unable to qualify for public support programs that would allow them to obtain subsidized housing? Are people with substance use problems routinely kicked out of housing programs because these programs have a "zero-tolerance" policy toward substance use? The authors cannot answer these questions with their data, but perhaps they can consider them to provide some direction for solutions to the problem

REVIEWER	Daniel Poremski

	Institute of Mental Health, Singapore
REVIEW RETURNED	23-Sep-2019

GENERAL COMMENTS	The proposed paper lists important statistics about the housing status of service users in Germany. While the article doesn't provide much value to the international community and its findings related to the distribution of mental illness between housing groups is quite predictable, the article undoubtedly has value at the local level and hopefully can provide impetus for change. There are minor concerns and some significant issues. RE methods: it is a genuine problem that people were dropped from the analysis because they did not neatly fit into housing categories. Unstable housing is as relevant a problem as stable homelessness. So consider doing something to include those who do not fit within your current 3 category model. Such a model is quite poor when it comes to capturing the conditions under which people live. If statistics is a concern, group the smaller categories only after you provide details of their makeup, in online supplement. You do not mention if you adjusted for multiple comparisons? Your tests are not really hypothesis- driven, so you should adjust. What is your p-value. Use robust standard errors. Say that you follow the strobe reporting guidelines in your methods section. RE background: Give more detail of housing services in Berlin. Also give a better history of the types of housing available. International readers will find it hard to believe that the three categories are the only housing options. RE tables: You have sex differences in table 1. Repeat this in table 2 and 3 as it is relevant there too. Or remove the sex difference in table 1, since you do not talk much about it in the discussion. Reduce the repetition of results in the text and the tables. Devote more space to the regression models , these types of associations speak more about the links between phenomenon and traits. Prioritize the regressions and leave the basic demographics in the online supplement instead. Since the tables do not necessarily need to conform to standard word document size, present the 95% CI of your regression models too. Check the legends of the tables as they do not always match the notation used in the tables, supplement table 1 for example RE list of Authors: The biggest concern relates to the multiple authors listed as contributors to the statistical analyses of the paper. This paper has very very very basic statistics and it should not take 5+ authors to comment or plan such an analysis. Furthermore, given the multiple deficiencies in the statistical section noted above (which pop out of the article with even a cursory read) and the carelessness of many errors of format and presentation, it is genuinely hard to

	believe that the text was reviewed and approved by so many authors. People who only gave statistics input should be thanked, but do not meet the minimum requirement for listing as co-author, and the fact that you have so many errors in the article points to their poor contribution to the review and approval process. Don't use patient, it is not person-centred, spell out number when they are the first in the sentence, use English punctuation for number (15,000.00) instead of the French or German preference for (15.000)

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Philip Yanos

Institution and Country: John Jay College, City University of New York, USA

Please state any competing interests or state 'None declared': None declared

It is important to obtain a better understanding of the housing situation among people with mental illness outside of North America and the UK. The focus of the study described in the manuscript is therefore important. Below are some issues which, if addressed, could improve the impact of the article.

In the introduction, it is unclear if the focus of the study is specifically on homeless persons with mental illness, or more broadly on what the housing situation of people with mental illness is (the title suggests a broader focus). If this is the case, then the authors might want to briefly summarize what is known about the housing situation of people with mental illness in North America and the UK, rather than just focusing on studies regarding homelessness in the review (e.g., Robbins, Pamela Clark; Petrila, John; LeMelle, Stephanie; Monahan, John; The Use of Housing as Leverage to Increase Adherence to Psychiatric Treatment in the Community.Administration and Policy in Mental Health and Mental Health Services Research, Vol 33(2), Mar, 2006 pp. 226-236., which reported on the housing situation of people with mental illness in 5 US cities and found great variability in housing situation, but only 2-5% homeless).

At the end of the background section, the authors could also state more clearly the purpose of the study (to describe the housing characteristics of people with mental illness in Berlin to describe what characteristics are associated with more unstable housing and the health care use patterns associated with different housing types).

Response: We thank the reviewer for his comment. We added a closer description of the purpose of the study and widened the range of the introduction to housing for people with severe mental illness.

"*But research on suitable housing forms for people with severe mental illness is scarce[2]. A cross-sectional survey among 1,000 out-patients in five different US cities reported a high variety in housing[3]. Between one-third and one-half of individuals surveyed reported they had been living in specialized housing for people with mental disorders at some point in their lives and one-fifth currently living in such housing[3]. Between 1%-5.2% were homeless or lived in shelters[3]. The relatively low prevalence of homelessness among out-patients in this US study could be a result of the US health care system, which less often reaches homeless people with mental illness.*"

"Given the significance of housing for the organization of services we conducted a cross-sectional patient survey ('WOHIN-Studie') among psychiatric in-patients and day-clinic patients in one of the largest psychiatric hospitals in the centre of Berlin with a defined catchment area in an under-privileged district with approx. 270.000 inhabitants[39,40]. The goal was a comprehensive description of housing stability and related healthcare use patterns as well as associated factors with poorer housing stability."

Something else that could be mentioned in the introduction could relate to the ability of people with mental illness receiving public support to afford market-rate housing in Berlin. In the Robbins et al. study cited above, the authors noted that people with mental illness on public support could not afford market-rate housing without extra subsidy in any major city in the US. Understanding this aspect of the Berlin context might also be helpful in situating it within the international landscape.

Response: We thank the reviewer for his comment. We added the following section referring to problems of the housing market in Germany in the introduction.

"Surveys conducted in the US found that there was no city or county in which a person with a mental disorder living solely on disability benefits could afford the fair market rent for a modest efficiency apartment[36,37]. Increasing rents and missing welfare housing especially in urban areas like Berlin have led to increasing numbers of homeless people in Germany[38], of which 77.5% suffer from a mental illness[39]."

Regarding the recruitment method, it is unclear if the approach taken included outpatient services, which is by far the largest sector of care for people with mental illness. Perhaps "day clinics" are

outpatient services, so this should be clarified. If not, then there might be concerns about the representativeness of the sample if the investigators only recruited participants who had inpatient hospitalizations, as the majority of people with mental illness live in the community without regular hospitalization.

On a related not, the authors state that that recruitment occurred "after admission," but this would only make sense for the participants recruited from the inpatient units. Did this also apply to participants recruited from the "day clinics"? If not, the authors should clarify how they recruited participants differently from those receiving ongoing services.

Response: We agree with the reviewer that an involvement of out-patients would be of interest. Our study was designed as a cross-sectional study over 6-month of all psychiatric in-patients in one of the largest psychiatric hospitals in the center of Berlin with a defined catchment area. We clarified this limitation in the methods and limitations section.

Methods:

"We performed a cross-sectional patient survey of all in-patients including day-clinics (in-patient treatment without overnight-stay) treated in the catchment area of the Psychiatric University Hospital Charité at St. Hedwig Hospital over a 6-months period (15th March - 15th September 2016). Out-patients were not included."

Limitations:

"Out-patients were not included limiting the representativeness to people with mental illness without a history of hospitalization."

Regarding the major study variable (housing status) could the authors explain more how they confirmed what type of housing the participant lived in? Often people are unclear on what type of housing they live in if it is not their own apartment (for example, not knowing the difference between a shelter and a community residence or other group-based housing situation). In this instance it can be helpful to check the address against a list of known residences or something similar. The authors might want to explain such a strategy was employed and discuss it as a limitation if not.

Response: We agree with the reviewer on a high risk of self-report bias. We therefore double-checked given information by patients with social workers and the hospitals electronic data system. We added a closer description in the methods section. Furthermore, we report this limitation in the discussion.

Methods:

"In order to minimize the self-report-bias, interviewers checked given information with social workers and documented information on housing in the clinic's electronic health record."

Discussion:

"Furthermore, due to the complexity of the social and health care system in Germany, there might be a bias in self-report of service utilization (e.g. high case management in socio-therapeutic facilities)."

Regarding results, I found it very odd that the authors do not report ethnicity or immigration background of the participants. I know that this is not unusual in studies conducted in homogeneous European settings, but they clearly state at the outset that the community studied has a high concentration of immigrants, and immigration status ended up being an important variable related to homelessness (yet it was not studied, only inferred). The authors should clarify why they did not investigate this important background characteristic.

Considering factors such as immigration status also has implications for how the findings of the study are interpreted. Studies of the characteristics of people who are homeless have been criticized and suffering from "Type III error," (Schwartz & Carpenter (1999). The Right Answer for the Wrong Question: Consequences of Type III Error for Public Health Research. American Journal of Public Health, 89, 1175-1180.) in that they focus on individual characteristics associated with homelessness, suggesting that it is the result of individual failings or choices. If immigration status turns out to be the most important predictor of homelessness, it could suggest that policies impacting the ability of immigrants with psychiatric or substance use problems to obtain housing might be a causal factor. This also has implications for what interventions are needed to address the problem of homelessness among people psychiatric problems in Berlin. For example, are immigrants unable to qualify for public support programs that would allow them to obtain subsidized housing? Are people with substance use problems routinely kicked out of housing programs because these programs have a "zero-tolerance" policy toward substance use? The authors cannot answer these questions with their data, but perhaps they can consider them to provide some direction for solutions to the problem

Response: We thank the reviewer for his comment. We added results of analyses of country of origin and migration background regarding housing groups. There were no significant group differences regarding country of origin (X^2=3.935; p=0.140) and migration background (X^2=0.169; p=0.919) (see Table 1). We additionally discuss these results in the limitation section. Only 1.3% of participants were accommodated in refugee shelters (Figure 1).

"Additionally, the hospital's catchment is characterized by its relatively low living standards and high rates of migrants especially from other European countries. Nevertheless, we detected no significant group difference in type of housing and migration background or country of origin."

Response: We agree with the author regarding a high chance of "Type III Error" dealing with homeless populations, although we were not able detect such an error regarding migration background. We agree that an additional barrier might be a "zero-tolerance" based policy in contrast to evidence based housing first concepts. We therefore more thoroughly focus on this problem in the discussion section.

"Being diagnosed with a substance use disorder was a significant predictor for being homeless, which is in accordance with other studies on homeless populations[10,39]. According to a recent meta-analysis, homeless people in Germany present with a 1.5 times higher rate of alcohol dependency than homeless people in other western countries and a 21 times higher prevalence of substance-related disorders than the general German population (2.9%)[39]. One explanation is a support system which is often based on abstinence in contrast to evidence-based housing first (HF) concepts[53] making it difficult for those particularly at risk to access the mental health-care system (e.g. people with missing health insurance, experienced stigma or negative attitudes towards the mental health system). Additionally, the availability and price regulation of drugs in Germany result in comparatively low alcohol prices. These structural barriers negatively add to the individual risk of being drawn towards substance use as a major coping strategy among those who are marginalized[54]. HF provides homeless individuals with mental illness immediate access to permanent housing as well as services and supports that are flexible and consumer-driven[55]. Research on HF has documented improved residential stability, community integration, and high levels of client satisfaction[2]."

Reviewer: 2

Reviewer Name: Daniel Poremski

Institution and Country: Institute of Mental Health, Singapore

Please state any competing interests or state ‘None declared’: none

The proposed paper lists important statistics about the housing status of service users in Germany. While the article doesn’t provide much value to the international community and its findings related to the distribution of mental illness between housing groups is quite predictable, the article undoubtedly has value at the local level and hopefully can provide impetus for change.

There are minor concerns and some significant issues.

RE methods: it is a genuine problem that people were dropped from the analysis because they did not neatly fit into housing categories. Unstable housing is as relevant a problem as stable homelessness. So consider doing something to include those who do not fit within your current 3 category model. Such a model is quite poor when it comes to capturing the conditions under which people live. If statistics is a concern, group the smaller categories only after you provide details of their makeup, in online supplement.

Response: In order to give a more comprehensive description of living circumstances of all participants, we added a descriptive analysis of excluded participants in the Supplement section (STab. 1).

You do not mention if you adjusted for multiple comparisons? Your tests are not really hypothesis-driven, so you should adjust. What is your p-value.

Response: We clarified how we adjusted for multiple comparisons in the methods section and tables.

Methods:

"Analysis of Variance (ANOVA) was performed with adjusting for multiple comparisons by using Scheffe's method. If preconditions were not fulfilled, Kruskal-Wallis Test and if significant, Mann-Whitney-Test were used with adjusting for multiple comparisons by using Bonferroni's method."

"…adjusted alpha-level by Bonferroni's method=α/3 (p-level=0.016)"

STab. 3 Multinomial logistic regression of social and clinical factors associated with the current housing type:

*"Adjusted p-value was calculated by Bonferroni*s method"*

Use robust standard errors.

Response: We included 95%-confidence intervals in all regression analyses (see Tab. 3 and STab. 4).

Say that you follow the strobe reporting guidelines in your methods section.

Response: We added a clarification in the methods section.

"Authors followed strobe reporting guidelines."

RE background: Give more detail of housing services in Berlin. Also give a better history of the types of housing available. International readers will find it hard to believe that the three categories are the only housing options.

Response: We thank the reviewer for his comment. We included more detailed information on types of housing services in Berlin.

"There are three types of specialized housing for people with mental illness in Germany (ambulatory and "in-patient" assisted housing as well as assisted housing in families) each of them including a broad variety of housing settings and assistance funded by social welfare[2]. Additionally, there are different forms of housing for homeless people like shelters differing in their barriers of e.g. drug and alcohol use and level of additional assistance as well as refugee shelters and women shelters."

RE tables: You have sex differences in table 1. Repeat this in table 2 and 3 as it is relevant there too. Or remove the sex difference in table 1, since you do not talk much about it in the discussion.

Response: We excluded the sex differences in table 1.

Reduce the repetition of results in the text and the tables.

Response: We minimized the repetition of results in the text and tables.

Devote more space to the regression models , these types of associations speak more about the links

between phenomenon and traits. Prioritize the regressions and leave the basic demographics in the online supplement instead.

Response: We thank the reviewer for his recommendation. We shifted descriptive analyses of socio-demographic variables to the supplementary material (STab. 3). Instead we included the multiple linear regression model for length of stay and the multivariable binary logistic regression model for being readmitted in the main manuscript (Tab. 3). We additionally checked the statistical analyses with our institute of biometry and corrected errors. We also put more emphasis on the results of the regression models in our discussion.

"Patients without an own apartment had a significantly lower level of education and verbal intelligence: 25.0% of homeless participants had no school diploma at all. Additionally, having no school diploma was a significant predictor for being homeless or living in a socio-therapeutic facility. A low level of education or level of intelligence increases the risk for homelessness, since it might lead to fewer resources to attend social matters. Additionally, a higher vulnerability for a psychiatric illness adds to the risk of marginalization."

"Being diagnosed with a substance use disorder was a significant predictor for being homeless, which is in accordance with other studies on homeless populations[10,39]"

"A multiple linear regression revealed a strong association of LoS and psychiatric diagnoses; housing type only explained for an additional 2.7% of variance of LoS."

Since the tables do not necessarily need to conform to standard word document size, present the 95% CI of your regression models too.

Response: We included the 95% Confidence Interval in all regression models (see Tab. 3 and STab. 4).

Check the legends of the tables as they do not always match the notation used in the tables, supplement table 1 for example

Response: We checked and corrected for errors in the legends of the tables.

RE list of Authors: The biggest concern relates to the multiple authors listed as contributors to the statistical analyses of the paper. This paper has very very very basic statistics and it should not take 5+ authors to comment or plan such an analysis. Furthermore, given the multiple deficiencies in the statistical section noted above (which pop out of the article with even a cursory read) and the carelessness of many errors of format and presentation, it is genuinely hard to believe that the text was reviewed and approved by so many authors. People who only gave statistics input should be thanked, but do not meet the minimum requirement for listing as co-author, and the fact that you have so many errors in the article points to their poor contribution to the review and approval process.

Response: We clarified co-author's involvement in the Contributions section. We additionally corrected errors of formatting and presentation.

Don't use patient, it is not person-centred,

Response: We replaced the word 'patient' by other synonyms like 'participant'.

spell out number when they are the first in the sentence,

Response: We spelled out numbers when they occurred at the beginning of the sentence.

use English punctuation for number (15,000.00) instead of the French or German preference for (15.000)

Response: We corrected the punctuation to English punctuation.

VERSION 2 – REVIEW

REVIEWER	Philip Yanos John Jay College of Criminal Justice, United States
REVIEW RETURNED	13-Nov-2019

GENERAL COMMENTS	The authors have been very responsive the the reviewer comments and the manuscript is greatly improved.

REVIEWER	Daniel Poremski Institute of Mental Health, Singapore
REVIEW RETURNED	29-Oct-2019

GENERAL COMMENTS	Still some mention of "patients" rather than people with mental illness, or another person-first term. Catch those in the proofing.

VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Philip Yanos

Institution and Country: John Jay College, City University of New York, USA

Please state any competing interests or state ‘None declared’: None declared

The authors have been very responsive the the reviewer comments and the manuscript is greatly improved.

Reviewer: 2

Reviewer Name: Daniel Poremski

Institution and Country: Institute of Mental Health, Singapore

Please state any competing interests or state ‘None declared’: none

Thank you for the changes.

Still some mention of "patients" rather than people with mental illness, or another person-first term. Catch those in the proofing.

Response: We exchanged the word “patient” with other terms wherever suitable.