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Differences in housing transitions and changes in health and self-determination between formerly homeless individuals

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Background: To reduce homelessness, it is important to gain a better understanding of the differences between homeless people who remain in institutions and those who gain and can sustain independent housing. This longitudinal study explores differences in housing transitions and differences in changes in health and self-determination between formerly homeless people still living in institutions 2.5 years later and those now living in independent housing in the Netherlands. **Methods:** This study mapped the housing transitions of 263 participants from when they entered the social relief system (SRS) to 2.5 years later when they were in independent housing or institutions. These individuals were compared at the 2.5-year mark in terms of gender, age and retrospectively in terms of duration of homelessness. They were also compared with regard to changes in psychological distress, perceived health, substance use and self-determination. **Results:** Two and a half years after entering the SRS, 81% of participants were independently housed and 19% still lived in institutions. People in institutions had a longer lifetime duration of homelessness, were more often men, and their number of days of alcohol use had decreased significantly more, whereas independently housed people had shown a significant increase in their sense of autonomy and relatedness. **Conclusion:** Formerly homeless people living in independent housing and in institutions show few health-related differences 2.5 years after entering the SRS, but changes in autonomy and relatedness are distinctly more prevalent, after the same period of time, in those who are independently housed.

Introduction

Homelessness is a major public health concern. Despite difficulties in reporting reliable European Union statistics on its prevalence, homelessness appears to have increased in Europe since 2008.[1] Homelessness is associated with poor health.[2] To reduce homelessness, an integrated approach is needed that includes providing stable housing with security of tenure and adequate support.[1,3]

In recent decades, research has focused on the dynamics of the homeless experience, with specific attention to transitions into and exits from homelessness.[4–6] Studies have indicated that not all (formerly) homeless people are able to make their way into, or then stay permanently in, independent housing. In a US study, 80% of homeless adults gained independent housing within 15 months, but only 15% remained housed in their first exit location during the following 15 months.[7] In a second study, 43% of homeless adults gained independent housing within two 2 years, of which 12% lose it within 1 or 2 years.[8] Although independent housing is the aim of European homelessness policies,[1,3] little information exists on the dynamics of housing transitions that lead to independent housing. In the Netherlands, policy and legislation has recently shifted emphasis from institutional to community-based care for homeless people.[9] However, not enough homeless people are exiting the social relief system (SRS) to independent housing,[10] causing a shortage of available space in the SRS, which in turn impedes the transition to independent housing with ambulatory care. Therefore, it is important to gain more insight into the differences between homeless people who remain in institutions and those who can sustain independent housing.

Research shows that gaining independent housing is positively associated with a shorter duration of homelessness,[7] being a woman,[7,11] having a partner,[12] having others dependent on one for food and shelter,[13] the absence of health problems, and using subsidized housing;[7] it is negatively associated with mental illness,[11] high levels of somatization, unmet care needs, large debts[14] and substance use.[8,15] In addition, qualitative studies have shown that

the support and strengthening of self-determination is a crucial aspect of many promising programmes for homeless people.[16–18] However, these studies compared formerly homeless people who were independently housed with people in all other living arrangements[8,11,14,15] and did not focus specifically on the differences between people independently housed and those who are institutionalized. As an exception, Wolf et al.[19] indicated that people who exit homelessness into independent housing have experienced a shorter duration of homelessness and have a higher level of education than homeless people who move to dependent housing. A study that would compare these groups with regard to health and self-determination would help us to understand why some people have obtained independent housing, while others continue residing in institutions.

Therefore, this study aimed to provide more knowledge on the differences in housing transitions, health and self-determination at the time of entering the SRS, and changes in health and self-determination during the 2.5-year period after they entered the SRS. The following research questions were explored: (i) What are the housing transitions experienced by people who reside in independent housing and by those who reside in institutions 2.5 years after they entered the SRS in the Netherlands? (ii) Is there a difference in changes in psychological distress, perceived health, substance use, and self-determination during the 2.5-year period between these two groups?

Methods

Design and participants

This study was part of a longitudinal multi-site cohort study that followed 513 homeless persons for a 2.5-year period beginning when they reported to a central access point for social relief in one of the Netherlands' four major cities (Amsterdam, The Hague, Rotterdam and Utrecht) in 2011. Every homeless person in the Netherlands must report to a central access point to gain access to SRS facilities, which include health care, social work and accommodation. All study participants satisfied the criteria set by the four cities for accessing the SRS: including being age 18 or older, having been forced to leave their home situation and being assessed as insufficiently competent to live independently. In this study we have included participants who were interviewed at all the follow-up measurements and were independently housed or still residing in institutions 2.5 years after entering the SRS.

This study complies with the criteria of the Medical Review Ethics Committee, region Arnhem-Nijmegen of the Netherlands, which concluded that the study was exempt from formal review (registration number 2010/321). All participants gave written informed consent.

Procedure

The study began in January 2011 when the potential participants were approached at a central access point for social relief or at their temporary accommodation. The participants were interviewed face-to-face using a structured questionnaire (mean duration of 1.5 hours) and received €15 for their participation. All the interviews were conducted in Dutch, apart from six in other languages. The follow-up interviews were similar to the baseline interview, and the participants received €20, €25 and €30 for the first, second and third follow-up interview, respectively.

Measures

Housing transitions

Housing status was assessed by asking the participants where they had slept the previous night, and we distinguished four categories[19]:

- Homeless: Sleeping on the streets or in public spaces, emergency shelters, night shelters, or transitional accommodation (short stay);
- Marginally housed: Temporarily staying with friends, relatives, or acquaintances;
- Institutionalized: Staying in residential care or assisted accommodation (long stay) for homeless people or people with mental health or substance use problems; women's shelter accommodation; medical institution, drug rehabilitation institution or psychiatric hospital; or correctional or penal institution; and
- Independently housed: Staying in a rented or owned house, room, or apartment; a house of friends, relatives or acquaintances (permanent); or supportive housing (housing provided by a shelter organization in combination with ongoing support).

To gain insight into housing transitions, data on housing status were used from baseline and the first, second and third follow-up interviews, which were conducted 0.5, 1.5 and 2.5 years from baseline, respectively.

Comparative measures

Demographic characteristics included age (at baseline) and gender. Duration of homelessness was measured at baseline and was defined as the total number of months a person had been homeless during his or her lifetime. To construct change scores, we used data from baseline and the third follow-up interview on psychological distress, perceived health, substance use and experience of self-determination.

Psychological distress was assessed using the Dutch translation of the Brief Symptom Inventory 18 (BSI-18), which measures psychological distress on three dimensions (somatization, depression and anxiety) on a scale ranging from *not at all* (0) to *extremely*.[4,20] A score for each subscale of distress was calculated by averaging across the items.

Perceived health was assessed by the Dutch abbreviated version of the Lehman's Quality of Life Interview.[19,21] Three items were employed: 'How do you feel about … your health in general? … your physical condition? … your emotional well-being?' Results were measured on a scale ranging from terrible (1) to delighted (7), and scores were constructed by averaging the scores of the three items. At baseline and follow-up, the measure showed sufficient reliability (Cronbach's $\alpha = 0.77$ and 0.84, respectively).

The number of days of alcohol use ($\geq$5 units per day) and cannabis use during the previous month (30 days) were assessed using the European version of the Addiction Severity Index (Europ-ASI, Version III).[22] Studies on the Europ-ASI among substance-abusing populations have indicated satisfactory results for its reliability and validity.[22] Smoking and use of other illegal substances were not taken into account, the latter due to the low prevalence rates (<5%).[23]

Self-determination was measured using the validated Basic Psychological Needs questionnaire,[24,25] which measures the experience of three basic psychological needs: autonomy (seven items), competence (six items) and relatedness (eight items). The participants were asked to indicate their agreement with these items on a seven-point Likert scale, ranging from *not true at all* (1) to *definitely true* (7). A score for each need was calculated by averaging across items in three subscales.

Data analyses

Descriptive analyses were performed to describe demographics, housing transitions and the comparative measures at baseline. The relationship between housing status and gender was analysed using a chi-square test. For the continuous variables (age, psychological distress, perceived health, substance use and self-determination), analyses of variance were performed. The change in scores over time was calculated by subtracting the score at baseline from the score at the

2.5-year follow-up. Due to the small number of missing values (maximum 1.9%), only people without missing values were included in the analysis. Multiple linear regression analyses were performed to test the differences between the changes in scores for the group in independent housing and the group in institutions, adjusting for age, gender and duration of homelessness. A *P*-value of <0.05 based on two-sided tests was considered statistically significant. All statistical analyses were conducted using IBM SPSS Statistics version 25.

Results

The initial cohort included 513 participants. Comparison of the total population who reported themselves at a central access point for social relief in 2011 in one of the four major cities revealed that the homeless adults ($n = 410$) were representative in terms of age and gender. The young adults ($n = 103$) were representative in terms of age, but men were overrepresented in our sample (60.2% younger men in the cohort versus 49.2% younger men in the total group). For the purpose of this study, we excluded 250 participants who:

- had been accepted by the SRS due to a forthcoming eviction but were still housed at baseline ($n = 13$) or did not report his or her housing situation at baseline ($n = 1$);
- were homeless ($n = 8$) or marginally housed ($n = 19$) 2.5 years after entering the SRS; and
- did not complete all follow-up interviews ($n = 209$).

The sample of this study consisted of 263 formerly homeless persons who were either independently housed or institutionalized 2.5 years after entering the SRS. Non-respondents were generally younger (age 33.7 versus 38.7) and often had a lower level of education (39.5% versus 28.7%) than respondents. No selective non-response was found by gender or ethnicity.

Housing transitions

Participants who were institutionalized 2.5 years after entering the SRS ($n = 50$, 100%) usually moved to an institution within 6 months ($n = 16$, 32%) (table 1). During the 2.5-year follow-up period, 34% ($n = 17$) of the institutionalized participants had had gained independent housing but had lost it again. Most participants who were independently housed 2.5 years after entering the SRS ($n = 213$, 100%) had done so directly within half a year ($n = 77$, 36.2%), others first moved to institutions after entering the SRS and then moved to independent housing ($n = 60$, 28.2%). Other participants were consistently homeless ($n = 26$, 12.2%) or marginally housed ($n = 17$, 8%) before moving into independent housing or had more dynamic pathways, moving between homelessness, marginal housing, institutions and independent housing before moving into independent housing ($n = 1$, 15.5%).

Table 1 Housing transitions between being homeless, marginally housed, institutionalized, and independently housed, during three follow-up measurements after entering the SRS for formerly homeless people ($N = 263$)

Institutionalized at follow-up			Independently housed at follow-up		
Transitions	***n***	**%**	**Transitions**	***n***	**%**
3-3-3	16	32	4-4-4	77	36.2
3-1-3	6	12	3-4-4	36	16.9
1-3-3	6	12	3-3-4	24	11.3
4-4-3	5	10	1-4-4	23	10.8
3-4-3	4	8	3-1-4	11	5.2
2-3-3	3	6	2-4-4	10	4.7
4-3-3	3	6	2-2-4	7	3.3
4-2-3	3	6	1-3-4	7	3.3
1-1-3	2	4	4-3-4	4	1.9
2-4-3	1	2	4-1-4	4	1.9
4-1-3	1	2	3-2-4	3	1.4
			2-3-4	3	1.4
			1-1-4	3	1.4
			2-1-4	1	0.5
Total	50	100	Total	213	100

1 = homeless, 2 = marginally housed, 3 = institutionalized and 4 = independently housed.

Baseline characteristics of participants

The relative number of men was significantly lower in the group of independently housed participants than in the institutionalized group (70% vs. 88%) (table 2). The total number of months participants had been homeless during their lifetime was lower for the independently housed participants than for the institutionalized participants (median = 12 vs. 21 months). The groups did not differ in mean age (41 vs. 38.2 years). Participants who were in independent housing after 2.5 years drank five or more glasses of alcohol on significantly fewer days per month than institutionalized participants (2.17 vs. 6.44 days $P = 0.007$ respectively) at baseline. Independently housed participants did not differ from participants in institutions in terms of somatic, depressive and anxiety complaints, perceived health, cannabis use, autonomy, competence or relatedness at baseline.

Differences in health (including substance use) and self-determination

The number of days of alcohol use decreased significantly more in the institutionalized group (2.95 days) than in the independent housing group (table 3). Autonomy and relatedness increased significantly more in the independently housed group (0.40 and 0.30, respectively). No significant differences were found between the two groups in terms of change of psychological distress (i.e. somatization, depression and anxiety), perceived health, cannabis use or competence.

Discussion

Although European policy aims to reduce homelessness using an integrated approach that includes providing stable housing, not all homeless people exit the SRS to independent housing in the Netherlands. This longitudinal study was the first study to explore the housing transitions of formerly homeless people in a European context. During our follow-up period of 2.5 years, we found similar numbers of formerly homeless people gaining independent housing (81%) as a US study in which 79.6% gained independent housing within 15 months,[7] and more than in a study in which 43.1% gained independent housing within 2 years.[8] Previous studies have shown considerable groups of homeless people gaining independent housing but then losing it again.[7,8] In this study, 17 (34%) of the participants in institutions had had independent housing but had lost it again at some point. Also in line with previous studies, we found that people who gained independent housing had experienced less homelessness during their lifetime[7,19] and were more often women than those living in institutions.[7,11]

Unexpectedly, no significant differences existed in terms of changes in psychological distress (i.e. somatization, depression and anxiety), perceived health, cannabis use or competence between independently housed and institutionalized people 2.5 years after entering the SRS. Previous research that compared formerly homeless people who were independently housed with people in all other living arrangements[8,11,14,15] showed that independent housing is positively associated with the absence of health problems[7] and negatively associated with mental illness,[11] high levels of somatization, unmet care needs and substance use.[8,15] Health differences between

Table 2 Baseline characteristics of formerly homeless people at entering the SRS, categorized by their housing status at 2.5 years follow-up ($N = 263$)

Variables	Institutionalized ($n = 50$)	Independently housed ($n = 213$)	Total ($n = 263$)
Male gender ($n = 263$), *n* (%)	44 (88)	149 (70)	193 (73.4)
Age ($n = 263$), *M* (SD)	41.02 (11.77)	38.22 (13.38)	38.75 (13.11)
Duration of homelessness ($n = 261$), median (IQR)	21 (41.63)	12 (32)	12 (31.63)*
Somatic complaints ($n = 260$), *M* (SD)	0.66 (0.75)	0.49 (0.70)	0.52 (0.71)
Depressive complaints ($n = 258$), *M* (SD)	1.04 (1.06)	0.72 (0.85)	0.78 (0.90)
Anxiety complaints ($n = 261$), *M* (SD)	0.86 (1.01)	0.62 (0.76)	0.66 (0.82)
Perceived health ($n = 262$), *M* (SD)	4.38 (1.51)	4.75 (1.47)	4.68 (1.48)
Days of alcohol use ($\geq$5 units) ($n = 261$), *M* (SD)	6.44 (10.34)	2.17 (5.93)	2.98 (7.17)**
Days of cannabis use ($n = 261$), *M* (SD)	7.08 (11.39)	7.33 (11.53)	7.28 (11.48)
Autonomy ($n = 262$), *M* (SD)	4.68 (1.14)	4.86 (.93)	4.82 (0.98)
Competence ($n = 261$), *M* (SD)	4.61 (1.02)	4.78 (0.98)	4.75 (0.99)
Relatedness ($n = 262$), *M* (SD)	4.85 (0.97)	5.04 (0.83)	5.0 (0.86)

Age and duration of homelessness were not normally distributed and variances were unequal for duration of homelessness, therefore Mann–Whitney tests were conducted. IQR, interquartile range.
*: $P = 0.05$, **$P = 0.01$.

Table 3 Health (including substance use) and self-determination at baseline and 2.5 years after entering the SRS of formerly homeless people in independent housing and in institutions ($N = 263$)

	Institutionalized at follow-up ($n = 50$)			Independently housed at follow-up ($n = 213$)			
	Baseline	Follow-up Mean (SD)	Change	Baseline	Follow-up Mean (SD)	Change	Effect change (T2.5–T0)[a] Mean (95% CI)
Somatic complaints ($n = 260$)	0.66 (0.75)	0.53 (0.65)	−0.13 (0.61)	0.49 (0.70)	0.33 (0.55)	−0.16 (0.56)	−0.04 (−0.22 , 0.15)
Depressive complaints ($n = 256$)	1.04 (1.06)	0.75 (0.89)	−0.32 (0.80)	0.72 (0.85)	0.39 (0.62)	−0.36 (0.78)	−0.02 (−0.27 , 0.23)
Anxiety complaints ($n = 261$)	0.86 (1.01)	0.70 (0.76)	−0.16 (0.57)	0.62 (0.77)	0.37 (0.58)	−0.25 (0.75)	−0.07 (−0.29 , 0.16)
Perceived health ($n = 259$)	4.38 (1.51)	4.71 (1.35)	0.33 (1.44)	4.75 (1.47)	5.20 (1.29)	0.45 (1.49)	0.13 (−0.34, 0.60)
Days of alcohol use ($\geq$5 units) ($n = 259$)	6.44 (10.34)	2.73 (7.58)	−3.22 (8.82)	2.17 (5.93)	1.96 (6.15)	−0.20 (7.31)	2.95 (0.51 , 5.40)*
Days of cannabis use ($n = 259$)	7.08 (11.4)	7.49 (11.6)	0.88 (11.10)	7.33 (11.5)	5.66 (10.7)	−1.65 (9.86)	−2.93 (−6.12 , 0.27)
Autonomy ($n = 260$)	4.68 (1.14)	4.73 (1.09)	0.04 (0.95)	4.86 (0.93)	5.30 (0.95)	0.45 (1.04)	0.40 (0.08 , 0.73)*
Competence ($n = 256$)	4.61 (1.02)	4.87 (0.88)	0.26 (1.08)	4.78 (0.98)	5.06 (0.96)	0.29 (1.05)	0.03 (−0.31, 0.37)
Relatedness ($n = 258$)	4.85 (0.97)	4.86 (0.92)	0.01 (0.90)	5.04 (0.83)	5.30 (0.70)	0.26 (0.77)	0.30 (0.05, 0.55)*

a: Effect is the difference of the mean change score of follow-up and baseline between the independent group and the institution group. Effect is corrected for age, gender and total number of months the participants had been homeless during their lifetime.
*: $P < 0.05$.

independently housed people and homeless and marginally housed people on the one hand and institutionalized people on the other[2] may have influenced the differences between this study and previous research. The only difference found in terms of changes in health status was that, at baseline, institutionalized people drank five or more units of alcohol significantly more often (6.44 days a month) than individuals who were independently housed 2.5 years later (2.17 days). Alcohol use may have disrupted goal-directed behaviour[26,27] such as money management and running a household,[23] causing more difficulties in gaining and sustaining independent housing. However, institutionalized people were more successful in reducing their alcohol use between baseline and 2.5 years.

Concerning self-determination, autonomy and relatedness increased more for independently housed people than for institutionalized people. Research into the relationship between autonomy and gaining independent housing is scarce but suggests that a sense of autonomy is a motivation for homeless people to obtain independent housing.[17] In addition, the rationale of the supported housing approach is that choice in and control over housing is critical for getting a positive outcome, including housing stability and successful adaption to community living (although evidence is inconsistent, see e.g. Refs.[28,29]). Because most homeless people want to live independently, being able to live as such may strengthen the ability to function by one's own volition (autonomy) and thereby motivates a formerly homeless person to sustain independent housing. More research on the relationship between housing and autonomy could provide a better understanding of when and how a sense of autonomy can strengthen homeless people's ability to gain and sustain independent housing.

Previous research has shown that maintaining positive relationships is difficult in facilities for homeless people.[17,30–33] Being able to receive family members and friends at their own home is an

important advantage of independent housing, and moving into independent housing is associated with positive changes in social support.[31–33] However, studies also show that formerly homeless people moving into independent housing often struggle with feelings of loneliness and tend to depend heavily on social relations with service providers because their social support network outside the shelter system is limited.[30,33–35] Interventions such as Critical Time Intervention (CTI) are needed to support people during this transition.[34,36] CTI promotes the integration into the community and safeguards care provision by supporting the development of ties to the community and a strong support and professional network.[37] Research showed that CTI has a positive effect on service use, satisfaction with services, housing stability, mental health, substance use and quality of life.[36] Additionally, in this study, independently housed people had experienced a markedly shorter duration of homelessness over their lifetime than institutionalized participants (median = 12 vs. 21 months). Measuring duration of homelessness at entering the SRS could help identify a vulnerable group with a high risk of becoming institutionalized. 'Housing First' is an appropriate housing-led model for this group because it has proven to support long-term homeless people to obtain stable independent housing.[38,39]

Strengths and limitations

A strength of this study is its longitudinal design that made it possible to track the housing transitions and differences in changes in health and self-determination in two distinct groups of homeless people over time, instead of reflecting on these changes retrospectively. We made efforts to thoroughly track the participants using incentives, establishing rapport with them by using the same well-trained interviewer for each participant for all interviews, and assuring them of confidentiality. Due to these efforts, it was possible to follow-up on a considerable number of homeless people; 263 formerly homeless persons were willing and able to be interviewed four times during a period of 2.5 years. However, results are limited to those homeless people eligible to register with the SRS and cannot be generalized to subgroups that do not use the SRS (such as undocumented immigrants), although these groups are relatively small in the Netherlands.

Conclusion

Homelessness is an urgent public health issue, especially as it seems that since 2008 in Europe the number of homeless people has increased significantly. In Europe, policy and legislation has shifted emphasis over the last ten years from institutional to community-based care for homeless people. The European Union has called for housing-led solutions for homelessness.[1,3] However, not many homeless people exit the SRS to independent housing, due also to a shortage of affordable housing, causing a shortage of capacity in the SRS. It is important to gain more insight into the differences between homeless people who remain in institutions and those who can successfully live in independent housing. This is in order to identify the factors that may impede an exit out of the SRS and to identify the potential health and self-determination benefits of a shorter SRS stay. This study shows that 2.5 years after entering the SRS, the majority of the formerly homeless people were independently housed (81%) and 19% were in institutions. Even though this distinction became apparent 6 months after entry, 28% of the people in institutions had had independent housing but lost it again over the course of the 2.5 years. Few differences were found retrospectively in health-related measures and competence, but changes in autonomy and relatedness in this period are a distinctive characteristic of those who are still independently housed after 2.5 years. Future research should help us to understand whether autonomy and relatedness enable people to gain independent housing or that independent housing promotes autonomy and relatedness. Programmes such as CTI support people during their transition from shelter stay to independent housing and enhance continuity of care. CTI has proven to be effective in sustaining independent living and in preventing new episodes of homelessness.[40]

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Conflicts of interest: None declared.

Key points

- Two and a half years after entering the social relief system (SRS) in the four major cities in the Netherlands, 81% of Dutch homeless people were independently housed and 19% lived in institutions, people in institutions had a longer lifetime duration of homelessness and were more often men.
- Formerly homeless people living in independent housing and in institutions show few health-related differences 2.5 years after entering the SRS, but those living in independent housing more often experienced an increase in their sense of autonomy and relatedness compared with formerly homeless people living in institutions.
- Programmes such as Critical Time Intervention (CTI) are needed to support homeless people transitioning from shelter to independent housing. CTI is also needed to aid in making independent living sustainable and to prevent new episodes of homelessness.

References

1 Abbé Pierre Foundation, FEANTSA. Third overview of housing exclusion in Europe 2018, 2018. Available at: https://www.feantsa.org/en/report/2018/03/21/the-second-overview-of-housing-exclusion-in-europe-2017 (18 March 2020, date last accessed).

2 Fazel S, Geddes JR, Kushel M. The health of homeless people in high-income countries: descriptive epidemiology, health consequences, and clinical and policy recommendations. *Lancet* 2014;384:1529–40.

3 Abbé Pierre Foundation, FEANTSA. An overview of housing exclusion in Europe, 2015. Available at: https://www.feantsa.org/download/fap_eu_gb2861057678142834491.pdf (18 March 2020, date last accessed).

4 Kuhn R, Culhane DP. Applying cluster analysis to test a typology of homelessness by pattern of shelter utilization: results from the analysis of administrative data. *Am J Community Psychol* 1998;26:207–32.

5 Roy E, Robert M, Vaillancourt E, et al. Residential trajectory and HIV high-risk behaviors among Montreal street youth–a reciprocal relationship. *J Urban Health* 2011;88:767–78.

6 McAllister W, Kuang L, Lennon MC. Typologizing temporality: time- aggregated and time-patterned approaches to conceptualizing homelessness. *Soc Serv Rev* 2011;84:225–55.

7 Zlotnick C, Robertson MJ, Lahiff M. Getting off the streets: economic resources and residential exits from homelessness. *J Community Psychol* 1999;27:209–24.

8 North CS, Eyrich-Garg KM, Pollio DE, Thirthalli J. A prospective study of substance use and housing stability in a homeless population. *Soc Psychiat Epidemiol* 2010;45:1055–62.

9 Association of Netherlands Municipalities [VNG]. Van beschermd wonen naar een beschermd thuis, 2015. Available at: https://vng.nl/onderwerpenindex/maatschappelijke-ondersteuning/beschermd-wonen/publicaties/van-beschermd-wonen-naar-een-beschermd-thuis-rapport-cie-dannenberg (18 March 2020, date last accessed).

10 Audit offices four major cities of the Netherlands [Rekenkamers G4]. Onderzoek G4-rekenkamers naar de opvang en ondersteuning voor dak-en thuislozen (2018). Available at: https://denhaag.raadsinformatie.nl/modules/13/overige_bestuurlijke_stukken/452640 (24 February 2019, date last accessed).

11 Pollio DE, North CS, Thompson S, et al. Predictors of achieving stable housing in a mentally ill homeless population. *Psychiatric Serv* 1997;48:528–30.

12 Palepu A, Marshall BD, Lai C, et al. Addiction treatment and stable housing among a cohort of injection drug users. *PLoS One* 2010;5:e11697.

13 Orwin RG, Scott CK, Arieira C,DP. Transitions through homelessness and factors that predict them: three-year treatment outcomes. *J Subst Abuse Treat* 2005;28(2 Suppl 1):S23–S39.

14 Van Straaten B, Van der Laan J, Rodenburg G, Boersma SN, et al. Dutch homeless people 2.5 years after shelter admission: what are predictors of housing stability and housing satisfaction?. *Health Soc Care Community* 2016.

15 Aubry T, Klodawsky F, Coulombe D. Comparing the housing trajectories of different classes within a diverse homeless population. *Am J Community Psychol* 2012; 49:142–55.

16 O'Campo P, Kirst M, Schaefer-McDaniel N, et al. Community-based services for homeless adults experiencing concurrent mental health and substance use disorders: a realist approach to synthesizing evidence. *J Urban Health* 2009;86:965–89.

17 Palepu A, Hubley AM, Russell LB, et al. Quality of life themes in Canadian adults and street youth who are homeless or hard-to-house: a multi-site focus group study. *Health Qual Life Outcomes* 2012;10:93.

18 Garrett SB, Higa DH, Phares MM, et al. Homeless youths' perceptions of services and transitions to stable housing. *Eval Program Plann* 2008;31:436–44.

19 Wolf J, Burnam A, Koegel P, et al. Changes in subjective quality of life among homeless adults who obtain housing: a prospective examination. *Soc Psychiatry Psychiatr Epidemiol* 2001;36:391–8.

20 Derogatis LR. *Brief Symptom Inventory (BSI). Administration, Scoring, and Procedures Manual*, 3rd ed. Minneapolis, Minnesota: NCS Pearson, Inc, 2001.

21 Lehman AF, Kernan E, Postrado L. *Toolkit Evaluating Quality of Life for Persons with Severe Mental Illness*. Baltimore, Maryland: Human Services Research Institute, 1995.

22 Kokkevi A, Hartgers C. EuropASI: european adaptation of a multidimensional assessment instrument for drug and alcohol dependence. *Eur Addict Res* 1995;1: 208–10.

23 Van Straaten B, Rodenburg G, Van der Laan J, et al. Substance use among Dutch homeless people, a follow-up study: prevalence, pattern and housing status. *Eur J Public Health* 2016;26:111–6.

24 Vlachopoulos SP, Michailidou S. Development and initial validation of a measure of autonomy, competence, and relatedness in exercise: the Basic Psychological Needs in Exercise Scale. *Meas Phys Educ Exerc Sci* 2006;10:179–201.

25 Johnston MM, Finney SJ. Measuring basic needs satisfaction: evaluating previous research and conducting new psychometric evaluations of the Basic Needs Satisfaction in General Scale. *Contemp Educ Psychol* 2010;35: 280–96.

26 van der Laan J, Boersma SN, Straaten B, et al. Personal goals and factors related to QoL in Dutch homeless people: what is the role of goal-related self-efficacy? *Health Soc Care Community* 2017;25:1265–75.

27 Grace AA, Floresco SB, Goto Y, Lodge DJ. Regulation of firing of dopaminergic neurons and control of goal-directed behaviors. *Trends Neurosci* 2007;30:220–7.

28 Tsai J, Mares AS, Rosenheck R. Housing satisfaction among chronically homeless adults: identification of its major domains, changes over time, and relation to subjective well-being and functional outcomes. *Community Ment Health J* 2012;48: 255–63.

29 Nelson G, Sylvestre J, Aubry T, et al. Housing choice and control, housing quality, and control over professional support as contributors to the subjective quality of life and community adaptation of people with severe mental illness. *Adm Policy Ment Health* 2007;34:89–100.

30 O'Connell MJ, Kasprow WJ, Rosenheck RA. Impact of supported housing on social relationships among homeless veterans. *Psychiatric Serv* 2017;68:203–6.

31 Hubley AM, Russell LB, Palepu A, Hwang SW. Subjective quality of life among individuals who are homeless: a review of current knowledge. *Soc Indic Res* 2014; 115:509–24.

32 Nelson G, Patterson M, Kirst M, et al. Life changes among homeless persons with mental illness: a longitudinal study of housing first and usual treatment. *Psychiatric Serv* 2015;66:592–7.

33 Watson J, Fossey E, Harvey C. A home but how to connect with others? A qualitative meta-synthesis of experiences of people with mental illness living in supported housing. *Health Soc Care Community* 2019;27:546–64.

34 Herman D, Conover S, Felix A, et al. Critical Time Intervention: an empirically supported model for preventing homelessness in high risk groups. *J Primary Prevent* 2007;28:295–312.

35 Rivlin LG, Moore J. Home-making: supports and barriers to the process of home. 2001;10:323–36.

36 de Vet R, van Luijtelaar MJA, Brilleslijper-Kater SN, et al. Effectiveness of case management for homeless persons: a systematic review. *Am J Public Health* 2013; 103:E13–26.

37 de Vet R, Lako DA, Beijersbergen MD, et al. Critical time intervention for people leaving shelters in the Netherlands: assessing fidelity and exploring facilitators and barriers. *Adm Policy Ment Health* 2017;44:67–80.

38 Tsemberis S, Gulcur L, Nakae M. Housing first, consumer choice, and harm reduction for homeless individuals with a dual diagnosis. *Am J Public Health* 2004;94:651–6.

39 Tsemberis S. From streets to homes: an innovative approach to supported housing for homeless adults with psychiatric disabilities. *J Community Psychol* 1999;27:225–41.

40 de Vet R. 2020. Effectiveness of Critical Time Intervention for homeless people: a randomized controlled trial to enhance continuity of care during the transition from shelter to community living. Diss. Available at: https://repository.ubn.ru.nl/handle/2066/213934.