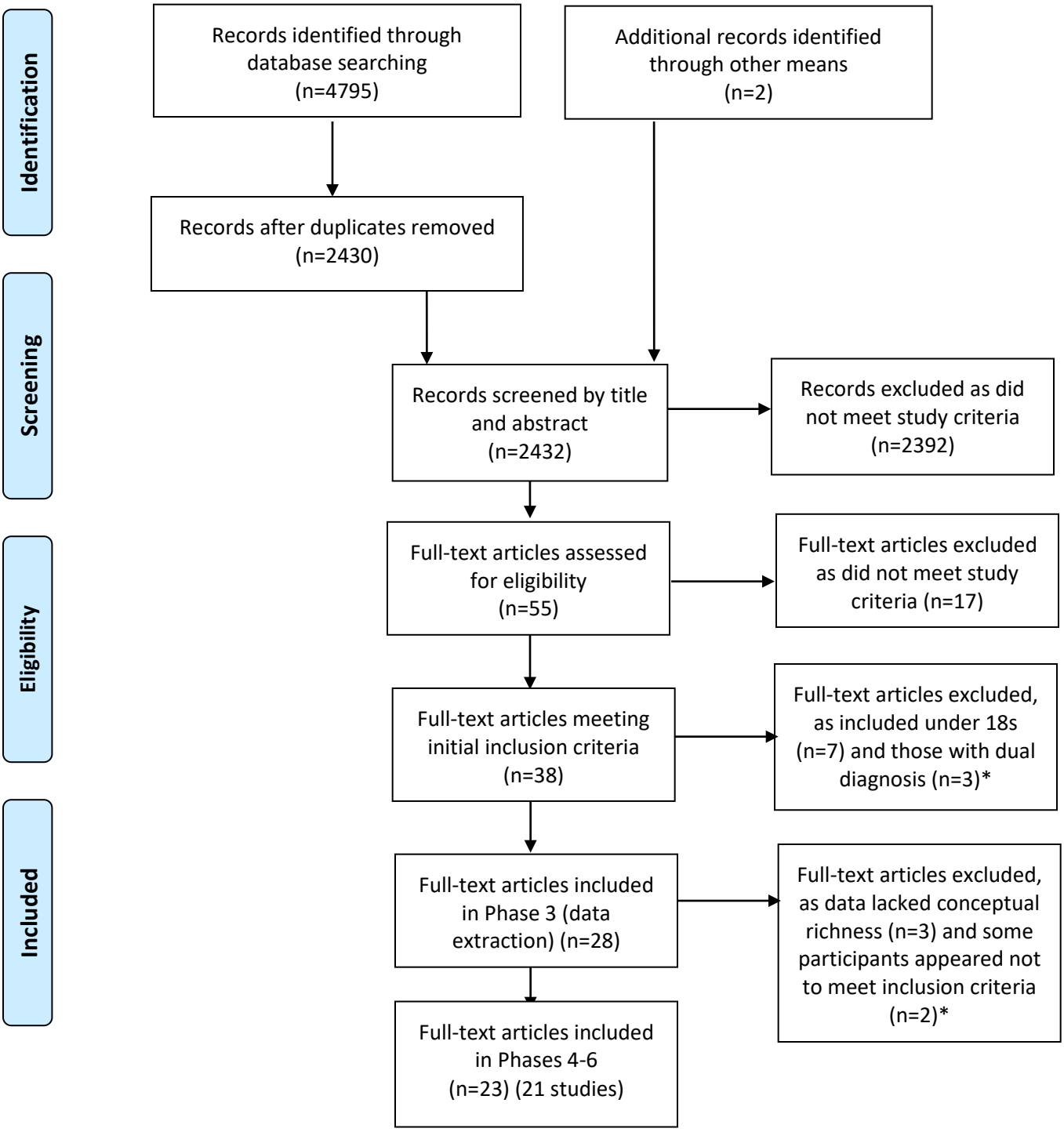
**Box 1. Study inclusion and exclusion criteria**

| Inclusion criteria | Exclusion criteria |
|---|---|
| Adults (aged 18+) who were homeless (or at risk of homelessness) and had accessed treatment for problematic drug and/or alcohol use (currently or in the 10 years prior to the study being conducted). | Participants other than adults (aged 18+) who were homeless (or at risk of homelessness) who had accessed treatment for problematic drug and/or alcohol use more than 10 years ago. |
| Published studies reporting primary qualitative research studies (any type) with sufficient rich data for synthesis. | Studies not reporting primary qualitative research studies (e.g., surveys, qualitative evidence syntheses). Studies using qualitative methods but which did not report sufficiently rich data for synthesis, e.g., mixed methods research where qualitative data were not presented separately. |
| Studies published from 2000 in English language. | Qualitative research reported out with these years and not in English language. |
| Studies that reported participants' views/experiences of receiving treatment for problematic substance (drugs and alcohol of any type) use only. | Studies that did not report participants' views/experiences of receiving treatment for problematic substance use. Studies that focused on substances other than drugs and alcohol (e.g., tobacco) or other types of addictions. Studies that included participants with dual diagnoses (e.g., problematic substance use and mental health problems). Studies that only reported the views of others (e.g., service providers). |

**Figure 1. PRISMA diagram**




* see Supplementary Table 2 for details.

*From:* Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

**Figure 2. Components of effective substance use treatment from the service user perspective**


Line of argument synthesis A range of components are required for treatment to be perceived as effective: facilitative service environments; access to harm reduction and abstinence based treatments; compassionate and non-judgemental support; interventions that are long enough in duration; choices in terms of treatment; and opportunities to (re)learn how to live. These components should be provided within a context of good relationships, person-centred care and an understanding of the complexity of people's lives.

**Table 1. Search terms identified using the SPIDER tool (55)**

| | |
|---|---|
| **S**ample (service users) | homeless* OR underhouse* OR roofless* OR street involved OR rough sleeping OR unstabl* hous* OR housing instability OR precarious* hous* |
| **P**henomenon of **I**nterest (perceptions of effective treatment for problem alcohol and/or drug use) | Substance *use OR drug *use OR alcohol *use OR problem* substance use OR problem* alcohol use OR problem* drug use OR addiction OR substance dependenc* OR alcohol dependenc* OR drug taking OR drug dependenc*<br><br>treat* OR intervention OR recovery OR therap* service* |
| **D**esign/**E**valuation/ **R**esearch type (qualitative) | Qualitative OR focus group OR interview* OR ethnograph* OR observation* |

**Table 2. Organisations included in search for grey literature**

| Scotland | UK | International |
|---|---|---|
| Alcohol Focus Scotland<br>https://www.alcohol-focus-scotland.org.uk/ | The Salvation Army<br>https://www.salvationarmy.org.uk/ | National Drug and Alcohol Research Centre, Australia<br>https://ndarc.med.unsw.edu.au/ |
| NHS Health Scotland<br>http://www.healthscotland.scot/ | Alcohol Change UK<br>https://alcoholchange.org.uk/ | National Institute on Drug Abuse, USA<br>https://www.drugabuse.gov/ |
| Alcohol and Drug Partnerships<br>https://www2.gov.scot/Topics/Health/Services/Alcohol/treatment/ADPcontactlist | Society for the Study of Addiction<br>https://www.addiction-ssa.org/ | National Institute on Alcohol Abuse and Alcoholism, USA<br>https://www.niaaa.nih.gov/ |
| Institute for Research and Innovation in Social Services<br>https://www.iriss.org.uk/ | Public Health England<br>https://www.gov.uk/government/organisations/public-health-england | Canadian Institute for Substance Use Research, Canada<br>https://www.uvic.ca/research/centres/cisur/ |
| Scottish Drugs Forum<br>http://www.sdf.org.uk/ | Pathway/Faculty of Homeless and Inclusion Health<br>https://www.pathway.org.uk/ | Centre for Social Research in Health, Australia<br>https://www.arts.unsw.edu.au/csrh |
| Scottish Government<br>https://www.gov.scot/ | Addaction<br>https://www.addaction.org.uk/ | Homeless Hub, Canada<br>https://www.homelesshub.ca/ |
| Scottish Health Action on Alcohol Problems<br>https://www.shaap.org.uk/ | Crisis<br>https://www.crisis.org.uk/ | European Observatory on Homelessness<br>https://www.feantsaresearch.org/ |
| NHS Healthcare Improvement Scotland<br>http://www.healthcareimprovementscotland.org/ | Shelter<br>https://www.shelter.org.uk/ | |
| University of Stirling Online Addictions Library<br>https://www.onlinelibraryaddictions.stir.ac.uk/ | Royal College of Psychiatrists<br>https://www.rcpsych.ac.uk/ | |
| | Royal College of Physicians<br>https://www.rcplondon.ac.uk/ | |
| | British Psychological Society<br>https://www.bps.org.uk/ | |
| | Groundswell<br>https://groundswell.org.uk/ | |
| | St Mungo's<br>https://www.mungos.org/ | |
| | Homeless Link<br>https://www.homeless.org.uk/ | |

**Table 3. Characteristics of included studies (chronological order)**

| Authors | Country | Substance | Setting | Participant information | Methods | Key findings |
|---|---|---|---|---|---|---|
| Neale & Kennedy (2002) | UK | Drugs | Hostels/drug agencies | N=36; average age 25 years; 50% female; none in employment; many spent time in institutions; most marginally housed. | Individual semi-structured interviews to explore experiences of and barriers to accessing services.<br>Analysis: Framework method. | Range of factors viewed as good practice in terms of services, with emphasis on staff attitudes and services offered. |
| Lee & Petersen (2009) | USA | Alcohol and drugs | Drop in centre | N=15; average age 43 years; 60% male; 60% Black; all homeless. | Individual semi-structured interviews to explore experiences of treatment and marginalisation.<br>Analysis: Grounded theory | Positive outcomes in terms of demarginalisation; engagement; quality of life; social functioning; change in substance use; and articulation of future goals/plans. |
| Rayburn & Wright (2009) | USA | Alcohol | Men's shelter | N=10; aged 40s-50s; all men experiencing homelessness/problem alcohol use; 80% Black; 50% completed high school | Life history interviews to explore men's moves from active addiction to recovery and process of becoming AA member.<br>Analysis: Variant of grounded theory | Participants experienced four types of barriers to sobriety/being part of AA when experiencing homelessness. These barriers were identification with AA; sponsorship; step work; and time constraints. |
| Rayburn & Wright (2010) | USA | Alcohol | Men's shelter | N=?; all men experiencing homelessness/problem alcohol use | Individual unstructured interviews exploring recovery and experience with AA.<br>Analysis: No detail | Study uncovered some ways homeless men achieve and maintain sobriety; adapting concepts of 12 step programmes to homeless men, shows need for flexible approach. |
| Burkey et al. (2011) | USA | Alcohol and drugs | Residential therapeutic community for men | N=10; all men; average age 43 years; all Black; all homeless. | Individual semi-structured interviews to explore social ties in recovery from substance use.<br>Analysis: Miles & Huberman approach | Identified three types of social ties: family, recovery network and outside relationships: importance of relationships with peers, 12 step sponsors and counsellors, recovery network key; also relationships with healthcare professionals |
| Kidd et al. (2011) | Canada | Alcohol | Managed Alcohol Program | N=1; male; aged 48 years, experiencing homelessness and had many failed attempts at abstinence. | Individual semi-structured interviews at 3 time points with one man to develop case study of experiences.<br>Analysis: Grounded theory/ narrative coding | Positive experience of MAP, strengths of staff (caring), benefits of alcohol administration, peaceful environment. Feeling at home, knowing residents. |
| Sznajder-Murray & Slesnick (2011) | USA | Alcohol and drugs | Emergency shelter for families | N=28; all women; average age 29 years; 61% Black; all had children (8 had children removed from custody, 3 | Focus groups (x3) to explore needs and experiences of services.<br>Analysis: open and axial coding. | The women talked about how they had been treated differently to how they would like to be treated; highlighted particular issues for women/mothers who are |

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| | | | | currently pregnant); all residing in homeless shelter. | | homeless and using substances, particularly in terms of fear. |
| Collins et al. (2012a) | USA | Alcohol | Project based Housing First | N=17; average age 48 years; 40% white, 27% American Indian; many had experiences of treatment; all living in Housing First program. | Individual interviews and observations to explore views of programme.<br>Analysis: Constant comparative method. | Harm reduction approach of the programme as a key factor in their attainment and maintenance of housing. Most did not see abstinence-based treatment as viable option. Harm reduction approach resulted in their successful reduction in drinking or abstinence in a way that abstinence-based treatments had not. |
| Collins et al. (2012b) | USA | Alcohol | Project based Housing First | N=17; average age 48 years; 40% white, 27% American Indian; many had experiences of treatment; all living in Housing First program. | Individual interviews and observations to explore views of programme.<br>Analysis: Constant comparative method. | Study highlighted strengths and weaknesses of programme, including transitions into the programme, managing day-to-day life and community building. |
| Thickett & Bayley (2013) | UK | Alcohol | Alcohol service provider | N=12; all Polish street drinkers; 58% male; aged 33-62 years; all homeless/ at risk of homelessness. | Individual semi-structured interviews to explore experiences with services.<br>Analysis: Braun & Clarke's thematic analysis. | Participants talked about positive and negative experience of treatment including social networks; social services; health services; homelessness services; specialist alcohol service provider; and barriers to service use. |
| Salem et al. (2013) | USA | Alcohol and drugs | Residential treatment facility | N=14; all women; recently released from prison; average age 42 years; 79% Black; 79% had children; all homeless, living in residential treatment facility. | Focus groups (x2) exploring experiences of challenges experienced in accessing treatment.<br>Analysis: Grounded theory. | Women talked about difficulties in accessing healthcare and other services; lack of support staff onsite; lack of education and criminal record made it difficult to get a job. Strategies to remain sober included feeling empowered, having a job, going to NA/AA meetings, having housing, job skills/education, aftercare program and support. |
| Baird et al. (2014) | USA | Alcohol and drugs | Outpatient programme for women | N=10; all women; all homeless, living in shelter. | Individual structured interviews to explore ways to maintain abstinence<br>Analysis: No detail. | Four main concerns identified by respondents: lack of communication between service providers; inconsistency in personnel during recovery; inconsistency in relapse policies; clients feeling ill prepared to live in the "real world" after completion. |
| Neale & Stevenson (2014a) | UK | Alcohol and drugs | Hostels | N=30; average age 43 years; 83% male; 60% white; poly drug use common; most | Individual semi-structured interviews at 2 time points to explore experiences with | Computer assisted therapy intervention for drug users in hostels viewed as beneficial in helping with substance use as well as wellbeing and improving skills/confidence. |

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| | | | | receiving some treatment; all homeless, living in hostels. | computer assisted therapy intervention.<br>Analysis: Framework method. | Negative issues were around structural barriers such as location of computers, quality and quantity of equipment. |
| Neale & Stevenson (2014b) | UK | Alcohol and drugs | Hostels | N=30; average age 43 years; 83% male; 60% white; poly drug use common; most receiving some treatment; all homeless, living in hostels. | Individual semi-structured interviews at 2 time points to explore experiences with computer assisted therapy intervention<br>Analysis: Framework method. | Viewed programme positively, but mentor support was crucial. Need for good relationships with staff to help engage in programme. Also encouraged to have more open/honest conversations. Need for flexible approach. Use within context of therapeutic relationship crucial. |
| Evans et al. (2015) | Canada | Alcohol | Managed Alcohol Program | N=10; all men; average age 51 years; all had many failed attempts at abstinence; all homeless, living in Managed Alcohol Program; within 1.5 years of study ending, 3 had died. | Individual interviews and follow up focus group (x1) to explore experiences of program.<br>Analysis: No detail | Participants talked about importance of social belonging within programme, mutual support and relationships with support workers as important. Programme allowed increased awareness of alcohol and health and opportunity for self-management. |
| Clifasefi et al. (2016) | USA | Alcohol | Housing First program | N=44; 82% male; average age 53 years; 43% white; all had severe alcohol problems; all living in single site Housing First program. | Individual semi-structured interviews and observations to explore experiences of program<br>Analysis: Constant comparative method | Participants reported issues with consistency in activities and services; expressed a desire for groups where they could learn about harm reduction; did not want focus to be on abstinence.<br>Participants discussed an aversion to abstinence-based treatments with multiple failed attempts. Many indicated that abstinence was only achieved after entering service with harm reduction focus. |
| Collins et al. (2016) | USA | Alcohol | Housing agencies | N=50; 84% male; average age 53 years; 46% white; all currently/formerly homeless. | Individual semi-structured interviews to explore experiences of treatment and services.<br>Analysis: Content analysis. | Participants talked about experience of formalised, abstinence based approaches in terms of positives and negatives. Also experience of alternative, self-defined pathways that included basic needs; harm reduction counselling; meaningful activities; social networks; natural recovery. |
| McNeil et al. (2016) | Canada | Drugs | Hospitals | N=30; 53% male; average age 45 years; 57% Indigenous; most had multiple hospitalisations due to drug use; all 'structurally vulnerable'/at risk of homelessness. | Individual semi-structured interviews to explore perspectives of hospital based harm reduction.<br>Analysis: Inductive and deductive approach. | Harm reduction approach in hospital settings would allow patients to complete their treatment for health problems and not have to be discharged early because of continued drug use; also mean safer use/risk reduction; harm reduction viewed |

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| | | | | | | as reducing stigma, being non-judgemental and having staff who understand/care. |
| Pauly et al. (2016) | Canada | Alcohol | Managed Alcohol Program | N=7; 57% male; average age 42 years; all Indigenous; had all been in MAP for at least 1 year; experience of chronic homelessness, alcohol use and police contact. | Individual semi-structured interviews to explore experiences of programme.<br>Analysis: Constant comparative approach. | MAP viewed as a place of safety, characterised by caring, respect, trust and non-judgemental attitude, with sense of home and opportunities to reconnect with family. |
| Perreault et al. (2016) | Canada | Drugs | Peer-run day centre and housing units | N=13; 60% male; aged 30-60 years; half had Hepatitis C/mental health problem; all homeless, living in housing units. | Individual semi-structured interviews and focus group (x1) to explore experiences of programme.<br>Analysis: Thematic analysis | Participants identified several issues in terms of satisfaction and dissatisfaction; length of time (3 years) too short and need for support in returning to education/work. Differences in opinion re. use of peers vs. professional staff. |
| Chatterjee et al. (2018) | USA | Drugs | Family shelters | N=14; 79% female; average age 35 years; all part of families experiencing homelessness; 64% white; all had diagnosis of opioid use disorder; 86% in treatment. | Individual interviews to explore experience of opioid use disorder and treatment when experiencing homelessness as a family.<br>Analysis: Immersion-crystallisation method | Study highlighted experiences of treatment, barriers and ideal treatment for those experiencing opioid use and homelessness as part of a family. |
| Crabtree et al. (2018) | Canada | Alcohol | Communities | N=85; no formal details collected but majority men; mostly white or Indigenous; aged 20-50 years; all homeless/at risk of homelessness. | Weekly town hall meetings (x14), steering committee meetings (x7) and follow up focus groups (x4) to explore harm and harm reduction strategies among people who drink non-beverage alcohol.<br>Analysis: Interpretative description. | Participants identified harms and harm reduction strategies they employ, including sharing alcohol, pooling money to buy alcohol, diluting alcohol, drinking alone or with others and looking after one another. Proposed four harm reduction strategies - safe spaces, MAPs, peer based programs and educational programs. |
| Pauly et al. (2018) | Canada | Alcohol and drugs | Transitional housing programmes | N=16; aged 32-52 years; 56% male; 81% white. | Semi-structured individual interviews conducted to explore implementation of harm reduction in a transitional programme setting.<br>Analysis: Thematic analysis. | Study highlights challenges of settings with harm reduction and zero tolerance approaches to substance use. Harm reduction supplies were available but all substance use was prohibited on site. Despite zero tolerance approach, staff would turn blind eye to use onsite. |

**Table 4. Substance use interventions - participant experiences and perceptions of effectiveness**

| **Features reported by participants as being effective or not** | **Examples of first order participant data** |
|---|---|
| ***Abstinence-based programmes**:* interventions that required participants to be abstinent from alcohol/drugs, including residential programmes. Twelve Step programmes such as Alcoholics Anonymous or Narcotics Anonymous have a spiritual orientation and advocate complete abstinence although participants take part in various activities including attending meetings and getting a 'sponsor'. These were discussed in five papers (24,61,65,71,79). | |
| (+) Adapting principles to meet needs<br><br>(+) Desire to help others<br><br>(+) Peer support<br><br>(-) Power imbalances<br><br>(-) Increased urges/ cravings<br><br>(-) Sense of failure<br><br>(-) Challenges associated with finding a 'sponsor' at AA | *"I wanna be able to help somebody. I wanna be able to start something. If I wanna go to the grocery store, and out of my pocket, buy lunchmeat, cheese, and a couple of cases of soda, go out on a Saturday, where people at, and just hand out food—I wanna be able to do that"* (Participant in Rayburn and Wright (61))<br><br>"*I've gone to AA, and it does help because you're around like-minded people"* (Participant in Collins et al. (65))<br><br>*"I went to [Narcotics Anonymous] and this guy was talking about how his pockets were turned inside out looking for crack…I had a using dream of crack after listening to his thing. So…I just really didn't want to go back"* (Participant in Clifasefi et al. (71))<br><br>"*Oh, this 'AA all the way,' and 'the only way to stay sober is AA' … There are other ways to stay sober … And, you know, you just feel like when you go to AA, you feel like you're a failure"* (Participant in Collins et al. (24))<br><br>*"Getting a sponsor. I got one, but I struggle with it. I had a real deep struggle with it, because at first I said, "I'm not getting no sponsor man." For me to get a sponsor, is just like saying, I don't trust in my higher power. And then a sponsor is just a human being, just like me. You know, I'm not gonna have nobody telling me … you not ready for no relationship …I just wasn't ready for that"* (Participant in Rayburn and Wright (79)). |

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| ***Housing-based harm reduction**:* Managed Alcohol Programmes provide regular doses of alcohol with supported housing and wider care provision (63,70,73) and help users manage/reduce unpleasant and potentially fatal alcohol withdrawals. In Housing First settings participants are provided with accommodation where alcohol use is tolerated (65,71,77). Housing First refers to programmes which provide "low-barrier, non-abstinence-based, immediate, supportive and permanent housing to chronically homeless people who often have co-occurring substance use and/or psychiatric disorders" (65, p.111). Transitional housing programmes provide support in helping people move out of homelessness and those with a harm reduction approach may be more beneficial than those expecting abstinence at entry (78). | |
| (+) Having a home<br><br>(+) Managing withdrawal symptoms<br><br>(+) Safety<br><br>(+) Peer support<br><br>(+) Non-judgemental staff<br><br>(-) Availability of alcohol when wishing to be sober<br><br>(-) Challenges associated with settling into a new, unknown environment (e.g. MAP/housing programme), such as getting to know peers and staff | *"You know sometimes you don't drink that much but it's enough to get you well— to stop the shakes"* (Participant in Collins et al. (65))<br><br>*"It has helped me a lot you know; where I used to drink heavy and now I slowed down a lot. Right?"* (Curtis, in Evans et al. (70))<br><br>*'I'm starting to feel very comfortable now. Putting my pictures up . . . makes me feel at home…I can relax a little better because I know the people''* (Mark in Kidd et al. (63))<br><br>''*Like I went out last week and I ended up using . . . I came back and I talked about it and I haven't used all week, which is great. But they're there for me whether I do, whether I do or I don't*'' (Participant in Pauly et al. (78))<br><br>*"Yeah, we think of each other as a family. When there's a new person that comes in we welcome them with arms open. And we see they need to be [guided] for the first couple of weeks and we take them and we teach 'em. And we, ah, show them around and if they need something I'll show them where to get it, where to ask for it"* (Participant in Pauly et al. (73))<br><br>*"… it's hard to stop [drinking]. I mean it's hard to stop here, you know what I mean? Because … [if] I don't have [alcohol], somebody else does. People invite you to come along and all that other kind of things … and it's hard"* (Participant in Collins et al. (65)) |

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|---|---|
| | "*I don't know anybody who don't have fear, you know? What happens if I lose this place, you know? Am I gonna go back home to [name]? I don't wanna go to treatment. I did nothing bad*" (Participant in Collins et al. (77)) |
| ***Harm reduction interventions delivered online:*** Breaking Free Online is a tailored intervention for men and women experiencing homelessness and problematic substance use. It provided users with a 12-week computer-assisted psychological treatment alongside 'real world' staff mentor support (68,69). It offered various strategies aimed at helping people identify, understand and actively address the psychosocial and lifestyle factors underpinning their substance use, without requiring abstinence. | |
| (+) Flexibility, easily accessible, non-judgemental, user friendly<br><br>(+) Prompts to have conversations with staff<br><br>(+) Development of new skills (including computing) and routine<br><br>(+) Increased awareness of substance use<br><br>(+) Development of coping strategies<br><br>(-) Lack of privacy, poor equipment, lack of availability of staff | "*The convenience of it for starters. I mean, it can be done in the hostel, it can be done in my bedroom…it can be done anywhere, if you have got a laptop. You can do it in the middle of the park somewhere on a nice summers day, rather than going all the way to [drug agency], catching the bus and travelling all the way up there"* (Trent, in Neale and Stevenson (69))<br><br>"*I am doing my daily routine quite well, making sure I get up in the morning and don't just stay up watching shit TV until like four o'clock in the morning. So I think I'm better now, better equipped to get up and do something during the day, like a normal human being"* (Sarah, in Neale and Stevenson (68))<br><br>"*It [BFO] gives me the ability to talk about my emotions, about me, to [name of mentor]…I am just becoming more open, and, as I said, which it helps me to open up to him"* (Leona, in Neale and Stevenson (68))<br><br>"*There is always somebody on them [computers]…I haven't really had the head space to get on and concentrate, you know. I would like to, but there is always somebody shouting or screaming or bawling, you know, and I want to get on it, you know, but I just can't get the space to"* (Thomas, in Neale and Stevenson (68)) |
| Key<br>(+) = Components of these interventions that participants found to be effective (i.e. beneficial or liked).<br>(-) = Components of these interventions that participants found to be ineffective (i.e. disadvantageous or disliked). | |