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RESEARCH ARTICLE

Development of a trial application to assess the effectiveness and cost-effectiveness of adult dRug scrEening and brief interventionS in key hEalth, social care and justice setTings: The RESET PROJECT

[version 1; peer review: awaiting peer review]

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Any reports and responses or comments on the article can be found at the end of the article.

Abstract

Background

In England and Wales, alcohol-related crime is estimated to cost society £27.4 billion and drugs £20 billion annually. Effective interventions therefore have the potential to reduce the costs relating to substance use and increase individual social welfare.

Brief drug use interventions are a secondary prevention activity, which are aimed at those individuals who are using substances in a pattern that is likely to be harmful to health and/or well-being. At present there is limited evidence regarding the effects and most of the work has been carried out outside the UK. We examined the evidence to develop a trial to test effectiveness of brief drug interventions.

Methods

We carried out two systematic reviews of the literature and examined effectiveness, barriers and facilitators, screening tools and active ingredients of interventions. We also carried out qualitative work to examine this issue.

Results

The quantitative review included 46 papers (mostly from the USA) and the qualitative review included 14. We ascertained that the ASSIST screening tool was the best tool to use for screening . We carried out interviews with practitioners, policy makers and individuals who have had experience of mental health, criminal justice and family services which were identified as the services we should work with for a definitive trial. Key issues community members perceived included the need to address trauma, the efficacy of interventions, how stigma and societal views affect individuals, the importance of support from various institutions, and how community involvement and personal responsibility play a role in the recovery process.Stakeholders emphasised the need for interventions to be brief yet personalised, underlining the importance of trust and effective evaluation.

Conclusions

We used the findings from the reviews and qualitative work to develop a robust pilot trial application.

Plain Language Summary

In England and Wales, alcohol-related crime costs society £27.4 billion a year. Drugs cost £20 billion. If we can find interventions that work this will help individuals and could save a lot of money.

We examined evidence around brief drug interventions. We did not include those that are dependent on drugs. At present there is limited evidence regarding the effects. Most of the work has been carried out outside the UK. We looked at what has been done. This was to develop a trial to find out if they do make a difference.

We carried out reviews of literature. One looked at whether brief interventions work for drug use. The other looked at what people thought about them. We then carried out a lot of interviews with people who had been involved in them.

The quantitative review included 46 papers (mostly from the USA). The qualitative review included 14 papers. We found that the ASSIST tool was the best tool to use for screening. We found that mental health, criminal justice and family services were the best sites for the future study.

We carried out interviews with practitioners, policy makers and individuals. Community members want interventions that address

trauma. They wanted to look at how stigma and societal views affect individuals. Finally, they also told us the importance of support from various institutions, and how community involvement and personal responsibility play a role in the recovery process. Stakeholders told us that interventions need to be brief yet personalised. This showed the importance of trust.

We used the findings of our work and have submitted a funding application to NIHR PHR to see if it can make a difference.

Keywords
Brief interventions; substance use; healthcare settings; criminal justice settings, mental health, mixed methods

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Introduction

Between 2010 and 2019 the number of people using drugs increased by 22% globally (United Nations on Drugs and Crime, 2023). In England and Wales around 9% of adults have used an illicit drug with 2% being frequent users (Office for National Statistics, 2023). In the UK general population around 26% of adults are risky drinkers (38% of men, 16% of women) (Drummond *et al.*, 2004) with substance use amongst those involved in the criminal justice system being higher. A recent review found 63% of people in the UK criminal justice system scored positive for risky drinking (Newbury-Birch *et al.*, 2016) and the prevalence of drug use was 81% (Light *et al.*, 2013) with an interlink between both alcohol and drug use. Therefore, it is sensible to include both drugs and alcohol into a single substance use intervention.

In England and Wales, alcohol-related crime is estimated to cost society £27.4 billion (Institute of Alcohol Studies, 2024) and drugs £20 billion annually (Black, 2020). Effective interventions therefore have the potential to significantly reduce the costs relating to substance use as well as increase individual social welfare (Raistrick *et al.*, 2006).

Brief substance use interventions serve as a secondary prevention measure, targeting individuals whose substance use patterns are likely detrimental to their health and well-being. These interventions have demonstrated frequent effectiveness in primary healthcare settings (Kaner *et al.*, 2018; O'Donnell *et al.*, 2014) and have shown some success in hospital environments (Gaume *et al.*, 2021; McQueen *et al.*, 2009). Typically, they are administered by non-specialist practitioners to non-treatment, opportunistic populations (Miller & Rollnick, 1991). Additionally, there is some evidence supporting their efficacy in reducing recidivism within the criminal justice system (Newbury-Birch *et al.*, 2014). Although there is limited evidence regarding the effects of drug-targeted brief interventions on drug use (Halladay *et al.*, 2019; Humeniuk *et al.*, 2018; Tanner-Smith *et al.*, 2022), most of the work has been carried out outside the UK.

It is crucial to implement strategies that utilise a co-production method, involving both practitioners and, where possible, service users, to ensure the findings are effectively implemented (Newbury-Birch *et al.*, 2016; Sherman *et al.*, 2015). While it is often argued that academics and criminal justice practitioners come from vastly different backgrounds, the gap between them may not be as wide as perceived (Wehrens, 2014). A co-production approach, where researchers, practitioners, and community members collaborate, could facilitate genuine translational research (Graham & Tetroe, 2007). This concept is aptly summarised by Shepherd (2014), who emphasised that evidence needs to flow through the ecosystem from generation to end-user, requiring both push and pull mechanisms.

Objectives

1. **To carry out a systematic review of quantitative data relating to brief drug interventions**
2. **To carry out a systematic review of qualitative data relating to brief drug interventions**
3. **To carry out qualitative work with practitioners and community members to understand the barriers and facilitators to carrying out brief drug interventions.**
4. **To develop a research team with appropriate skills and expertise, including community sector**
5. **To develop an application for conducting a trial on the effectiveness and cost-effectiveness of targeted drug screening and brief interventions (SBIs), including extended brief interventions, in reducing drug use and associated harm across health, social care, and justice settings in the UK, and to compare the effectiveness across these different settings.**

Objective one: systematic review of quantitative data relating to brief drug interventions

The aim of this systematic review was to ascertain the effectiveness of brief interventions in reducing drug use. Secondly, we wanted to explore different screening tools and interventions used in studies. Finally we assessed the key ingredients of included studies using the TIDieR framework (Hoffman *et al.*, 2014).

Methods

The protocol for this systematic review was registered with PROSPERO (CRD42023429734). The review is reported in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2022 reporting guidelines (Rethlefsen *et al.*, 2021).

Search strategy

Six electronic databases were searched: MedLine, PsychINFO, EMBASE, CINAHL, SCOPUS, and Cochrane Library, and four grey literature databases were searched; MEDNAR, Google Scholar, Google, and opengrey.au, with the first 100 hits being retrieved (Haddaway *et al.*, 2015).

Searches of all databases were conducted in line with both the PICO (Patient or problem, Intervention or exposure, Comparison or control, and Outcomes) (Rethlefsen *et al.*, 2021) and SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, and Research type) (Cook *et al.*, 2012) frameworks for conducting literature searches for quantitative analysis. Elements of the SPIDER screening tool (Cook *et al.*, 2012) was used to inform the key words and identify relevant papers. Sample included adults, Phenomenon of Interest included brief intervention and substance use screening, Design included Randomised controlled trials (RCTs), and Research type included quantitative. All searches were conducted in September 2023.

Eligibility criteria

Papers were included if they used quantitative research methods, specifically RCTs, to explore the properties of brief

interventions for adults aged over 18 years old for substance use.

Inclusion criteria: Data relating to participants 18 or over could be abstracted; Any language; Data published from 2003 to ensure data was relevant.

Exclusion criteria Data related to participants under the age of 18; Data published prior to 2003.

Study selection and data management

All results from the database search were imported into End-Note for storage, duplication detection, and sifting. The lead reviewer (DNB) screened all the titles and abstracts against the inclusion criteria. A second reviewer in the team independently double-screened 20% of the papers. No discrepancies could not be agreed on.

Papers that were identified as potentially relevant went through the second sifting phase of full paper screening as per guidelines (Rethlefsen *et al.*, 2021). All full texts were retrieved and saved on Microsoft Teams for review. One reviewer (ET) sifted all full papers, and a second reviewer (DNB) independently double-screened 20%.

Data extraction

A Microsoft Excel spreadsheet was developed for the data extraction which captured; the authors, year of publication, country of study, the aim of the research, study design, setting of the research, sample size, description and length of intervention, screening tool used, drug type, participant demographics, primary and secondary outcomes, results, effectiveness, and recommendations.

A TIDieR table was also created to ascertain what the ingredients of the interventions were (Hoffman *et al.*, 2014). ET undertook the data extraction with 20% checked by another team member.

Assessment of quality

The CASP (CASP-UK, 2002) screening tool for appraisal of RCTs was used for the quality assessment of the included papers The purpose of the CASP tool was to assess quality; it was not used to contribute to decisions about whether or not to include studies. A high risk of bias was noted if "no" or "unsure" was recorded for 6 or more of the 11 questions on the tool. A medium risk of bias was assigned if "no" or "unsure" was recorded for 4–5 questions, and a low risk of bias for 1–3 questions, consistent with our previous studies (Newbury-Birch *et al.*, 2018; Newbury-Birch *et al.*, 2022).

Results

The initial searches yielded 17,270 records. In total, 46 met the inclusion criteria and were included in the review (Aharonovich *et al.*, 2017; Assanangkornchai *et al.*, 2015; Bagøien *et al.*, 2013; Baker *et al.*, 2005; Barrowclough *et al.*, 2010; Blow *et al.*, 2017; Boden *et al.*, 2012; Carroll *et al.*, 2009; de Oliveira Christoff & Boerngen-Lacerda 2015; Fischer *et al.*, 2013; Forsberg *et al.*, 2011; Gates *et al.*, 2012; Gelberg *et al.*, 2015; Gelberg *et al.*, 2017; Gmel *et al.*, 2013; Goodness & Palfai, 2020; Graham *et al.*, 2016; Guan *et al.*, 2015; Heather *et al.*, 2004; Hoch *et al.*, 2014; Humeniuk *et al.*, 2018; Jonas *et al.*, 2012; Jungerman *et al.*, 2007; Kavanagh *et al.*, 2004; Kim *et al.*, 2017; Lerch *et al.*, 2017; McKee *et al.*, 2007; Merchant *et al.*, 2018; Mertens *et al.*, 2014; Mitcheson *et al.*, 2006; Nagel *et al.*, 2009; Palfai *et al.*, 2014; Poblete *et al.*, 2017; Prendergast *et al.*, 2017; Roy-Byrne *et al.*, 2014; Satre *et al.*, 2016; Shekhawat *et al.*, 2023; Sobell *et al.*, 2009; Sorsdahl *et al.*, 2021; Stephens *et al.*, 2004; Thompson *et al.*, 2020; van Emmerik-van Oortmerssen *et al.*, 2019; Wernett *et al.*, 2018; Woodruff *et al.*, 2014; Woolard *et al.*, 2013; Zahradnik *et al.*, 2009) (Figure 1). The articles were published between 2004 and 2023.

The characteristics from the 46 included papers are presented in Extended Data (Table 1) Twenty-one papers reported on research from the United States of America (USA), five from Australia, four from the United Kingdom (UK), three from Germany, two each from Brazil, Canada, South Africa and one each from Sweden, Chile, India, Norway, Switzerland, Thailand, and the Netherlands. The included studies consisted of 14,048 (range 25-1030). Most of the studies had a higher percentage of male participants.

Thirty-six papers were in a health-based setting, three in a criminal justice-based setting, three in a general setting, three in universities, and one in another setting (Extended Data (Table 1)). All papers used RCTs to measure effectiveness of the interventions. Several tools were used to screen participants for substance use with the main tools being, the Timeline Follow Back (TLFB) and versions of the ASSIST (Humeniuk *et al.*, 2010)(Extended Data (Table 1)).

Results showed that screening for substance use was carried out by therapists (n=12), researchers (n=9), clinicians (n=5), psychologists (n=5), counsellors (n=4), health staff (n=2), trained interventionists (n=2), psychiatrists (n=1), GP's (n=1), practitioners (n=1), and social workers (n=1). Three papers did not include this information (Extended Data (Table 1)).

Health Settings

Thirty-six studies delivered a brief intervention in a health-based setting (Aharonovich *et al.*, 2017; Assanangkornchai *et al.*, 2015; Bagøien *et al.*, 2013; Barrowclough *et al.*, 2010; Blow *et al.*, 2017; Boden *et al.*, 2012; Carroll *et al.*, 2009; Gelberg *et al.*, 2017; Gelberg *et al.*, 2015; Gmel *et al.*, 2013; Goodness & Palfai, 2020; Graham *et al.*, 2016; Guan *et al.*, 2015; Heather *et al.*, 2004; Hoch *et al.*, 2014; Humeniuk *et al.*, 2018; Jungerman *et al.*, 2007; Kavanagh *et al.*, 2004; Kim *et al.*, 2017; Mertens *et al.*, 2014; Merchant *et al.*, 2018; McKee *et al.*, 2007; Mitcheson *et al.*, 2006; Nagel *et al.*, 2009; Palfai *et al.*, 2014; Poblete *et al.*, 2017; Roy-Byrne *et al.*, 2014; Satre *et al.*, 2016; Shekhawat *et al.*, 2023; Sobell *et al.*, 2009; Sorsdahl *et al.*, 2021; van Emmerik-van Oortmerssen *et al.*, 2019; Wernett *et al.*, 2018; Woodruff *et al.*, 2014; Woolard *et al.*, 2013; Zahradnik *et al.*, 2009).

These were in; primary care (n=9), outpatient units (n=10), emergency departments (n=5), hospitals/GP surgeries (n=4),

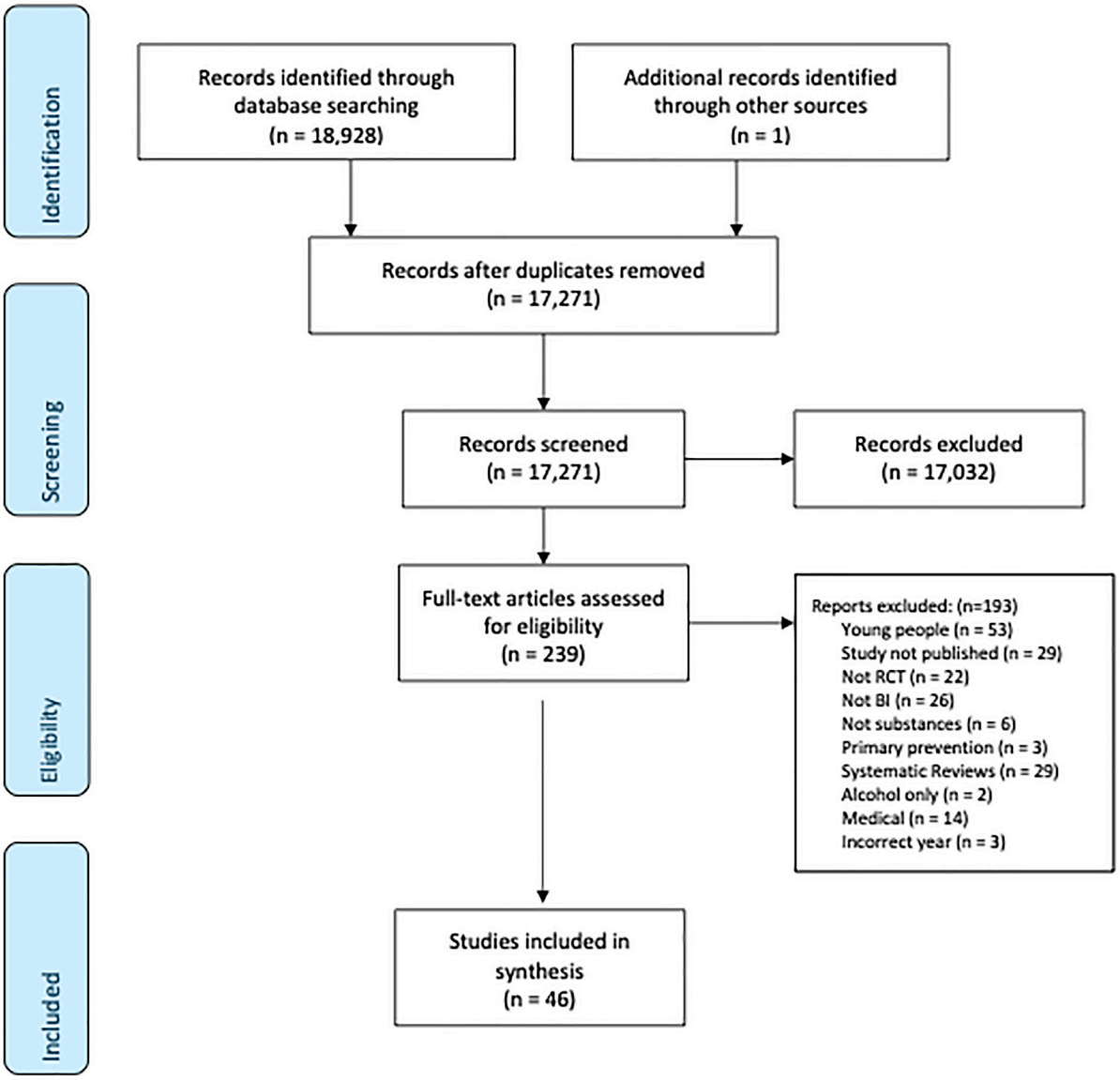

Figure 1. Quantitative Systematic Review PRISMA.

health centres (n=4), inpatient units (n=3), and remotely (n=1). Brief interventions lasted between 3–120 minutes. The control conditions consisted of; TU/standard care (n=13), handouts on health or substance use (n=5), videos and booklets (n=4), delayed treatment (n=4), assessments of substance use (n=2), simple advice (n=2), 3 sessions of CBT (n=1), questionnaire (n=1), feedback (n=1), enhanced care as usual and handout (n=1), individual MI (n=1), and an attention placebo (n=1). In terms of quality assessment, eighteen studies were identified as medium quality, ten as low quality, and eight as high quality. The thirty-six studies looked at different primary outcome measures including days of substance use (for example the number of days used any drug; frequency of drug use; and reduction in drug use); substance use severity and changes in substance use; abstinence and treatment engagement; and specific drug use (for example benzodiazepines and cannabis use). Secondary outcomes included psychological and mental health outcomes; behavioural and treatment engagement; social and legal aspect; re-admission to hospital; and treatment cost effectiveness (Extended Data (Table 2)).

Ten (Gmel *et al.*, 2013; Kim *et al.*, 2017; Merchant *et al.*, 2018; Mertens *et al.*, 2014; Nagel *et al.*, 2009; Palfai *et al.*, 2014; Poblete *et al.*, 2017; Roy-Byrne *et al.*, 2014; van Emmerik-van Oortmerssen *et al.*, 2019; Woodruff *et al.*, 2014) of the studies found no significance in relation to substance-use, however, some of the studies found significance in other areas including; the BI group having lower odds of linking to treatment

(Kim *et al.*, 2017), reductions in alcohol ASSIST scores by 38% (Mertens *et al.*, 2014), BI groups reporting better well-being (Nagel *et al.*, 2009); reduced perceived norms regarding peer marijuana use (Palfai *et al.*, 2014), and reducing ADHD symptoms (van Emmerik-van Oortmerssen *et al.*, 2019). Two studies found significance on the impact on readiness to change drug use including at 12 months (adjusted OR 2.05, 95% CI 1.26 to 3.31; P=0.004) (Barrowclough *et al.*, 2010) and a 63% increase in engaging with treatment (Graham *et al.*, 2016).

Twenty-four studies found significantly greater reductions in substance use. Aharonovich *et al.* (2017) reported a 51% reduction in the frequency and quantity of non-injection drug use within the MI-Only group (Aharonovich *et al.*, 2017). Assanangkornchai *et al.* (2015) demonstrated substantial reductions in both ASSIST-SSIS and ASSIST-TSIS scores (Assanangkornchai *et al.*, 2015). Bagøien *et al.* (2013) revealed a 2-year net difference of 7.3 days of substance use per month, favouring the intervention group (95% CI 1.9 to 12.6, $p < 0.01$) (Bagøien *et al.*, 2013) (Bagøien *et al.*, 2013). Blow *et al.* (2017) highlighted the effectiveness of Therapist BI in reducing the number of days using any drug [95% confidence interval (CI)=0.41, 0.07, P = 0.0422] and weighted drug-days (95% CI = –0.41, 0.08, P = 0.0283). Gelberg *et al.* (2015) and Gelberg *et al.* (2017) showcased significant reductions in the use of the highest scoring drug (HSD) ($p < 0.042$, 95% CI: 0.2, 8.7). Goodness and Palfai (2020) observed a small to medium effect on cannabis use frequency (f 2 = 0.09), while Guan *et al.* (2015) reported substantial decreases in total InDUC scores in the treatment arm (57.6%).

Heather *et al.* (2004) found larger reductions in benzodiazepine consumption in the letter and consultation groups (24% overall), and Hoch *et al.* (2014) reported a significantly higher abstinence rate in Assertive Treatment (AT) patients compared to Day Treatment Center (DTC) patients. Boden *et al.* (2012) revealed that the BI group was associated with significantly better drug use outcomes ($P < 0.05$). Carroll *et al.* (2009) demonstrated reductions in substance use during the 4-week therapy phase, with significant main effects for time ($t (5740) = -3.0$, $p < .01$), phase ($t (5740) = -2.79$, $p < .01$), and their interaction ($t (5740) = 2.64$, $p < .01$). Humeniuk *et al.* (2018) reported a significant reduction in total illicit substance and Amphetamine-Type Stimulants involvement for participants receiving the ASSIST-linked BI, compared with the control group ($P < 0.001$). Jungerman *et al.* (2007) found that both treatments outperformed Day Treatment Center, with particularly notable results for cannabis use ($p = 0.0002$).

Kavanagh *et al.* (2004) highlighted that all 13 participants in the BI group proceeding to MI reported less substance use at 6 months compared to 58% in the Screening and Consultation alone group. McKee *et al.* (2007) demonstrated that participants receiving MET and CBT attended more drug treatment sessions, reported a greater desire for abstinence, and expected greater difficulty in maintaining abstinence compared to the CBT condition. Satre *et al.* (2016) found that at 6 months, Motivational Interviewing (MI) was more effective than control in reducing the rate of cannabis use and hazardous drinking. Mitcheson *et al.* (2006) observed a large and statistically significant reduction in heroin use among those in the MI condition (unstandardised regression coefficient = –2.04, 95% confidence interval –4.44 to 0.37, p = 0.093). Shekhawat *et al.* (2023) reported that the BI group had fewer days of cannabis use than the simple advice group at 4, 8, and 12 weeks. Sobell *et al.* (2009) demonstrated significant and large reductions in alcohol and drug use during treatment and at the 12-month follow-up ($F(2, 43)$ 26.71, p .001). Sorsdahl *et al.* (2021) found a significantly lower frequency of methamphetamine use in the treatment group at both the 6-week and 3-month endpoints ($r = -4.63$, $p<0.01$). Wernett *et al.* (2018) noted consistently high ratings of acceptability for the intervention, and participants reported a significantly larger reduction (54%) in any marijuana or alcohol use compared to the control group at the 4-month follow-up. Woolard *et al.* (2013) reported a significant decrease in binge drinking and conjoint marijuana and alcohol use for the treatment group (M=0.72:95% CI=0.36–1.12) compared to the standard care group (M=1.77:95% CI=1.19–1.57). Lastly, Zahradnik *et al.* (2009) revealed that after 3 months, more participants in the intervention group reduced their Defined Daily Dosage compared to the control group (51.8% versus 30%; $c2 = 6.17$; $P = 0.017$).

Criminal Justice Setting: Brief Interventions

Three studies delivered a brief intervention in a criminal justice-based setting for adults over the age of 18 (Forsberg *et al.*, 2011; Lerch *et al.*, 2017; Prendergast *et al.*, 2017); prison (n=1), probation (n=1), and the police (n=1). Each brief intervention lasted between 15-45 minutes. The control conditions consisted of; usual planning interview (n=1), standard probation intake (n=1), and substance use information (n=1). In terms of quality assessment all three studies were identified as being of medium quality. The three studies looked at different primary outcome measures including prior 30 days of drug or alcohol use; treatment involvement; and reduction in drug or alcohol use. Secondary outcomes included days of illegal activity; heavy alcohol or drug use; and post-release participation in treatment, rearrest, quality of life, and HIV risk behaviours. There were no significant results in relation to substance use, however, there were significant findings relating to the increase in the number of days working by intervention participants (Forsberg *et al.*, 2011) and the increase in reporting treatment initiation (Lerch *et al.*, 2017).

General Settings: Brief Interventions

Four studies (Gates *et al.*, 2012; Jonas *et al.*, 2012; Stephens *et al.*, 2004; Thompson *et al.*, 2020) delivered a brief intervention in a general-based setting for adults over the age of 18 including; a cannabis information helpline (n=1), a website (n=1), a research centre (n=1), and in a shelter (n=1). Each brief intervention lasted between 20-90 minutes. The control conditions consisted of; TAU (n=1), no treatment offered (n=1), and delayed feedback (n=1). The four studies looked at different primary outcome measures including frequency and quantity of cannabis use; number of days of marijuana and alcohol use; and sexual risk behaviours. Secondary outcomes included

other drug-use; and willingness to change. Gates *et al.* (2012) found those who were given a BI reported greater reduction in dependence symptoms (P < 0.001, d = 0.9 [0.5–1.3]) and greater confidence to reduce cannabis use at 4 weeks (P = 0.002, d = 0.5 [0.1–0.9]), reporting more abstinent days at 12 weeks (P = 0.019, d = 0.6 [0.2–1.0]). Stephens *et al.* (2004) found those given the intervention reported fewer days of marijuana use per week, fewer periods of use per day, and fewer dependence symptoms at 7 weeks, 6 months, and 12 months follow-ups (P = 0.019; d = 0.45). Lastly, Thompson *et al.* (2020) found intervention participants significantly reduced past two-week number of drinks (p=.023), times used marijuana (p=.046), times engaged in unprotected sex (p=.012), and times used drugs before sexual activity (p=.019). Jonas *et al.* (2012) did not find any significant results.

University Settings: Brief Interventions

Three studies delivered a brief intervention in a university-based setting for adults over the age of 18 (Baker *et al.*, 2005; de Oliveira Christoff & Boerngen-Lacerda, 2015; Fischer *et al.*, 2013). Each brief intervention lasted between 5–50 minutes. The control conditions consisted of; a self-help booklet (n=1), feedback (n=1), and a BI on general health (n=1). In terms of quality assessment, all three studies were identified as being of high quality. The three studies looked at different primary outcome measures including change in amphetamine use; drug and alcohol use; and the feasibility and impact of a cannabis BI. Secondary outcomes included changes in other drug use. Baker *et al.* (2005) found participants given a BI significantly increased in the likelihood of abstinence from amphetamines among those receiving two or more treatment sessions (1.04 units compared to 0.76 units). de Oliveira Christoff Adriana & Boerngen-Lacerda (2015) found a small positive effect in the ASSIST/MBIi and control groups for marijuana (Q2 and Q4 in ASSIST/MBIi, p b .05; Q4 in control, p b .02). Lastly, Fischer *et al.* (2013) did not find any significant results in relation to substance use, however, they did find the prevalence of driving after cannabis use fell from 44.44% to 30.65% (p= 0.020) in the combined intervention groups (Extended Data (Table 2)).

Quality assessment

Ten of the included studies were classified as low chance of risk, 25 as medium chance of risks and 11 as high chance of risk (Extended Data (Table 1)).

TIDieR results

Most of the interventions were conducted face-to-face. The majority of the studies reported the intervention was based on the work of Miller and Rollnick (Miller & Rollnick, 1991) with many studies giving a lot of information in relation to the studies (Extended Data (Table 3 and Table 4)

Extended data (Table 5)

Objective two: systematic review of qualitative data relating to brief drug interventions

The aim of this systematic review was to identify, explain and interpret the prominent or recurring themes relating to the barriers and facilitators of embedding SBI across three settings (health, social care and criminal justice).

Methods

The protocol for this systematic review was registered with PROSPERO (CRD42023429726). The review is reported in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2022 guidelines (Rethlefsen *et al.*, 2021), ensuring a structured and transparent approach. This includes a comprehensive checklist and flow diagram covering all aspects of the review process. Key elements are detailed, including clear eligibility criteria, thorough search strategies, systematic data extraction, and rigorous risk of bias assessments. The methods section outlines information sources, study selection, and data synthesis procedures. Results are presented with a flow diagram, study characteristics, and bias assessments. The discussion summarises evidence, limitations, and conclusions, and the funding section details sources and their roles. This adherence enhances the reliability, reproducibility, and utility of the review in evidence-based practice and policy.

Search strategy

Six electronic databases were searched: MedLine, PsychINFO, EMBASE, CINAHL, SCOPUS, and Cochrane Library, and four grey literature databases were searched; MEDNAR, Google Scholar, Google, and opengrey.au, with the first 100 hits being retrieved (Haddaway *et al.*, 2015).

Searches of all databases were conducted in line with both the PICO (Patient or problem, Intervention or exposure, Comparison or control, and Outcomes) (Rethlefsen *et al.*, 2021) and SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, and Research type) (Cook *et al.*, 2012) frameworks for conducting literature searches for quantitative analysis. Elements of the SPIDER tool was used to inform the key words and identify relevant papers. Sample included adults, Phenomenon of Interest included brief intervention and substance use screening, Design included qualitative methods such as interviews and focus groups, and Research type included qualitative. All searches were conducted in September 2023.

Eligibility criteria

Papers were included if they used qualitative research methods to explore the barriers and facilitators of screening and brief interventions for adults aged over 18 years old for substance use.

Inclusion criteria: Data relating to participants 18 or over could be abstracted; any language; data published from 2003 to ensure data was relevant; studies that included a qualitative element (including from survey results).

Exclusion criteria: Data related to participants under the age of 18; data published prior to 2003; studies that only included quantitative data.

Study selection and data management

All results from the database search were imported into EndNote for storage, duplication detection, and sifting. The lead reviewer (JF) screened all the titles and abstracts against the inclusion criteria. A second reviewer in the team independently double-screened 20% of the papers. No discrepancies could not be agreed on.

Papers that were identified as potentially relevant went through the second sifting phase of full paper screening as per guidelines (Rethlefsen *et al.*, 2021). All full texts were retrieved and saved on Microsoft Teams for review. One reviewer (JF) sifted all full papers, and a second reviewer independently double-screened 20%.

Data extraction

A Microsoft Excel spreadsheet was developed for the data extraction which captured; the authors, year of publication, country of study, the aim of the research, study design, methods, setting of the research, sample size, description of intervention, length of intervention, barriers to interventions, facilitators to interventions, participant demographics, recommendations and conclusions. LT undertook the data extraction with 20% checked by another team member (JF).

Assessment of quality

As some of the included studies were mixed methods, the relevant CASP tool for appraisal was used (CASP-UK, 2002) for the quality assessment of the included papers. The purpose of the CASP tool was to assess quality; it was not used to contribute to decisions about whether or not to include studies. High risk of bias was recorded if "no" or "unsure" was recorded for 6 or more of the 11 questions on the tool. Medium risk of bias was assigned if "no" or "unsure" was recorded for 4–5 questions and Low risk for 1–3 questions, as in our previous study (Newbury-Birch *et al.*, 2018; Newbury-Birch *et al.*, 2022). 517 interviews were included (range 1–73).

Results

The initial searches yielded 22,609 records. In total, 14 met the inclusion criteria and were included in the review (Aharonovich *et al.*, 2012; Darker *et al.*, 2016; Dujon, 2021; Fazio *et al.*, 2022; Hunter *et al.*, 2018; Morris *et al.*, 2024; Owens *et al.*, 2018; Roberts & Nuru-Jeter, 2010; Rudzinski *et al.*, 2012; Saunders *et al.*, 2019; Sharma *et al.*, 2023; Starks *et al.,* 2020; Venner *et al.*, 2018; Whiteside *et al.*, 2010) (Figure 2). The articles were published between 2019–2023. Eleven were from the USA and one each from Canada, Ireland and India.

Qualitative systematic review: themes

Using thematic synthesis (Braun & Clarke, 2006), five main themes emerged: 1. Barriers within a health setting; 2. Facilitators within a health setting; 3. Barriers within a social care setting; 4. Facilitators within a social care setting; 5. Barriers within a criminal justice setting. Extended Data (Table 5) contains examples of quotes demonstrating each theme. Perspectives in papers varied and included the perspectives from providers and those receiving the intervention.

Health setting barriers

Within a health setting, multiple barriers to interventions were identified including physical barriers, participants attitude to the intervention, patient internal conflicts, cost and sustainability, influence of provider, missed opportunity for intervention, unsuitability of the intervention, and influence of drug type.

Physical barriers

One paper raised issues around physical barriers to accessing interventions, as relocation prevented some from participating in the study. Providers also assisted participants in accessing a telephone, which suggests that without this access, participation would not be possible (Aharonovich *et al.*, 2012).

Attitude to the intervention

Three papers mentioned that participant attitudes towards the intervention may act as a barrier, as some highlighted difficulties remembering to take part, found taking part 'annoying', or would not engage with the materials provided outside of the intervention itself (Aharonovich *et al.*, 2012; Darker *et al.*, 2016; Fazio *et al.*, 2022).

Patient internal conflicts

Patients raised internal challenges around disclosing their drug use, factors such as a lack of coping skills, a lack of self-esteem, lack of self-interest/knowledge they had a problem and feelings of dismissal or judgement from providers resulted in patients not sharing information around substance use or changing providers (Dujon, 2021). Expected consequences of disclosure were also a barrier for some, with patients concerned around the potential implications of disclosing their substance use to providers. Patients feared this could have legal implications or impact employment, future medical care, or result in adverse psychological or social consequences (Roberts & Nuru-Jeter, 2010; Saunders *et al.*, 2019); Some concealed their drug use to avoid these consequences (Roberts & Nuru-Jeter, 2010). Additionally, concerns around the privacy of patients' substance use information was highlighted as a barrier, and patients were wary of other providers potential access to their medical record. Attitudes towards screening methods were also influenced by privacy concerns, due to the risk of being 'hacked' or unauthorised parties accessing their data (Saunders *et al.*, 2019).

Cost and Sustainability

The resource cost of implementing and sustaining interventions may be a potential barrier as staff and resources are often already limited within healthcare settings such as the emergency department (Fazio *et al.*, 2022). Capacity and staff training may be a barrier to continued implementation of interventions as staff turnover and the uncertainty surrounding funding for positions may cause the practice to 'slip away'(Hunter *et al.*, 2018). The cost of the interventions themselves, specifically drug assisted treatment, was a particular concern for the continued implementation of interventions, with providers questioning how the expense would be sustained (Hunter *et al.*, 2018). The ongoing fidelity of structure given to interventions was also highlighted as a potential barrier, with concerns raised around the impact of time upon the continuation of the approach and how that could be maintained (Hunter *et al.*, 2018).

Influence of provider

When exploring patients' substance use, three papers found that patient's relationship with their provider influenced the

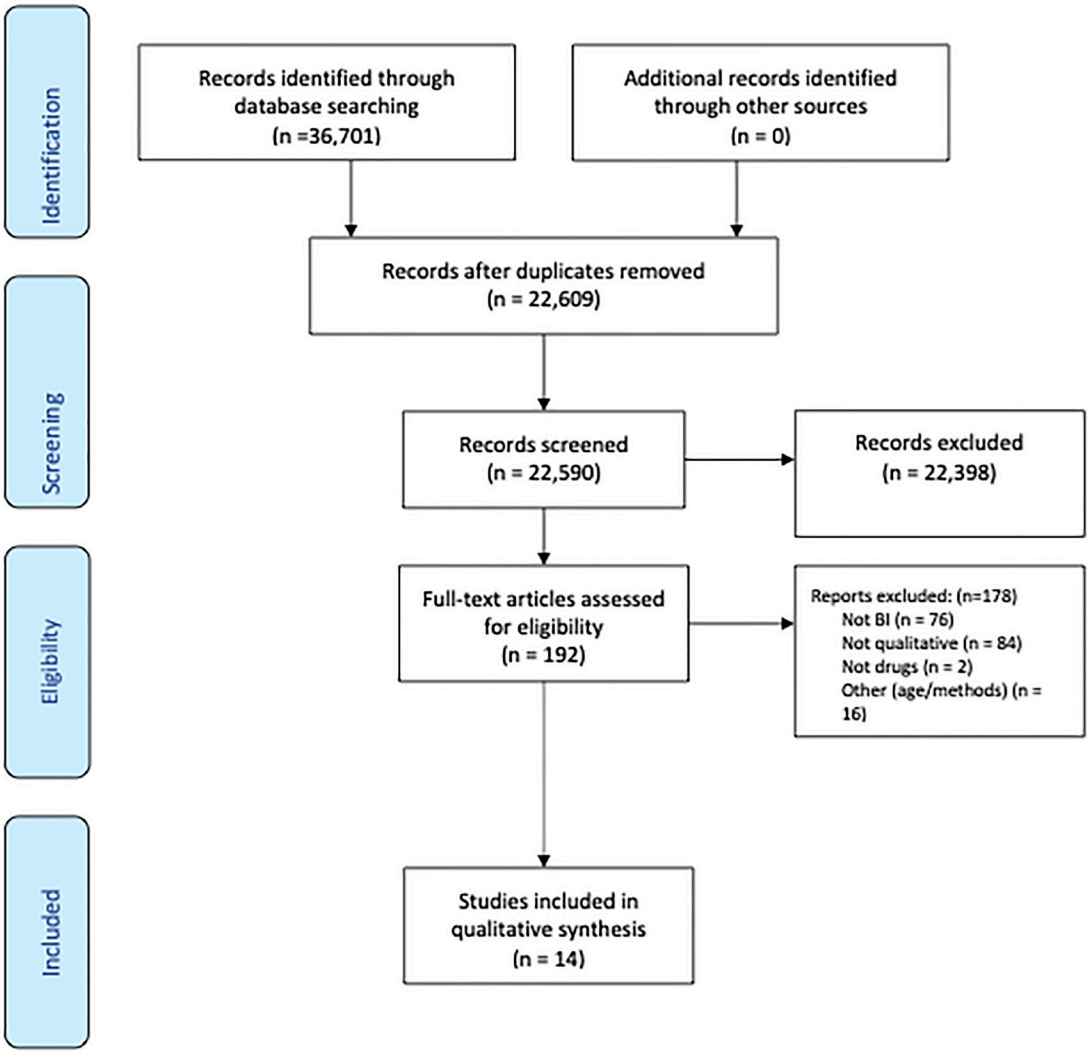

Figure 2. Qualitative Systematic Review PRISMA. We confirm we own and have permission to use the figures accompanying our submission.

interaction and could be a barrier to disclosing or discussing substance use. A lack of trust in the physician/provider and fear and experiences of judgement/stigma were highlighted as influential on the relationship between patient and provider which then influenced patients' likelihood of honestly disclosing substance use (Dujon, 2021; Roberts & Nuru-Jeter, 2010; Saunders *et al.*, 2019). Provider constraints were identified as potential barriers, as the providers discomfort, lack of preparedness and lack of time with the patient when addressing substance use negatively impacted the interaction (Saunders *et al.*, 2019). Additionally, two papers mentioned provider shortfalls as potential barriers; a negative approach from the provider or the providers poor communication style were not appreciated by patients and resulted in decisions to not disclose information or change provider (Dujon, 2021). If patients perceived their provider as not listening to general health concerns, some responded by emotionally disengaging (Roberts & Nuru-Jeter, 2010).

Missed opportunity for intervention

Three papers highlighted how current practise resulted in missed opportunity for intervention. While some providers assessed substance use annually or at new patient visits, current screening practices for substance use were not systematic (Saunders *et al.*, 2019). Additionally, universal screening frequently did not occur and this rate was even lower for opiates (Venner *et al.*, 2018). This was supported by patients who frequently voiced they had never been or did not recall ever being asked about their substance use during healthcare visits (Dujon, 2021). Providers reported using their clinical judgement to detect substance use and focus their attention on those with established substance use problems rather than screening

universally, resulting in those at the 'tip of the pyramid' being seen more than those in the middle (Venner *et al.*, 2018). Venner *et al.* (2018) found that only half of the providers reported that patients felt comfortable seeking treatment for substance use problems, further limiting opportunity for intervention (Venner *et al.*, 2018).

Unsuitability of intervention

The need for interventions to be contextually and culturally appropriate to the service user within this setting was highlighted by Darker *et al.* (2016) (Darker *et al.*, 2016). Clinicians felt that materials within the intervention, such as reasons to reduce substance use, need to be relevant to the patient and their experiences to be successful and encourage behaviour change. It was felt that unsuitable materials would have minimal impact.

Influence of drug type

One paper highlighted how the type of drug being used may be a barrier to intervention. Those using marijuana for medicinal purposes may be reluctant to reduce consumption in contrast to those using other substances who while ambivalent, perceived the need to reduce their substance use (Aharonovich *et al.*, 2012). Cannabis was mentioned further by Saunders *et al.* (2019) who felt that the legalisation of cannabis in some areas may result in patients no longer viewing cannabis as a drug and ignoring their problematic use due to perceptions of safety, thus acting as a barrier to intervention and requiring education on the risks of cannabis use to overcome them (Saunders *et al.*, 2019).

Health setting facilitators

Within a health setting, facilitators identified included the influence of provider, suitability of the intervention to the individual, accessible and well understood intervention, sustainability, intervention features, screening type, participant engagement, suitability of the intervention to the provider, and influence of drug type.

Influence of provider

While the patient's relationship with the provider could act as a barrier to disclosing information around substance use, four papers mentioned this could also facilitate. Staff training on the use of empathetic, conversational approaches that are less likely to appear confrontational or intimidating would be useful to improve communication between patient and provider and minimise perceptions of judgement from providers (Roberts & Nuru-Jeter, 2010). When the interaction between provider and patient was perceived positively, such as a caring, trustworthy (Fazio *et al.*, 2022), understanding or supportive provider (Roberts & Nuru-Jeter, 2010), patients were encouraged to discuss or reduce substance use. This approach from the provider made patients feel understood, comfortable and important, and they valued the opportunity to 'get things off their chest' (Fazio *et al.*, 2022). Provider connectedness and patient familiarity with the provider was identified by providers as 'critical' to promote honest disclosure of substance use as it was important for patients to feel comfortable and not judged (Fazio *et al.*, 2022; Saunders *et al.*, 2019). highlighted the influence of a relatable provider, with some patients feeling that a provider who had been through similar experiences of substance use would be valuable. The provider would be able to understand and provide support and direction based on their first-hand experience of what is effective and where to go. Roberts & Nuru-Jeter (2010) found that while some feared providers identifying their substance use, some felt if their provider had recognised this, it would have made it easier to discuss and seek help.

Suitability of intervention to the user

The need for the intervention to be suitable to the individual/cohort it is targeting was demonstrated (Darker *et al.*, 2016). Both clinicians and patients mentioned how examples within interventions need to be tailored to be specific to the cohort of users to have the most impact as patient concerns vary across groups. Patients may be more concerned with psychosocial risks than physical health risks for example, and as this holds more meaning, may have greater impact in the context of an intervention. The intervention itself could also be tailored to the patient based upon their individual risk profile using tick boxes for the provider.

Accessible and well understood intervention

Three papers discussed the need to ensure interventions and associated materials were accessible and well understood by both providers and patients. Accessible language and the use of imagery to help patients with literacy difficulties understand key risks were included, and suggestions were made to simplify the language (Darker *et al.*, 2016). The development of a clear, easy to use manual was valuable to providers due to the time limited environment in which they work, including a sample script and roleplay for training purposes, providers also felt this was helpful (Darker *et al.*, 2016). Within the paper by Aharonovich *et al.* (2012), all patients highlighted the use of telephone calls within the intervention as useful and felt this was easy to do, of which may facilitate participation (Aharonovich *et al.*, 2012). To improve patients understanding of data privacy and potentially facilitate information sharing, clear policies and communication around confidentiality of the information obtained is recommended (Roberts & Nuru-Jeter, 2010).

Sustainability

Two papers mentioned the need for providers to access training and resources to successfully conduct screening and interventions for substance use. Leadership and staff support, program champions, additional training opportunities for providers, low cost and accessible screening and access to additional funding were all highlighted as facilitators to sustaining the implementation of interventions (Hunter *et al.*, 2018; Saunders *et al.*, 2019). Hunter *et al.* (2018) found that making adaptations to some aspects, such as increasing the time between screenings, was necessary.

Intervention features

Aharonovich *et al.* (2012) found that participants commented on particular aspects of the intervention positively. Patients found the intervention 'exciting' and useful, that it provided

positive reinforcement and aided patients in being focused and alert. Being able to take accountability for their substance use and track achievement using graphs was also valuable to patients (Aharonovich *et al.*, 2012).

Screening type

When screening for substance use, Saunders *et al.* (2019) found that the type of screening utilised was important (Saunders *et al.*, 2019). Universal screening was perceived to be less 'accusatory' to patients and providers felt this was necessary to identify substance use in those that would likely be missed by targeted approaches. Providers agreed that annual screening was most suitable, with an exception for patients with indicators of substance use, as regular screening may frustrate patients. Screening patients once a relationship with the provider had developed, as opposed to meeting for the first time, was mentioned as a facilitator to engaging patients. Self-administered screening was supported by both patients and providers, as this increased patient comfort and increased validity and efficiency in comparison to interviewer administered screening. However, some providers highlighted patients' dislike for completing forms, poor reading comprehension, lack of honesty and privacy concerns, or were concerned that screening not conducted as an interview may not be reviewed.

Participant engagement

Participant engagement with the intervention was highlighted as a facilitator in three papers. Interactive interventions were praised by patients, highlighting how they provided 'attention never received from doctors' (Aharonovich *et al.*, 2012). Patients' personal goals such as access to children may also facilitate participation in interventions, as the goal may act as a motivator to engage (Roberts & Nuru-Jeter, 2010). In one intervention, telephone call reminders to engage with the intervention were mostly appreciated by patients (Aharonovich *et al.*, 2012). Risk was highlighted by Darker *et al.* (2016) as a facilitator to engagement, as materials reminding patients of risk associated with substance use or the use of emotional/impactful imagery demonstrating risk were recommended.

Suitability of intervention to provider

When the treatment was perceived as fitting with the organisation/clinic mission and could be institutionalised within practise, this could facilitate the continuation of provision. The perspective the approach had given could not be undone, and care for alcohol and opioid use disorder was institutionalised into the practice model within the clinic (Hunter *et al.*, 2018). Collaborative care models and increased practice coordination with community resources were endorsed by providers as facilitators to screening and brief intervention (Venner *et al.*, 2018).

Influence of drug type

The type of drug used by the patient may act as a facilitator to intervention. Saunders *et al.* (2019) mentioned how due to the legalisation of cannabis in some areas, open dialogue can occur around use of the drug as patients are more comfortable discussing their use and there is less concern around potential consequences.

Social setting/university barriers

Barriers to interventions within a social setting were identified as logistical barriers, a lack of interaction/engagement, privacy concerns and implications of disclosure, provider approach and conflict within sessions.

Logistical barriers

Two papers mentioned logistical difficulties as a barrier to intervention. One highlighted the influence of technical difficulties on participant engagement as the participant had to redo the task (Sharma *et al.*, 2023). Another mentioned a reduction in participant numbers may have been due to challenges with physically attending the intervention within the institution as the students who took part predominantly commuted in to attend college (Morris *et al.*, 2024).

Lack of interaction or engagement

Rudzinski *et al.* (2012) found that interventions that did not engage participants or lacked interaction with a provider were viewed less favourably by those who took part (Rudzinski *et al.*, 2012). Being able to ask questions was felt to be important, and printed interventions such as pamphlets were criticised as being 'outdated' and easy to discard. This lack of engagement was expanded on further by Sharma *et al.* (2023) where using language that was difficult for students to understand prevented participants from engaging with the intervention.

Privacy concerns and implications of disclosure

Participants had concerns around drug use disclosure and their privacy, and this was a barrier to recruitment in one study. Participants sought reassurance that their data would be stored securely and could not be accessed by anyone outside of the study and were concerned that sharing their data may result in legal issues (Sharma *et al.*, 2023). Although these were mentioned in the context of recruitment, similar concerns may emerge in relation to participating in an intervention that would require substance use disclosure.

Provider approach

The approach utilised by the provider may become a barrier to engaging with an intervention if the approach is unsuitable for the individual. Whiteside *et al.* (2010) highlighted how a facilitator focusing on increasing an individual's commitment to change stage and feel ambivalent may result in resistance or lowered autonomy in the participant. This emphasizes the need for a balanced approach from the provider.

Conflict within session

One paper exploring an intervention involving couples found that conflict between the two partners may be a barrier through conflation of thoughts and feelings, vague or indirect communication, and incorrect assumptions (Starks *et al.*, 2020). This conflict potentially restricts the extent that partners can

understand and empathise with each other and seek resolutions while increasing the likelihood of defensiveness, blame or further conflict.

Social setting/university facilitators

Facilitators to interventions within a social setting were identified as the suitability of the intervention to the individual, influence of provider, provider approach, accessibility, intervention features and participant engagement.

Suitability of the intervention to the individual

Two papers discussed the suitability of the intervention to the individual targeted as a facilitator to the intervention. Interventions are appreciated when they are tailored to the needs of the individual and are appropriate to that population (Morris *et al.*, 2024). By personalising and tailoring the intervention to the individual, advice can be provided that is specific to the individual and their circumstances (Rudzinski *et al.*, 2012). Materials that are not appropriate to the population, such as those using unrelatable language, may not be suitable (Rudzinski *et al.*, 2012).

Influence of provider

The provider involved in the intervention was influential in the interaction. Providers were valued when they were perceived as being supportive, non-judgemental and caring towards the participant (Morris *et al.*, 2024). Establishing rapport between the provider and the individual receiving the intervention was also highlighted as beneficial for increasing the effectiveness of the intervention, with further appreciation for the providers friendly, reflective, non-judgemental stance without pressure to accept goals (Whiteside *et al.*, 2010). Rudzinski *et al.* (2012) further highlighted the appreciation for interventions that were 'straightforward, unbiased, nonthreatening, nonpatronizing and non-judgemental' (Rudzinski *et al.*, 2012).

Provider approach

A provider utilising a balanced approach during the intervention can facilitate the clients engagement with the intervention and reduce resistance (Morris *et al.*, 2024), additionally a balanced approach reduces the likelihood that the receiver will feel lectured or as though the intervention is inappropriate to their circumstances (Whiteside *et al.*, 2010). The providers response to conflict within interventions delivered to couples may facilitate behaviour change by achieving consensus between partners around intervention goals and recognising potential barriers to behaviour change. By responding appropriately, the provider can shift focus, reflect, clarify thoughts and feelings, establish effective communication and correct inaccurate assumptions (Starks *et al.*, 2020).

Accessibility

Three papers highlighted accessibility as a facilitator to interventions. By using simple terms that could be easily understood by the target population, the process is made easier for the recipient (Sharma *et al.*, 2023). Interventions that were 'short' and 'convenient' were enjoyed by participants (Rudzinski *et al.*, 2012) and participants appreciated the convenience of accessing support for drug use from home (Sharma *et al.*, 2023). When interventions were flexible in terms of their access and implementation, this was useful as the format could be adjusted as needed to suit the participants needs, such as the addition of in person intervention rather than online only (Sharma *et al.*, 2023). In addition, Whiteside *et al.* (2010) mentioned how the social-norms approach used within one intervention had been effective in various formats including in person, group, mailed and computer-based interventions (Whiteside *et al.*, 2010).

Intervention features

Specific features within interventions were identified as valuable or useful to participants. Rudzinski *et al.* (2012) felt that minor suggestions, such as delaying drug use, facilitated behaviour change and made it seem possible as there were smaller steps that could be taken to progress (Rudzinski *et al.*, 2012). Goal setting, weighing pros and cons and restricting opportunities for use were identified as useful elements for behaviour change as they encouraged reflection and awareness of their use (Rudzinski *et al.*, 2012; Morris *et al.*, 2024). Interventions focused on the individuals' goals with reflection on goals set in the previous sessions were valued (Morris *et al.*, 2024). Other elements of interventions that were beneficial and appreciated by participants included coping mechanisms and mindfulness (Morris *et al.*, 2024), and increased awareness of their substance use (Whiteside *et al.*, 2010; Rudzinski *et al.*, 2012). Facilitators recognising and reinforcing change talk, the use of harm reduction targets, and addressing ambivalence were also mentioned (Whiteside *et al.*, 2010).

Participant engagement

Participant engagement was identified as a facilitator to interventions. Rudzinski *et al.* (2012) demonstrated how participants felt the intervention was useful for themselves or others and spoke positively about its informative nature (Rudzinski *et al.*, 2012). Through this information, participants felt the benefit of seeing facts and numbers demonstrating the impact of substance use upon them, which they felt 'really brings it home'. Informing participants of the risk associated with their substance use was mentioned in two papers as potential facilitators to change, increased awareness of risk resulted in reduction or positive changes in substance use, potentially due concerns around the impact on their health (Whiteside *et al.*, 2010; Rudzinski *et al.*, 2012). Curiosity and the use of a participatory approach were highlighted as facilitators to recruitment within a college student sample, while the inclusion of novel information and the opportunity for more detailed responses through open ended questions were facilitators to engagement (Sharma *et al.*, 2023). The interactive elements of interventions were also well received (Morris *et al.*, 2024). Rudzinski *et al.* (2012) highlighted how the use of meaningful tone and language and the inclusion of perspectives of active/previous users may facilitate engagement with the materials and provide examples, this was suggested by several participants.

Criminal justice setting barriers

Only one paper explored barriers within the criminal justice system and this used the perspective of formerly incarcerated adults, these barriers included internal conflicts, absence

of a problem, seeking informal assistance, poor access, and 'other'.

Internal conflicts
Fear of treatment and privacy concerns were mentioned as potential barriers to those within the criminal justice system. Previous unsuccessful experiences of addiction treatment, reluctance to participate, discomfort with speaking in a group setting, and struggles with privacy may all inhibit likelihood of participation (Owens *et al.*, 2018).

Absence of a problem
Individuals not recognising the need for treatment or ambivalence towards treatment may prevent interventions from being accessed. This includes perceptions that they do not need treatment or can manage without it, or enjoy using the drug and lack the motivation to attend (Owens *et al.*, 2018).

Seeking informal/alternative assistance
Some highlighted that treatment had not been accessed due to the desire to explore informal assistance first, such as family support, and attempt to reduce use through these alternative methods (Owens *et al.*, 2018).

Poor access
Poor access to treatment was highlighted as a barrier, with challenges including time conflict, poor treatment availability, and admission difficulty. Participants highlighted pending court dates, reluctance to take time to attend, challenges with transport and time availability, and the impact of previous offences on being accepted into the treatment as barriers to treatment (Owens *et al.*, 2018).

Other
Three barriers came under the 'other' category that were difficult to interpret, including participants feeling the intervention would not provide them with new information, AA meetings, and the frequent advertisement of alcohol (Owens *et al.*, 2018).

Quality Assessment
Seven of the included studies were classified as low chance of risk, five as medium chance of risks and two as high chance of risk (Extended Data (Table 5 and Table 6).

Objective three: qualitative work with practitioners and community members to understand the barriers and facilitators to carrying out brief drug interventions

Patient and Public Involvement
We engaged with all three Health Determinants Research Centres (HDRCs) to explore potential collaborations and develop initiatives through the HDRCs. Each HDRC either had or was in the process of establishing teams of community researchers, with whom we collaborated during this development year. While no community members participated in this particular phase of the study, we leveraged our extensive experience in community engagement from over 20 prior studies in this field. Drawing on this background, we refined our approach and will continue to use and adapt these insights throughout the next stages of the study.

For the qualitative element of the study, a combination of semi-structured interviews and focus groups were carried out. Our intention was to carry out interviews/focus groups relating to health/social care and criminal justice (36 with stakeholders and 36 with community members). This would consider three geographical areas of the UK.

The research team spoke to both service users and stakeholders across the key areas to ascertain their thoughts about how the interventions could be developed. Information leaflets were sent to potential participants with an invitation email from the gatekeeper at Health Determinants Research Collaborations (HDRCs) as well as on social media and through our links. Participants were asked to contact the research team to express an interest in taking part in the study. Once an interview or focus group had been arranged, written informed consent was obtained, having ascertained that the participant had read the information leaflet. All focus groups were arranged at a time to suit participants and were conducted face to face. They lasted up to one hour. Interviews similarly lasted up to one hour and were conducted either online or face-to-face. All were digitally audio-recorded with written consent, then transcribed, anonymised, and checked for accuracy.

Participants and procedure
Participants were identified through three newly developed HDRCs who acted as gatekeepers to accessing key individuals within each geographical area and each of the three settings. The sample for the qualitative work was identified through the systematic reviews. These reviews revealed that the most suitable areas for further qualitative investigation included, within the healthcare setting, the Improving Access to Psychological Therapies (IAPT) programme, adult family services for social care settings, and within criminal justice settings, both police and probation services

To be eligible to take part, individuals had to be aged 18 or older, able to speak and understand English, and have the capacity to provide informed consent; and have links with one of the three context areas (health, social care, and/or criminal justice), either as a service user (community member) or a stakeholder. Community member participants were given a £20 gift voucher for taking part. Some of these participants had experience across more than one of the settings studied (e.g., both criminal justice and family services).

Ethical considerations and consent
Ethics approval for this research was granted by the SSSHL Research Ethics Sub-Committee at Teesside University on 30/01/2024, under reference number 15992. Prior to commencing the study, all essential documents, including consent forms, information leaflets, interview and focus group questions, and invitation emails, were thoroughly reviewed and approved by the ethics committee of the lead author's institution. The study was conducted in full compliance with the ethical principles

outlined in the Declaration of Helsinki (World Medical Association, 2004), ensuring the highest standards of ethical conduct and participant protection were maintained throughout the research process. Ethical approval included participants giving written consent to the study which they all did.

To minimise risk and ensure participants' understanding of participating, only individuals who had the capacity to consent were approached to take part in the study. The research team was guided by the Mental Capacity Act (2005). Thus, consent was given in written form (either digitally or by hand-written signatures on a consent form) before the focus groups or interviews began.

All personal and identifiable information, such as participants' names and any other identifiable information, was redacted and replaced with a unique participant number. Subsequently, the identifiable information was confidentially destroyed, in keeping with the policy of the lead author's institution. Names mentioned in the audio recordings were redacted from the transcripts and changed to a pseudonym in the write-up.

Participants were informed prior to the interviews or focus groups and on the participant information sheet that, should they disclose anything that posed a risk to themselves or others, or anything of a criminal nature, then confidentiality would need to be breached, the chief investigator would be informed, and then take further action if needed. However, this did not occur throughout the study.

Data analysis

The data was analysed using thematic analysis, a method that identifies and reports patterns within the data. Based on Braun and Clarke's guidelines (2022), the analysis was reflexive and iterative, involving constant moving back and forth between the dataset, the coded extracts of data, and the analysis of the data (Braun & Clarke, 2006). This approach facilitated a deeper engagement with the data and the identification of themes that accurately reflected participants' experiences. The process of analysis started with a line-by-line examination of the transcripts, during which initial codes were produced. These codes were subsequently collated into potential themes through a process of constant comparison and refinement. Coding was conducted using an inductive approach so that the codes and subsequent themes were developed directly from the data without being influenced by pre-existing theories.

We found that most stakeholders and community members had experience of more than one agency. We carried out interviews/focus groups with 18 community members and 16 stakeholders however this related to 33 inputs for community members (13 mental health; 9 CJS and 11 social services). For practitioners this related to 21 inputs (5 mental health; CJS and 7 for social services).

Community Member Themes

Key issues community members perceived in substance use and mental health interventions included the need to address trauma, the efficacy of interventions, how stigma and societal views affect individuals, the importance of support from various institutions, and how community involvement and personal responsibility play a role in the recovery process.

1. Trauma and Coping Mechanisms

Participants consistently linked trauma, especially from childhood to the development of addiction. They saw addiction as a method of coping with unresolved trauma. One described, "*most of the lives of people in hardcore addiction are spent in trauma... without them even knowing it*" (C_0004), highlighting the profound and often unrecognised impact of early adversities on substance use behaviours.

2. The Efficacy of Interventions

Community members drew attention to the critical need for interventions that are not just timely but align with the individual's journey and readiness for change. They described how the requirements for support change during the stages of addiction and recovery, from initial prevention efforts to active intervention and ultimately, rehabilitation. As one participant put it, "*I think the intervention is one thing, prevention is another thing we have to look at it in different stages"* (C_0004), indicating a holistic view of addressing substance use, from early prevention to rehabilitation.

3. Stigma and Social Perceptions

Stigma emerged as a significant barrier, with participants expressing how societal perceptions, particularly around gender and addiction, influenced the willingness to seek help. As one stated, *"Right, we lose our kids. We're the pieces of s**t as mothers, and the men don't even get a look at. Well, they're the parent as well. Do you know what I mean? It's not just one-sided."* (FG31). This shows how, in situations of addiction that affect family dynamics, mothers may face harsher criticism and consequences, while fathers or male partners may not be scrutinised or held accountable to the same extent.

4. Institutional Roles and Accessibility

Community members' critiques of institutions highlighted the challenges within systems meant to support recovery. Long waiting times, perceived lack of understanding, and inadequate support were recurrent themes. C_011 expressed, "*It's really weird, so they actually won't take people that have been sectioned because apparently, you're too high risk, so you sometimes fall through a massive gap, like at the moment I have nothing.*" This theme depicts the challenges community members faced when interacting with institutions meant to support recovery, including issues with the timing and appropriateness of interventions, systemic gaps in support for high-risk individuals, a perceived lack of empathy and understanding, and inconsistencies in the quality of support provided.

5. Community, Support, and Personal Agency

Participants' narratives around community engagement, financial strain, and the importance of personal growth evidenced a perceived interaction of external factors and individual agency in the context of addiction. Interviewees spoke of their desire for healthier social connections and the challenges of socio-economic issues. C_0015, for example, explained, *"I am looking*

forward to building a more healthier social connection in a new community", expressing a need for supportive environments conducive to recovery and personal development.

Stakeholder Themes

Stakeholders emphasised the need for interventions to be brief yet personalised, underlining the importance of trust, effective evaluation, and the specific role of police in crisis interventions. These themes underline the necessity of adapting support strategies to individual needs and systemic challenges, highlighting the complexity of effective intervention in high-stress environments.

1. The Importance of Tailored and Brief Interventions

The significance of designing interventions that are both brief and tailored to meet individual needs was a recurring theme. Stakeholders advocated for brief interventions due to their potential to prompt immediate reflection and action. One stakeholder observed, *"If we do something because it makes them think, well, actually I need to go to that. Otherwise, I could commit an offence. I could be arrested or trying to sort myself out now"* (SH_0001), highlighting the efficacy of brief interventions in encouraging individuals to seek help or reconsider their actions promptly. Similarly, SH_0002 stated, *"I would rather have a brief conversation, deliver a brief intervention so somebody is making informed choices...I believe they do [work]"*. Furthermore, stakeholders' emphasis on tailored approaches highlighted the need for personalised care, moving away from generic solutions. As another respondent pointed out, "*People need different options that will suit them so that they can better engage and that you can as individuals have the hook that suits their mind and way of working and what makes them tick as opposed to this usual one cap fits all*" (SH_0001), advocating for interventions that align with individual learning styles and preferences, thereby enhancing engagement and effectiveness.

2. Trust and Connection in Brief Interventions

Confidentiality and the complexity of relational work were both discussed by interviewees. Ensuring a safe and private environment was seen to be important, as highlighted by a stakeholder's caution against rushing interventions: *"Don't offer a brief intervention if you only got 5 minutes because you just never know. [The client] might want to disclose something"* (SH_0002). This underlines the necessity of a trusted space for meaningful interactions. Moreover, the skill of relational work within such constraints was perceived to present challenges, with empathic confrontation in brief sessions demanding advanced skills and a thoughtful approach, as another stakeholder observed: *"The only concern I have about brevity…is that empathic confrontation piece is a really advanced clinical skill. I think it's very hard to get right"* (SH_0006). Thus, in brief interventions, establishing trust and forging deep connections, despite time limitations, were seen to be fundamental for impactful outcomes.

3. Evaluation and Sharing Best Practices

Stakeholders called for interventions to be evidence-based, evaluated, and continuously improved based on feedback and outcomes. Learning from past experiences and sharing best practices among professionals and agencies was seen as essential for refining intervention strategies. *"The issue again goes back to first you understanding what already exists and what's working. So, if that could be built on and more people do it, that's gonna help, hasn't it? Which goes back to that sharing practice"* (SH_0015). This emphasises the value of learning from existing practices and the continuous improvement of services through feedback, underlining the importance of evidence-based interventions and adopting what has been proven effective.

4. The Police's Role in Brief Interventions

Stakeholders highlighted the police's crucial role in delivering brief interventions at critical moments. As SH_0015 remarked, "*It's about how then we can identify and signpost out from the need to actually make an arrest. If you can really avoid that, that doesn't actually help the situation, but with the view is we've got a suite of interventions that firstly goes back to proper assessment.*" However, they also pointed out the challenges in aligning these interventions with broader service networks, pointing out hurdles in information sharing and coordination. Additionally, concerns were raised about securing consent and the effectiveness of follow-up for drug and alcohol support within police custody, highlighting areas for improvement in the system.

Objective four: to develop a research team with appropriate skills and expertise, including community sector

It was important that the study included academics with expertise and knowledge of the topic area. The research team are international experts in the field of carrying out RCTs in the field, including the SIPS alcohol screening and brief intervention trials (Drummond *et al.*, 2014; Kaner *et al.*, 2013; Newbury-Birch *et al.*, 2014). Further to the original team we have brought in others such as Professor Jeremy Bray and Professor Tom Phillips who bring economics/health economics expertise and nursing/intervention expertise. We have also carried out a lot of work with the community sector and Dr Andrew Divers who is an expert in community research will lead this work in co-production with HDRC-South Tees and Junction 42. We have had a number of meetings with community representatives who were key to our funding application.

Objective five: to develop a funding application for a future definitive trial

We have used the information gathered in the work we have done and have submitted a stage one application to NIHR PHR for funding.

AIM

To conduct three two-arm feasibility randomised controlled trial to assess the feasibility of developing a definitive trial application for RCTs of adult drug screening and brief interventions in key health, social care and justice settings.

Ethics and consent

Ethical considerations and consent

Ethics approval for this research was granted by the SSSHL Research Ethics Sub-Committee at Teesside University on 30/01/2024,under reference number 15992. Prior to commencing

the study, all essential documents, including consent forms, information leaflets, interview and focus group questions, and invitation emails, were thoroughly reviewed and approved by the ethics committee of the lead author's institution. The study was conducted in full compliance with the ethical principles outlined in the Declaration of Helsinki (World Medical Association, 2004), ensuring the highest standards of ethical conduct and participant protection were maintained throughout the research process. Ethical approval included participants giving written consent to the study which they all did.

Data (and software) availability

No data associated with this article other than what is available at https://osf.io/2nqvm/ as this was not requested from the ethical committee. To discuss data that is not available at please contact d.newbury-birch@tees.ac.uk

Extended data

Materials used in this study, including the interview schedule, participant information sheets, and consent forms can be found in the repository 'Reset Report' at https://osf.io/2nqvm/ (Tuschick *et al.*, 2025)

OSF: Reset Report: *NIHR PHR REPORT DOCUMENTS FOR RESET*

This project contains the following extended data: https://osf.io/2nqvm/

Checklists- sys reviews

- *PRISMA_2020_checklist-QUAL*
- *PRISMA_2020_checklist-QUANT*

Qualitative work

- *Consent Form*
- *Debrief*
- *Interview schedule*
- *Community Participant Information Sheet*
- *Stakeholder Participant Information Sheet*

Tables and figures:

- *Figure 1*
- *Figure 2*
- *Table 1*
- *Table 2*
- *Table 3*
- *Table 4*
- *Table 5*
- *Table 6*

Reporting guidelines

PRISMA Checklist for, "Development of a trial application to assess the effectiveness and cost-effectiveness of adult dRug scrEening and brief interventionS in key hEalth, social care and justice setTings: The RESET PROJECT ". https://osf.io/2nqvm/

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