PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	The use of digital technologies by users of psychiatric inpatient services in Berlin, Germany - A cross-sectional patient survey
AUTHORS	Marbin, Derin; Gutwinski, Stefan; Lech, Sonia; Fürstenau, Daniel; Kokwaro, Linda; Krüger, Helena; Schindel, Daniel; Schreiter, Stefanie

VERSION 1 – REVIEW

REVIEWER	Dirk Richter Universitare Psychiatrische Dienste Bern, Center for Psychiatric Rehabilitation
REVIEW RETURNED	13-Sep-2022

GENERAL COMMENTS	This paper's topic is very important given the change concerning digital interventions for people with mental health issues triggered by the pandemic. It is also important to know what kind of digital technology is used by people with mental health issues. However, the study suffers from several flaws which make it difficult to see it being published in its current form. 1. While this has been mentioned in the limitations, the data collection is outdated, having been conducted in 2016. Both the pandemic and the technological changes in recent years (particularly social media use) make it highly unlikely that the data are vaild for today's research issues. 2. The regression analysis has been conducted with complete cases only, resulting in a loss of one fifth of study participants. Given the accessability to free software such as R with options for imputation methdology, I strongly recommend to conduct a multiple imputation based analysis to avoid an unknown bias due to missing data. 3. While being informative, the lenghty discussion of the relation of digital technologies and people living homeless should be shortened. Otherwise it would provide the impression that the paper is primarily on the homeless population.

REVIEWER	Ranran Song Huazhong University of Science and Technology Tongji Medical College
REVIEW RETURNED	26-Oct-2022

GENERAL COMMENTS	Derin et al. examined the possession and use of digital devices amongst users of psychiatric services in Europe in a cross-sectional patient survey. They found that being homeless, diagnosis of a psychotic illness, being of older age and a lower level of education were significant predictors for not owning a mobile phone respective not using a computer regularly or having a social media account.

	This manuscript focused on the availability, accessibility, and engagement of digital healthcare interventions in psychiatric treatment. Although this is a paper worth reading, there are some concerns which should be modified before publication Major comments: 1. It is not clear the reliability and validity of questions included in the structured interview. The results might be more reliable by adopting standardized questionnaires, like the E-Health Literacy Scale or Digital Health Literacy Instrument. 2. Please calculate the study power to estimate appropriate sample size. And sensitivity analysis should be considered. 3. Severe psychiatric conditions might lead to the declined neurocognitive functioning, and those patients were less likely to use digital devices. Please add the inclusion and exclusion criteria of participants in psychiatric conditions, and discuss in Discussion and Limitations part.

VERSION 1 – AUTHOR RESPONSE

Comments of Reviewer 1:

1. While this has been mentioned in the limitations, the data collection is outdated, having been conducted in 2016. Both the pandemic and the technological changes in recent years (particularly social media use) make it highly unlikely that the data are vaild for today's research issues.

Authors' response and actions taken:

- We agree with the reviewer and think, that digital device ownership might have changed and thus results should be interpreted carefully. Nevertheless, facing the fact that a) our study is the first one to assess different forms of technology use among psychiatric inpatients in Europe, and that b) the regression analysis identified factors associated with lower digital device use, which are still relevant, even with increasing digitization, underlines the relevance of our study. We emphasized this limitation in our paper.

2. The regression analysis has been conducted with complete cases only, resulting in a loss of one fifth of study participants. Given the accessability to free software such as R with options for imputation methdology, I strongly recommend to conduct a multiple imputation based analysis to avoid an unknown bias due to missing data.

Authors' response and actions taken:

- Thank you very much for this useful comment. A loss of a fifth of our study participants is significant indeed. We conducted a multiple imputation according to your suggestion (30 datasets were imputed). Since there is no satisfying information about data aggregation in LASSO regression (least absolute shrinkage and selection operator), we analyzed, which variables occurred more frequently in the variable selection on the basis of 30 runs of variable selection after multiple imputation. Consequently, we would like to report the following predictors, which occurred more frequently in the predictor selection for each independent variable:

Mobile Phone: Age, homeless, organic mental disorders, psychosis

PC: age, education years, own apartment, Official psychosocial support in the last 6 months

Social Media account: age

According to these variables, which occurred in at least in 80% of the imputations and following LASSO regression, we want to offer a reduced multivariate binary logistic regression model. Consequently, we made changes in the results section. Concerning the new results, the odds ratios did not differ that much from the old results (e.g. the significant values did not change, and only slight changes showed in first decimal place after the decimal point).

We appreciate this comment.

3. While being informative, the lenghty discussion of the relation of digital technologies and people living homeless should be shortened. Otherwise it would provide the impression that the paper is primarily on the homeless population.

Authors' response and actions taken:

- We agree, thank you. Consequently, we shortened the discussion in the respective part of the discussion.

Comments of Reviewer 2:

1. It is not clear the reliability and validity of questions included in the structured interview. The results might be more reliable by adopting standardized questionnaires, like the E-Health Literacy Scale or Digital Health Literacy Instrument.

Authors' response and actions taken:

- We appreciate this useful comment. Unfortunately, we did not use standardized questionnaires like the E-Health Literacy Scale, for example. This tool is especially useful for identifying patients to measure digital health literacy competencies. In our study, we intended to first assess the rates of ownership and use of digital devices. Also, we aimed at an interview time, that would not be too long to potentially exclude patients with severe disorders. In addition to that, the interview had been evaluated before study start by 10 patients regarding the comprehensibility and fitting of outcome measures to patient's experience and priorities. Still, we agree with the reviewer and highlighted this point to our limitations.

2. Please calculate the study power to estimate appropriate sample size. And sensitivity analysis should be considered.
Authors' response and actions taken:

- Thank you for your comment. Power analysis for lasso regression is no trivial mathematical task and we are not aware of any procedure in the literature, although consulting with a statistician from Charité's Institute for Statistics and Biometry. This is due to the penalizing function in lasso which drops predictors when the data suggests only negligible effects. Therefore, we would like to forego the calculation of study power and sensitivity analysis and ask for understanding.

3. Severe psychiatric conditions might lead to the declined neurocognitive functioning, and those patients were less likely to use digital devices. Please add the inclusion and exclusion criteria of participants in psychiatric conditions, and discuss in Discussion and Limitations part.
Authors' response and actions taken:

- Thank you for offering us this perspective. We had no exclusion criteria regarding mental disorder, but patients who could not consent due to their symptoms, patients who did not want to participate. For inclusion patients had to be admitted as inpatients or day clinic patients in the set time period. We added these criteria to our manuscript in the methods section.

VERSION 2 – REVIEW

REVIEWER	Dirk Richter Universitare Psychiatrische Dienste Bern, Center for Psychiatric Rehabilitation
REVIEW RETURNED	11-Jan-2023

GENERAL COMMENTS	The authors have addressed my previous concerns.

REVIEWER	Ranran Song Huazhong University of Science and Technology Tongji Medical College
REVIEW RETURNED	07-Dec-2022

GENERAL COMMENTS	Author has answered my questions well and revised the manuscript.