
Homeless Services Users' Reports of Problem-Related Alcohol and Illicit Substance Use in Eight European Countries

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- **Abstract_** *Harm reduction approaches to recovery from alcohol or other drug (AOD) use underpin housing-led homeless services, particularly Housing First (HF). HF programmes aim to promote recovery by reducing harmful consequences of use rather than requiring abstinence. As part of a larger questionnaire-based study with homeless services users in eight European countries, we analysed data collected from adults engaged with either HF programs or traditional services (TS) on measures of problem-related alcohol, illicit drug use and service utilization for AOD use (n = 565). Although rates of alcohol and illicit drug use were similar, participants in TS reported higher quantities of alcohol use, more binge drinking, injury-related alcohol and illicit drug use, more polysubstance use, and more problematic illicit drug use. Participants in TS also reported higher rates of emergency room and inpatient/residential services for AOD use, while rates of community-based services for AOD use were similar. Results are discussed in relation to previous findings regarding the rates of AOD and service use among homeless services users in HF and TS, the importance of harm-reduction strategies, and suggestions for policy and practice in homeless services for adults with alcohol- and drug-related support needs.*
- **Keywords_** *Housing First, harm reduction, alcohol misuse, illicit substance misuse, service utilization*

Introduction

In Europe, it is estimated that 29% of all adults have used illicit drugs (European Monitoring Centre for Drugs and Drug Addiction, 2020), and the rates are higher among the homeless population, who often have co-occurring alcohol and substance use problems (O'Brien et al., 2015; Palepu et al., 2013; Adlaf and Smart, 1991; Khandor and Mason, 2007). Problematic alcohol or other drug (AOD) use has been described as the dominant health problem for people in homeless situations because it can exacerbate other physical and mental health issues and lead to harmful consequences such as overdose and victimisation (Fazel et al., 2008; Aldridge et al., 2018; Fazel et al., 2014). Eighteen million people in the EU have experienced homelessness, and among them, approximately 1 in 300 reported problematic illicit drug use (European Union Working Group, 2000). Researchers in Western countries report that 8% to 59% of people experiencing homelessness have alcohol dependence issues, and 5% to 54% have drug dependence issues (Fazel et al., 2008). In a survey conducted in the UK, 25% of individuals living in hostels or sleeping on the street consumed illegal drugs and 18% reported using heroin (Kershaw et al., 2003). A study of retrospective administrative data on adults experiencing homelessness in Stockholm, Sweden reported that 42% of men and 41% of women experiencing homelessness were diagnosed with problematic alcohol or illicit drug use (Beijer and Andreasson, 2010). The high prevalence of AOD use among adults experiencing homelessness is persistent, and greater understanding of the efficacy of homeless services to support individuals to reduce harm from AOD is needed. The aim of the present study was to examine harm-related AOD in the European context to determine whether individuals engaged with Housing First (HF) programmes reported less harm-related use than individuals engaged with traditional services (TS).

The relationship between homelessness and AOD has been the focus of substantial research (e.g. Johnson and Chamberlain, 2008; Vangeest and Johnson, 2002; Mcvicar et al., 2015; Neale, 2001). Broadly, the evidence suggests that there is a bidirectional relationship between situations of homelessness and AOD, with each exacerbating the other (Johnson et al., 1997; Meuser et al., 1998; Keane et al., 2015). AOD can lead individuals to deplete their economic resources and to sever ties with friends and loved ones, which can lead to situations of homelessness (Johnson and Frenrich, 2007; McNaughton, 2008). However, AOD does not occur in a vacuum, and a large body of research has linked AOD with experiences of trauma (Tam et al., 2003; Stein et al., 2002; Taylor and Sharpe, 2008). Thus, the trajectory from a person's initial AOD use to situations of homelessness is not straightforward. The stress and ill-health associated with harsh living conditions can cause individuals to use alcohol or illicit drugs, and a lack of shelter creates a risky environment for misuse (Collins et al., 2012a; Neale, 2001; Padgett et al. 2006b; 2012; Morrell-Bellai et al., 2000).

Additionally, boredom, hopelessness, and exposure to other people's AOD use can encourage use among individuals experiencing homelessness (Henwood et al., 2015; Drake et al., 2005; 2002). The barriers to services and care are well-documented (Cocozza Martins, 2008; Fazel et al., 2014; Kim et al., 2007; Campbell et al., 2015), with many services ill-equipped to deal with the complex and overlapping problems that arise from homelessness and AOD use (Mungrum, 2009; McKee et al., 2013; Csete, 2014). In response to the inefficacy of traditional approaches to homeless services to adequately address problematic AOD use, the HF approach is built on harm reduction principles and practices.

Housing First: A Harm Reduction Approach to Ending Long-term Homelessness

Harm reduction (HR) is both a guiding principle and a set of strategies for supporting people with substance use issues that emphasizes the importance of reducing negative social and physical consequences of substance use over abstinence (International Harm Reduction Association, 2010; Marlatt, 1996; Marlatt et al., 2001). The HR movement was driven by advocacy groups and public health initiatives in response to the ineffectiveness of moral and disease models of addiction (Marlatt et al., 2001). The transtheoretical model of behavioural change (Prochaska and DiClemente, 1986) underpins the HR approach to meeting individuals 'where they are' in their stage of recovery, whether they are contemplating making a change or actively reducing the quantity of substances they use, for example. Instead of emphasising complete abstinence, HR practitioners encourage reductions in use, safer use practices, substitution of safer alternatives, engagement in services that provide access to housing, employment, medical and psychiatric services, and development of positive relationships and activities (Marlatt, 1998; Tatarsky, 2002; Tatarsky and Marlatt, 2010).

HR strips away the moral obligation associated with abstinence-based services, which rests on the assumption that homeless adults must be deficient in some way if they are experiencing homelessness (Lyon-Callo, 2000). In actuality, many individuals with co-occurring problematic substance use and homelessness are quite vulnerable, have histories of trauma, abuse, co-occurring mental health problems, and are caught in social and economic systems characterized by severe housing shortages and other barriers to affordable housing (Ben-Shlomo and Kuh 2002; Booth et al., 2002). Indeed, evidence shows that HR programmes effectively reduce fatal overdoses, risky substance use practices, and transmission of blood-borne diseases such as HIV (Ritter and Cameron, 2006). Thus, HR is a flexible, compassionate, and effective approach for supporting people who use substances.

As stated earlier, HR is a key principle of the HF model for ending long-term homelessness (Tsemberis and Eisenberg, 2000). HF provides immediate access to independent scattered-site housing (depending on housing availability) and wraparound multi-disciplinary support to adults experiencing homelessness (Tsemberis, 2010). HF was developed as a solution for the institutional cycling experienced by individuals with complex mental health needs in traditional homeless services aligned with the staircase continuum of care (Tsemberis et al., 2004). HF employs HR and places no prerequisites on service users to engage in treatment or abstinence. Housing is separate from supports so that service users do not lose their accommodation if they struggle with substance use issues (Tsemberis et al., 2004). Instead, members of the multi-disciplinary team work together with service users to establish their individual treatment goals and hopes for the future (Stefancic and Tsemberis, 2007; Gulcur et al., 2003). Providers employ motivational interviewing, person-centred support planning, and non-coercive assertive engagement strategies to support service users (Greenwood et al., 2013). Importantly, implementation of HR practices in HF does not just mean housing people with active substance use issues, or not requiring abstinence as a pre-requisite for housing, it means offering housing along with supports that use HR strategies (Watson et al., 2017). Research in North America and Europe shows that service users' housing retention is higher in HF programmes compared to traditional homeless services (Tsemberis et al., 2004; Stefancic and Tsemberis, 2007; Greenwood et al., 2020a; Aubry et al., 2016). Qualitative research shows that in HF, service users experience HR practices as a supportive pathway to recovery and for maintaining housing (Collins et al. 2012a; 2015).

Housing First, Alcohol, and Illicit Drug Use

A substantial body of research on the association of HF with alcohol and substance use has accumulated over the past 20 years. In the next sections we summarize these findings and describe our hypotheses for the present study.

Overall, the evidence for the effectiveness of HF (compared to TS) for decreasing absolute quantities of alcohol use is weaker than the evidence for its efficacy for decreasing problematic consequences of alcohol use. For example, some studies of Canada's At Home/*Chez Soi* randomized trial demonstrated larger decreases in the HF group (compared to treatment as usual) in problem-related alcohol use (e.g., Cherner et al., 2017; Kirst et al., 2015). Instead of 'enabling' use that puts people at risk of housing loss or harm, evidence indicates that HF programmes enable clients to achieve greater improvements in alcohol-related outcomes and maintain stable housing (e.g., Collins et al., 2012b; Larimer et al., 2009).

Some researchers have examined housing outcomes as a function of alcohol use at intake. Collins and colleagues, for example, found that active use was not associated with lower housing retention rates (Collins et al., 2013). Taken together, the evidence consistently demonstrates that HF improves housing stability in the context of active, problem-related alcohol use, and inconsistently demonstrates reductions in problem- or harm-related alcohol use. In the present study, we hypothesized that participants in HF programs would demonstrate lower levels of problem-related alcohol use but not lower rates or quantities of alcohol use.

The evidence that HF is associated with greater declines in illicit drug use compared to TS is, on balance, weaker than the evidence for declines in alcohol use. Certainly, the evidence that HF is associated with greater reductions in illicit drug use is inconclusive (McPherson et al., 2018; Woodhall-Melnik and Dunn, 2016). For example, no differences in illicit drug use rates were reported at the 48-month follow-up in the New York Housing Study (Padgett et al., 2006a), the two-year outcomes of *At Home/Chez Soi* (O'Campo et al., 2016), or the 2-year outcomes of the Initiative on Chronic Homelessness (Mares and Rosenheck, 2011).

As is the case with alcohol use, when group differences in illicit drug use outcomes are reported, they are typically in terms of decreases in problems or harm rather than rates or quantities. For both alcohol and illicit drugs, this makes sense because HF is explicitly and fundamentally a HR approach and operates on the basis of HR values and principles. Thus, despite the fact that TS are frequently, if not always, abstinence-based, service users continue to use illicit drugs at rates equal to those reported by service users in HF programmes, where people are supported to reduce or eliminate harm rather than use. A recent review article concluded that although the effect is weak, HF does seem to be associated with decreases in problematic substance use (Baxter et al., 2019).

In a qualitative examination of HF implementations, Davidson et al. (2014) reported lower rates of opiate and stimulant use at follow-up among participants in HF programmes that demonstrated high fidelity on components specifically related to service users' participation in the programme operations. Findings from several North American studies demonstrated no relationship between substance use disorder and housing stability (e.g., Palepu et al., 2013; Tsai et al., 2014; Urbanoski et al., 2018). Hall et al. (2018) found that individuals with substance use disorders achieved residential stability and had longer tenure when they were not required to engage in treatment to obtain housing, which is a fundamental aspect of HF intake guidelines. These results indicate that HF programmes effectively support service users to reduce harm associated with drug use in order to sustain their tenancies.

In line with these findings, we expected to observe similar rates of illicit drug use among HF and TS groups, but lower rates of problem-related illicit drug use in the HF group compared to the TS group.

Finally, HF is intended to reduce the use of expensive emergency services and inpatient treatment, and to link participants with more appropriate community-based services. We found few studies that parcelled out costs associated with substance use AOD treatment, but on balance and overall, HF does seem to be associated with lower service utilization costs and rates (e.g., Larimer et al., 2009; Ly and Latimer, 2015; Mackelprang et al., 2014). Indeed, in an early report of findings from the New York Housing Study, although there were no differences in use rates, the TAU group reported higher rates of treatment for substance use (Tsemberis et al., 2004). In the present study, we examined rates of community-based, emergency, and residential/inpatient care specifically for substance use treatment and management. We hypothesized that the HF group would engage more with community-based SU services and report fewer visits to the ER and in-patient care for SU problems than the TS group.

The Present Study

This project was part of the larger European investigation of “Homelessness as Unfairness” (“Home_EU”). One component of Home_EU examined the well-being of adults with histories of homelessness and complex needs and their experiences of services with which they engaged. One dimension of health and well-being that we investigated was problematic AOD use. To test our hypotheses about the relationship of HF to problematic alcohol and illicit drug use, we compared data from participants engaged with HF programmes to data obtained from participants engaged with TS in France, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, and Sweden.

The members of our interdisciplinary international consortium consisted of researchers and practitioners with expertise in homelessness and recovery. Each has established translational programmes of research and connections to statutory and voluntary organizations that provide housing and other support services to adults with current or recent experiences of homelessness. We worked with gatekeepers at these organisations to recruit participants to complete questionnaires for the larger study. Ours was not a study of HF implementation or HF fidelity, so we did not collect information on, nor do we report, fidelity of the HF programmes with which our participants were engaged; that is outside the remit of the larger Home_EU project. However, details of the fidelity of these HF programmes have been published elsewhere (Aubry et al., 2018).

Method

Ethics approval for this research was obtained from the lead partner university's institutional review board and from the European Commission. Evidence of approval was then submitted to and accepted by the research ethics committee of the authors' own university.

Procedures: recruitment, materials, and data collection

A protocol for participant recruitment and data collection was agreed and followed by all Consortium partners (Greenwood et al., 2020b). All partners agreed definitions of HF programmes and TS and sought to recruit individuals with significant histories of homelessness from both categories via gatekeepers in their countries. These recruitment procedures yielded a convenience sample of adult participants who volunteered to complete the questionnaire.

We applied best practices for translation and back-translation procedures (Beaton et al., 2000) to all study materials: information sheets, consent forms, and the questionnaire, to ensure consistency in content across all study languages. These materials were presented to participants in individual meetings arranged at locations of participants' choice. This was usually their place of residence or, alternatively, a private office or a quiet and confidential public space. Research interviewers used standardised procedures to explain the study, answer participants' questions about the study, and obtain written informed consent. The researcher orally administered the questionnaire and recorded participants' responses. In exchange for their time and information, each participant was compensated with a €20 shopping voucher. Participants were given a unique ID based on their country, location, and housing type. A standardized SPSS data file was used by researchers in each country to enter the data. Partners sent their data files to the third author, who cleaned, merged, and managed all data sets.

Participants

We recruited a total of 565 eligible participants in eight European countries (See Table 1 for participant characteristics by country and group). Participants' ages ranged from 19 to 84 years old ($M = 47.38$, $SD = 11.71$). Most participants were male ($n = 431$, 74.3%) and single ($n = 470$, 81.0%). Although almost half had completed at least secondary school or the equivalent ($n = 277$, 47.1%), most were unemployed ($n = 483$, 82.1%). Most (85%) were citizens of the country in which they lived, and most (79%) were born in the country in which they lived. We did not collect race/ethnicity data. Most had at least one health or mental health concern: 55.3% ($n = 321$) had one or more physical health problems; 37.9% ($n = 220$) reported having a mental health problem; and 39.0% ($n = 226$) reported addiction or substance use problems.

We recruited 245 (43.4%) participants from HF programmes ($n = 245$, 43.4%) and 320 (55.2%) from another type of service that engaged with adults experiencing homelessness ($n = 320$, 55.2%). Please note that at the time of data collection, there was no HF programme in Poland, so the Polish sample was only engaged with TS. Most HF participants were living in stable, independent accommodation with off-site case management supports ($n = 209$, 90.1%), while most TS participants were currently living in a hostel or other type of accommodation for the homeless with onsite supports ($n = 182$; 58.5%), while some were engaged with outreach services and street sleeping ($n = 31$; 10%). None of the HF group was currently experiencing street homelessness. On average, participants engaged with HF programmes estimated they had spent more years sleeping on the street ($M = 4.55$, $SD = 7.80$), than did participants engaged with staircase services ($M = 2.83$, $SD = 5.09$), $t_{330.31} = -2.59$, $p = .01$, adjusted for unequal variances). However, there was no significant difference between HF participants ($M = 2.89$, $SD = 5.49$) and TS participants ($M = 3.32$, $SD = 4.49$) in the number of years they had spent living in hostels and other types of accommodation for the homeless ($t_{363} < 1.0$, $p < 1.0$).

Table 1. Participant Characteristics Time 1

	France		Ireland		Italy		Netherlands		Poland		Portugal		Spain		Sweden	
	HF	TS	HF	TS	HF	TS	HF	TS	HF	TS	HF	TS	HF	TS	HF	TS
<i>n</i>	37	26	38	45	38	46	32	35	0	40	41	36	35	34	20	49
Lifetime Rough slept <i>M</i>	3.6	4.38	3.98	1.07	1.98	1.48	--	--	--	2.93	1.07	0.35	11.14	7.99	6.96	2.5
<i>SD</i>	9.86	6.58	5.45	1.76	3.65	3.68	--	--	--	8.34	0.83	0.38	10.46	6.85	7.06	4.52
<i>n</i>	37	26	35	44	35	45	--	--	--	37	35	26	34	33	18	27
Lifetime homeless accom- modation																
<i>M</i>	2.05	2.95	4.74	4.42	1.56	4.15	--	--	--	2.41	0.17	0.16	0.87	1.93	9.57	4.18
<i>SD</i>	4.11	2.09	6.51	5.54	2.07	5.17	--	--	--	3.02	0.26	0.28	1.05	2.79	8.85	4.62
<i>n</i>	38	24	36	44	35	46	--	--	--	34	26	25	18	20	20	33
Age <i>M</i>	40.71	44.87	41.82	42.16	57.95	53.46	47.56	47.23	--	46.42	48.61	44.83	47.2	48.47	54.6	47.86
<i>SD</i>	8.23	12.34	11.54	11.21	10.03	9.96	9.01	12.45	--	11.21	8.39	11.77	9.73	6.06	6.83	12.24
<i>n</i>	41	30	38	45	38	46	32	35	--	45	41	36	35	34	20	49
% Male	63.40 %	86.70 %	76.30 %	73.30 %	84.20 %	84.80 %	65.60 %	82.90 %	--	68.90 %	78.00 %	69.40 %	74.30 %	73.50 %	81 %	83.70 %
<i>n</i>	41	30	38	45	38	46	32	35	--	45	41	36	35	34	21	49
% Single	95.10 %	93.30 %	65.80 %	80.00 %	97.40 %	76.10 %	78.10 %	74.30 %	--	80.00 %	100 %	88.90 %	80 %	82.40 %	77.78 %	83.30 %
<i>n</i>	41	30	38	45	38	46	31	35	--	45	41	36	35	34	18	48
% ≥ High School	87.50 %	93 %	36.80 %	50.00 %	76.30 %	88.90 %	68.80 %	71.40 %	--	60.00 %	97.60 %	97.10 %	37.10 %	50.00 %	65.00 %	59.20 %
<i>n</i>	40	30	38	44	38	45	32	35	--	45	41	34	35	34	20	49
% Unem- ployed	76.70 %	88.90 %	89.50 %	95.60 %	55.30 %	87 %	84.40 %	82.90 %	--	93.30 %	90.20 %	94.40 %	100 %	100 %	100 %	91.80 %
<i>n</i>	30	18	38	45	38	46	32	35	--	45	41	36	35	34	20	49
% Citizen	87.80 %	83.33 %	92.10 %	91.10 %	89.47 %	84.78 %	93.75 %	94.29 %	--	100 %	90.24 %	83.33 %	68.57 %	61.67 %	85 %	89.80 %
<i>n</i>	41	30	38	45	38	46	32	35	--	45	41	36	35	34	20	49

Measures

Alcohol use

The Alcohol Use Disorders Identification Test (AUDIT, Babor et al., 2001) screens for alcohol consumption patterns that indicate increased risk of harm. It consists of 10 items that assess frequency, harm to self, and harm to others. Items that measure frequency are rated on scale points with 0 = *Never*, 1 = *Monthly or less*, 2 = *2 to 4 times a month*, 3 = *2 to 3 times a week*, and 4 = *4 or more times a week*. Items that measure harm are rated on scale points with 0 = *Never*, 1 = *Less than monthly*, 2 = *Monthly*, 3 = *Weekly*, and 4 = *Daily or almost daily*. We calculated a binge score from two items: *six or more on one occasion* and *unable to stop* ($\alpha = .72$). We calculated a problem-related use score from four items: *failed to do what was expected from you*, *needed a first drink in the morning*, *had a feeling of guilt or remorse*, *been unable to remember what happened the night before* ($\alpha = .90$). We created a single binary item to indicate whether harm to self or others had occurred within the past year as a result of participants' alcohol use.

Drug use

The Drug Use Disorders Identification Tool (DUDIT; Berman, et al., 2005) was used to assess the extent to which participants reported problem-related drug use. Items that measure frequency are rated on scale points with 0 = *Never*, 1 = *Monthly or less*, 2 = *2 to 4 times per month*, 3 = *2 to 3 times per week*, and 4 = *4 or more times per week*. Items that measure harm-related use are rated on a scale with 0 = *Never*, 1 = *Less than monthly*, 2 = *Monthly*, 3 = *Weekly*, and 4 = *Daily or almost daily*. A single item measured frequency of use. Four items measured binges: *quantity of use*, *heavily influenced*, *intensity of longing*, *unable to stop once started* ($\alpha = .91$), and three items measured problem-related use, *neglected to do something*, *morning after use*, and *guilty conscience* ($\alpha = .85$). We created a single binary item to indicate whether harm to self or others had occurred in the past year as a result of participants' illicit drug use.

Service utilization

We used the Service Utilization subscale of the Global Appraisal of Individual Need (GAIN-SU; Bloomington, IL: Chestnut Health Systems) to assess the frequency of emergency room, inpatient, and outpatient treatment for alcohol or drug use. Participants indicated how many times in the last 90 days they had gone to the emergency room, stayed overnight in a residential or inpatient treatment programme, taken medication, or seen a counsellor for drug or alcohol problems. We calculated two scores from these data: one for acute treatment (ER, hospital or residential care) and one for community-based treatment (outpatient and counsellor).

Results

Alcohol Use

Quantity and frequency

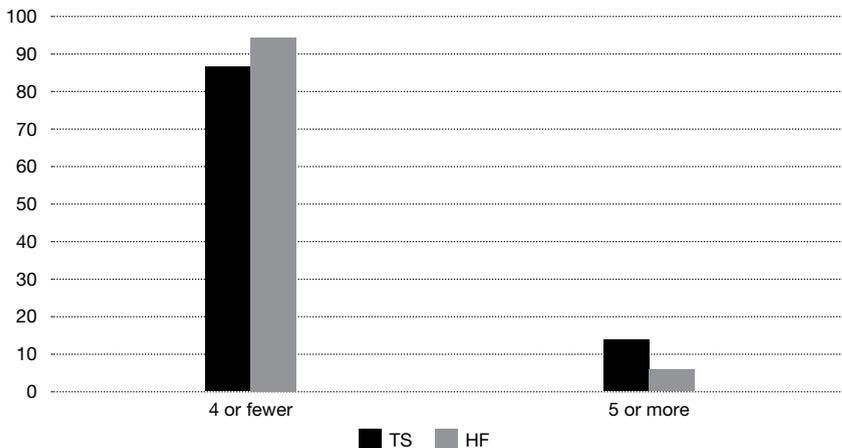
Alcohol outcomes are presented in Table 2. For the use measure, we examined whether there were differences between the HF and TS samples. Overall, one-third of participants ($n = 210, 37.3\%$) reported that they did not drink alcohol in the past year, while nearly 25% reported that they had drunk alcohol four or more times a week ($n = 134, 23.8\%$). There was no difference between the groups on the percent of participants who did not drink alcohol in the past year ($X^2 < 1.0, p < .10$; TS = 124, 38.9%, HF = 86, 35.2%).

Table 2. Alcohol Use

Variable	TS	HF	Test of Significance
Use			$X^2 < 1.0, p < 1.0$
<i>Never</i>	38.9%	35.2%	
<i>Monthly or less</i>	15.4%	18.4%	
<i>2 to 4 times per month</i>	11.0%	11.1%	
<i>2 to 3 times per week</i>	12.2%	9.8%	
<i>4 or more times per week</i>	22.6%	25.4%	
Number of Drinks			
<i>1 or 2</i>	30.3%	40.1%	$X^2 = 6.46, p = .17$
<i>3 or 4</i>	28.2%	28.0%	
<i>5 or 6</i>	12.3%	11.5%	
<i>7, 8, or 9</i>	12.8%	6.4%	
<i>10 or more</i>	16.4%	14.0%	
Binge Drinking			
<i>M</i>	1.23	1.11	$t < 1.0, p < 1.0$
<i>SD</i>	1.31	1.33	
Harm-related use			
<i>M</i>	.92	.81	$t < 1.0, p < 1.0$
<i>SD</i>	1.20	1.23	
Injury-related use			
	13.6%	5.8%	$X^2 = 5.73, p = .017$

The total number of responses does not always add up to the total sample due to small amounts of missing data.

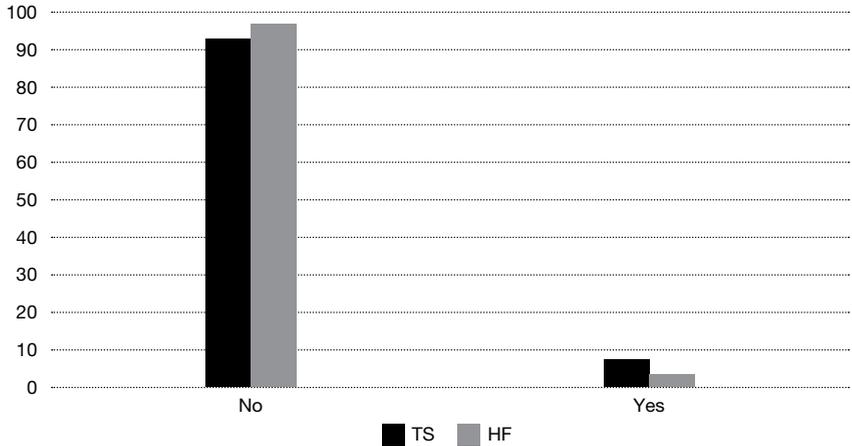
Among those who did report drinking alcohol ($n = 353$), 34.6% ($n = 122$) reported that, on a typical day, they had one or two drinks, whereas a quarter 25.35% ($n = 89$) reported drinking 7 or more drinks per day. The average score on this measure was lower for HF participants ($M = 1.26, SD = 1.41$) than TS participants ($M = 1.57, SD = 1.45$), ($t_{350} = -2.01, p = .045$). On this measure, 1 = “3 or 4 drinks per day” and 2 = “5 or 6 drinks per day”. There was a significant difference between the groups in their response to the question ‘how many drinks containing alcohol do you have on a typical day when you are drinking?’ ($X^2 = 3.50, p = .002$), with fewer HF participants (31.8%, $n = 50$) reporting five or more than TS participants (51.5%, $n = 81$) (See Figure 1).

Figure 1. Percent reporting number of drinks containing alcohol**Binge drinking**

More than 40% of participants ($n = 148$, 41.9%) reported that they had not binged alcohol (six or more drinks on one occasion) at all in the past year. Fewer than one-fifth ($n = 60$, 17.0%) reported doing so less than monthly; the same percent reported doing so daily or almost daily.

Problem-related alcohol use

The average score for problem-related alcohol use was 0.87 ($SD = 1.21$, range = 0 to 4), which meant that participants reported that alcohol related problems occurred less than monthly. There was no difference between HF ($M = .81$, $SD = 1.23$) and TS ($M = .92$, $SD = 1.19$), ($t_{313} < 1.0$, $p < 1.0$). Most participants ($n = 241$, 68.3%) reported that no one had been injured as a result of their alcohol use, but there were significant differences between the groups ($\chi^2 = 5.73$, $p = .017$). More TS participants ($n = 26$, 13.6%) reported that they or someone else had been harmed as a result of their drinking than HF participants ($n = 9$, 5.8%). (See Figure 2.)

Figure 2. Percent reporting injury-related alcohol use

Illicit Drug Use

Quantity and frequency

Nearly two-thirds of the sample ($n = 345$, 61.8%) reported that they had not used illicit substances during the past year. Of those who reported using illicit substances, 17.4% ($n = 97$) reported using them four or more times per week, while 8.5% ($n = 48$) reported using them monthly or less frequently. The percent of HF participants who reported using illicit drugs in the past year ($n = 39.2\%$, $n = 94$) was not significantly different from the percent of TS participants reporting use (37.4%, $n = 119$), $X^2 < 1.0$, $p < 1.0$. (See Table 3).

Table 3. Illicit drug use

Variable	TS	HF	Test of significance
Frequency of use			$\chi^2 = 2.36, p < 1.0$
Never	62.6%	60.8%	
Monthly or less	9.1%	7.9%	
2 to 4 times per month	5.3%	7.5%	
2 to 3 times per week	6.6%	5.0%	
4 or more times per week	16.4%	18.8%	
Polysubstance Use			$\chi^2 = 8.18, p = .085$
Never	43.7%	60.6%	
Monthly or less	19.3%	14.9%	
2 to 4 times per month	10.9%	11.7%	
2 to 3 times per week	5.9%	3.2%	
4 times per week or more	20.2%	9.6%	
Binge Use			$t = -1.80, p = .073$
M	1.85	1.55	
SD	1.27	1.12	
Harm-related use			$t = -2.22, p = .028$
M	1.59	1.20	
SD	1.37	1.17	
Injury-related use			$\chi^2 = 4.60, p = .03$
	12.2%	3.3%	

The total number of responses does not always add up to the total sample due to small amounts of missing data.

Among those who reported using illicit substances in the past year, the average scores for rates of use were equivalent: HF = 2.88, $SD = 1.22$, TS = 2.81, $SD = 1.24$ ($t_{211} < 1.0, p < 1.0$). On this scale, 2 indicates “2 to 4 times a month” and 3 indicates “2 to 3 times per week”. In all following analyses we included only data for the subset of participants who did report using illicit substances in the past year.

Polysubstance use

Slightly less than half the sample who used illicit drugs in the past year reported using more than one type of drug on the same occasion four or more times per week ($n = 104, 48.8\%$); 15.5% ($n = 33$). TS reported higher rates of polysubstance use ($M = 1.39, SD = 1.57$) than HF participants ($M = 0.86, SD = 1.31$), ($t_{211} = -2.70, p = .007$ adjusted for unequal variances), indicating that participants in TS used more than one drug monthly or less frequently.

Binge use

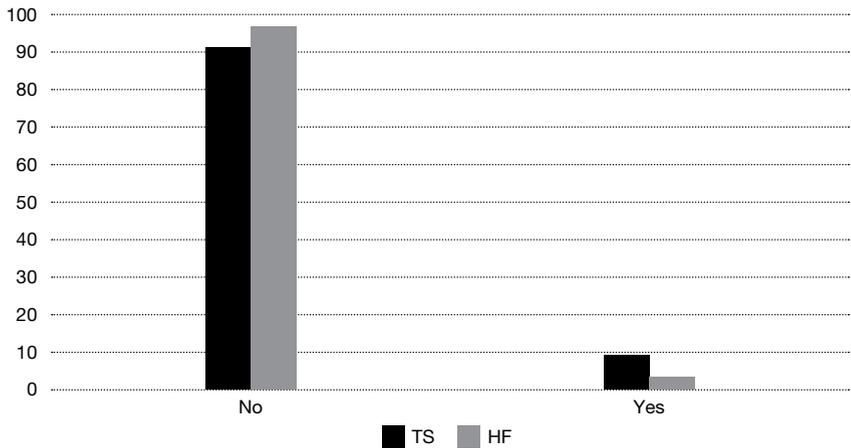
The average binge score was 1.71 ($SD = 1.21$). The difference between the groups approached significance ($t_{206} = -1.80, p = .073$, adjusted for unequal variances), with HF participants scoring lower on the binge measure ($M = 1.55, SD = 1.12$) than TS participants ($M = 1.85, SD = 1.27$).

Problem-related use

The average problem-related use score was 1.42 ($SD = 1.3$), and was lower for HF participants ($M = 1.20, SD = 1.17$) than for TS participants ($M = 1.59, SD = 1.37$), ($t_{202} = -2.22, p = .028$), adjusted for equal variances. Most participants reported

that no one had been injured as a result of their illicit drug use ($n = 318, 93.5\%$). The difference between groups was significant ($\chi^2 = 4.60, p = .03$). Fewer HF participants ($n = 5, 3.3\%$) than TS participants ($n = 17, 12.2\%$) reported that injury to themselves or others had resulted from their drug use (See Figure 3).

Figure 3. Percent reporting injury-related illicit drug use by group



Alcohol and Substance Treatment Services

We asked participants how often they had visited emergency rooms, inpatient/residential care, or outpatient clinics for alcohol or substance use treatment in the past 90 days. Overall, the rates of alcohol and substance use treatment were low, with 5.5% ($n = 31$) of participants reporting any visits to the emergency room, 7.3% ($n = 41$) reporting inpatient/residential treatment, and 15.6% ($n = 88$) reporting outpatient treatment.

The number of participants reporting ER visits was lower for HF than TS, ($\chi^2 = 4.12, p = .04$) and the numbers were small (HF = 8, 3.3%, TS = 23, 7.2%). The number of participants reporting any inpatient or residential treatment was significantly lower for HF participants ($n = 8, 3.3\%$) compared to TS participants ($n = 33, 10.3\%$), ($\chi^2 = 10.24, p < .001$). The percent of HF participants who received outpatient treatment ($n = 32, 38.2\%$) was not significantly different from the percent of TS participants who received outpatient treatment ($n = 56, 49.8\%$), ($\chi^2 = 2.08, p = .15$). (See Figures 4 and 5.)

Figure 4. Percent Reporting Emergency Room visit for Alcohol or Drug Treatment

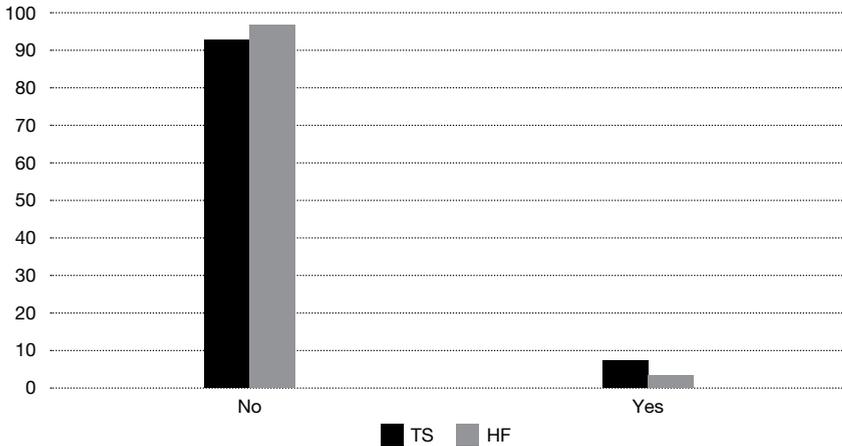
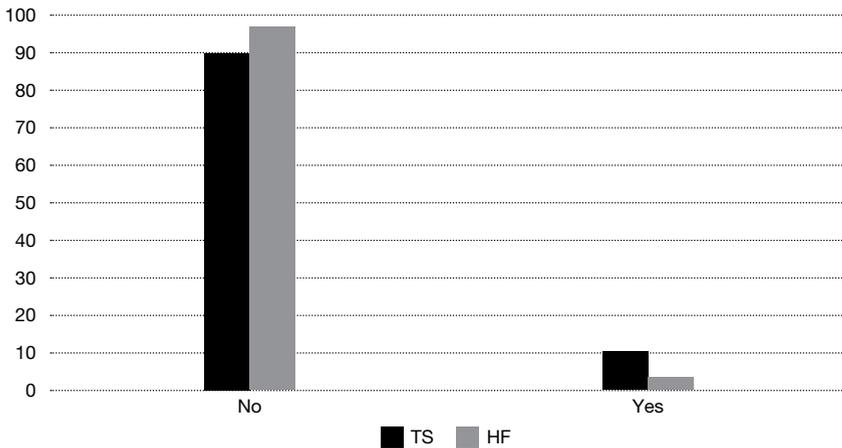


Figure 5. Percent Reporting Inpatient or Residential Treatment for Alcohol or Drug Use



Discussion

As expected, rates of alcohol and illicit drug use were similar for HF and TS groups, but participants engaged with TS were more likely to report binge-level quantities. TS were also more likely to report that they or someone else had been harmed by their alcohol or illicit drug use in the past year, reported higher rates of polysubstance use, and more problematic illicit drug use than did participants engaged with HF. Further, as expected, participants engaged in HF reported lower use of ER

and residential/inpatient services to address alcohol and drug-related problems than did participants engaged with TS. Although these results are cross-sectional and correlational, they are consistent across eight European countries, and so make important contributions to our understanding of the HR correlates of HF implementations in Europe. Indeed, this is the largest investigation to systematically compare HF to TS in Europe thus far, and the results are consistent with the findings reported from North American studies of HF outcomes. In what follows, we situate these findings within the broader literature, reflect on aspects of our study design that inform the inferences we draw from our findings, and offer suggestions for future research, practical application, and policy.

Although the findings from this study have not resolved persistent questions regarding the effectiveness of HF for decreasing alcohol and illicit drug use, they do confirm that European implementations of HF consistently reflect patterns reported from North America. These findings are widely interpreted to indicate that HF does what it is intended to do: it supports individuals with long histories of homelessness to manage AOD use and reduce the problems and harm associated with misuse and dependence, so they may maintain homes of their own (Tsemberis et al., 2004; Collins et al., 2012b; Pauly et al., 2013; Watson et al., 2017). We interpret our findings to indicate that HF is associated with lower rates of problematic AOD and harm-related AOD because it is underpinned by HR philosophy, principles, and practice.

Although we did not look specifically at residential outcomes in the present analyses, in previous publications, we reported that participants engaged with HF programmes reported more residential stability in independent accommodation than did participants engaged with TS (Greenwood et al., 2020a). Taken together, these findings indicate that in a range of European contexts, HF programmes effectively reduce harm associated with problematic alcohol and substance use and also keep people housed.

Thus, our findings also contribute to the body of literature that rejects the 'enabling hypothesis' (Collins et al., 2012b) and affirms that approaches that combine independent, scattered-site accommodation with HR supports are effective strategies for supporting individuals' recovery. Collins's work, along with others (e.g., Padgett et al., 2008; Tsemberis and Eisenberg, 2000) has shown that abstinence approaches are neither desired by, nor effective at, retaining homeless services users. Research on recovery from alcohol and problematic substance use disorders indicates that recovery is non-linear, that relapse is a common feature of the process of recovery, and many individuals successfully recover from relapse with the right supports (Harris et al., 2011; Milby et al., 2005; Kertesz et al., 2017). TS that exclude people for using substances run counter to modern

understandings of the recovery process, and findings from our study affirm that HF is the better alternative to TS for reducing injury and harm associated with substance/alcohol use and homelessness.

Some research has shown that abstinence-based services can be helpful for certain people experiencing homelessness, particularly older individuals with long histories of homelessness and previous participation in substance use treatment (Milby et al., 2005; Schumacher et al., 2007). Adults experiencing homelessness are entitled to choose the kind of service they prefer, be it abstinence-based or not. However, choices are severely constrained where people are in survival mode, so many end up in homeless services unfit for their needs (Nicholls, 2010; O'Shaughnessy and Greenwood, 2021). Findings from this study indicate that people in TS are more likely to experience problem-related drug and alcohol use compared to those in HF. Thus, when assessing the merits of abstinence-based services, their relatively small success rate must be weighed against the harm caused to service users who are dealing with substance/alcohol use issues.

Not only was HF associated with less harm-related use, it was associated with lower rates of expensive services like ER visits, residential drug treatment, and in-patient hospital treatment. These findings are also consistent with what we know from North America, where TS is associated with higher costs and higher service utilisation rates than HF (Ly and Latimer, 2015; Gulcur et al., 2003; Srebniak et al., 2013). Again, to our knowledge, this is the largest European systematic assessment of service utilisation to address alcohol or drug-related problems to-date, and so these findings are important because they demonstrate that HF programmes can reduce or eliminate use of unnecessary and inappropriate services to address problem-related alcohol and substance use in European contexts and also widen access to more appropriate community-based support services.

Although our findings were internally consistent across the represented countries, and externally consistent with findings obtained in other national, social, economic, and political contexts, there are some aspects of our study design that must be considered when assessing their implications. First, our data are cross-sectional and correlational, and so causal inferences should be conditional. By necessity, ours was a convenience sample of interested participants who opted to engage with us and complete our questionnaire. It could be that participants who engaged with us were higher functioning or experienced fewer alcohol- or substance- related problems. We cannot draw inferences about changes in problematic AOD use over time as a function of engaging with HF services and acquiring or maintaining stable housing. In future, researchers may be able to conduct prospective studies in which baseline data are collected upon enrolment in European HF programmes for the examination of changes in problematic AOD use over time.

One important point to attend to when considering changes in rates of use or problematic use over time is that it may take many years to yield discernible changes on the types of measurement tools that are available to us. We believe future research should build on our findings with designs that prospectively integrate HF fidelity assessments with service users' outcomes. For example, as was mentioned in the introduction, Davidson et al. (2014) found that in programmes with higher fidelity to the consumer participation components of the HF model, service users were more likely to stay in stable housing and less likely to report illicit drug use at follow-up. From a HR approach, it is more important at this point to stop focusing on rates of use and drill down on programme components that effectively support service users toward HR and health promotion.

Taken together, these findings do indicate that HF is consistently associated with lower rates of harm and injury from alcohol and illicit drug use in eight European countries. These findings add to the quickly accumulating European evidence base for the effectiveness of HF to end long term homelessness and promote recovery in a range of national contexts that vary in terms of their historical policies and approaches to ending homelessness, economic histories, and political contexts. Together, these findings indicate that current European strategies to reconfigure homeless services toward housing-led approaches, especially the evidence-based HF approach, should be encouraged, promoted, supported, and expanded at all levels of European, national, and local policies.

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Horizon 2020 HOME_EU: Reversing Homelessness in Europe, GA/726997, José Ornelas (Principal Investigator)

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