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ORIGINAL ARTICLE

Preference for Independent Housing of Persons with Mental Disorders: Systematic Review and Meta-analysis

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Abstract Choice of housing has become an important political and therapeutic goal for psychiatric rehabilitation. We conducted a systematic review and meta-analysis of proportions of studies on preference for independent housing. A subgroup analysis compared studies with homeless and non-homeless consumers. The meta-analysis included 8 studies with 3134 consumers. The overall proportion of consumers who had expressed a preference for living independently was 0.84. There were only marginal differences between studies with homeless and non-homeless consumers. In a given service planning area, the rate of independent housing settings should exceed the rate of more institutionalized settings by a wide margin.

Keywords Independent housing · Psychiatric rehabilitation · Preferences · Meta-analysis

Introduction

Choice of housing setting has become a major political, legal, therapeutic and social topic in the rehabilitation of persons with disabilities. In the 1999 Olmstead case, the U.S. Supreme Court ruled that community-based services have to be provided when appropriate and when the persons in question do not oppose such a decision. Article 19 of the United Nations Convention on the Rights of Persons with Disabilities states that "(p)ersons with disabilities have the opportunity to choose their place of residence and where and with whom they live on an equal basis with others and are not obliged to live in a particular living arrangement…" (United Nations 2006). Psychiatric rehabilitation has long since proposed choice as a major therapeutic principle in housing affairs (Carling 1990; Ridgway and Zipple 1990). The "Choose-Get-Keep(-Leave)-Approach" recommends that consumers of rehabilitation services have a say about their goals and that rehabilitation professionals are obliged to support the achievement of those goals (Pratt et al. 2013; Rogers et al. 2006). Recent empirical studies have highlighted the value of choice for consumers in regards to psychopathology and quality of life (Greenwood et al. 2005; Nelson et al. 2007; Tsai and Rosenheck 2012). Martins et al. have recently demonstrated the interrelatedness of housing quality, choice and recovery (Martins et al. 2016). The North American 'Housing First' Programs that have become the predominant supported housing model are based on the principle of consumer choice. This means that the consumer has the final decision on the kind and place of accommodation and the intensity of care (Aubry et al. 2015).

Current housing programs for persons with mental disorders, however, often do not provide sufficient options to choose from. Even in these times of deinstitutionalization, living arrangements in many countries are not free choice and they tend to rely on traditional residential services and supervised group accommodations rather than on independent housing settings. While this pattern is changing slowly and national disability policies are increasingly adopting a choice policy (e.g., Wright et al. 2015), it remains unclear what this could mean for housing service

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planning and housing resource allocation for persons with mental disorders.

The topic of housing preferences has been an area of research since the deinstitutionalization era, both with homeless and non-homeless populations. One can hypothesize that consumers will seek independence when it comes to choosing the preferred housing setting; however, it is not yet clear to what extent persons with mental illness do prefer independent housing, with or without support, rather than more institutionalized settings. Only one paper, which is from the 1990s, has reviewed the housing preferences of consumers (Tanzman 1993). The reported results showed that in 20 out of 26 studies, at least 70% of participants had stated a preference for living independently. However, this paper was based mainly on administrative reports and 'grey literature' rather than on research journal publications. Another review from the 1990s, based on the Tanzman paper, analyzed the methods used in housing preference research (Goldman et al. 1995). This paper came to the conclusion that at that time the methodologies used were neither valid nor reliable enough to appropriately address this research topic. We are not aware of any further review papers on housing preferences.

Our study has two main aims: (1) to systematically review the available literature on housing preferences for independent housing in comparison to other settings, and (2) to provide an estimation of the proportion of persons with mental disorders who prefer to live independently. These two aims will be reached by means of a meta-analysis, which will compare studies of homeless and non-homeless consumers.

Methods

We have conducted a systematic review of publications that reported preference rates of persons with mental disorders for independent housing in comparison to other settings. We have searched databases Pubmed, PsycInfo and CINAHL (Cumulative Index of Nursing and Allied Health Literature). In Pubmed we used the search term "(housing OR accommodation OR residential) AND (mental OR psychiatr*) AND (preferen* OR choic* OR priorit* OR view*) NOT ("Housing, Animal"[MeSH] OR "Disease Models, Animal" [MeSH] OR elder* OR older OR dementia OR alzheimer's OR intellectual OR developmental OR learning disabilit* OR geriatric OR gerontolog*)". This search term was adapted to the other databases accordingly. Additionally, a further search was conducted in 'Google Scholar'.

Inclusion criteria were peer-reviewed publications that reported preference data for independent housing with or without professional support. Studies were included both with and without homeless persons with mental illness, and our results will be presented separately for both populations. Exclusion criteria were studies of populations without mental illness (e.g., elderly, intellectual/learning disabilities). Independent housing was operationalized as living alone, or with family or with persons of choice. Non-independent housing was defined as living in an institutional/residential setting, supervised housing with on-site staff or living with persons not of one's own choice. Included languages were English, French, German and Dutch. Along with the usual publication data, the extracted data encompassed: setting of the interviews (hospital/community), population characteristics (mainly diagnostic data), status of homelessness and remarks about the study. Quality appraisal was conducted by both authors using a form based on the risk of bias recommendations by Hoy et al. (2012). The rating instrument encompassed the following items: housing preference as primary research topic, sampling strategy, sample size $\geq$200, appropriate report of study details and response rate $\geq$70%. Not reported data were considered as inappropriate. Studies could reach rating scores from 0 to 6. A threshold of 4+ scoring was considered to be relatively high quality. Rating differences were solved by consensus. Only high quality studies were included into the meta-analysis.

We conducted a meta-analysis of proportions, a technique derived from effect size estimation. This technique is commonly used for meta-analysis of prevalence/incidence (Borenstein et al. 2009; Lipsey and Wilson 2001). We utilized the 'metaprop' function, R version 3.3.1, package 'meta' version 4.4-0 with a logit transformation. A double arcsin transformation instead of a logit transformation was tested as we expected high preference rates for independent living (Barendregt et al. 2013). To display the results as a forest plot, the 'forest' function from the same package was utilized. We expected that there would be considerable heterogeneity between studies; therefore, we used a random effects model with a subgroup analysis of studies, comparing homeless versus predominantly non-homeless persons.

Several, mainly older publications, did not provide frequency counts but instead only percentages as results. For the meta-analysis in those cases, the frequency counts were then calculated by the authors. As recommended in the methodological literature, we used complete cases. For example, we excluded not available answers in the original studies from the calculation of total frequencies (Akl et al. 2015). However, we also conducted a sensitivity analysis by using the total frequencies including the non-available answers.

Results

Upon completion of the study selection process before quality appraisal (see Fig. 1), we included 20 studies in the systematic review. 13 studies were published during the 1990s and the remainder in the new millennium (see details in Table 1). 13 studies were published in the US, four in Canada and one each in Australia, Ireland and Switzerland. Eight studies focused on homeless populations, and 12 focused predominantly or exclusively on non-homeless populations. Specific clinical and social characteristics of participants were often sparsely reported. Thus, the severity of mental illness was only explicitly mentioned in 5 out of 20 publications. Other publications provided participant characteristics such as 'chronic mental illness' or 'long-stay patients'. Sample sizes of the individual studies were rather low; for instance, only five studies reported a total of more than 200 participants. However, one Australian study reported to have recruited more than 1800 participants.

On the basis of our rating, we considered the quality of eight studies as relatively high, and the quality of 12 studies as relatively low. Only the relatively high quality studies were included in the meta-analysis (k = 8). The main reasons for excluding low quality studies were small sample sizes and low response rates. The interrater agreement of the independent ratings prior to consensus discussion was 65%.

The meta-analysis was based on studies with 3,134 complete cases (see Fig. 2). The pooled proportion of persons preferring independent living was 0.84 (95%-CI 0.70–0.92). The preference proportions for independent living were similar in the studies with non-homeless populations (0.83; 95%-CI 0.63–0.93) and in studies with homeless populations (0.84; 95%-CI 0.70–0.92). Study heterogeneity was considerable in the overall sample of studies as well as in the homeless and non-homeless subsamples. The overall I^2-statistic for heterogeneity was 97.5%. The subsample heterogeneity was significant in both cases.

The sensitivity analysis with non-complete cases yielded a slightly lower proportion with a preference for independent living (0.82; 95%-CI 0.71–0.90). The double arcsine transformation yielded a similar proportion as the logit transformation (0.82; 95%-CI 0.69–0.92). Given the high number of excluded studies in the main meta-analysis, we conducted an additional analysis with the full sample of publications to estimate the effect of the exclusion of

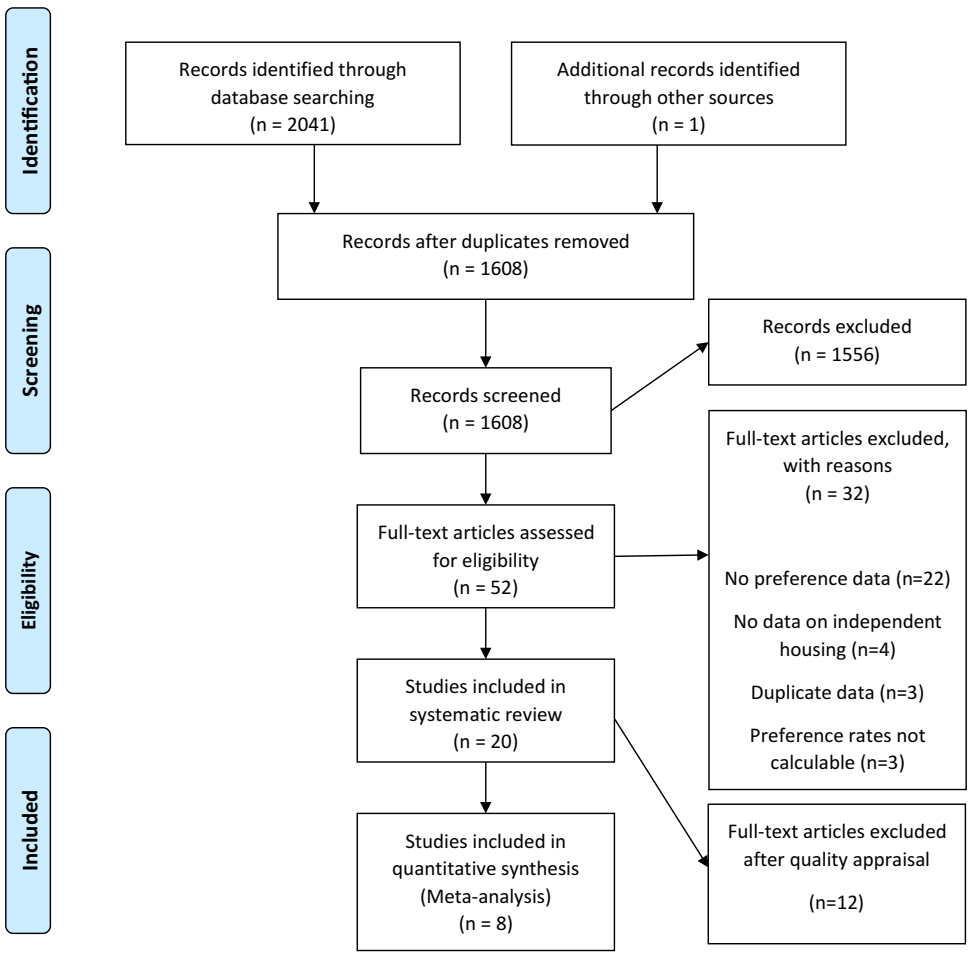

Fig. 1 Flow-chart according to PRISMA

Table 1 Study characteristics

Authors	Publication year	Country	Setting	Homeless/non-homeless consumers	Population characteristics	Sample size	Missing answers	Quality rating	Remarks
Goering et al. (1990)	1990	CDN	Community	Homeless	n.a	45	7	2	
Keck (1990)	1990	US	Community	Homeless	n.a	44	0	3	
Schutt et al. (1992)	1992	US	Community	Homeless	76% hospitalized previously	66	0	1	
Neubauer (1993)	1993	US	Community	Homeless	n.a	107	0	4	Frequencies in part calculated; multiple answers not considered
Dixon et al. (1994)	1994	US	Hospital/community	Homeless	Homeless; SMI/Organic brain disorders	77	0	0	No survey; applications for apartments
Yeich et al. (1994)	1994	US	Community	Homeless	Homeless mentally ill	163	0	4	Frequencies calculated
Schutt and Goldfinger (1996)	1996	US	Community	Homeless	Homeless SMI	118	0	5	Frequencies calculated
Schutt et al. (2005)	2005	US	Community	Homeless	Dual diagnosis	203	0	3	
Nelson et al. (2003)	2003	CDN	Community	Non-homeless	Schizophrenia/mood disorder predominantly	300	0	6	
Piat et al. (2008)	2008	CDN	Community	Non-homeless	Serious mental illness	315	0	4	
Messerli-Rohrbach et al. (1997)	1997	CH	Hospital/community	Non-homeless	n.a	103	0	0	
Mohan et al. (2009)	2009	IRE	Hospital	Non-homeless	Long-stay patients, 2/3 schizophrenia	71	0	2	
Minsky et al. (1995)	1995	US	Hospital	Non-homeless	77% Schizophrenia/schizoaffective	80	7	3	
Friedrich et al. (1999)	1999	US	Community	Non-homeless	Severe mental disorder	207	45	3	
Bartels et al. (2003)	2003	US	Community	Non-homeless	Older adults with SMI; mean age 73 y	115	0	4	Frequencies calculated; nursing home residents not considered
Tsai et al. (2010)	2010	US	Community	Non-homeless	Dual diagnosis	103	6	3	
Harvey et al. (2012)	2012	AUS	Community	Non-homeless primarily	100% Psychosis	1822	68	4	Preferences for living homeless or precariously excluded
Elliott et al. (1990)	1990	CDN	Community	Non-homeless primarily	Chronic mental disorder	66	1	2	
Massey and Wu (1993)	1990	US	Community	Non-homeless primarily	52% Schizophrenia, 32% depression/bipolar disorder	61	0	3	
Rogers et al (1994)	1994	US	Community	Non-homeless primarily	Long-term SMI	314	0	4	

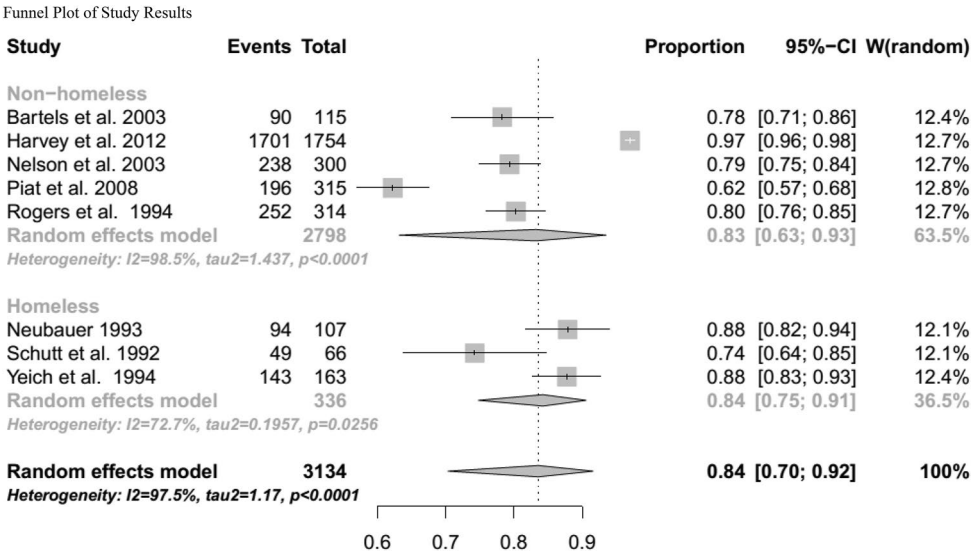

Fig. 2 Funnel plot of study results

low-quality studies. This analysis yielded a proportion of 0.79 (95%-CI 0.70–0.86).

Discussion

In summary, we have conducted a systematic review and meta-analysis of studies that asked persons with mental illness about their housing preferences, in particular about their preference for independent living. The pooled analysis revealed that 84% of the interviewed participants preferred to live in their own apartment, with their family or with persons of their own choice. Roughly one in five persons preferred to live in a more supervised housing setting. We found no differences between studies with persons who were homeless at the time of the interview in comparison to studies who interviewed persons who were currently living in stable housing conditions. Sensitivity analyses did not reveal significant differences.

It is difficult to draw further inferences about participant characteristics and their preferences due to the lack of comprehensive details within most publications. One impression from the largest study included was that, although a majority of respondents were in favor of independent living, those who were living in group accommodation were slightly more willing to stay there (Harvey et al. 2012). Therefore, we assume that possible selection and adaptation effects may have influenced participants' preferences.

Often studies failed to make clear whether the severity of mental illness was explicitly taken as an inclusion criterion. However, we assume that most, if not all, participants can be subsumed under the label of Severe Mental Illness (SMI). SMI is commonly defined as the combination of diagnosis, disability and duration of illness (Schinnar et al. 1990). Clients who are eligible for housing care usually fulfil these criteria as they are mentally ill and functionally disabled due to a long-term impairment, which prevents them from being able to live without professional support.

Although different in search methodology and aggregation of results, our findings are completely in line with the only review article that has been published on housing preferences so far (Tanzman 1993). This early review has stated that consumers preferred to live on their own as first choice, followed by living with family members. These two categories were grouped together in the category of independent living in our analysis.

In some of the included studies in the systematic review, additional information was given that have not been used in our analyses as this was beyond the focus of our research. For example, not only were the preference rates of consumers reported, but also the consumers' living conditions at the time of interview. These studies have reported considerable differences between the current and the preferred housing setting (e.g., Harvey et al. 2012; Nelson et al. 2003). This corresponds with further additional information that reported differences between clinicians' recommendations and consumers' preferences (Goldfinger and Schutt 1996; Holley et al. 1998; Minsky et al. 1995). Consumers were much more in favor of living independently than what was recommended by the treatment providers. Also, satisfaction with living conditions did not preclude a preference for moving out, which mostly equated to moving to a more independent setting (Brolin et al. 2015). Overall, choice of housing setting remains a contested issue within psychiatric care, with providers recommending more restrictive settings and consumers preferring more independent settings.

Our results have to be interpreted within the context of recent major developments in housing for persons with severe mental illness. The clear consumer preferences for living independently support these developments,

indicating an important shift from institutionalized care to independent housing in a community based on consumer choice and self-determination. Recent empirical research from 'Housing First' programs has shown that it is even possible to provide independent housing to severely disabled persons with mental illness with quite favorable social and medical outcomes (Aubry et al. 2016). Additionally, 'Housing First' studies have also provided economic data that suggest higher cost efficiency for independent housing settings (Ly and Latimer 2015).

Limitations

This analysis has clear limitations. First and foremost, we could only include few studies with acceptable quality into the meta-analysis. However, the exclusion of low-quality studies led to a slightly higher preference proportion for independent living. Secondly, the definition of different housing settings remains a problematic issue, especially when probable differences in national terminologies are considered and we cannot preclude that misclassifications may have occurred. A widely acknowledged taxonomy of housing setting definitions is still missing.

Conclusions

In terms of methodology, consumer preference research on housing has not advanced much since the 1995 review by Goldman et al. (1995). There is a clear lack of high quality studies that provide details about the preferences of subgroups such as different age groups or diagnostic groups.

However, despite the shortage of high-quality studies, our study adds the consumer perspective to positive medical and social outcomes as well as indicating cost efficiency for independent housing. When evaluating these results from a broader view that takes these three indicators into account, it does suggest that care planning and resource allocation have to be shifted increasingly to less restrictive and more independent housing settings. In a given service planning area, independent housing places should exceed institutionalized places by a wide margin.

Compliance with Ethical Standards

Conflict of interest The authors declare to have no conflicts of interests. Financial support for this study was not received.

Informed consent The study did not involve human participants or animals.

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