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Effectiveness of psychosocial interventions for adults with substance use disorder that have a co-occurring mental health disorder: an umbrella review and illustrative cost-effectiveness analysis

Emma Simpson, Sunhong Kwon, Munira Essat, Ruth Wong, Shijie Ren, Sarah Stacey, Edward Day and Matt Stevenson

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Extended Research Article

Effectiveness of psychosocial interventions for adults with substance use disorder that have a co-occurring mental health disorder: an umbrella review and illustrative cost-effectiveness analysis

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This article

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Abstract

Objectives: To systematically review evidence of the clinical effectiveness of psychosocial interventions for adults with substance use disorder that have a co-occurring common mental health disorder or borderline personality disorder.

To identify papers that estimate the cost-effectiveness of interventions for patients with substance use disorder and common mental health disorder or borderline personality disorder.

Methods: An umbrella review (a systematic review of systematic reviews) for clinical effectiveness was conducted. Systematic database searches [MEDLINE, EMBASE, PsycInfo® (American Psychological Association, Washington, DC, USA), Cochrane Database of Systematic Reviews, and Web of Science] were carried out in February 2024. Inclusion criteria: Adults with substance use disorder and common mental health disorder or borderline personality disorder; psychosocial interventions (with or without pharmacological therapies); comparators psychosocial treatments, treatment as usual, waitlist/no treatment; systematic reviews of randomised controlled trials. Data, including critical appraisal, were extracted into a standardised form by one reviewer, and checked by another. Data were discussed in a narrative review.

A literature review of MEDLINE, EMBASE, Cochrane Database of Systematic Reviews, and EconLit were undertaken to identify cost-effectiveness papers. An illustrative model was constructed to show how cost-effectiveness could be calculated if data were available.

Results: Of 5420 unique records, 30 systematic reviews were included in the clinical review. The methodological quality of the reviews was generally good. Most of the interventions and many of the active comparators studied resulted in some improvement for patients. Most reviews focused on depression, anxiety or post-traumatic stress disorder; there were some looking at mixed common mental health disorder or borderline personality disorder. There was much heterogeneity both between reviews, and between the randomised controlled trials within the reviews. The results suggested integrated treatment for co-occurring diagnosis patients may be better for common mental health disorder outcomes than treatment as usual of parallel uncoordinated services.

One study was identified that met the cost-effectiveness criteria. However, this reported results alongside a clinical study and was not a modelling paper. The illustrative model should aid future researchers.

Limitations: Heterogeneity made it difficult to reach an overall conclusion about which therapies were best. Most reviews stated the results were not generalisable across all populations or settings.

There were few reviews of borderline personality disorder; or of common mental health disorder other than anxiety/depression/post-traumatic stress disorder.

Future works: Future research comparing integrated with parallel or sequential treatment, with follow-up of 6 months or longer, and sample size large enough to encompass dropout, may be beneficial.

Conclusions: No implications for current practice could be recommended due to heterogeneity of reviews/randomised controlled trials within reviews.

Study registration: This study is registered as PROSPERO CRD42024515813.

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Glossary

Technical terms and abbreviations are used throughout this report. The meaning is usually clear from the context, but a glossary is provided for the non-specialist reader.

Co-occurring When a person has more than one condition or illness at the same time. In this project, this means mental health conditions and alcohol and/or drug use conditions.

Cost-effectiveness Value for money: how well a technology works in relation to how much it costs.

Critical appraisal Reviewing a study to judge the quality of the method used and the reliability of the conclusions.

Dual diagnosis When someone has a mental health disorder and a substance use disorder at the same time.

Effectiveness How beneficial a test or treatment is under usual or everyday conditions, compared with doing nothing or opting for another type of care.

Harmful drinking A pattern of alcohol use that has harmed the physical or mental health of the person who is drinking or of others.

Hazardous drinking A pattern of alcohol use that increases the risk of harm to the physical or mental health of the person drinking or to others. Hazardous drinking has not yet reached the level of having caused harm.

Randomised controlled trial A study in which a number of similar people are randomly assigned to two (or more) groups to test a specific drug, treatment or other intervention. One group (the experimental group) has the intervention being tested, the other (the comparison or control group) has an alternative intervention, a dummy intervention (placebo) or no intervention at all. The groups are followed up to see how effective the experimental intervention was. Outcomes are measured at specific times and any difference in response between the groups is assessed statistically. This method is also used to reduce bias.

Systematic review A review that summarises the evidence on a clearly formulated review question according to a predefined protocol, using systematic and explicit methods to identify, select and appraise relevant studies, and to extract, analyse, collate and report their findings. It may or may not use statistical techniques, such as meta-analysis.

Umbrella review Review of previously published systematic reviews or meta-analyses.

List of abbreviations

ACT	acceptance and commitment therapy	JB	Joanna Briggs Institute
AE	adverse event	MA	meta-analysis
AUD	alcohol use disorder	MASTER	Methodological Standard for Epidemiological Research
AUDIT	Alcohol Use Disorders Identification Test	MBI	mindfulness-based intervention
BDI-II	Beck Depression Inventory (second edition)	MI	motivational interview
BPD	borderline personality disorder	NICE	National Institute for Health and Care Excellence
BT	behavioural therapy	NMA	network meta-analysis
BTDD	behavioural therapy for depression in drug dependence	OCD	obsessive-compulsive disorder
CASP	Critical Appraisal Skills Programme	PHQ-9	Patient Health Questionnaire-9 items
CBT	cognitive-behavioural therapy	PSA	probabilistic sensitivity analysis
CMD	common mental health disorder	PsyT	psychotherapy
DBT	dialectical behaviour therapy	PTSD	post-traumatic stress disorder
DDP	dynamic deconstructive psychotherapy	QALY	quality-adjusted life-year
DEAL	DEpression-ALcohol (DEAL) Project	RCT	randomised controlled trial
DFST	dual-focus schema therapy	RPMG	relational psychotherapy mothers' group
EMDR	eye movement desensitisation and reprocessing	SF-6D	Short Form questionnaire-6 Dimensions
EQ-5D	EuroQol-5 Dimensions	SMI	serious mental illness
GRADE	Grading of Recommendations Assessment, Development and Evaluation	SS	seeking safety
HWR	helping women recover	SUD	substance use disorder
IAPT	Improving Access to Psychological Therapies	TARGET	trauma affect regulation: guide for education and therapy
ICBT	integrated cognitive behavioural therapy	TAU	treatment as usual
		TfT	trauma-focused therapy

Plain language summary

People with substance use disorders (alcohol or drug) can have a co-occurring (comorbid) mental health disorder. The National Institute for Health and Care Excellence has produced guidance on treating people with co-occurring substance use and serious mental health disorder; however, this does not cover people with less severe mental health difficulties.

This project aimed to identify evidence on the effectiveness (how well treatments worked) of psychosocial interventions (talking therapies or services designed to reduce substance use and lessen the symptoms of mental health disorders) for adults with substance use disorders and co-occurring common mental health disorders or borderline personality disorder. Therapies or services relevant to UK practice were investigated. Systematic literature reviews of randomised controlled trials (studies comparing two or more treatments allocated randomly) were sought.

This project included 30 reviews of clinical effectiveness. Most reviews investigated depression, anxiety or post-traumatic stress disorder. Most therapies studied improved mental health and reduced substance use; as did some of the comparators (treatment as usual). The trials included in the reviews differed in the people treated, therapies, and the way outcomes of substance use, or mental health, were assessed. This made it difficult to draw conclusions about which therapies were best. Treating both substance use and mental health using a co-ordinated approach to co-occurring disorders (integrated treatment) was usually better than treating one condition alone, and sometimes better than two separate (parallel) treatments at the same time. There was limited evidence looking at treating one condition then the other (sequential), but evidence suggested it was similarly effective to integrated treatment.

There was not much research on whether these treatments are cost-effective (good value for money). However, an example was developed to show how the cost-effectiveness of a promising therapy could be estimated.

Scientific summary

Background

People with alcohol or drug use disorders can have a co-occurring mental health disorder. The National Institute for Health and Care Excellence has produced guidance on treating people with alcohol or drug use disorders with a co-occurring serious mental health disorder; however, this does not cover people whose mental health disorder is less severe.

Objectives (list of research questions)

To systematically review evidence of the clinical effectiveness and estimate the cost-effectiveness of psychosocial interventions for adults with substance use disorder (SUD) that have a co-occurring common mental health disorder (CMD) or borderline personality disorder (BPD).

Methods

Systematic review of clinical effectiveness

An umbrella review (a systematic review of systematic reviews) was conducted.

Data sources

Searching of electronic databases, including MEDLINE, EMBASE, PsycInfo® (American Psychological Association, Washington, DC, USA), Cochrane Database of Systematic Reviews, and Web of Science; plus contact with experts in the field; and scrutiny of bibliographies of retrieved papers. Systematic database searches were carried out in February 2024.

Study selection

Inclusion criteria were: Adult patients (age 18 years or over) with a moderate to severe SUD (alcohol or drugs), including harmful substance use, who have a co-occurring CMD or BPD. The review assessed psychosocial interventions (with or without adjunctive pharmacological therapies) for SUD with co-occurring CMD or BPD; compared with other psychosocial treatments, usual care, waitlist, or no treatment. Substance use and mental health outcomes were sought. Due to the breadth of the inclusion criteria, systematic reviews of randomised controlled trials (RCTs) were sought.

Data extraction and quality assessment

A standardised form was constructed, including review characteristics, results and the reviews' risk-of-bias assessment of included RCTs. Data were extracted by one reviewer and checked by a second reviewer. Any disagreements were resolved through discussion and consultation with a clinical advisor where necessary. Critical appraisal of included reviews was performed by one reviewer and checked by a second reviewer, using the Joanna Briggs Institute Critical Appraisal Checklist for Systematic Reviews and Research Syntheses.

Synthesis

Data were tabulated and discussed in a narrative review.

Assessment of cost-effectiveness

A systematic review of cost-effectiveness was undertaken. The aim of review was to identify studies that employed a modelling approach to estimate the cost-effectiveness of psychosocial interventions for adults with SUD who have a co-occurring CMD or BPD. Searches were conducted in May 2024 using MEDLINE, EMBASE, Cochrane Database of Systematic Reviews and EconLit and were limited to English-language references. Included studies were economic evaluations that assessed both costs and outcomes of psychosocial interventions, with a particular focus on studies

reporting cost per quality-adjusted life-years (QALYs) gained. Based on results of the literature review, we provide an illustration of how to construct a model for evaluating the cost-effectiveness of psychosocial interventions.

Results

Systematic review of clinical effectiveness

Database searches identified 5416 unique records, and an additional 4 records were added from bibliography searching. Thirty systematic reviews of clinical effectiveness were included. Most reviews focused on depression, anxiety or post-traumatic stress disorder, while some evaluated mixed CMD or BPD. Three reviews included RCTs from the UK. The methodological quality of the reviews was generally good.

Review evidence was found for the interventions: cognitive-behavioural therapy; peer support; motivational interview; supportive counselling; psychotherapy; behavioural therapy including dialectical behavioural therapy; seeking safety; trauma-focused therapy; acceptance and commitment therapy; self-management support; contingency management, that is incentivised or compensated work therapy; mindfulness; eye movement desensitisation and reprocessing; music therapy; case management. Some of the interventions were delivered via computer or text message (digital interventions), and some were delivered as brief interventions. There was also a review investigating the colocation of services. Most of the interventions and many of the active comparators studied resulted in some improvement for patients on substance use outcomes and/or mental health outcomes. There was much heterogeneity both between reviews and between the RCTs within the reviews. There was heterogeneity in populations (type and severity), interventions and outcome measures, as well as in settings, how interventions or comparators were delivered, and treatment intensity and retention. This made it difficult to reach an overall conclusion about which therapies were best. Most reviews stated the results were not generalisable across all populations or settings.

Integrated treatment (treating both SUD and CMD/BPD) was usually better than treating one condition alone, and sometimes better than parallel treatments (separate, unco-ordinated services for SUD, and either CMD or BPD). There was limited evidence assessing sequential treatment (with either SUD or CMD/BPD treated first), but this suggested it was similarly effective to integrated treatment.

Assessment of cost-effectiveness

The systematic review identified 948 distinct records for which 18 were assessed at full-text level which resulted in the inclusion of 1 relevant study. However, this paper reported results alongside a clinical study and was not a modelling paper.

Rather than stop at this point, we developed an illustrative model for assessing DEpression-ALcohol (DEAL) Project (DEAL; an automated web-based self-help intervention) compared to control using data from a study identified within the systematic review of clinical effectiveness to aid future researchers. This study reported the Patient Health Questionnaire-9 items, a widely used measure for depression, that can be mapped to the Short Form questionnaire-6 Dimensions, a preference-based measure of health which we assumed, for this example, to equal a EuroQol-5 Dimensions value. The model outlines a step-by-step approach to obtaining QALYs gained, having assumed the duration of treatment benefit, and linear interpolation between known data points. When combined with the assumed cost of the intervention, the cost per QALY of DEAL was estimated. The precise estimate of cost-effectiveness was not overly important compared to the illustrated methodology.

Conclusions

No implications for current practice could be recommended due to heterogeneity of reviews/RCTs within reviews.

No relevant papers were identified that used modelling techniques to assess the cost-effectiveness of interventions for patients with SUD and a common mental health illness. The research group therefore provided guidance on how cost-effectiveness could be estimated using as an example, DEAL compared with control.

Future research comparing integrated with parallel or sequential treatment, with follow-up of 6 months or longer, and sample size large enough to encompass dropout, may be beneficial.

Study registration

This study is registered as PROSPERO CRD42024515813.

Funding

This award was funded by the National Institute for Health and Care Research (NIHR) Evidence Synthesis programme (NIHR award ref: NIHR166951) and is published in full in *Health Technology Assessment*; Vol. 30, No. 49. See the NIHR Funding and Awards website for further award information.

Chapter 1 Introduction

Background and rationale for research

People with alcohol or drug use disorders can have a co-occurring mental health disorder. This is sometimes referred to as dual diagnosis [sometimes this is used to mean co-occurring serious mental illness (SMI), or sometimes any mental health disorder].

The National Institute for Health and Care Excellence (NICE) has produced guidance on treating people with alcohol or drug use disorders with a co-occurring serious mental health disorder; however, this does not cover those with co-occurring common mental health disorder (CMD).^{1,2} CMD includes: anxiety disorders; depressive disorders; eating disorders; obsessive-compulsive disorder (OCD); phobias; and post-traumatic stress disorder (PTSD).

The Adult Psychiatric Morbidity Survey by the NHS estimated a prevalence of CMD, in 2014 in the UK, as 14.7% in men, and 23.1% in women.³ In England (April 2022–March 2023), there were 290,635 adults in contact with drug and alcohol services.⁴ Public Health England (2017) found the majority of substance use disorder (SUD) service users had co-occurring mental health problems (SMI or CMD), with 70% of drug users and 86% of alcohol users reporting comorbid mental health problems.⁵ It has been suggested that mood disorders are up to 4.7 times more prevalent in SUD than in the general population.⁶ In people with SUD, there is a wide estimate for prevalence rates of co-occurring PTSD, ranging from 8% to 53%.⁷

A study of UK patients found that within drug service users, 37% had a personality disorder, 19% had severe anxiety and 67% had depression. Among alcohol service users, 53% had a personality disorder, 32% had severe anxiety and 81% had depression.^{8,9} A study of alcohol use in an English population found that for people with phobias, there was a prevalence of 17% hazardous drinking and 9% harmful drinking (probable dependence).¹⁰ In the population with probable PTSD, there were prevalences of 18% hazardous and 8% harmful alcohol use.¹⁰

With co-occurring SUD and mental health problems (SMI or CMD), the conditions can aggravate each other, increasing psychiatric symptoms and impairing health-related quality of life.^{11–13} People with co-occurring diagnoses have higher rates of treatment dropout or non-compliance.¹⁴

According to service users (PPI, [Additional information](#)), there may be barriers to accessing services, including: lack of information about local services; stigma; not knowing about available local services, and what they could offer; lack of range of interventions or space available for services; service user difficulties with transport, limited finances, technology issues, disabilities or anxiety.

There are a range of psychosocial and pharmacological interventions available for SUD, CMD, or borderline personality disorder (BPD). This review focused on psychosocial interventions for people with both SUD and CMD, or SUD and BPD. Psychosocial interventions include acceptance and commitment therapy (ACT); arts therapy, including drawing, music, sculpture, photography; behavioural therapy (BT) including dialectical behavioural therapy (DBT); case management; cognitive-behavioural therapy (CBT); contingency management, that is incentivised or compensated work therapy; eye movement desensitisation and reprocessing (EMDR); exercise or yoga; mindfulness; motivational interview (MI); peer support; psychotherapy (PsyT); seeking safety (SS); self-management support; supportive counselling; supportive housing; trauma-focused therapy (TfT). Choice of intervention by healthcare professionals may be guided by the UK guidelines on clinical management for drug misuse¹⁵ and NICE guidelines for alcohol use disorders (AUDs)¹⁶ – also NICE guidelines, or British Association for Psychopharmacology guidelines, for the relevant CMD conditions.^{17–20} According to clinical advice, while any of the listed interventions may be applied, services run by clinicians may be more likely to use contingency management for SUD,¹⁵ and CBT and MI for depression, or TfTs such as EMDR, SS or CBT for PTSD; whereas community-based services may offer more peer support, supportive counselling, yoga or arts therapies.

National Institute for Health and Care Excellence guidance on treating people with SUDs with a co-occurring SMI recommends a collaborative multiagency approach.^{1,2} Australian guidelines recommend treating and managing both conditions of co-occurring diagnoses simultaneously.²¹ European guidelines for SUD and PTSD recommend adopting a collaborative care treatment strategy to address comorbid SUD, simultaneously with PTSD symptoms. They also recommend that, in starting SUD treatment simultaneously, information is necessary to warn patients of short-term worsening of PTSD symptoms due to loss of drug or alcohol use as a coping mechanism.²²

For people with dual diagnosis (SMI/CMD and SUD) in the USA, it has been estimated that 7–9% of service users receive integrated care.²³

Integrated treatment involves the treatment of co-occurring diagnoses simultaneously. Non-integrated treatment does not have co-ordination between service providers. Non-integrated treatment can include two separate services provided over the same time period (parallel treatment); or the treatment of one disorder followed by treatment of the other disorder (sequential treatment).

This review focused on psychosocial interventions for people with both SUD and CMD, or SUD and BPD, and sought to compare integrated and non-integrated service delivery where evidence allowed.

Aims and objectives

To systematically review evidence regarding clinical effectiveness and estimate the cost-effectiveness of psychosocial interventions for adults with SUD that have a co-occurring CMD or BPD.

Chapter 2 Methods

Methods for reviewing clinical effectiveness

Umbrella review

An umbrella review, that is, a systematic overview of systematic reviews, was conducted based on methods described by the Joanna Briggs Institute (JBI)^{24,25} and Cochrane Collaboration²⁶ using the review eligibility criteria shown in [Table 1](#). This approach was chosen due to the breadth of the scope and the volume of available literature.^{27–29}

The protocol for the umbrella review is registered on PROSPERO CRD42024515813.

TABLE 1 Review eligibility criteria

	Include	Exclude
	Adults (age 18 years and over, no upper limit) with both: 1. Substance dependence [moderate–severe alcohol/drug use disorder (excluding tobacco/nicotine), including non-dependent but harmful pattern of substance use]; and 2. A co-occurring mental disorder. Co-occurring mental disorders comprise the following:	
Population	Either - i. CMDs including those treated by IAPT (Improving Access to Psychological Therapies) services:³⁰ • anxiety disorders • depressive disorders, including major depressive disorder (MDD) • eating disorders • OCD • phobias • PTSD Or- ii. BPD. Antisocial personality disorder was also included.	1. Severe mental illness that is covered by NICE guidance NG58¹ and CG120,² namely: NG58 Any severe mental illness • schizophrenia, schizotypal and delusional disorders, schizophrenia spectrum disorder • bipolar affective disorder • severe depressive episode(s) with or without psychotic episodes (populations with depression that includes MDD will be included) CG120 Psychosis. The main forms of psychosis are schizophrenia (including schizoaffective disorder, schizophreniform disorder and delusional disorder), bipolar disorder or other affective psychosis 2. Drug- or alcohol-related cognitive impairment; dementia; neuroatypical populations (autism, attention deficit hyperactivity disorder). 3. Populations with alcohol/drug dependence without mental illness (or with subclinical, e.g. depression/anxiety), or addiction studies where outcomes include measures of anxiety or depression (but population not diagnosed with anxiety or depression); or mental illness without substance-related problems. Tobacco/nicotine dependence is excluded. Alcohol reduction as lifestyle intervention for non-dependent/non-harmful users is excluded. 4. Children
		continued

TABLE 1 Review eligibility criteria (*continued*)

	Include	Exclude
Interventions	Psychosocial interventions for SUD and CMD/BPD (with or without pharmacological therapies), including: CBT; MI therapy; BT including DBT; ACT; PsyT; supportive counselling; TfT; SS; EMDR; case management; contingency management (incentivised/compensated work therapy); supportive housing; self-management support; peer support; mindfulness; yoga or exercise; arts therapy. Includes face-to-face or digital interventions (computer-based or text messaging); individual or group therapy; or brief interventions.	Treatment for drug- or alcohol-related cognitive impairment including cognitive remediation and traumatic brain injury. Pharmacological interventions with no adjunctive psychosocial intervention. Studies of medically supervised withdrawal management (detoxification)
Comparators	Included interventions compared with each other. Included interventions compared with treatment as usual (TAU), waitlist, attention-control, no treatment. Integrated treatment (for both SUD and CMD) compared with parallel or sequential treatments, or treatment for either SUD or CMD alone.	Studies comparing different pharmacological treatments; or comparing pharmacological treatment with psychosocial, placebo or no interventions.
Outcomes	Substance use outcomes: Alcohol or drug use counts of days abstinent; longest continuous days abstinent; number of heavy drinking days; time to event (e.g. time to first heavy drinking day); craving for alcohol and drugs; rate of remission from alcohol and drug use disorder CMD outcomes: Mental health symptoms and disorder remission; disease-specific outcome measures Personal and social functioning and recovery measures as specified (e.g. global assessment; employment/occupational, housing, educational outcomes). Treatment retention, attendance, adverse effects	Prevalence of comorbidities Affected-other outcomes
Study design	Systematic reviews and meta-analyses of randomised controlled trials (RCTs).	Non-systematic reviews Systematic reviews of observational studies Primary studies
Countries/ settings	Countries with similar health care to UK, for example UK, USA, Australia, Europe Healthcare primary or secondary, drug or alcohol services, social care, community setting/voluntary sector, prison	Low- and middle-income countries
Other	English language; publication type peer-reviewed journal article	Non-English language; publication-type dissertation, book, abstract with insufficient information, editorial, opinion, letter

Systematic reviews and meta-analyses (MAs) of randomised controlled trials (RCTs) were sought. The systematic reviews must have a transparent reproducible search strategy and search multiple sources.²⁸ Reviews that include RCTs and observational studies were only included if results of the RCTs were reported separately.³¹

Where systematic reviews had a broader population than our eligibility criteria (see [Table 1](#)), they were eligible for inclusion if either SUD outcome or CMD/BPD outcome data were summarised separately for the population meeting our review. Where there were broader populations, where data were not summarised separately for the subgroup eligible for our project, for example reviews of adults and children, these reviews were listed separately in the appendix of excluded studies (see [Appendix 2](#)).³²

Where there were multiple systematic reviews of the same topic, the most recent review was included if this incorporated all RCTs meeting eligibility criteria across those reviews.³³ However, for cases where there were overlapping but non-identical review questions, and the reviews included some of the same primary studies, both reviews were included and the amount of overlap of primary studies was stated.^{26,34,35}

Search strategy

The search strategy comprised the following main elements:

- Searching of electronic databases: MEDLINE, EMBASE, PsycInfo® (American Psychological Association, Washington, DC, USA), Cochrane Database of Systematic Reviews, and Web of Science.
- Contact with experts in the field.
- Scrutiny of bibliographies of retrieved papers.

The table of sources search and search strategies are presented in (see [Appendix 1, Tables 15–20](#)).

Systematic database searches were carried out in February 2024. The following concepts were identified:

1. General terms for mental health co-occurrence, dual diagnosis.
2. Patient groups were identified through consultation with the clinical advisors, NICE's list of mental disorders,^{36,37} Improving Access to Psychological Therapies (IAPT) treated mental health conditions:³⁰ general terms for CMDs and BPD.
3. General terms for substance misuse and psychoactive substances.
4. Named substances: amphetamine; benzodiazepine; alcohol; cannabis; cocaine; heroin; ketamine; marijuana; methadone; methamphetamine; opiates; opioids; opium; and phencyclidine.

Exclusion filter

- Child subject headings and free-text terms.

Limits applied

- Maximum specificity reviews search filter <https://hiruweb.mcmaster.ca/hkr/hedges/medline/>
- English language limit.

The following concept combinations were combined in the search strategy:

((Concept 1 OR (Concept 2 AND (Concept 3 OR Concept 4))) AND Reviews filter) NOT CHILD filter)

Study selection

Study selection was made using the review eligibility criteria shown in [Table 1](#). The title and abstract of each record retrieved by the search strategy were assessed against the review eligibility criteria, and irrelevant records were excluded. A 5% sample of the records retrieved by electronic searches was checked by two reviewers, and in the case of high agreement (Cohen's $\kappa = 0.8$ or higher), one reviewer assessed the rest of the records. There was the option

to check further 5% samples until reviewers reached an agreement. The full texts of selected records were obtained and assessed against the inclusion criteria. Study selection based on full texts involved a 10% sample check by two reviewers with discrepancies resolved by discussion, with the option to check further samples until agreement was reached. Following this, one reviewer conducted the remaining full-text study selection.

Data extraction strategy

A data extraction form was constructed in Microsoft Excel® (Microsoft 365 ProPlus, Microsoft Corporation, Redmond, WA, USA). Data were extracted from all studies by one reviewer using a standardised data extraction form, piloted on four studies by two reviewers. A second reviewer thoroughly checked all extractions. Any disagreements were resolved through discussion and consultation with a clinical advisor where necessary. Where there were several editions of the same systematic review, the most up-to-date edition was used. Where studies had wider populations or comparators outside the scope of this review, only data for the relevant subgroup were extracted.²⁶ Data extracted included review characteristics, population characteristics, results, and the reviews' risk-of-bias assessment of included RCTs.

Quality assessment strategy

Critical appraisal of included reviews was performed by one reviewer and checked by a second reviewer. Discrepancies in the assessments made by the reviewers were resolved by discussion. Systematic reviews were assessed using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses²⁴ for systematic reviews. Quality of the RCTs within systematic reviews were summarised from the risk-of-bias assessments within each included review.

Methods of analysis/synthesis

From the umbrella review, results of relevant MAs were tabulated and reported. Results of narrative syntheses were tabulated and reported. Data were discussed in a narrative review.²⁷

Chapter 3 Results – clinical effectiveness

Results – quantity and quality of research available

Umbrella review

Searches for systematic reviews, in five databases, conducted February 2024, gave a total of 8984 records. Following removal of duplicates, there were 5416 unique records. An additional four records were added from bibliography searching. This gave a total of 5420 records to title/abstract sift.

Five thousand four hundred and twenty records were title/abstract sifted, from which, 2 reviewers independently title and abstract sifted 280 records. There was an agreement of 93.9%, with Cohen's $\kappa = 0.9$. Disagreements were resolved by discussion. The rest of the records were title and abstract sifted by one reviewer.

Three hundred and twenty-six title/abstracts were included, and full texts of 320 of these records were obtained (for 6 records full texts were not available) ([Figure 1](#)). To assess agreement between reviewers, 34 full texts were sifted by 2 reviewers independently. There was an agreement of 94.1%, with Cohen's $\kappa = 0.8$. The rest of the full texts were sifted by one reviewer.

Thirty reviews were included.

There were in total 290 exclusions (see [Appendix 2, Tables 21–24](#)).

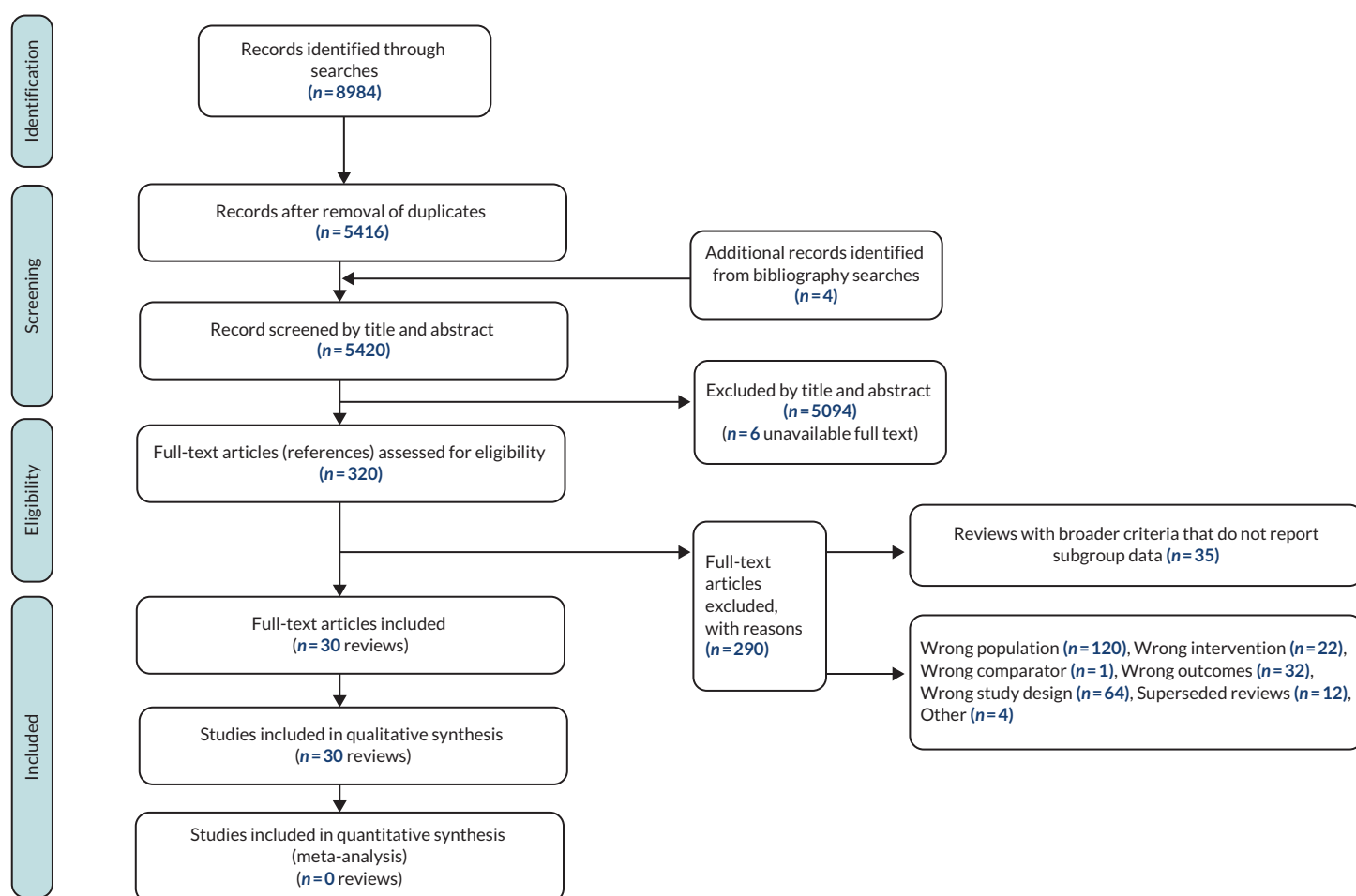


FIGURE 1 PRISMA flow diagram.

Seven papers had updated versions of the same review, and so were excluded due to being superseded. An additional five reviews only included RCTs covered by included reviews that were newer and had more studies, and did not provide additional data, and so were excluded due to being a superseded review: Brazier *et al.*³⁸ – all RCTs in Lee *et al.*³⁹; Holmes *et al.*⁴⁰ – all RCTs in O'Donnell *et al.* and Schouten *et al.*^{41,42}; Hobbs *et al.* – all RCTs in Hesse *et al.*⁴³

Lo Coco *et al.*⁴⁴ – all RCTs in Mehta *et al.*⁴⁵; Sugarman *et al.*⁴⁶ – all RCTs in Schouten *et al.*⁴² or Dugdale *et al.*⁴⁷

Thirty-five papers had broader criteria that do not report subgroup data for trials meeting the inclusion criteria for our project.

Two hundred and forty-three papers did not meet eligibility criteria for the following reasons:

Wrong population 120

Wrong intervention 22

Wrong comparator 1

Wrong outcomes (or outcomes not reported) 32

Wrong study design (not systematic review, or review of non-RCTs) 64

Other 4

Included study characteristics

Characteristics of the 30 included systematic reviews are shown in [Table 2](#). Further details are in [Appendix 3, Tables 25–28](#).

TABLE 2 Table review characteristics

First author, year	Population SUD	Population CMD	Psychosocial therapy categories	Number of RCTs relevant to our project
Amato, 2011 ⁴⁸	SUD drug (opioid)	Depression	CBT; ACT; PsyT; support; peer	3
Cuijpers, 2023 ⁴⁹	SUD any	Depression	CBT; PsyT	8
Grant, 2021 ⁵⁰	AUD	Depression	CBT; ACT; PsyT; support; peer; brief; digital	9
Hassan, 2017 ⁵¹	SUD drug (opiate)	Depression/anxiety	CBT; BT; PsyT	4
Hides, 2019 ⁵²	SUD any	Depression	CBT; BT; PsyT; peer	6
O'Donnell, 2022 ⁴¹	AUD	Depression, MDD	CBT; MI; support; brief; digital	5
Riper, 2014 ⁵³	AUD	Depression, MDD	CBT; MI; support; peer; brief	9
Schouten, 2022 ⁴²	AUD	Depression	CBT; MI; support; brief; digital	6
Baker, 2012 ⁵⁴	AUD	Mixed CMD (depression, anxiety, panic disorder, phobias)	CBT; MI; BT; PsyT; brief	8
Boniface, 2018 ⁵⁵	AUD	Mixed CMD (depression, anxiety, PTSD, social phobia)	CBT; MI; support; brief; digital	11
Cavicchioli, 2018 ⁵⁶	SUD any	Mixed CMD (depression, anxiety, eating disorders, PTSD, BPD)	CBT; MI; mind; BT; peer;	8
Chetty, 2023 ⁵⁷	SUD any	Mixed (depression, anxiety, PTSD, eating disorders)	CBT; Tft; BT	9

TABLE 2 Table review characteristics (*continued*)

First author, year	Population SUD	Population CMD	Psychosocial therapy categories	Number of RCTs relevant to our project
Dugdale, 2019 ⁴⁷	SUD any	Mixed CMD (depression, PTSD)	CBT; MI; ACT; peer; mind; digital	19
Ghetti, 2022 ⁵⁸	SUD any	Mixed CMD (depression, anxiety, PTSD, BPD)	PsyT; support; peer; music	2
Glover-Wright, 2023 ⁵⁹	SUD any	Mixed CMD (depression, MDD, anxiety, panic disorder, PTSD)	Support; contingency; colocation of services	4
Hesse, 2009 ⁴³	SUD any	Mixed CMD (depression, anxiety, OCD, PTSD)	CBT; BT; PsyT; support; peer	10
Karapereddy, 2019 ⁶⁰	SUD any	Mixed CMD (anxiety, social phobia, PTSD)	ACT; contingency	4
Mehta, 2021 ⁴⁵	SUD any	Mixed CMD (depression, anxiety, PTSD)	CBT; support; Tft; peer	12
Perry, 2019 ⁶¹	SUD any	Mixed CMD (depression, anxiety, phobias, PTSD, BPD/AsPD)	CBT; MI; ACT; support; peer; mind	7
Henderson, 2020 ⁶²	SUD any	PTSD	CBT; Tft; SS	6
Hien, 2023a ⁶³	SUD any	PTSD	CBT; MI; BT; Tft; SS; EMDR	27
Hien, 2023b ⁶⁴	SUD any	PTSD	CBT; ACT; support; Tft; SS	24
Hill, 2024 ⁶⁵	SUD any	PTSD	Tft; SS	4
Logsdon, 2023 ⁶⁶	SUD any	PTSD	EMDR	3
Molina, 2022 ⁶⁷	SUD any	PTSD	CBT; Tft; SS	8
Roberts, 2022 ⁶⁸	SUD any	PTSD	CBT; ACT; Tft; SS; contingency; peer; support; brief; digital	26
Sherman, 2023 ⁶⁹	SUD any	PTSD	SS	7
Simpson, 2021 ⁷⁰	SUD any	PTSD	CBT; MI; support; Tft; SS	25
Gibbon, 2020 ⁷¹	SUD any	BPD (AsPD)	CBT; MI; support; contingency	9
Lee, 2015 ³⁹	SUD any	BPD	CBT; BT; PsyT; CaseM; peer	10

AsPD, antisocial personality disorder; brief, brief intervention; CaseM, case management; contingency, contingency management; digital, digital intervention (i.e. delivered via computer or text message); MDD, major depression disorder; mind, mindfulness; music, music therapy; peer, peer support; support, supportive counselling or self-management support.

The majority of reviews covered depression, anxiety or PTSD. Nine focused on PTSD, eight focused on depression/anxiety. Of the 11 reviews with mixed (several types of) CMD, all included 1 or more of depression, anxiety or PTSD. Two reviews focused on BPD. The majority of reviews covered any form of SUD [alcohol and/or drug(s)], six focused on AUD and two focused on opioid use.

Eight of the reviews completely met our project inclusion criteria.^{39,41–43,54,65,69,72} The others had broader criteria than our project. The included reviews had between 2 and 27 RCTs meeting our project inclusion criteria.

A map showing availability of reviews by intervention was created in EPPI-Reviewer (Evidence for Policy and Practice Information and Co-ordinating Centre, University of London, London, UK)^{73,74} <https://tinyurl.com/35pmhve2>.

The evidence map identified the following intervention gaps: supportive housing (zero reviews); yoga and exercise (zero reviews); case management (one review); art therapy including music therapy (one review); and EMDR (two reviews).

To address these gaps, RCTs were sought that were not included in the umbrella review. Targeted searches were undertaken by checking the reference list of reviews that were initially excluded due to having broader criteria than the inclusion criteria for this project. The searches identified eight RCTs^{75–82} that met the criteria for substance use and comorbid mental health conditions in the targeted interventions. Of these, three RCTs^{77,80,81} included yoga intervention, one RCT each included EMDR⁷⁸ or music therapy⁸² and three RCTs were in homeless individuals.^{75,76,79} No RCTs were found for case management or assessing sheltered housing with no sheltered housing. Further details of the included studies are provided in (see [Appendix 4, Tables 29–31](#)).

Three reviews included UK RCTs: Dugdale *et al.*⁴⁷ ($n = 4$ RCTs), Chetty *et al.*⁵⁷ ($n = 1$) and Boniface *et al.*⁵⁵ ($n = 1$). The following reviews included studies from Ireland but not stated whether Northern or Republic of Ireland: Grant *et al.*⁵⁰ ($n = 2$), Riper *et al.*⁵³ ($n = 1$), Schouten *et al.*⁴² ($n = 2$). Most reviews included studies from the USA. Other included RCTs were from Australia, the Netherlands, Canada, Germany, Sweden, Switzerland, Austria, Mexico, Venezuela, Denmark, Thailand, France, Islamic Republic of Iran and Spain (we included reviews with majority of RCTs from countries with Western/European health services, but reviews with a few RCTs from other countries were allowed). Seven reviews (Cavicholi *et al.*,⁵⁶ Hassan *et al.*,⁵¹ Hesse *et al.*,⁴³ Hien *et al.*,⁶³ Hill *et al.*,⁶⁵ Karapereddy *et al.*,⁶⁰ Mehta *et al.*⁴⁵) did not report the country of included RCTs.

Risk of bias

Critical appraisal of included systematic reviews

The critical appraisal of included systematic reviews was conducted using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses²⁴ for systematic reviews and presented in [Appendix 5, Table 32](#).

In summary, the methodological quality of the reviews was generally good with all the reviews stating clear and explicit review questions, reporting appropriate inclusion/exclusion criteria, using appropriate sources and resources to search for studies, making evidence-based recommendations, and providing specific directives for new research. The main area of concern was the lack of assessment for publication bias (12 reviews).^{41–43,47,54,57,59,62,65,67–69} In addition, it was unclear in five reviews^{38,45,47,56,59,62,72} if critical appraisal was undertaken independently by two or more reviewers and in nine reviews,^{49,53,56,57,59,60,62,63,65} it was unclear if methods to minimise errors in data extraction were used. Nine studies scored yes in all domains.^{48,50,52,55,58,61,66,70,71} Due to heterogeneity in population, interventions, comparators and outcomes, it was not possible to quantify any trends between the review quality and significance of outcomes reported.

Within-review risk-of-bias assessments of RCTs

The quality of the primary RCTs within systematic reviews was summarised from the risk-of-bias assessments within each included review and presented in [Appendix 6, Table 33](#).

The most popular assessment tool used to assess the methodological quality of the included RCTs was the Cochrane Risk of Bias 1 tool⁸³ (15 reviews).^{41,45,48–50,52,53,55,56,58,61,67,68,70,71} followed by the Cochrane Risk of Bias 2 tool⁸⁴ (5 reviews).^{42,63,64,66,69} Six reviews used various other tools; Lee *et al.*³⁹ used an adapted quality checklist of NICE and Petticrew and Robe,^{85,86} Henderson *et al.*⁶² used the Quality Assessment Framework,⁸⁷ Glover-Wright *et al.*⁵⁹ used the Methodological Standard for Epidemiological Research (MASTER) scale,⁸⁸ Chetty *et al.*⁵⁷ used the Critical Appraisal Skills Programme (CASP) checklist,⁸⁹ Dugdale *et al.*⁴⁷ used the Quality Assessment tool for Quantitative studies, and Baker *et al.*⁵⁴ used PEDro Scale quality rating.⁹⁰ Three reviews did not report on the methodological quality of the included studies.^{43,60,65,72}

The methodological quality of the included RCTs within the reviews and the risk of bias for each of the domains within the studies varied. In two reviews, Schouten *et al.*⁴² and Hides *et al.*,⁵² all the included studies were at high risk of bias. The studies with an overall high risk of bias were mainly due to high dropout rate, failure to meet power calculation estimates, selection bias, use of only self-report outcomes, lack of blinding, or had meaningful differences in baseline characteristics. Some RCTs did not report key information.⁴⁸ In addition, in some reviews, it was not reported whether the studies were confounded by imbalanced use of other interventions or pharmacotherapy. However, it should be noted that the inability to blind participants and assessors and the use of self-report measures are common in psychological studies. Studies with missing data were handled differently in the included reviews. Schouten⁴² did not

undertake any sensitivity analysis or multiple imputations. While Hides *et al.*⁵² had planned to perform sensitivity analyses, this was not undertaken due to clinical heterogeneity and the small number of included studies. In Dugdale *et al.*,⁴⁷ there was high attrition across studies, with many studies using intention-to-treat analyses and Robert *et al.*⁶⁸ noted that the study authors generally took steps to impute missing data through appropriate statistical methods.

Although it was not possible to assess if the methodological quality of the studies impacted the direction of the results, Cuijpers *et al.*⁴⁹ and Boniface *et al.*⁵⁵ noted that limiting the studies to those with a low risk of bias resulted in a non-significant effect size, while Mehta *et al.*⁴⁵ found studies with a low risk of bias had greater effects on SUD outcomes; however, study quality was not related to effect size variability for PTSD outcomes. In Hien *et al.*,⁶³ the effect size on PTSD symptom severity at 12 months was greater when restricted to studies with low or moderate risk of bias but showed no difference in effect size > 0.06 on other outcomes. Amato *et al.*⁴⁸ performed a sensitivity analysis including and excluding studies at high risk of bias, for retention in treatment and substance use, but this did not lead to change in results. A number of reviews were unable to perform sensitivity analysis to explore the impact of bias on effect size due to the small number of included studies and clinical heterogeneity limiting the possibility to pool data. Overall, due to variabilities in the included studies and outcomes measured in the reviews, it was difficult to highlight any trends between the methodological quality of the studies and the type of mental health disorder, type of SUD or by intervention type.

Results outcomes

Fifteen reviews reported MAs of RCTs eligible for our project. Eight reviews reported MAs of RCTs for anxiety or depression^{42,43,45,48–50,52,53} seven reviews reported MAs of RCTs for PTSD^{45,56,66,68–70}; or network meta-analyses (NMAs) for PTSD.^{63,64}

All reviews stated that there was heterogeneity between included RCTs. Most reviews discussed that RCTs are not generalisable across all SUD and CMD comorbid populations, and settings.

Many reviews pointed out that RCTs had small sample sizes. Treatment as usual (TAU) differed between studies, and was not always clearly described. Interventions and TAU were aimed at both diagnoses, unless otherwise stated. Not all RCTs in reviews provided both SUD and CMD data.

Many reviews pointed out that both intervention and TAU significantly improved SUD and/or CMD outcomes, even where there were no significant differences between treatment groups.

Results are presented by population investigated by reviews (depression/anxiety; PTSD; mixed CMD; BPD).

Results from reviews focusing on depression or anxiety

Eight reviews focused on depression/anxiety, and two additional reviews of mixed CMD reported separate data for depression/anxiety (Mehta *et al.*⁴⁵ and Hesse *et al.*⁴³). Reviews reporting MAs are shown in [Table 3](#), and narrative results in [Table 4](#). Reviews did not always report significance values, but where they were reported they are shown in the tables. There was some overlap of RCTs between Hesse *et al.*,⁴³ Hides *et al.*⁵² and Mehta *et al.*⁴⁵; between O'Donnell *et al.*⁴¹ and Schouten *et al.*⁴²; and Hassan *et al.*⁵¹ and Amato *et al.*⁴⁸ All these reviews also had RCTs not overlapping with other reviews.

Hassan *et al.* found BT did not differ significantly from TAU in alleviating depressive symptoms.⁵¹

Hides *et al.*⁵² compared integrated CBT (ICBT) with peer support (12-step), and found ICBT, while no better than peer support at post treatment, significantly favoured ICBT for SUD outcomes at 6–12 months follow-up (MA $p = 0.01$).⁵² For CMD outcomes, peer support had significantly more favourable effects on depressive symptoms post intervention [MA standardised mean difference 4.05, 95% confidence interval (CI) 1.43 to 6.66], but this difference had disappeared by 6–12 months follow-up (Hides *et al.*).⁵²

TABLE 3 Meta-analysis of anxiety or depression

Author, year	Num-ber of RCTs in MA	Num-ber of partici-pants	Popu-lation SUD	Popu-lation CMD	Psycho-social inter-vention cate-gories	Interven-tion	Com-par-ator cate-gories	Compar-ator	Follow-up	SUD calcu-lated meas-ure	SUD ef-fect size (95% CI)	SUD – out-come meas-ures used	CMD calcu-lated measure	CMD effect size (95% CI)	CMD – outcome measures used	Heterogenei-ty (I^2)
Mehta, 2021 ⁴⁵	6	912	SUD any	Anxiety, depression	CBT	ICBT + usual care, ICBI	TAU	Usual care, single disorder intervention	Post treatment	Hedges' g (95% CI)	0.240 (–0.163 to 0.643), $p = 0.243$ non-significant	Days/ proportion abstinent, days used,	NR	NR	NR	87%
Amato, 2011 ⁴⁸	3	279	SUD drug – opioid	Depression	CBT; ACT; PsyT; support; or peer	Any psy-chosocial + pharmacology	TAU	Pharm standard	Post treatment	NR	NR	NR	SMD	MD – BDI 1.70 (–3.91 to 0.51) non-significant; SCL-90 0.02 (–0.28 to 0.31) non-significant	BDI, SCL-90	0%
Cuijpers, 2023 ⁴⁹	8	NR	SUD any	Depression	CBT; PsyT	Psycho-logical interventions (with or without antidepressants) – CBT, IPT	TAU or no treatment	WL, TAU, or non-active control (with or without antidepressants)	Post treatment	Hedge's g	0.25; 95% CI (0.01 to 0.50) small but significant effect size, favours intervention	Sub-stance use problem	SMD Hedge's g, SMD	0.25 (0.06 to 0.43) small but significant effect size, favours intervention. NNT = 14.64	Depression (HAM-D-17), the BDI, the BDI-II,	25% depres-sion; 58% SUD
Grant, 2021 ⁵⁰	2	430	AUD	Depression,	CBT	CBT some brief, with or without pharma	TAU	No additional treatment	Post treatment	SMD (95% CI)	–0.25 95% CI (–0.47 to –0.04); $p = 0.021$	Alcohol use mean cubic cm per day	SMD (95% CI)	–0.84 (–1.05 to –0.63); $p < 0.001$	Depressive symptoms (mean PHQ-9 and mean 9Q)	$I^2 = 0\%$ alcohol; depression $I^2 = 64.9\%$
Grant, 2021 ⁵⁰	2 (MA within NMA)	430	AUD	Depression	CBT	CBT some brief, with or without pharma	TAU	No additional treatment	Short-term (1–5 months) follow-up	SMD (95% CI)	–0.10 (–0.31 to 0.12)	Alcohol use (mean cubic cm per day)	SMD (95% CI)	–0.88 (–2.93 to 1.18)	Depressive symptoms (mean PHQ-9 and mean 9Q)	$I^2 = 0\%$ alcohol; depression $I^2 = 35.3\%$

TABLE 3 Meta-analysis of anxiety or depression (continued)

Author, year	Number of RCTs in MA	Number of participants	Population SUD	Population CMD	Psycho-social intervention categories	Intervention	Comparator categories	Comparator	Follow-up	SUD calculated measure	SUD effect size (95% CI)	SUD – outcome measures used	CMD calculated measure	CMD effect size (95% CI)	CMD – outcome measures used	Heterogeneity (I^2)
Hesse, 2009 ⁴³	4	115	SUD any	Depression	PsyT	Psychotherapeutic integrated treatment (SET, ICBT, LETS, IPT)	TAU (includes peer)	Current events group, 12FT, TAU, BST	6 months	NR	NR	NR	SMD (IV, random, 95% CI)	$d = -0.58$, 95% CI (-1.10 to -0.06); $p = 0.03$, significantly favours intervention	SCL-90 or BDI	46%
Hesse, 2009 ⁴³	3 SUD; 4 depression	111 SUD; 155 depression	SUD any	Depression	PsyT	Psychotherapeutic integrated treatment (coping with depression, ICBT, IPT)	TAU (includes peer)	Relaxation training, 12FT, TAU, BST	6 months	SMD (IV, random, 95% CI)	13.75, 95% CI (0.51 to 26.99); $p = 0.04$ significant favour PsyT	Per cent days abstinent	SMD (IV, fixed, 95% CI)	-4.6, 95% CI (-7.4 to -1.7); $p = 0.001$ (significant favours intervention)	HRSD	SUD 17%; depression 61%
Schouten, 2022 ⁴²	6	449 AUD; 647 depression	AUD	Depression	Digital, CBT/MI, support (some brief)	Integrated digital intervention	TAU or no treatment	Any	3 months	SMD Hedges' g , and NNT	Alcohol use $g = 0.14$ (-0.02 to 0.30); $p = 0.07$ non-significant. NNT = 12.70	Units per day or per week, or alcohol use occasions per day	SMD Hedges' g , and NNT	Depressive symptoms $g = 0.34$ (0.06 to 0.62); $p = 0.02$ (significantly favours intervention). NNT = 5.26	BDI; PHQ-9	AUD 0%; depression 27%
Schouten, 2022 ⁴²	6	375 AUD; 461 depression	AUD	Depression	Digital, CBT/MI, support (some brief)	Integrated digital intervention	TAU or no treatment	Any	6 months	SMD Hedges' g , and NNT	Alcohol use $g = 0.14$ (0.07 to 0.20); $p = 0.005$ (significant favours intervention) NNT = 13.05	Units per day or per week, or alcohol use occasions per day	SMD Hedges' g , and NNT	Depressive symptoms $g = 0.29$ (-0.16 to 0.73); $p = 0.15$ non-significant. NNT = 6.25	BDI; PHQ-9	AUD 0%; depression 48%

continued

TABLE 3 Meta-analysis of anxiety or depression (continued)

Author, year	Number of RCTs in MA	Number of participants	Population SUD	Population CMD	Psycho-social intervention categories	Intervention	Comparator categories	Comparator	Follow-up	SUD calculated measure	SUD effect size (95% CI)	SUD – outcome measures used	CMD calculated measure	CMD effect size (95% CI)	CMD – outcome measures used	Heterogeneity (I^2)
Grant, 2021 ⁵⁰	2	126	AUD	Depression or MDD	Digital, support	Supportive text messaging	No treatment control	Psychological placebo (attention matched)	Short-term (1–5 months) follow-up	OR (95% CI)	1.64 (0.55 to 4.91)	Remission from alcohol use	NR	NR	NR	0%
Grant, 2021 ⁵⁰	2	126	AUD	Depression or MDD	Digital, support	Supportive text messaging	No treatment control	Psychological placebo (attention matched)	Short-term (1–5 months) follow-up	SMD (95% CI)	–0.14 (–0.70 to 0.43)	Alcohol use (mean units per drinking day)	SMD (95% CI)	–0.17 (–0.74 to 0.39)	Depressive symptoms (mean BDI)	0%
Grant, 2021 ⁵⁰	2	126	AUD	Depression or MDD	Digital, support	Supportive text messaging	No treatment control	Psychological placebo (attention matched)	Short-term (1–5 months) follow-up	SMD (95% CI)	–0.46 (–1.03 to 0.12)	Withdrawal and craving symptoms	NR	NR	NR	0%
Grant, 2021 ⁵⁰	2	126	AUD	Depression or MDD	Digital, support	Supportive text messaging	No treatment control	Psychological placebo (attention matched)	Very long-term (12 + months) follow-up	OR (95% CI)	3.55 (0.76 to 16.43)	Remission from alcohol use	NR	NR	NR	0%
Hides, 2019 ⁵²	2	64	SUD any	MDD/ dysthymia	PsyT	Inter-personal PsyT for Depression (IPT-D)	TAU	Other therapeutic interventions	Post-treatment	NR	NR	NR	SMD (IV, random, 95% CI)	–0.54 (–1.04 to 0.04); $p = 0.03$ significant favours IPT-D	HDRS	0%
Hides, 2019 ⁵²	2	220 SUD; 212 MDD	SUD any	MDD/ dysthymia	CBT	ICBT	Peer	12FT	Post-treatment	SMD (IV, random, 95% CI)	–2.84 95% CI (–8.04 to 2.35)	PDA	SMD (IV, random, 95% CI)	4.05 95% CI (1.43 to 6.66) significant favours 12FT	HDRS	0% SUD and MDD

TABLE 3 Meta-analysis of anxiety or depression (continued)

Author, year	Number of RCTs in MA	Number of participants	Population SUD	Population CMD	Psycho-social intervention categories	Intervention	Comparator categories	Comparator	Follow-up	SUD calculated measure	SUD effect size (95% CI)	SUD – outcome measures used	CMD calculated measure	CMD effect size (95% CI)	CMD – outcome measures used	Heterogeneity (I^2)
Hides, 2019 ⁵²	2 SUD and MDD	189 SUD; 181 MDD	SUD any	MDD/ dysthymia	CBT	ICBT	Peer	12FT	6–12 months	SMD (IV, random, 95% CI)	10.76 95% CI (3.1 to 18.42); $p = 0.01$ significant favours ICBT	PDA	SMD (IV, random, 95% CI)	1.53 95% CI (–1.73 to 4.79)	HDRS	0% SUD and MDD
Riper, 2014 ⁵³	9	1291	AUD	MDD/ depression	CBT MI	CBT/MI	TAU (includes brief)	TAU/ brief treatment	Post-treatment	Hedges's g , 95% CI	0.15 (0.03 to 0.28); $p \leq 0.05$ significant favours CBT/MI. NNT = 11.9	Drinks per drinking day, days abstinent, $\geq 50\%$ reduction, % above harmful threshold, AUDIT	Hedges's g , 95% CI	0.23 (0.07 to 0.39); $p < 0.01$ significant favours CBT/MI. NNT = 7.69	BDI-II, HAM-D-21, HADS, HAM-D, BDI	38.8% Depression; 11.9% SUD

12FT, Twelve-Step Facilitation therapy; AUDIT, Alcohol Use Disorders Identification Test; BDI, Beck Depression Inventory; brief, brief intervention; BST, best supportive therapy; digital, digital intervention (i.e. delivered via computer or text message); HAM-D, Hamilton Depression Rating Scale; HDRS, Hamilton Depression Rating Scale; ICBI, integrated cognitive behavioural intervention; IPT, interpersonal psychotherapy; IPT-D, interpersonal psychotherapy for depression; LETS, Life Enhancement Treatment for Substance Use program; MD, mean difference; MDD, major depression disorder; NNT, number needed to treat; NR, not reported; OR, odds ratio; PDA, per cent days abstinent; peer, peer support; PHQ-9, Patient Health Questionnaire-9; SCL-90, Symptom Check List-90 scale; SET, self-examination therapy; SMD, standardised mean difference; support, supportive counselling or self-management support; WL, waitlist.

TABLE 4 Narrative results of SUD CMD anxiety depression

Author, year	Number of RCTs	Population SUD	Population CMD	Psychosocial intervention categories	Description of intervention/ phenomena of interest	Number of participants in intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)	Treatment group effect. Significance/ direction SUD	Treatment group effect. Significance/ direction CMD
Ghetti, 2022 ⁵⁸	2	SUD any	Depression	Music, PsyT, CBT, support	Music therapy plus TAU	12	TAU (PsyT, CBT, support)	TAU (PsyT, CBT, support)	12	NR	No significant difference
Hassan, 2017 ⁵¹	4	SUD opiate (on MMT)	Anxiety, depression, MDD, dysthymia	BT, CBT, or PsyT	Overall: OAT + CBT or PsyT [RPMG – (relational psychotherapy mothers' group)]	123	TAU	TAU, non-directive group therapy, Relaxation Therapy, Recovery training	117	NR	Significantly favoured interventions CBT or PsyT. No significant difference for BT.
Hides, 2019 ⁵²	6	SUD drug	Depression	CBT/BT	Cognitive therapy or group-based BT	18	TAU	Relaxation/ narrative/ prescriptive therapy	20	No significant difference	No significant difference
O'Donnell, 2022 ⁴¹	5	AUD	Depression, MDD	Digital, support	Digital interventions, personalised, for AUD and depression. Includes clinician assisted computer-based intervention, integrated digital or web-based interventions	NR. Across both groups all studies 1503	TAU (brief, MI) or no treatment	Face-to-face manualised brief intervention with or without MI; alcohol only web-based; attention-control web-based	NR	Mixed – digital intervention significant better than comparator at 1 month follow-up, but non-significant groups at 3–6 months. Other RCTs similar improvement in intervention and control groups.	Mixed – digital intervention significant better than comparator at 1 month follow-up, but non-significant groups at 3–6 months. Other RCTs similar improvement in intervention and control groups.

brief, brief intervention; digital, digital intervention (i.e. delivered via computer or text message); MDD, major depression disorder; MMT, methadone maintenance treatment; music, music therapy; NR, not reported; OAT, opiate agonist therapy; SUD any, substance use disorder drug and alcohol; SUD drug, substance use disorder drug only; support, supportive counselling or self-management support.

Nine reviews compared CBT to TAU. For SUD outcomes, there were significant advantages over TAU for CBT/MI delivered face to face (MA by Riper *et al.* $p < 0.05$),⁵³ or digitally delivered ICBT/MI at 6 months (MA by Schouten *et al.* $p = 0.005$),⁴² brief CBT (MA by Grant *et al.* $p = 0.021$)⁵⁰ or CBT/PsyT [MA by Cuijpers *et al.* Effect size 0.25; 95% CI (0.01 to 0.50)].⁴⁹ However, Cuijpers *et al.* notes that limiting the studies to those with low risk of bias resulted in a non-significant effect size.⁴⁹ In other reviews, CBT was not found to be significantly different from TAU (relaxation or single disorder intervention) (Hides *et al.*⁵²; Mehta *et al.*⁴⁵), and the addition of CBT/ACT/PsyT to pharmacological therapy (methadone) and counselling did not significantly differ from pharmacological therapy and counselling alone for SUD outcomes.⁴⁸ Mehta *et al.*⁴⁵ also found that brief CBT/MI interventions performed better for alcohol outcomes than intensive CBT/MI.

For depression outcomes, there were significant advantages over TAU for CBT/MI delivered face to face (MA by Riper *et al.* $p < 0.01$),⁵³ or digitally delivered ICBT/MI at 3 months (MA by Schouten *et al.* $p = 0.02$),⁴² brief CBT (MA by Grant *et al.* $p < 0.001$)⁵⁰ or CBT/PsyT [MA by Cuijpers *et al.* effect size 0.25, 95% CI (0.06 to 0.43)],⁴⁹ or CBT/PsyT (narrative summary by Hassan *et al.*).⁵¹ For depression outcomes, CBT was not found to be significantly different from TAU [relaxation (Hides *et al.*⁵²) or attention-matched psychological placebo],⁵⁰ and the addition of CBT/ACT/PsyT to pharmacological therapy did not significantly differ from pharmacological therapy alone.⁴⁸

Digitally delivered self-management support improved both SUD and depression outcomes post treatment significantly more than TAU or no treatment control, but not across all RCTs, and not at longer-term follow-up (3–6 months) in a narrative summary from O'Donnell *et al.*⁴¹ Grant did not find significant differences for digitally delivered self-management support compared with placebo, or delivered in addition to peer support versus peer support alone, for either SUD or CMD outcomes.⁵⁰ However, Grant *et al.*⁵⁰ state that they are very uncertain about the existence of any non-null effects for remission from both depression and alcohol use, based on confidence ratings using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach.

Music therapy plus TAU was not different from TAU alone, for either SUD or depression outcomes.⁵⁸

Integrated PsyT improved SUD outcomes significantly more than TAU including peer support in one review (MA by Hesse *et al.* $p = 0.04$).⁴³ PsyT did not differ from TAU including supportive therapy, for SUD outcomes in reviews by Hides *et al.* and Grant *et al.*^{50,52} PsyT was significantly better than TAU at improving depressive symptoms (MA by Hesse *et al.* $p \leq 0.03$)⁴³ (MA by Hides *et al.* $p = 0.03$),⁵² although not at later follow-up (3 months), and not compared to supportive therapy, based on confidence ratings using the GRADE approach.⁵⁰

Overall, there was some evidence that the following interventions were more beneficial than TAU for both SUD and depression outcomes (note that TAU differed between studies, and was not always clearly described): CBT^{42,49,52,53}; MI^{42,53}; PsyT^{43,49,52}; support⁴¹; and interventions delivered digitally.^{41,42} Digital interventions were also beneficial for anxiety outcomes.⁴⁷

Results from reviews focusing on post-traumatic stress disorder

Nine reviews focused on PTSD, and two additional reviews of mixed CMD reported separate data.^{45,56} MAs results are shown in [Table 5](#), NMAs results in [Tables 6](#) and [7](#) and narrative results in [Table 8](#). Reviews did not always report significance values, but where they were reported they are shown in the table. There were some overlapping RCTs between Hien *et al.* 2023a⁶³ and Hien *et al.* 2023b⁶⁴; Molina *et al.*⁶⁷ and Mehta *et al.*⁴⁵; Simpson *et al.*,⁷⁰ Sherman *et al.*⁶⁹ and Roberts *et al.*⁶⁸ However, they all also included non-overlapping RCTs.

A behavioural intervention for SUD did not differ significantly from TAU for SUD outcomes, but improved PTSD symptoms significantly more than TAU post treatment [outcome model of Hien *et al.* effect size -0.60 (-0.80 to -0.38)], although not at 12 months follow-up.⁶³ A non-trauma-focused integrated BT did not improve SUD or PTSD more than TAU, although there was a trend favouring BT over TAU at 12 months.⁶³ An analysis by Hill *et al.* found TtT was more effective than non-trauma-focused treatment, regardless of baseline cannabis use.⁶⁵

Cognitive-behavioural therapy had similar results to SS and ACT for both SUD and PTSD outcomes.⁶⁸ There were six comparisons of CBT and TAU. ICBT was significantly favoured over TAU (which included some CBT for SUD) in terms

TABLE 5 Meta-analysis of PTSD

Author, year	Number of studies in MA	Number of participants	Population SUD	Population CMD	Psycho-social intervention categories	Intervention	Comparator categories	Comparator	Follow-up	SUD calculated measure	SUD effect size (95% CI)	SUD – outcome measures used	CMD calculated measure	CMD effect size (95% CI)	CMD – outcome measures used	Heterogeneity (I^2)
Cavicchioli, 2018 ⁵⁶	3	412	SUD any	PTSD	Mind	MBI	TAU (includes CBT, peer)	TAU CBT/ psycho-education/ 12S	Post-treatment	NR	NR	NR	Cohen's <i>d</i>	$d = -2.38$ (-2.67 to -2.08); $p < 0.001$	PCL-C, IES-R, MPSS	PTSD 85.65%
Logsdon, 2023 ⁶⁶	3	66	SUD any	PTSD	EMDR	EMDR	TAU	Active control	Post-treatment	NR	NR	NR	Hedges' <i>d</i>	PTSD symptom $d = 1.426$ (0.196 to 2.656); $p = 0.023$	PCL	PTSD 80%
Mehta, 2021 ⁴⁵	6	734	SUD any	PTSD	CBT	ICBT	TAU	Usual care	Post treatment	Hedges' <i>g</i> (95% CI)	0.245 (0.002 to 0.489) $p = 0.005$	Days drinking, polydrug days, proportion not relapsed, abstinent	NR	NR	NR	54%
Roberts, 2022 ⁶⁸	4 AUD; 4 SUD; 4 PTSD	352 AUD and SUD; 349 PTSD	AUD	PTSD	CBT	ICBT + TAU for SUD	TAU	TAU for SUD only	Post-treatment	SMD (AUD) ^a	Alcohol use 0.02 (-0.19 to 0.24); Substance use -0.08 (-0.30 to -0.13)	ASI, SADQ-C	SMD. PTSD ^b	PTSD severity -0.24 (-0.51 to 0.03)	CAPS, CIDI, IES-R, PCL, PCL-C, PCL-M, PSS-I.	AUD 0%; SUD 0%; PTSD 33%
Roberts, 2022 ⁶⁸	3 AUD; 3 SUD; 3 PTSD	165 AUD and SUD; 156 PTSD	AUD	PTSD	CBT	ICBT + TAU for SUD	TAU	TAU for SUD only	3–5 months	SMD (AUD) ^a	Alcohol use -0.10 (-0.41 to 0.21); Substance use -0.01 (-0.31 to 0.30)	ASI, SADQ-C	SMD. PTSD ^b	PTSD severity -0.12 (-0.44 to 0.20);	CAPS, CIDI, IES-R, PCL, PCL-C, PCL-M, PSS-I.	AUD 0%; SUD 0%; PTSD 0%

TABLE 5 Meta-analysis of PTSD (continued)

Author, year	Number of studies in MA	Number of participants	Population SUD	Population CMD	Psycho-social intervention categories	Intervention	Comparator categories	Comparator	Follow-up	SUD calculated measure	SUD effect size (95% CI)	SUD – outcome measures used	CMD calculated measure	CMD effect size (95% CI)	CMD – outcome measures used	Heterogeneity (I^2)
Roberts, 2022 ⁶⁸	3 AUD; 5 SUD; 6 PTSD	337 AUD; 765 SUD; 814 PTSD	AUD	PTSD	SS, support	Present-focused treatments + TAU for SUD	TAU	TAU for SUD only	Post-treatment	SMD (AUD) ^a	Alcohol use –0.21 (–0.67 to 0.25); Substance use 0.13 (–0.42 to 0.16)	ASI, SADQ-C	SMD. PTSD ^b	SMD PTSD severity –0.02 (–0.16 to 0.12). [RR PTSD diagnosis 1.01 (0.66 to 1.54), non-significant difference (2 RCTs, $n = 77$)]	CAPS, CIDI, IES-R, PCL, PCL-C, PCL-M, PSS-I.	AUD 66%; SUD 67%; PTSD 0%
Roberts, 2022 ⁶⁸	4 AUD; 7 SUD; 6 PTSD	372 AUD; 925 SUD; 800 PTSD	AUD	PTSD	SS, support	Present-focused treatments + TAU for SUD	TAU	TAU for SUD only	3–5 months	SMD (AUD) ^a	Alcohol use –0.11 (–0.31 to 0.10); Substance use –0.02 (–0.19 to 0.15)	ASI, SADQ-C	SMD. PTSD ^b	PTSD severity –0.01 (–0.15 to 0.13)	CAPS, CIDI, IES-R, PCL, PCL-C, PCL-M, PSS-I.	AUD 0%; SUD 29%; PTSD 0%
Roberts, 2022 ⁶⁸	3 AUD; 6 SUD; 5 PTSD	298 AUD; 874 SUD; 726 PTSD	AUD	PTSD	SS, support	Present-focused treatments + TAU for SUD	TAU	TAU for SUD only	6–13 months	SMD (AUD) ^a	Alcohol use 0.44 (–0.43 to 0.51); Substance use –0.00 (–0.13 to 0.13)	ASI, SADQ-C	SMD. PTSD ^b	PTSD severity 0.04 (–0.18 to 0.26);	CAPS, CIDI, IES-R, PCL, PCL-C, PCL-M, PSS-I.	AUD 58%; SUD 0%; PTSD 40%
Roberts, 2022 ⁶⁸	3 AUD; 3 SUD; 7 PTSD	234 AUD; 170 SUD; 544 PTSD	AUD	PTSD	TfT	TfTs + TAU for SUD	TAU	TAU for SUD only	Post-treatment	SMD (AUD) ^a	Alcohol use 0.05 (–0.21 to 0.31); Substance use 0.16 (–0.63 to 0.95)	ASI, SADQ-C	SMD. PTSD ^b	SMD PTSD severity –0.36 (–0.64 to –0.08) significant $p < 0.05$ favours TfT. [RR TSD diagnosis RR 0.62 (0.46 to 0.84) significant favours TfT $p < 0.05$ (2 RCTs, $n = 201$)]	CAPS, CIDI, IES-R, PCL, PCL-C, PCL-M, PSS-I.	0% AUD; SUD 81%; 54% PTSD

continued

TABLE 5 Meta-analysis of PTSD (continued)

Author, year	Number of studies in MA	Number of participants	Population SUD	Population CMD	Psycho-social intervention categories	Intervention	Comparator categories	Comparator	Follow-up	SUD calculated measure	SUD effect size (95% CI)	SUD – outcome measures used	CMD calculated measure	CMD effect size (95% CI)	CMD – outcome measures used	Heterogeneity (I^2)
Roberts, 2022 ⁶⁸	2 AUD; 3 SUD; 3 PTSD	153 AUD; 205 SUD; 213 PTSD	AUD	PTSD	TfT	TfTs + TAU for SUD	TAU	TAU for SUD only	3–5 months	SMD (AUD) ^a	Alcohol use – 0.07 (–0.41 to 0.27); Substance use 0.09 (–0.28 to 0.46)	ASI, SADQ-C	SMD. PTSD ^b	PTSD severity –0.97 (–2.10 to 0.16)	CAPS, CIDI, IES-R, PCL, PCL-C, PCL-M, PSS-I.	AUD 0%; SUD 29%; PTSD 91%
Roberts, 2022 ⁶⁸	4 AUD; 3 SUD; 5 PTSD	363 AUD; 256 SUD; 469 PTSD	AUD	PTSD	TfT	TfTs + TAU for SUD	TAU	TAU for SUD only	6–13 months	SMD (AUD) ^a	Alcohol use –0.23 (–0.44 to –0.02) significant $p < 0.05$; Substance use 0.01 (–0.35 to 0.38)	ASI, SADQ-C	SMD. PTSD ^b	PTSD severity –0.48 (–0.81 to –0.15) significant $p < 0.05$ favours TfT	CAPS, CIDI, IES-R, PCL, PCL-C, PCL-M, PSS-I.	0 AUD; SUD 44%; PTSD 62%
Sherman, 2023 ⁶⁹	3	363	SUD any	PTSD	SS	SS	TAU	TAU, relapse prevention/ community care	3 months	SMD	–0.20 (–0.88 to 0.48) non-significant ($p = 0.13$)	ASI	NR	NR	NR	SUD 51%
Sherman, 2023 ⁶⁹	3	332	SUD any	PTSD	SS	SS	TAU	TAU, relapse prevention/ community care, or education	6 months	NR	NR	NR	SMD	–0.17 (–0.36 to 0.02) non-significant ($p = 0.86$)	CAPS-1	PTSD 0%
Simpson, 2021 ⁷⁰	12 PTSD; 11 SUD		SUD any	PTSD	TfT, CBT	Pro-longed exposure, trauma-focused CBT	TAU	TAU, waitlist	Post-treatment	Hedges effect size	–0.11 (–0.34 to 0.11)	TLFB; ASI; urine drug screen	Hedges effect size	0.29 (0.07 to 0.52)	CAPS; PCL; IES	PTSD 33%; SUD 25%

TABLE 5 Meta-analysis of PTSD (continued)

Author, year	Number of studies in MA	Number of participants	Population SUD	Population CMD	Psycho-social intervention categories	Intervention	Comparator categories	Comparator	Follow-up	SUD calculated measure	SUD effect size (95% CI)	SUD – outcome measures used	CMD calculated measure	CMD effect size (95% CI)	CMD – outcome measures used	Heterogeneity (I^2)
Simpson, 2021 ⁷⁰	10		SUD any	PTSD	TfT, CBT	Pro-longed exposure, trauma-focused CBT	TAU	TAU, waitlist	Follow-up	Hedges effect size	0.09 (–0.32 to 0.14)	TLFB; ASI; urine drug screen	Hedges effect size	–0.01 (–0.24 to 0.22)	CAPS; PCL; IES	PTSD 21%; SUD22%
Simpson, 2021 ⁷⁰	10		SUD any	PTSD	CBT, SS, digital, peer	CBT, or ICBT, SS, web-based peer support	TAU	TAU, waitlist	Post-treatment	Hedges effect size	0.12 (–0.03 to 0.28)	TLFB; ASI; urine drug screen	Hedges effect size	0.11 (–0.03 to 0.26)	CAPS; PCL; IES	PTSD 5%; SUD27%
Simpson, 2021 ⁷⁰	8		SUD any	PTSD	CBT, SS, digital, peer	CBT, or ICBT, SS, web-based peer support	TAU	TAU, waitlist	Follow-up	Hedges effect size	–0.04 (–0.21 to 0.13)	TLFB; ASI; urine drug screen	Hedges effect size	–0.10 (–0.30 to 0.09)	CAPS; PCL; IES	PTSD 13%; SUD16%

a Giving primacy to clinician-administered outcomes, followed by biological markers, followed by self-report measures.
b Giving primacy to clinician-administered outcomes, followed by self-report measures.

12S, Twelve-Step focused; ASI, addiction severity index; CAPS, Clinician-Administered PTSD Scale; CIDI, Composite International Diagnostic Interview; digital, digital intervention (i.e. delivered via computer or text message); IES, Impact of Events Scale; IES-R, impact of event scale-revised; MBI, mindfulness based intervention; mind, mindfulness; MPSS, Modified PTSD Symptom Scale; NR, not reported; PCL, PTSD Checklist; PCL-C, PTSD Checklist – civilian version; PCL-M, PTSD Checklist –military version; peer, peer support; PSS-I, PTSD Symptom Scale–Interview; RR, risk ratio; SADQ-C, severity of alcohol dependence questionnaire; SMD, standardised mean difference; SUD any, substance use disorder drug and alcohol; support, supportive counselling or self-management support; TLFB, timeline follow back.

TABLE 6 Network meta-analysis or outcome model based on individual patient data PTSD (Hien *et al.* 2023a)⁶³

Author, year	Number of RCTs in MA	Participants <i>n</i> =	Population SUD	Population CMD	Intervention	Type	Comparator	SUD – outcome measures used	SUD effect size (Cohen's <i>d</i> , 95% CI) substance use	CMD – outcome measures used	CMD effect size (Cohen's <i>d</i> , 95% CI) PTSD severity
Hien, 2023a ⁶³	34 (outcome model)	3938	SUD any	PTSD	TfT and pharmacotherapy for SUD	TAU	Post treatment	VAS; TLFB; ASI; CRI; SUI; AUDIT; DrInC; CIDI; OTI; OCDS; UDS; GAIN	Alcohol use -1.10 (-1.54 to -0.68) significant (drug use not significant, no further details)	CAPS, PCL, IES, MPSS-R, PDS, PSS-I	-0.92 (-1.57 to -0.30) significant
Hien, 2023a ⁶³	34 (outcome model)	3938	SUD any	PTSD	TfT and pharmacotherapy for SUD	TAU	12 months	VAS; TLFB; ASI; CRI; SUI; AUDIT; DrInC; CIDI; OTI; OCDS; UDS; GAIN	Alcohol use -1.24 (-2.03 to -0.40) significant; drug use -0.27 (-1.07 to 0.53) non-significant	CAPS, PCL, IES, MPSS-R, PDS, PSS-I	-2.00 (-3.38 to -0.68) significant
Hien, 2023a ⁶³	34 (outcome model)	3938	SUD any	PTSD	TfT non-integrated	TAU	Post treatment	VAS; TLFB; ASI; CRI; SUI; AUDIT; DrInC; CIDI; OTI; OCDS; UDS; GAIN	Alcohol use -0.45 (-0.64 to -0.26) significant (drug use not significant, no further details)	CAPS, PCL, IES, MPSS-R, PDS, PSS-I	-0.24 (-0.50 to 0.01) non-significant
Hien, 2023a ⁶³	34 (outcome model)	3938	SUD any	PTSD	TfT non-integrated	TAU	12 months	VAS; TLFB; ASI; CRI; SUI; AUDIT; DrInC; CIDI; OTI; OCDS; UDS; GAIN	Alcohol use -0.24 (-0.51 to 0.03) non-significant (drug use not significant, no further details)	CAPS, PCL, IES, MPSS-R, PDS, PSS-I	-0.46 (-0.93 to -0.04) significant
Hien, 2023a ⁶³	34 (outcome model)	3938	SUD any	PTSD	TfT integrated	TAU	Post treatment	VAS; TLFB; ASI; CRI; SUI; AUDIT; DrInC; CIDI; OTI; OCDS; UDS; GAIN	Alcohol use -0.42 (-0.74 to -0.10) significant (drug use not significant, no further details)	CAPS, PCL, IES, MPSS-R, PDS, PSS-I	-0.47 (-0.94 to -0.01) significant
Hien, 2023a ⁶³	34 (outcome model)	3938	SUD any	PTSD	TfT integrated	TAU	12 months	VAS; TLFB; ASI; CRI; SUI; AUDIT; DrInC; CIDI; OTI; OCDS; UDS; GAIN	Not significant (no further details)	CAPS, PCL, IES, MPSS-R, PDS, PSS-I	Not significant (no further details)
Hien, 2023a ⁶³	34 (outcome model)	3938	SUD any	PTSD	Behavioural intervention for SUD	TAU	Post treatment	VAS; TLFB; ASI; CRI; SUI; AUDIT; DrInC; CIDI; OTI; OCDS; UDS; GAIN	Not significant (no further details)	CAPS, PCL, IES, MPSS-R, PDS, PSS-I	-0.60 (-0.80 to -0.38) significant

ASI, addiction severity index; AUDIT, Alcohol Use Disorders Identification Test; CAPS, Clinician-Administered PTSD Scale; CIDI, Composite International Diagnostic Interview; CRI, Coping Responses Inventory; DrInC, Drinker Inventory of Consequences; GAIN, Global Appraisal of Individual Needs; IES, Impact of Events Scale; MPSS-R, Modified PTSD Symptom Scale-Revised; OCDS, Obsessive-Compulsive Drinking Scale; OTI, Opiate Treatment Index; PCL, PTSD Checklist; PDS, Post-traumatic Diagnostic scale; PSS-I, PTSD Symptom Scale-Interview; SUD any, substance use disorder drug and alcohol; SUI, Substance Use Inventory; TLFB, timeline follow back; UDS, urine drug screen; VAS, visual analogue scale.

TABLE 7 Network meta-analysis or outcome model PTSD (Hien *et al.* 2023b)⁶⁴

Author, year	Number of RCTs in MA	Participants n =	Population SUD	Population CMD	Intervention	Comparator	Follow-up	SUD – outcome measures used	Substance use SMD (95% CI)	PTSD outcome measures used	PTSD SMD	Heterogeneity (I ² , or stated if otherwise)
Hien, 2023b ⁶⁴	16 studies in NMA of psychosocial therapy	Total 1207 substance use; total 1240 PTSD	SUD any	PTSD	Integrated Tft	Integrated non- Tft	Post treatment	TLFB; ASI; UDS; GAIN; CIDI; OCDS	–0.17 (–0.45 to 0.11) non-significant	CAPS, PCL, IES, PSS-I, PSS-SR, MPSS-R, TSC-40	–0.30 (–0.56 to –0.04) significant <i>p</i> = 0.022	SUD 31.5%; PTSD 20.7%
Hien, 2023b ⁶⁴	16 studies in NMA of psychosocial therapy	Total 1207 substance use; total 1240 PTSD	SUD any	PTSD	Integrated Tft	SUD only treatment	Post treatment	TLFB; ASI; UDS; GAIN; CIDI; OCDS	–0.15 (–0.44 to 0.15) significant	CAPS, PCL, IES, PSS-I, PSS-SR, MPSS-R, TSC-40	–0.29 (–0.56 to –0.03) significant <i>p</i> = 0.031	SUD 31.5%; PTSD 20.7%
Hien, 2023b ⁶⁴	16 studies in NMA of psychosocial therapy	Total 1207 substance use; total 1240 PTSD	SUD any	PTSD	Integrated Tft	PsyT TAU	Post treatment	TLFB; ASI; UDS; GAIN; CIDI; OCDS	–0.03 (–0.31 to 0.25) significant	CAPS, PCL, IES, PSS-I, PSS-SR, MPSS-R, TSC-40	–0.43 (–0.68 to –0.18) significant <i>p</i> < 0.001	SUD 31.5%; PTSD 20.7%
Hien, 2023b ⁶⁴	16 studies in NMA of psychosocial therapy	Total 1207 substance use; total 1240 PTSD	SUD any	PTSD	Integrated Tft	Integrated + PTSD medication	Post treatment	TLFB; ASI; UDS; GAIN; CIDI; OCDS	0.21 (–0.51 to 0.93) non-significant	CAPS, PCL, IES, PSS-I, PSS-SR, MPSS-R, TSC-40	0.11 (–0.56 to 0.77) non-significant	SUD 31.5%; PTSD 20.7%

ASI, addiction severity index; CAPS, Clinician-Administered PTSD Scale; CIDI, Composite International Diagnostic Interview; GAIN, Global Appraisal of Individual Needs; IES, Impact of Events Scale; MPSS-R, Modified PTSD Symptom Scale-Revised; OCDS, Obsessive–Compulsive Drinking Scale; PCL, PTSD Checklist; PSS-I, PTSD Symptom Scale–Interview; PSS-SR, PTSD symptom scale-self reported; PTSD, post-traumatic stress disorder; SUD any, substance use disorder drug and alcohol; TLFB, timeline follow back; TSC-40, Trauma symptom checklist-40; UDS, urine drug screen.

TABLE 8 Results of SUD CMD PTSD

Author, year	Number of RCTs in review	Population SUD	Population CMD	Psycho-social intervention categories	Description of intervention/phenomena of interest	Number of participants in intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)	Synthesis	Number of RCTs in MA	Treatment group effect. Significance/direction SUD	Treatment group effect. Significance/direction CMD
Henderson, 2020 ⁶²	6	SUD any	PTSD	Peer; or SS	Gender responsive therapy (helping women recover/beyond trauma); or therapeutic community (challenge to change)	145	Peer or CBT or TAU	Therapeutic community or CBT or TAU	120	Narrative	NA	Gender responsive therapy in the community significant better than therapeutic community; gender responsive therapy in prison non-significant difference from mixed gender treatment; therapeutic community (challenge to change) significant better than CBT post-treatment and follow-up; SS non-significant	No significant difference for gender responsive; therapeutic community (challenge to change) significant better than CBT post-treatment but non-significant later follow-up (6–12 months); SS non-significant
Hill, 2024 ⁶⁵	4	SUD any	PTSD	TfT	TfT, COPE	NR (across both groups for all studies 413)	SS	TAU, SS, relapse prevention	NR	Narrative	NA	No significant difference	No significant difference
Molina, 2022 ⁶⁷	8	SUD any	PTSD	TfT, CBT, SS	Trauma-focused or trauma-informed psychological intervention, in an individual, couple or group format. Includes PE, SS, ICBT, Trauma Recovery and Empowerment Model TREM	608	TAU or no treatment	TAU, waitlist, no intervention, other psycho-social intervention	622	Narrative	NA	Non-significant trend favouring TfT for three RCTs. Three RCTs similar effectiveness for trauma-focused or TAU	Non-significant trend favouring TfT for five RCTs. One RCT significant favoured trauma focused intervention. Two RCTs similar effectiveness for trauma-focused or TAU
Sherman, 2023 ⁶⁹	7	SUD any	PTSD	SS	SS	179	TAU	TAU, community care, individual therapy or education	184	Narrative	NA	No non-significant difference, 3 months	No significant difference, 6 months

COPE, Concurrent Treatment of PTSD and Substance Use Disorders Using Prolonged Exposure; NA, not applicable; NR, not reported; PE, prolonged exposure; peer, peer support; SUD any, substance use disorder drug and alcohol; TREM, Trauma Recovery and Empowerment Model.

of SUD outcomes (MA by Mehta *et al.* $p = 0.005$).⁴⁵ Mehta *et al.* looked at risk of bias and found low risk-of-bias studies had greater effects on SUD, but risk of bias was not associated with PTSD results.⁴⁵ Other comparisons did not find difference between CBT and TAU for SUD outcomes,⁶⁸ or CBT and TAU/waitlist.⁷⁰ One comparison found a significantly greater improvement in PTSD symptoms for exposure-based interventions (narrative summary by Simpson *et al.*),⁷² despite greater treatment dropout for exposure-based treatment. Other comparisons did not find difference between CBT and TAU for PTSD outcomes⁶⁸ or CBT and TAU/waitlist.⁷⁰

Henderson compared CBT and peer support, and reported peer support was significantly favoured for both SUD and PTSD outcomes (narrative summary), although the difference in PTSD outcomes was not maintained at 6–12 months.⁶² Peer-supported gender responsive therapy was found to be effective in terms of SUD for women with trauma in the community, although not for women in prison, with prison setting offering challenges in access to resources (narrative summary by Henderson *et al.*).⁶²

One review by Logsdon *et al.* compared EMDR with an active control, and found EMDR led to significantly more improvement in PTSD symptoms (MA $p = 0.023$).⁶⁶

Seeking safety had similar SUD and PTSD outcome results to TAU, including TAU for SUD only or individual therapy or education.^{62,68,69} An analysis by Sherman found that 'partial dose versions of SS generally function as well as the full dose version of SS when observing long-term effects (>3 months)'.⁶⁹ SS had similar SUD^{65,68} and PTSD outcome results to Tft.⁶⁵ However, Tft was significantly better than present-focused treatment (which largely consisted of SS) for PTSD outcomes ($p < 0.05$), based on a single RCT.⁶⁸

Simpson *et al.* found Tft was significantly favoured over TAU/waitlist for PTSD outcomes post treatment; however, the treatment group difference had disappeared by follow-up.⁷⁰ There was no significant treatment group difference between Tft and TAU/waitlist for SUD outcomes; and Tft was worse than manualised treatment for SUD at post treatment but not follow-up.⁷⁰

Integrated Tft had similar effectiveness to PsyT for SUD outcomes, but Tft was significantly favoured for PTSD outcomes (MA $p < 0.001$).⁶⁴

Integrated Tft had similar effectiveness, for SUD outcomes, to integrated non-Tft or TAU for SUD only, but integrated Tft was significantly more effective than these comparators for PTSD outcomes (MA $p = 0.022$ and $p = 0.031$, respectively).⁶⁴ Integrated or non-integrated Tft based on BT was significantly more effective than TAU for both SUD and PTSD outcomes (outcome model by Hien *et al.*).⁶³ The comparisons in Hien *et al.*⁶³ gave the same pattern of results when restricted to RCTs with low risk of bias, and Hien *et al.*⁶⁴ had mostly low risk-of-bias trials. Hien *et al.*⁶³ states that Tft and pharmacotherapy for SUD showed the largest effect sizes for both alcohol use and PTSD, of all the therapies they compared. Tft and pharmacotherapy for SUD significantly reduced alcohol use and improved PTSD symptoms, post treatment and 12 months compared with TAU (outcome model by Hien *et al.*).⁶³ However, the addition of PTSD medication to integrated Tft did not lead to extra benefit for SUD or PTSD outcomes.⁶⁴ The addition of Tft to TAU for SUD significantly favoured Tft for reduced alcohol use [MA effect size 0.05 (–0.21 to 0.31)] and improved PTSD symptoms (MA $p < 0.05$).⁶⁸ There were mixed results for Tft compared to TAU or no treatment controls.⁶⁷ A group Tft intervention had similar results to TAU based on supportive therapy (Henderson *et al.*).⁶² Contingency (incentivised) Tft had similar results to standard Tft.⁶⁸ Roberts *et al.* state that across treatments there were participants who did not fully engage with treatment.⁶⁸

Integrated Tft and sequential Tft (i.e. treating SUD then PTSD or vice versa) had similar effectiveness for SUD and PTSD outcomes.

Henderson *et al.* and Hien *et al.* also pointed out that treating both PTSD and SUD together was not more harmful than non-integrated TAU.^{62,64}

Overall, there was some evidence that the following interventions were more beneficial than TAU for both SUD and PTSD outcomes (note that TAU differed between studies, and was not always clearly described): CBT⁶³; peer support⁶²; MI⁶³; BT⁶³; SS⁶³; Tft^{63,68} and EMDR⁶³ which was also beneficial for PTSD in a review that did not report SUD outcomes.⁶⁶

Results of reviews looking at mixed common mental health disorder

Results from reviews that included several types of CMD are in [Table 9](#).

An integrated service model incorporating ACT, when added to contingency management, resulted in a significantly reduced substance use and improvement in mixed CMD including social phobia, when compared to contingency alone (modelled by Karapereddy *et al.*).⁶⁰

A narrative summary by Boniface *et al.*⁵⁵ reported brief CBT, MI or support interventions (in many trials, a single session only) were significantly better at reducing alcohol consumption, although not across all RCTs, but had similar effectiveness to digital active interventions, with significant improvements in both intervention and comparator groups.⁵⁵

Cognitive-behavioural therapy/MI significantly improved SUD and depression or anxiety symptoms more than information alone or brief support (narrative summary Baker *et al.*).⁵⁴ Brief CBT/MI interventions led to improvement but less so than longer CBT/MI interventions.⁵⁴

A narrative summary by Perry reported CBT/MI did not reduce substance use more than no treatment or TAU or peer support in drug-using offenders.⁶¹

Integrated digital interventions (based on CBT, MI, ACT, CR, mindfulness, or peer support) were significantly better than waitlist in reducing substance use and improving CMD outcomes (narrative summary Dugdale *et al.*).⁴⁷ Substance misuse was significantly more reduced when computer-based intervention was combined with therapist support.⁴⁷ When targeted at CMD (i.e. not comorbid), digital interventions (based on CBT, MI, ACT, CR, mindfulness, or peer support) significantly improved CMD outcomes, but were not significantly better than waitlist in reducing substance use (narrative summary Dugdale *et al.*).⁴⁷

Integrated CBT or BT was not found to differ significantly from peer support for SUD outcomes,⁴³ nor for social anxiety or PTSD outcomes.⁴³ There was a non-significant trend towards ICBT or BT improving OCD or anxiety symptoms.⁴³ ICBT was better for social phobia and alcohol dependence, but not always better across CMD conditions, and in some cases (non-significantly) worse for alcohol outcomes, than alcohol treatment alone (narrative summary by Baker *et al.*).⁵⁴ ICBT was equally effective as sequential treatment for panic disorder/agoraphobia.⁵⁴

Digital MI or mindfulness had similar effectiveness, for both SUD and CMD outcomes, to psychoeducation or inpatient treatment.⁴⁷

Digital peer support or supportive therapy for SUD was significantly better than waitlist for SUD and depression or PTSD outcomes, but not than education or inpatient care (narrative summary Dugdale *et al.*).⁴⁷ Support from a therapist face-to-face enhanced substance use reduction when compared to computer-based support only.⁴⁷

Psychotherapy did not reduce substance use more than education in one RCT in drug-using offenders.⁶¹

Mindfulness improved craving symptoms but did not significantly improve abstinence when compared to TAU (narrative summary Cavicchioli *et al.*).⁵⁶ Mindfulness did have a significant improvement on CMD outcomes (including eating disorders, anxiety disorders, mood/depressive disorders, PTSD, BPD) (for PTSD MA Cavicchioli *et al.* $p < 0.001$; for other CMD outcomes narrative summary).⁵⁶

Chetty *et al.* found integrated treatment was significantly better than non-integrated treatment in improving mental health symptoms.⁵⁷ However, there was no significant difference in SUD outcomes for integrated versus non-integrated treatment.⁵⁷

Colocation of services for SUD and CMD did not lead to significantly different SUD or CMD outcomes when compared to parallel treatment.⁵⁹ Glover-Wright notes that the colocation of the service was not the only difference between intervention and comparator as there were differences in levels of care co-ordination, and clinical service team staff.⁵⁹

TABLE 9 Results of SUD CMD mixed CMD

Author, year	Num-ber of RCTs in review	Popu-lation SUD	Population CMD	Psycho-social intervention categories	Description of interven-tion/ phenomena of interest	Number of participants in interven-tion group (N)	Com-parator categories	Description of compar-ator	Number of partici-pants in compar-ator group (N)	Synthesis	Treatment group effect. Significance/ direction SUD	Treatment group effect. Signifi-cance/direction CMD
Baker, 2012 ⁵⁴	8	AUD	Mixed CMD depression, anxiety, panic disorder, phobias	CBT/MI	Manual-guided CBT/MI	NR. Across both groups 738	Support, brief	Information package or brief supportive therapy	NR	Narrative	Manual guided CBT/MI significant improved AUD (brief interventions also led to improvement but less so than longer interventions)	Manual guided CBT/MI signif-icant improved depression or anxiety symptoms (brief interventions also led to improve-ment but less so than longer interventions)
Boniface, 2018 ⁵⁵	11	AUD	Mixed CMD anxiety, depression, PTSD and social phobia	Brief	Brief interven-tions: CBT, MI, or support, some digital	NR (across 11 relevant RCTs 2421)	No treat-ment or non-active compar-ator	Information or minimally active comparator, some digital	NR	Narrative	Brief intervention significant better than minimally active control in four/nine RCTs in reducing alcohol; non-significant for five/nine RCTs. No significant difference from active comparator (digital intervention) in two RCTs.	NR
Cavicchi-oli, 2018 ⁵⁶	8	SUD any	Mixed CMD eating disorders, anxiety disorders, mood/depres-sive disorders, PTSD, BPD	Mind	MBI	NR	TAU (includes CBT, peer)	TAU CBT/ psychoedu-cation/12S	NR	MA	Narrative synth: mindfulness significant favoured in two RCTs for craving; abstinence, non-significant difference from TAU for three RCTs, significant advantage in one RCT.	MA of three RCTS, effect size = -2.38 (-2.67 to -2.08); $p < 0.001$
continued												

TABLE 9 Results of SUD CMD mixed CMD (continued)

Author, year	Number of RCTs in review	Population SUD	Population CMD	Psycho-social intervention categories	Description of intervention/ phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)	Synthesis	Treatment group effect. Significance/ direction SUD	Treatment group effect. Significance/direction CMD
Chetty, 2023 ⁵⁷	9	SUD any	Mixed (depression, anxiety, PTSD, eating disorders)	CBT; Tft; BT	ICBT; prolonged exposure; DBT	NR (across both groups 1011)	TAU (includes support)	Non-integrated TAU, includes supportive counselling	NR	Narrative	No significant difference	Significantly favoured integrated treatment
Dugdale, 2019 ⁴⁷	19 (4)	SUD any (includes RCTs of SUD any, alcohol, or specific cannabis, cocaine, amphetamine)	Depression, PTSD	Digital CBT, MI, ACT, mind	Computer-based interventions aimed at mental health	NR (NR in one study, 580 across others)	No treatment	WL	NR (NR in one study, 288 across others)	Narrative	Computer-based interventions aimed at mental health mostly non-significant from WL for substance reduction (one RCT found sig better than WL)	Computer-based interventions aimed at mental health significant better than WL for depression/ anxiety
Dugdale, 2019 ⁴⁷	19 (7)	SUD any (includes RCTs of SUD any, alcohol, or specific cannabis, cocaine, amphetamine)	Depression, PTSD	Digital CBT, MI, ACT, mind, peer	Integrated computer-based or internet-delivered intervention [includes based on CBT, MI, ACT, CR, mindfulness, peer support (12S)]	381	TAU or no treatment	TAU or information/ education or WL	738	Narrative	Integrated (aimed at dual diagnosis) computer-based interventions significant better than WL. Non-significant between MI and mindfulness computer-based intervention and psychoeducation. Non-significant between computer-based intervention and inpatient treatment. Substance misuse significant more reduced when computer-based intervention was combined with therapist support compared with person-centred therapy.	Integrated (aimed at dual diagnosis) computer-based interventions significant better than WL. Non-significant between MI and mindfulness computer-based intervention and psychoeducation. Non-significant between computer-based intervention and inpatient treatment

TABLE 9 Results of SUD CMD mixed CMD (continued)

Author, year	Number of RCTs in review	Population SUD	Population CMD	Psycho-social intervention categories	Description of intervention/ phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)	Synthesis	Treatment group effect. Significance/ direction SUD	Treatment group effect. Significance/direction CMD
Dugdale, 2019 ⁴⁷	19 (8)	SUD any (includes RCTs of SUD any, alcohol, or specific cannabinoids, cocaine, amphetamine)	Depression, PTSD	Digital, peer, support	Computer-based interventions aimed at substance use	997	No treatment	WL	318	Narrative	Computer-based interventions aimed at substance use significant better than WL (two RCTs). Mixed results when compared to inpatient care. Non-significant difference from psychoeducation. computer-based interventions significant improved by adding therapist support (vs. computer only)	Computer-based interventions aimed at substance use significant better than WL. Non-significant difference from psychoeducation.
Glover-Wright, 2023 ⁵⁹	4	SUD any (or specifics within studies alcohol, opioid or cocaine)	Mixed CMD Major depression, anxiety, panic disorder, PTSD	Colocation of services	Colocation of SUD and MH services (integrated and colocated in primary care; colocated psychiatric care)	NR (across both groups of four included RCTs 2497)	Support; contingency; peer	Referrals to separate MH services; community psychiatry and parallel SUD treatment TAU; 12S	NR	Narrative	No significant difference	No significant difference
Hesse, 2009 ⁴³	10 (5 RCTs this comparison)	SUD any	Mixed CMD Anx/OCD/PTSD	CBT, behaviour	Integrated non-somatic treatment for SUD and CMD (CBT + SUD treatment programme)	NR	TAU (includes peer)	Treatment for SUDs alone (regular programme)	NR	Narrative	No significant difference, and in some cases alcoholism treatment alone was non-significant trend superior to alcoholism treatment	No significant difference for social anxiety/ PTSD for anxiety/OCD trend toward favouring integrated treatment

continued

TABLE 9 Results of SUD CMD mixed CMD (continued)

Author, year	Number of RCTs in review	Population SUD	Population CMD	Psycho-social intervention categories	Description of intervention/ phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)	Synthesis	Treatment group effect. Significance/direction SUD	Treatment group effect. Significance/direction CMD
Kara-pereddy, 2019 ⁶⁰	4	SUD any	Mixed CMD (includes social phobia, anxiety, PTSD)	ACT, contingency	Integrated service models (ACT, compensated WT with enhanced incentives)	NR (across both groups n = 615)	Contingency	Standard care, compensated WT alone	NR	Narrative	Reduction in substance use integrated models of care are more effective than conventional, non-integrated models.	Reduction in symptoms of mental illness integrated models of care are more effective than conventional, non-integrated models.
Perry, 2019 ⁶¹	7 (2)	SUD any	Mixed CMD (depression, anxiety, phobias, PTSD, BPD/ AsPD)	CBT/MI, mind	MI, MBI and CBT	40	No treatment or TAU	WL or TAU	32	Narrative	No significant difference	NR
Perry, 2019 ⁶¹	7 (2)	SUD any	Mixed CMD (depression, anxiety, phobias, PTSD, BPD/ AsPD)	PsyT; or support, peer	Interpersonal PsyT; therapeutic community and peer support	182	TAU or CBT	Psychoeducation; CBT	170	Narrative	No significant difference	NR

12S, Twelve-Step focused; AsPD, antisocial personality disorder; brief, brief intervention; contingency, contingency management; CR, cognitive remediation; digital, digital intervention (i.e. delivered via computer or text message or internet based intervention); MH, mental health; mind/MBI, mindfulness based intervention; NR, not reported; peer, peer support; SUD any, substance use disorder drug and alcohol; support, supportive counselling or self-management support; WL, waitlist.

Both integrated and parallel treatments led to reductions in substance use and related harms, mental health symptoms and decreased emergency department presentations or hospital admissions.⁵⁹

Overall, there was some evidence that the following interventions were more beneficial than TAU for both SUD and CMD outcomes (note that TAU differed between studies, and was not always clearly described): CBT;^{47,54} peer support;⁴⁷ MI;⁵⁴ ACT;^{47,60} support;⁴⁷ contingency management;⁶⁰ mindfulness;⁵⁶ and also brief interventions.⁵⁴

Results of reviews focusing on borderline personality disorder

There were two reviews of BPD, results in [Table 10](#). There were no MAs of studies relevant to our project. Many of the specific therapy comparisons in these reviews only had data from one or two RCTs, and sample sizes were generally low. Although antisocial personality was originally included in the review, based on clinical advice it is not routinely treated in community mental health or substance use services, as treatment would usually be by specialist forensic teams.

Dialectical behavioural therapy and medication for SUD had significantly better SUD outcomes than with case management or peer support alone³⁹, whereas BPD outcomes did not differ. DBT alone did not differ significantly from TAU in one RCT,³⁹ but showed improvement in SUD outcomes.³⁹

Cognitive-behavioural therapy in addition to TAU led to significantly better SUD outcomes at 1-year follow-up, and SUD outcomes were significantly better for CBT and contingency management, or contingency management alone, when added to TAU.⁷¹ BPD outcomes were not better than TAU.⁷¹

Motivational interviewing added to incarceration improved SUD outcome, but not BPD outcomes.⁷¹ Adding supportive counselling to TAU did not lead to differences in SUD or BPD outcomes in one RCT.⁷¹

Psychotherapy delivered as dynamic deconstructive psychotherapy (DDP) was either significantly, or non-significantly but clinically meaningfully, better than TAU for SUD and BPD symptoms.³⁹ Dual-focus schema therapy (DFST) was significantly better than peer support for SUD and BPD outcomes, and had similar effectiveness to individual drug counselling.³⁹

Overall, there was some evidence that PsyT³⁹ was more beneficial than TAU for both SUD and BPD outcomes (note that TAU differed between studies and was not always clearly described). There was also evidence for benefit for SUD outcomes for CBT;⁷¹ MI;⁷¹ BT;³⁹ and contingency management.⁷¹

Functioning

Few of the included reviews reported functioning measures and most of the outcomes were reported for one RCT only, and so results for all included reviews are in one [Table 11](#).

Contingency management added to TAU improved composite family/social domain scores in antisocial personality disorder participants (Gibbon *et al.*).⁷¹

Dialectical behavioural therapy and medication for SUD did not lead to better results on global and social functioning at 16 months compared to TAU or peer support (Lee *et al.*).³⁹

Motivational interviewing regarding driving while intoxicated, added to incarceration, did not influence drink-driving over 1 year (Gibbon *et al.*).⁷¹

Peer support delivered through therapeutic community reduced re-arrests or re-incarceration when compared to case management or waitlist (Perry *et al.*).⁶¹

Treatment retention, service utilisation

Few of the included reviews reported treatment retention measures, and so results for all included reviews are in [Table 12](#).

TABLE 10 Results of SUD CMD BPD

Author, year	Number of RCTs in review	Population SUD	Population CMD	Psychosocial intervention categories	Description of intervention/ phenomena of interest	Number of participants in intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)	Treatment group effect. Significance/ direction SUD	Treatment group effect. Significance/ direction CMD
Lee, 2015 ³⁹	10 (2)	SUD any	BPD	BT	DBT	79	TAU	Community treatment by experts, CTBE	80	DBT significantly favoured over CTBE, but not TAU	No significant difference
Lee, 2015 ³⁹	10 (2)	SUD drug	BPD	BT	Adapted DBT + medication (replacement)	23	TAU, CaseM	TAU, case management	28	Significantly favoured DBT + medication ($p < 0.05$).	No significant difference
Gibbon, 2020 ⁷¹	9 (not all studies provide relevant outcome data) (2)	SUD drug	AsPD	CBT or MI	CBT + TAU; or driving while intoxicated' programme (MI technique) + incarceration	44	TAU	TAU; or incarceration	25	Significantly favoured CBT or MI ($p < 0.05$)	NR
Gibbon, 2020 ⁷¹	9 (3)	SUD drug	AsPD	Contingency	Contingency management + TAU (with or without CBT)	73	TAU	TAU	73	Significantly favoured contingency management for drug screening	NR
Lee, 2015 ³⁹	10 (5)	AUD	BPD	PsyT	Dynamic deconstructive PsyT DDP; or DFST	15	TAU, peer, support	TAU, peer support, or counselling	15	Mixed, some studies significantly favoured DDP and DFST	Mixed, DDP significantly or clinically meaningfully favoured, showed faster improvement; peer support significantly favoured over DFST in reduction of dysphoric affect; DFST non-significant compared to counselling

AsPD, antisocial personality disorder; CaseM, case management; contingency, contingency management; CTBE, community treatment by experts; NR, not reported; peer, peer support; SUD any, substance use disorder drug and alcohol; SUD drug, substance use disorder drug only; support, supportive counselling or self-management support.

TABLE 11 Functioning results

Author, year	Population SUD	Population CMD	Number of RCTs reporting comparison	Synthesis	Psychosocial intervention categories	Description of intervention	Number of participants in intervention group	Comparator categories	Description of comparator	Number of participants in comparator group	Treatment group effect (significance/direction) Functioning
Gibbon, 2020 ⁷¹	AUD	AsPD	1	Narrative	MI	Driving while intoxicated programme (MI) + incarceration	30	No treatment	Incarceration	13	No significant difference for drink-driving over 12 months
Lee, 2015 ³⁹	SUD any	BPD	1	Narrative	BT	Adapted DBT + medication	12	TAU	TAU	16	No significant difference, DBT group showed slightly better global and social functioning at 16 months
Lee, 2015 ³⁹	SUD drug	BPD	1	Narrative	BT	Adapted DBT + medication (opiate antagonist)	11	Peer, support	Comprehensive validation therapy CVT+ 12S	12	No significant difference, in global and social functioning at 16 months
Perry, 2019 ⁶¹	SUD any	Mixed CMD (depression, anxiety, phobias, PTSD, BPD/AsPD)	2	Pairwise MA	Peer, support	TCAC (secure establishment-based or re-entry modified)	292	TAU	TAU, parole supervision case management	240	Significantly favoured TCAC in number of re-arrests and re-incarceration at 12 months Risk ratio 0.57 (0.42 to 0.77)
Perry, 2019 ⁶¹	SUD drug	Mixed CMD (depression, anxiety, phobias, PTSD, BPD/AsPD)	1	Narrative	Peer, support	TCAC	289	No treatment	No-treatment WL	189	Significantly favoured TCAC in reducing re-incarceration at 36 months
Grant, 2021 ⁵⁰	AUD	Depression MDD	1	Narrative	Support, digital	Supportive text messaging	NR 54 (across intervention and comparator)	No treatment	Psychological placebo	NR	No significant difference, in GAF: SMD (95% CI) -0.97 (-1.54 to -0.41) at post-intervention; at 3 months SMD (95% CI) -0.54 (-1.12 to 0.04)
Gibbon, 2020 ⁷¹	SUD drug	AsPD	1	Narrative	contingency	Contingency management + TAU	41	TAU	TAU	42	Significantly favours contingency management Social functioning: mean family/social domain scores on the ASI at 6 months SMD -0.08 (-0.14 to -0.02)

ASI, addiction severity index; AsPD, antisocial personality disorder; GAF, global assessment of function; MDD, major depressive disorder; peer, peer support; SMD, standardised mean difference; support, supportive counselling or self-management support; TCAC, therapeutic community and aftercare.

TABLE 12 Treatment retention, attendance or utilisation

First author, year	Population SUD	Population CMD	Treatment retention/attendance
Amato, 2011 ⁴⁸	SUD drug (opioid)	Depression	Treatment retention 53/86 (62%) ACT/peer 16 weeks; 57/62 (92%) PsyT 24 weeks
Baker, 2012 ⁵⁴	AUD	Mixed CMD (depression, social phobia)	Treatment attendance CBT/MI for depression: therapist-delivery 87%; computer-delivery 76.1% CBT for social phobia 67%
Cavicchioli, 2018 ⁵⁶	SUD any	Mixed CMD (depression, anxiety, eating disorders, PTSD, BPD)	Mindfulness-based invention vs. control, attrition rate odds ratio ranged from 0.25 (95% CI 0.57 to 1.25) to 6.56 (95% CI 0.63 to 68.63). non-significant between groups for all RCTs
Chetty, 2023 ⁵⁷	SUD any	Mixed (depression, anxiety, PTSD, eating disorders)	Integrated vs. non-integrated Treatment retention rates similar in two RCTs; favours integrated treatment in two RCTs Motivation for SUD treatment – significantly favoured integrated treatment in one RCT (Wüsthoff, 2014)
Ghetti, 2022 ⁵⁸	SUD any	Mixed CMD (depression, anxiety, PTSD, BPD)	Treatment retention music therapy vs. TAU RR 1.00 (0.86 to 1.17) in one RCT; 1.00 (0.83 to 1.21) in one RCT, both non-significant
Glover-Wright, 2023 ⁵⁹	SUD any	Mixed CMD (depression, MDD, anxiety, panic disorder, PTSD)	Significantly favoured colocated treatment (over TAU) for depression/anxiety and alcohol use, treatment engagement odds ratio 3.7 (95% CI 1.8 to 7.6). Significantly favoured colocated treatment (over TAU) for psychiatric and substance misuse, mean days of psychiatric treatment (196 vs. 102; $p < 0.001$); completion at 1-year odds ratio 3.6, (95% CI 2.0 to 6.3).
Hesse, 2009 ⁴³	SUD any	Mixed CMD (depression, anxiety, OCD, PTSD)	Three RCTs pooled treatment dropout, integrated vs. SUD alone, effect size 0.67 (95% CI 0.31 to 1.49; $p = 0.33$).
Hides, 2019 ⁵²	SUD any	Depression	ICBT vs. 12S Treatment attendance RR -1.27 (95% CI -6.1 to 3.56) non-significant; treatment retention RR 0.95 (0.72 to 1.25) non-significant PsyT vs. TAU treatment retention RR 1 (0.81 to 1.23) non-significant integrated vs. sequential CBT treatment attendance mean difference 4.1 (0.98 to 7.22) favours ICBT
Hien, 2023b ⁶⁴	SUD any	PTSD	Dropout rate was more than 50% in two RCTs of ICBT, one of CBT, one of TtT, and one of SS
Hill, 2024 ⁶⁵	SUD any	PTSD	Attendance rates mean (SD) TtT and cannabis use 0.49 (0.39); TtT and no cannabis 0.60 (0.34); Non-TtT and cannabis 0.81 (0.31); Non-TtT and no cannabis 0.72 (0.34)
Lee, 2015 ³⁹	SUD any	BPD	One RCT DBT higher retention rate 63% than TAU 23%; one RCT no difference treatment utilisation DBT and TAU One RCT CVT had higher retention rates than DBT One RCT DFST significantly better treatment utilisation than SUD treatment alone Two RCTs DDP significantly better treatment utilisation/retention than TAU – of which one retention rates DDP (73%) compared with TAU (63%); one RCT no diff treatment utilisation DDP vs. TAU
Molina, 2022 ⁶⁷	SUD any	PTSD	Treatment completion rates (CBT; TtT; SS) 32.7–100%. Dropout rates 22–60%
O'Donnell, 2022 ⁴¹	AUD	Depression, MDD	Fully online trials, 50% or more of participants lost to follow-up
Roberts, 2022 ⁶⁸	SUD any	PTSD	Present-focused treatments + TAU for SUD vs. TAU for SUD only dropout RR 1.06 (0.92 to 1.22) TtTs + TAU for SUD vs. TAU for SUD only dropout RR 0.86 (0.71 to 1.04) Sequential vs. integrated dropout RR 1.57, 95% CI 0.99 to 2.48
Simpson, 2021 ⁷⁰	SUD any	PTSD	Treatment completion TtT vs. TAU odds ratio 0.85 (95% CI 0.60 to 1.21) non-significant Non-trauma focused vs. TAU odds ratio 1.22 (0.93 to 1.60) non-significant Average treatment completion rate 52.11% (SD = 20.86) for the TtTs, 50.73% (SD = 10.27) for the non-TtTs

CVT, comprehensive validation therapy; MDD, major depression disorder; peer, peer support; RR, risk ratio; SD, standard deviation; SUD any, substance use disorder drug and alcohol; SUD drug, substance use disorder drug only.

Where treatment retention or attrition was compared between intervention and TAU, there were similar rates between groups for: comparing psychosocial plus any maintenance pharmacological treatment to standard maintenance treatment (Amato *et al.*⁴⁸); mindfulness-based intervention (MBI) and control groups for all RCTs meeting criteria for our project (Cavicchioli *et al.*⁵⁶); Tft versus TAU or non-trauma-focused treatment versus TAU (Simpson *et al.*⁷⁰); music therapy versus TAU (Table 13); PsyT versus TAU (Hides *et al.*⁵²). The review by Lee *et al.* suggested DFST and DDP improved treatment utilisation over TAU for SUD and BPD participants.³⁹

TABLE 13 Review eligibility criteria

	Include	Exclude
Population	Adults (age 18 years and over, no upper limit) with both: 1. substance dependence [moderate–severe alcohol/drug use disorder (excluding tobacco/nicotine), including non-dependent but harmful pattern of substance use]; and 2. a co-occurring mental health disorder. Co-occurring mental health disorders comprise the following, either • CMDs includes those treated by IAPT services³⁰ • agoraphobia; anxiety; body dysmorphic disorder; depression, including major depressive disorder (MDD) • emotional dysregulation; Generalised Anxiety Disorder (GAD); health anxiety (hypochondriasis) • mixed anxiety and depressive disorder; OCD; panic disorder; PTSD; social anxiety disorder (social phobia); specific phobias; stress-related disorders. or • BPD and antisocial personality disorder.	1. Severe mental illness that is covered by NICE guidance NG58¹ or CG120,² namely: • NG58: Any severe mental illness • Schizophrenia, schizotypal and delusional disorders, schizophrenia spectrum disorder • Bipolar affective disorder • Severe depressive episode(s) with or without psychotic episodes (note that populations with depression that includes MDD will be included) • CG120 • Psychosis The main forms of psychosis are schizophrenia (including schizoaffective disorder, schizophreniform disorder, and delusional disorder), bipolar disorder or other affective psychosis 2. Drug- or alcohol-related cognitive impairment; dementia; neuroatypical populations (autism, ADHD). 3. Populations with alcohol/drug dependence without mental illness (or with subclinical, e.g. depression/anxiety), or addiction studies where outcomes include measures of anxiety or depression (but population not diagnosed with anxiety or depression); or mental illness without substance-related problems. 4. Children 5. Tobacco/nicotine dependence
Interventions	Psychosocial interventions for SUD and CMD/BPD (with or without pharmacological therapies) For example, CBT; ACT; case management, contingency management, and compensated work therapy; care co-ordination; shelter-based psychiatric clinic; supportive housing; supportive text messaging; residential programmes; mindfulness; yoga or exercise; supportive counselling.	Treatment for drug- or alcohol-related cognitive impairment including cognitive remediation and traumatic brain injury. Pharmacological interventions with no adjunctive psychosocial intervention. Studies of medically supervised withdrawal management (detoxification)

continued

TABLE 13 Review eligibility criteria (*continued*)

	Include	Exclude
Comparators	Psychosocial interventions compared with each other; usual care (e.g. standard counselling); waitlist; Attention-control; no treatment	Pharmacological treatments
Outcomes	Cost-effectiveness Health-related quality of life	Prevalence of comorbidities Other outcomes
Study design	Cost-effectiveness studies Systematic reviews and MAs of cost-effectiveness studies	
Countries/ settings	UK Countries with similar health care to UK (e.g. USA, Australia, European Organisation for Economic Co-operation and Development member countries) Health care, drug or alcohol services, social care, community setting/voluntary sector, prison	Low- and middle-income countries
Other	English language	Non-English language

Attrition rates were 50% or more in some cases (O'Donnell *et al.*,⁴¹ Molina *et al.*⁶⁷). Digital interventions may have higher attrition than face-to-face (Baker *et al.*,⁵⁴ Dugdale *et al.*⁴⁷); it may be that participants engaged in digital interventions that would not have engaged with conventional treatment (O'Donnell *et al.*⁴¹). Reason for attrition was not explicit, and may represent lack of therapeutic alliance, relapse or no longer requiring treatment.^{47,54} There was higher attendance at non-trauma-focused treatment versus Tft, regardless of baseline cannabis use, found by Hill *et al.*⁶⁵; however, Tft had more improvement in PTSD than non-trauma-focused treatment.

Colocated SUD and mental health services were associated with improved treatment engagement and shorter time between referral and start of treatment (Glover-Wright *et al.*⁵⁹) when compared to TAU (see [Table 12](#)).

Integrated treatment was associated with better treatment attendance in some cases but not all trials reported. Chetty *et al.*⁵⁷ found treatment retention rates significantly favoured integrated treatment in two RCTs, but were similar in two RCTs (however one of these RCTs showed participants with severe PTSD had significantly better engagement with integrated treatment).

There was a non-significant trend favouring ICBT over TAU (peer support) found by Hides.⁵² Two reviews (Hides *et al.*,⁵² Roberts *et al.*⁶⁸) reported a non-significant trend favouring integrated over sequential treatment. There was a non-significant trend favouring integrated treatment over SUD treatment alone in the review by Hesse *et al.*,⁴³ with these approached having similar treatment dropout rates in the review by Roberts *et al.*⁶⁸

Adverse effects of treatment

Few reviews reported adverse effects of treatment. No reviews attributed adverse events (AEs) to psychosocial treatments. Where adverse effects were mentioned, there were either no AEs or rates were low (Hien *et al.*,⁶⁴ Molina *et al.*⁶⁷); AE rates were not different between those receiving the intervention and those awaiting treatment (Hien *et al.*⁶⁴) or TAU (Gibbon *et al.*,⁷¹ Roberts *et al.*⁶⁸); or were associated with adjunctive pharmacological treatment (Hassan *et al.*,⁵¹ Hien *et al.*⁶⁴).

Integrated and non-integrated treatment

One review focused on integrated compared to non-integrated treatment (Chetty *et al.*).⁵⁷

One review focused on the colocation of services (Glover-Wright *et al.*).⁵⁹

Two reviews included RCTs of integrated compared to sequential treatment (Roberts *et al.*,⁶⁸ Baker *et al.*⁵⁴). Additionally, 11 reviews included RCTs of integrated compared to parallel treatment (Karaperreddy *et al.*,⁶⁰ Hien *et al.*,⁶³ Hesse *et al.*

al.,⁴³ Hides *et al.*,⁵² Schouten *et al.*,⁴² O'Donnell *et al.*,⁴¹ Mehta *et al.*,⁴⁵ Hien *et al.*,⁶⁴ Dugdale *et al.*,⁴⁷ Simpson *et al.*,⁷⁰ Henderson *et al.*⁶²).

Overall, Chetty *et al.* (see [Table 9](#)) found integrated treatment was significantly better than non-integrated treatment in improving mental health symptoms.⁵⁷ However, there was no significant difference in SUD outcomes for integrated versus non-integrated treatment.⁵⁷

Integrated colocated services and parallel services had similar effectiveness for SUD and mixed CMD diagnoses (Glover-Wright *et al.*, see [Table 9](#)).⁵⁹ Both integrated and parallel treatments led to reductions in substance use and related harms, mental health symptoms and decreased emergency department presentations or hospital admissions (Glover-Wright *et al.*).⁵⁹ There were differences between services beyond being integrated or non-integrated, and so there may have been other factors influencing outcomes.

Integrated TtT and sequential TtT (i.e. treating SUD then PTSD or vice versa) had similar effectiveness for SUD and PTSD outcomes (Roberts *et al.*,⁶⁸ see [Table 5](#)). ICBT was equally effective as sequential treatment for panic disorder/agoraphobia (Baker *et al.*,⁵⁴ see [Table 9](#)).

For comparison with parallel treatment, integrated ACT plus contingency management, resulted in a significantly reduced substance use and improvement in mixed CMD, when compared to contingency management alone (Karapereddy *et al.*,⁶⁰ see [Table 9](#)). Integrated TtT was significantly more effective than TAU for both SUD and PTSD outcomes (Hien *et al.*,⁶³ see [Table 6](#)). Integrated PsyT improved SUD and depressive outcomes significantly more than TAU (Hesse *et al.*, see [Table 3](#)).⁴³

Integrated CBT had significant benefit compared to peer support for SUD outcomes (Hides *et al.*, see [Table 3](#)),⁵² and for depressive symptoms post intervention (but not later follow-up).⁵² ICBT delivered digitally had significant benefit compared to TAU for SUD outcomes^{41,42} and for some RCTs on depressive outcomes.^{41,42} Integrated BT had similar effectiveness to TAU for SUD outcomes, but improved PTSD symptoms significantly more than TAU post treatment, although not at 12months follow-up (Hien *et al.*,⁶³ see [Table 6](#)).

Integrated CBT or BT was not found to differ significantly from peer support for SUD outcomes (Hesse *et al.*,⁴³ Mehta *et al.*,⁴⁵ see [Table 3](#)), nor for social anxiety or PTSD outcomes.⁴³ There was a non-significant trend towards ICBT or BT improving OCD or anxiety symptoms.⁴³ ICBT was better for social phobia and alcohol dependence, but not always better across CMD conditions, and in some cases (non-significantly) worse for alcohol outcomes, than alcohol treatment alone (Baker *et al.*,⁵⁴ see [Table 9](#)).

Integrated TtT had similar effectiveness to PsyT for SUD outcomes, but TtT was significantly favoured for PTSD outcomes (Hien *et al.*,⁶⁴ see [Table 7](#)). ICBT or integrated TtT did not differ significantly from TAU for SUD alone, on SUD outcomes (Roberts *et al.*,⁶⁸ see [Table 5](#), Hien *et al.*,⁶⁴ see [Table 7](#)). Integrated TtT was significantly better for PTSD outcomes than TAU for SUD alone (Hien *et al.*⁶⁴).

Integrated digital interventions (based on CBT, MI, ACT, CR, mindfulness, or peer support) were significantly better than waitlist in reducing substance use and improving CMD outcomes (narrative summary Dugdale *et al.*,⁴⁷ see [Table 9](#)). Substance misuse was significantly more reduced when computer-based intervention was combined with therapist support.⁴⁷ Integrated digital interventions compared to inpatient treatment did not lead to difference on SUD outcomes.⁴⁷

There were conflicting results across studies as to whether integrated treatment had higher or lower treatment completion rates, with treatment compliance being influenced by setting, that is inpatient programmes increasing treatment attendance over outpatient programmes.⁵⁷ Simpson *et al.*⁷⁰ (see [Table 5](#)) suggested a lack of difference between integrated TtT and non-integrated treatment may be explained by the non-integrated treatment studies recruiting from SUD clinics, unlike the integrated studies.

Henderson *et al.*⁶² (see [Table 8](#)) and Hien *et al.*,⁶⁴ [Table 7](#) also pointed out that treating both PTSD and SUD together was not more harmful than non-integrated TAU.

Summary

Meta-analyses were more likely to report significance values than narrative syntheses, and MAs generally included more RCTs than narrative syntheses.

The following interventions were found to have a significant advantage over TAU (treating both CMD and SUD, but varying between RCTs) for both CMD and SUD outcomes:

- CBT in depression,^{42,49,52,53} PTSD⁶³ and mixed CMD^{47,54}
- peer support in PTSD⁶² and mixed CMD⁴⁷
- MI in depression,^{42,53} PTSD,⁶³ and mixed CMD⁵⁴
- PsyT in depression,^{43,49,52} and BPD³⁹
- BT in PTSD⁶³
- SS in PTSD⁶³
- Tft in PTSD^{63,68}
- ACT in mixed CMD^{47,60}
- supportive counselling or self-management support in depression,⁴¹ and mixed CMD⁴⁷
- contingency management in mixed CMD⁴⁷
- mindfulness in mixed CMD⁵⁶
- EMDR in PTSD.⁶³

There was also evidence of a significant advantage over TAU for both CMD and SUD outcomes for brief interventions,⁵⁴ or interventions delivered digitally.^{41,42,47}

Discussion of clinical evidence

The majority of reviews covered depression, anxiety or PTSD, with few reviews of other CMD conditions or BPD. Most reviews included a small number of eligible RCTs, and most RCTs had small sample sizes.

The umbrella review presented evidence of beneficial effect (pre to post treatment) for many types of psychosocial interventions. Many reviews pointed out that both intervention and TAU significantly improved SUD and/or CMD outcomes, even where there were no significant differences between treatment groups.

It was not possible to deduce which type of intervention was most effective, due to heterogeneity between systematic reviews, and heterogeneity of RCTs within reviews. There was heterogeneity in interventions and comparators (delivery mode, intensity, duration, adherence); populations diagnoses (diagnostic criteria, types of substance for SUD, baseline severity) and demographics (age, sex, veteran, homelessness); settings (inpatient, outpatient); and outcome measures used. Most reviews discuss that studies are not generalisable across all SUD and CMD comorbid populations, and treatment settings. The heterogeneity of outcomes meant that where systematic reviews conducted MAs, effect sizes were calculated, based on standardised mean differences, to allow data synthesis.

The included systematic reviews were generally of high methodological quality. The methodological quality of RCTs within reviews varied. Difficulties of RCTs included high dropout rates, failure to meet power calculation estimates, and the nature of the intervention and comparator groups led to an impossibility of blinding. Dropout rates also presented difficulty in long-term follow-up, with most RCTs reporting outcomes pre and post intervention, and few with longer follow-up.

Integrated treatment was not any more harmful than treating single disorder. Integrated treatment was usually better for CMD outcomes than treating one condition alone, and sometimes better than parallel treatments. There was not much evidence looking at sequential treatment, but this suggested it was similarly effective to integrated treatment.

Other reviews looking at integrated treatment found similar results. Donald *et al.*⁹¹ found scarce evidence investigating the effectiveness of integrated versus parallel or sequential services for co-occurring diagnosis (SMI/CMD and SUD)

participants. For integrated services compared with TAU, Donald *et al.* reported conflicting evidence, with limitations in studies due to small sample sizes, short-term follow-up, and lack of replication of studies.⁹¹ Hobden *et al.* sought studies (not limited to RCTs) of depression participants aged 16+, with 50% or more having comorbid SUD.⁹² Hobden *et al.* found that parallel treatments were better than TAU in all three (non-randomised) studies identified. Integrated treatment was better than TAU for SUD only in the two RCTs identified, but not better than intervention aimed at alcohol use only or depression only (two RCTs).⁹² Wolitzky-Taylor *et al.* looked at anxiety with comorbid substance use including tobacco use.⁹³ Wolitzky-Taylor *et al.* found that integrated treatments had a small but significant, clinically meaningful improvement compared to TAU for SUD alone based on 11 RCTs.⁹³

The targeted search highlighted the lack of high-quality RCTs of PsyT interventions in patients with SUD and co-occurring CMDs. The identified RCTs were limited by a relatively small sample size which were inadequately powered to find statistically significant differences, thus reducing statistical validity. In addition, there was a paucity of evidence for case management, supportive housing, EMDR, art therapy and yoga and exercise.

For future research, there are foreseeable difficulties with high dropout rates, and the impossibility of blinding participants and clinicians. Having larger sample sizes, adequate handling of missing data (e.g. multiple imputation), and blinded outcome assessors may go some way to address the problem, which would necessitate using clinician-reported outcomes. Based on the reviews identified, further research is needed comparing integrated, parallel and sequential treatment. This should include the order in which diagnoses are treated, and the acceptability to service users. Further research is needed on duration or intensity of therapy required for effectiveness, and research reporting adherence rates. Trials with longer-term follow-up are needed.

In addition, based on clinical advice, research is needed to identify adaptations or adjustments to standard psychological treatments for the mental health difficulties under review to make them more acceptable and accessible to people who use substances. It would be useful to assess service user preferences of location of services. Future research could also assess the safety and effectiveness of particular psychosocial treatments delivered by unregistered staff. If a particular therapy can be delivered safely and effectively by community members (including service users or ex-service users), then this has the potential to widen availability of services.

Future research could assess programmes of treatment with a variety of psychosocial interventions, including clinician and peer support. When training staff to deliver programmes, this should include training in developing a therapeutic alliance, as this encourages treatment retention (clinical and service user feedback).

From service user feedback, they expressed interest in comparing integrated, parallel and sequential treatment; service user experience and barriers to access according to type and number of therapy sessions; and how to better integrate the different services and agencies so that individuals can access one comprehensive care pathway.

Service users indicated acceptability of answering questions once every 3 months over long-term follow-up (maybe every 1 month at the start, and every 6 months after a couple of years).

Chapter 4 Assessment of cost-effectiveness

The aim of this chapter is to assess the cost-effectiveness of psychosocial interventions for adults with SUD that have a co-occurring CMD or BPD. It comprises a systematic review of cost-effectiveness studies of psychosocial interventions and an illustrative example of economic model.

Identifying and systematically reviewing published cost-effectiveness studies

This chapter explores and reviews published cost-effectiveness studies including economic models and RCTs for participants with alcohol or drug use disorders and a co-occurring mental health disorder.

Methods for reviewing cost-effectiveness

A systematic literature review was conducted to identify studies of the cost-effectiveness of any of the interventions. Searches were carried out in MEDLINE including MEDLINE-in-Process (Ovid); EMBASE (Ovid); Cochrane Database of Systematic Reviews, and EconLit.

Search strategy

The search strategy comprised the following main elements:

- Searching of electronic databases: MEDLINE, EMBASE, Cochrane Database of Systematic Reviews, and EconLit.
- Contact with experts in the field.
- Scrutiny of bibliographies of retrieved papers.

The searches applied

- an exclusion filter for children;
- an English language limit.

The systematic database search was carried out on the 13 May 2024. The following concepts were identified:

1. General terms for mental health co-occurrence, dual diagnosis.
2. Patient groups were identified through consultation with the clinical advisors, NICE's list of mental health disorders, IAPT treated mental health conditions list: body dysmorphic disorder; BPD; depression; emotional dysregulation; generalised anxiety disorder; OCD; panic disorder; PTSD; social phobia; specific phobia; and stress-related disorder.
3. General terms for substance misuse and psychoactive substances.
4. Named substances: amphetamine; benzodiazepine; alcohol; cannabis; cocaine; heroin; ketamine; marijuana; methadone; methamphetamine; opiates; opioids; opium; and phencyclidine.
5. General intervention groups identified from the clinical review (11 in total): colocated services; digital/technology/technology assisted interventions; integrated care/interventions/services; psychological interventions/services; psychosocial interventions/services; peer supported; exercise-based intervention; group intervention; music therapy; non-integrated models of care; and trauma-focused interventions.
6. Named interventions identified from the clinical review (45 in total): 12-step/Twelve Step Facilitation (TSF); alcoholics anonymous; ACT; behavioural activation; BT/skills training; client-centred therapy; CBT; cognitive intervention; community-based intervention; computer-based/web-based intervention; DBT; DDP; DFST; integrated non-somatic treatment; interpersonal therapy/PsyT; manual-guided intervention; MBIs; MI; present focused interventions; prolonged exposure; psychoeducation; relapse prevention; SS; supportive PsyT/brief supportive therapy; text message/supportive text messaging; art therapy; behaviour therapy for depression in drug dependence (BTDD); brief counselling session on alcohol risk reduction; case management; contingency management; coping skills training; ecognitive behavioural therapy; EMDR; helping women recover/beyond trauma (HWR/BT); personalised feedback; qigong; relaxation training; relational psychotherapy mothers' group (RPMG); role of social work

practice; substance-free activity scheduling interventions; tai chi; the unified protocol for transdiagnostic treatment of emotional disorders; therapeutic community (challenge to change); trauma affect regulation: guide for education and therapy (TARGET); and yoga.

Exclusion filter

- Child subject headings and free-text terms.

Limits applied

- SIGN Economic search filter for MEDLINE and EMBASE only www.sign.ac.uk/using-our-guidelines/methodology/search-filters/
- English language limit

The following concept combinations were combined in the search strategy

(((((Concept 1 OR (Concept 2 AND (Concept 3 OR Concept 4))) AND (Concept 5 OR Concept 6) AND Economic filter) NOT CHILD filter))

The sources searched for the cost-effectiveness review is shown in [Table 34](#). The detailed search strategy for each database is in (see [Appendix 7](#), [Tables 35–38](#)).

Study selection

Study selection was made using the review eligibility criteria shown in [Table 13](#). The title and abstract of each record retrieved by the search strategy were assessed against the review eligibility criteria by two reviewers, with non-relevant records excluded. The full texts of retained records were obtained and assessed against the inclusion criteria. Two reviewers evaluated a sample of eligible studies and achieved good agreement, with the remainder evaluated by one reviewer. The excluded studies, after reviewing full texts, are listed in the (see [Appendix 8](#), [Table 39](#)).

Results for reviewing cost-effectiveness

Searches for cost-effectiveness studies in four databases were conducted on the 13 May 2024. A total of 1139 records were identified. Following the removal of duplicates, there were 948 unique records, for which title/abstract were sifted independently by two reviewers. Nineteen titles/abstracts were included, and full texts of these records were obtained except for one abstract, which was a conference proceeding. Eighteen full texts were sifted. One by Watkins *et al.*⁹⁴ was retained at full-text sift. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram is presented in [Figure 2](#).

Watkins *et al.*⁹⁴ evaluated the cost-effectiveness of providing group CBT to patients with co-occurring depression and SUD. The study used a quasi-experimental design and enrolled 299 patients. Data on costs were collected, including direct labour costs (e.g. counsellor wages), training costs and non-labour costs (e.g. materials and space). Outcomes were measured using the Beck Depression Inventory – Second Edition (BDI-II) and the Short Form questionnaire-12 items at 3 and 6 months. The incremental cost-effectiveness ratio ranged from \$9249 to \$17,834 for each additional quality-adjusted life-year (QALY), dependent on chosen scenarios, compared with usual care.

Although Watkins *et al.*⁹⁴ reported outcomes related to cost-effectiveness, their study was based on a clinical trial rather than a model-based approach. Since the aim of the literature review was to identify studies that utilised a modelling approach to estimate cost-effectiveness, the Watkins *et al.*⁹⁴ study was not considered appropriate for inclusion.

One potential paper related to cost-effectiveness was found within the clinical review; Karapereddy⁶⁰ stated that their MA indicated ‘*that the integrated model is more cost-effective than standard care*’. This paper was not identified in the cost-effectiveness search, and only one of the three papers within it, Domino *et al.*⁹⁵ was identified with two missed.^{96,97} However, on examining Karapereddy⁶⁰ it appeared that the reported studies did not explicitly present measures of cost-effectiveness these papers were excluded.

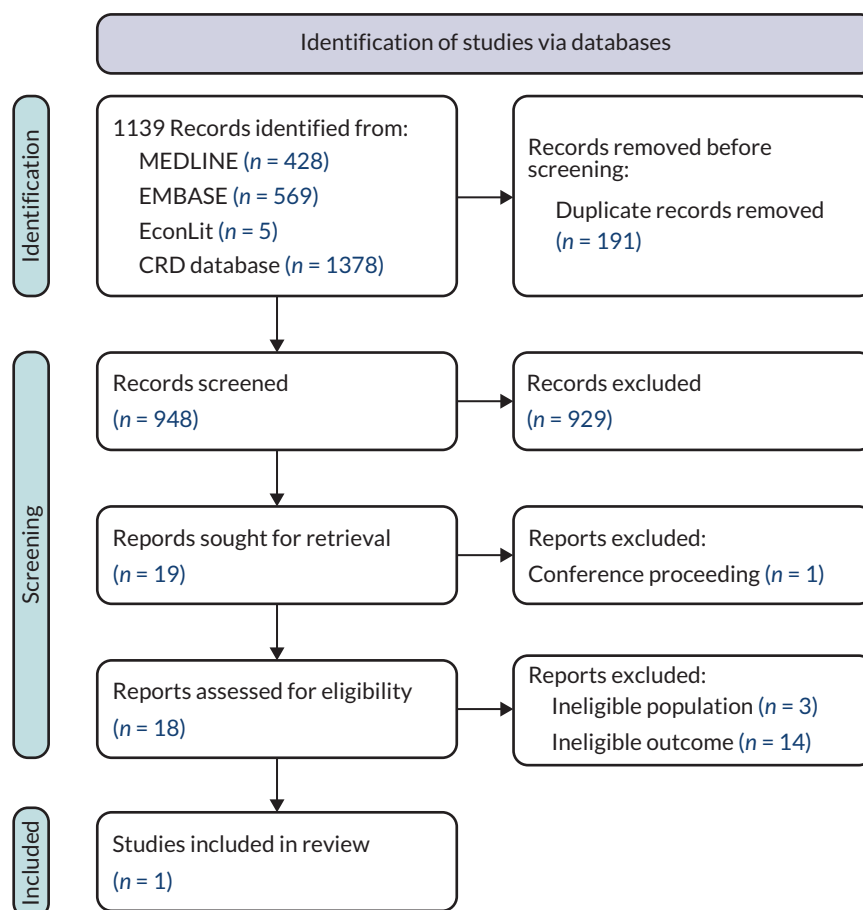


FIGURE 2 PRISMA flow diagram for cost-effectiveness literature review.

Cost-effectiveness modelling

Introduction to the cost-effectiveness modelling

No health economic analysis plan was developed in advance of the work.

The intention was that the cost-effectiveness of multiple interventions for the treatment of patients with co-occurring mental health problems and SUDs would be estimated. However, the outcome data reported in the systematic reviews were not amenable to modelling, as often standardised mean differences were presented to allow a comparison when a variety of different scales were used.

We examined the results from the literature reviews to attempt to identify a study that could be used to inform an illustrative model to show how cost-effectiveness analyses could be conducted if the appropriate data were available. A criterion for selection was that a key outcome measure of the study could be mapped into a preference-based measure of health, for example the EuroQol-5 Dimensions (EQ-5D) or the Short Form questionnaire-6 Dimensions (SF-6D). The availability of any mapping algorithms was determined by referencing the HERC database of mapping studies.⁹⁸ Only two outcome measures that were extracted in our umbrella review related to clinical effectiveness could be mapped. One was the Patient Health Questionnaire-9 (the PHQ-9) and another was the BDI-II. As coefficients of the mapping from BDI-II to the EQ-5D are only available from the authors by request,⁹⁹ we constructed an illustrative model based on improvements in the PHQ-9.

The illustrative model will provide a step-by-step guide to how cost-effectiveness values could be obtained and the data requirements; as the model is for guidance only, dummy data have been used where no data were easily obtainable. The model was built independently in both Microsoft Excel (Microsoft 365 ProPlus) and R (The R Foundation, The R Foundation for Statistical Computing, Vienna, Austria) with identical deterministic results produced.

Illustrative example

The example chosen was the use of an online intervention for co-occurring depression and problematic alcohol use in young people,¹⁰⁰ which was included in the systematic review of Schouten *et al.*⁴² The chosen study reported the changes in the PHQ-9 for patients receiving an intervention [DEpression-ALcohol (DEAL) Project (DEAL), an automated web-based self-help intervention] compared with a control (HealthWatch, a web-based attention-control condition). For this analysis, we have assumed that the results for HealthWatch can be taken to be representative of the placebo response of being recruited to a study. The PHQ-9 is a questionnaire with nine questions and a recall period of 2 weeks, with each question providing a score of zero (not at all) to three (nearly every day) resulting in a total score range of 0–27. Scores of 15–19 indicate moderately severe depression, and scores above 19 indicate severe depression.

The PHQ-9 could be mapped to the SF-6D by means of an algorithm reported in Brazier *et al.*¹⁰¹ While we have provided illustrative cost-effectiveness values for DEAL, caution is strongly advised when examining these as only one-third of people recruited completed at least half of the online course, and the cost of DEAL is an arbitrary figure. The methods outlined for calculating cost-effectiveness are the key output from this chapter.

No outcome measure for reduction in alcohol intake that could be mapped to a preference-based utility measure was presented and these have not been included. While this potentially underestimates the benefit of treatments, even if these were available there would be a large risk of double counting of benefits if the benefits on two scales were added.

Estimating the effectiveness of an intervention

Deady *et al.*¹⁰⁰ provide changes in the SF-6D at 5 weeks, 3 months and 6 months. These values have been used, along with an assumed period of time in which the intervention has no benefit over time to calculate the expected QALY gain of DEAL compared with HealthWatch. These gains are reported in [Table 14](#). We believe that there was a typographical error in Deady *et al.*¹⁰⁰ with a minus sign omitted from the lower limit of the 95% CI for HealthWatch at 6 months which is reported as 1.36; we believe that this is an error as –1.36 produces CIs that are symmetrical around the midpoint and is consistent with the reported *p*-value of 0.01. We caution that the observed values may be influenced by informative censoring as it is possible that only patients who were benefiting from the interventions remained in the study.

For simplicity, we have assumed that changes between time points occur linearly and that there is a point in time at which both DEAL and HealthWatch return to the baseline PHQ-9 value [which was a mean of 16.32 (moderately severe depression) across all people at the start of the study]. We present two scenarios, the first where all benefits have dissipated at 2 years, and the second where all benefits have dissipated at 5 years. A graphical depiction of these scenarios is shown in [Figure 3](#). While the illustrative example has assumed the same time point at which all treatment benefit has gone for both arms, the model can easily be changed to use different time points if there was evidence that this was the case.

Mapping Patient Health Questionnaire-9 items to Short Form questionnaire-6 Dimensions

The changes in PHQ-9 values are then mapped into changes in SF-6D values using the formula for Brazier *et al.*¹⁰¹ which relates to the total PHQ-9 score (Table 51 of the Brazier *et al.* publication). The formula estimates that a 1-unit increase in PHQ-9 is associated with a decrease in SF-6D of 0.0108 (with a standard error of 0.001). The values in [Figure 3](#) were transformed into SF-6D values as shown in [Figure 4](#).

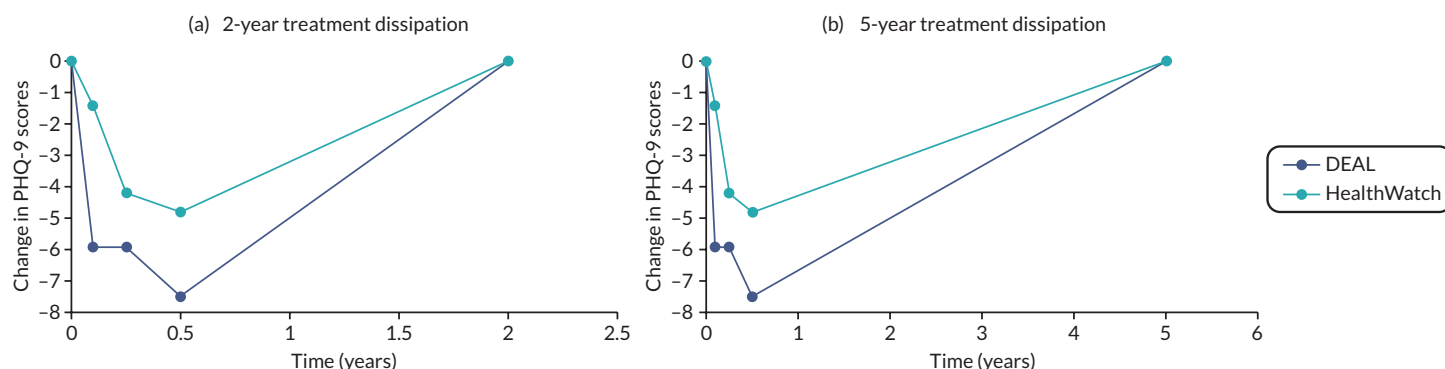
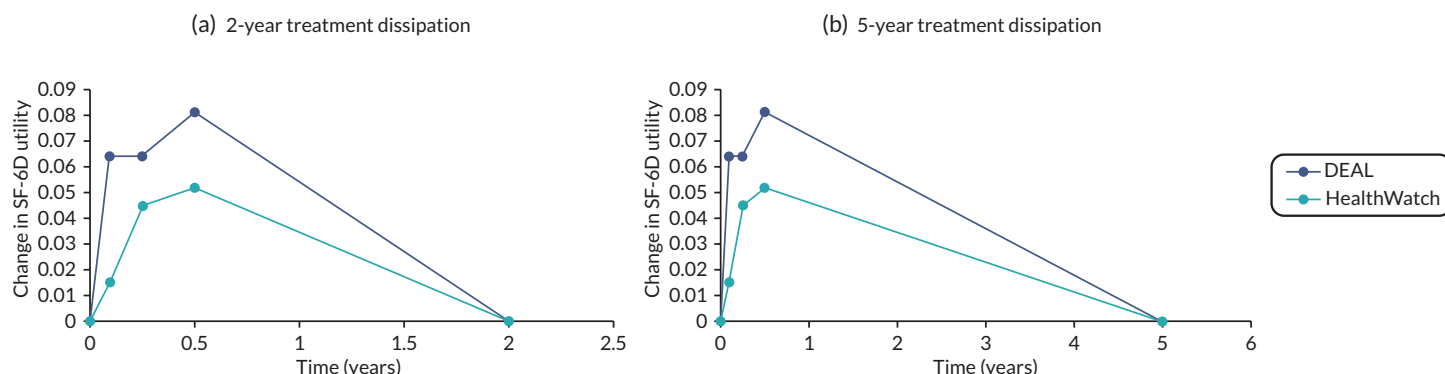
Quality-adjusted life-years represent a measure of health which considers both longevity and utility while alive. For simplicity, we have assumed that the utility from the SF-6D is equivalent to that from the EQ-5D, which is NICE's preferred metric,¹⁰² although note that mappings exist between the SF-6D and the EQ-5D so a further transformation was possible, if needed.

The additional estimated QALYs accrued from DEAL and from HealthWatch are the same as the areas under the curve in [Figure 4](#). These can be calculated using geometry, as there are four areas that need to be calculated for each intervention. The first is a triangle from the origin to the 5-week point; there is then a trapezium from 5 weeks to 3 months and a trapezium from 3 months to 6 months, and finally a triangle from the 6-month point to the time at which the treatment effect has dissipated. Discounting was undertaken for this last period, using the NICE recommended value of 3.5% per annum,¹⁰² as the time horizon exceeded 1 year.

TABLE 14 Observed change from the baseline (95% CI) in PHQ-9 scores

	DEAL	HealthWatch
5 weeks	-5.94 (-8.18 to -3.70) ^a	-1.43 (-3.46 to -0.06)
3 months	-5.93 (-8.53 to -3.37) ^a	-4.21 (-7.27 to -1.15) ^b
6 months	-7.53 (-10.51 to -4.55) ^a	-4.82 (-8.28 to -1.36) ^b

a p-value < 0.001.
b p-value = 0.01.

**FIGURE 3** Schematics of the assumed PHQ-9 benefits associated with DEAL and HealthWatch.**FIGURE 4** Schematics of the assumed SF-6D utility gains associated with DEAL and HealthWatch.

Discounting was undertaken using the following formula to calculate a discounted number of years:

$$\text{Discounted number of years} = \frac{\exp(-\ln(1.035) \times \text{end time}) - \exp(-\ln(1.035) \times 0.5)}{-\ln(1.035)}$$

The 0.5 represents the last value before the end time, which would be either 2 or 5 years, which results in a discounted number of years of 1.44 and 4.10, respectively, from 0.5 years.

For the analysis where the treatment effect dissipated at 2 years, DEAL accrued an additional 0.090 discounted QALYs and HealthWatch accrued an additional 0.055 discounted QALYs, resulting in 0.035 more discounted QALYs with DEAL treatment.

For the analysis where the treatment effect had dissipated at 5 years, DEAL accrued an additional 0.198 discounted QALYs and HealthWatch accrued an additional 0.124 discounted QALYs, resulting in 0.073 more discounted QALYs with DEAL treatment.

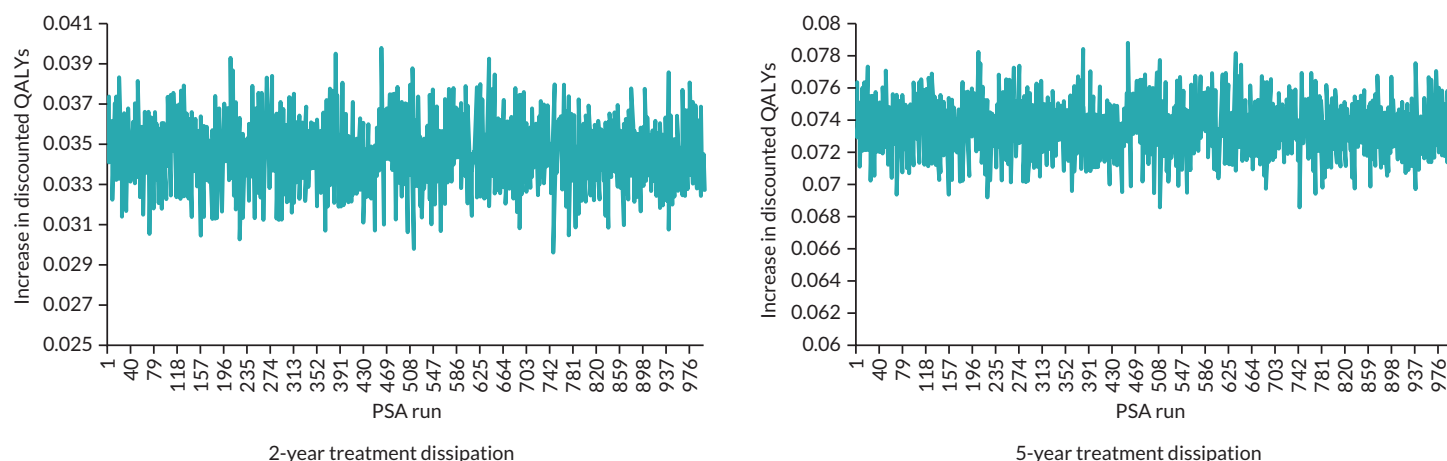


FIGURE 5 The estimated number of discounted QALYs generated by DEAL compared with HealthWatch within the PSAs.

Probabilistic sensitivity analyses (PSAs) incorporate parameter uncertainty in the model. We generated results using the 95% CIs provided in [Table 15](#) and the standard error of the mapping coefficient between PHQ-9 and the SF-6D. As we did not have variance–covariance matrices between the values at 5 weeks, 3 months and 6 months, we assumed that PHQ-9 changes were independent.

One thousand PSA iterations were run, with the resultant discounted QALY gains for DEAL compared with HealthWatch calculated. These are shown in [Figure 5](#). As the model was linear, the mean gains in discounted QALYs in the PSA were very similar to the deterministic analysis.

The example provided did not include the possibility of deaths being avoided by an effective treatment. If this were the case, then the number of QALYs lost per death can be estimated from the QALY shortfall calculator application.¹⁰³ If the user inputs the age and percentage of females in the cohort, then the remaining QALYs for the general population with these characteristics are provided. In the example, patients were aged 22 years, with 60% female, which results in expected discounted QALYs of 22.34. If there were evidence that DEAL avoided death in 0.5% of the cohort, then there would be an additional 0.112 discounted QALYs (0.005×22.34) that could be added to that associated purely with change in PHQ-9 score. If patients were known to be at a considerably lower utility than the general population, then this should be accounted for when calculating QALYs lost due to death.

Including the costs of interventions

Where known, the cost of the intervention and any cost-offsets associated with reduced healthcare resource use would be included in the model. For this illustrative example, we assume that the net cost of DEAL was £200 per person using an NHS and Personal Social Services perspective. This would then result in estimated cost per QALY values of £5792 when treatment effect dissipated at 2 years (as the QALYs gained were 0.035) and £2722 when treatment effect dissipated at 5 years (as the QALYs gained were 0.073).

Using the lower range of the cost per QALY threshold stated by NICE of £20,000 per QALY, the price per person of DEAL would be cost-effective at £691 when the treatment effect was assumed to dissipate at 2 years, and £1469 per person when the treatment effect was assumed to dissipate at 5 years. However, we stress that this is an illustrative model only and the results should be viewed with considerable caution.

Chapter 5 Discussion

Statement of principal findings

The umbrella review presented evidence of beneficial effect (pre to post treatment) for many types of psychosocial interventions. It was not possible to deduce which type of intervention was most effective, due to heterogeneity between systematic reviews, and heterogeneity of RCTs within reviews. Integrated treatment was not any more harmful than treating single disorder. Integrated treatment was usually better for CMD outcomes than treating one condition alone, and sometimes better than parallel treatments. There was not much evidence looking at sequential treatment, but this suggested it was similarly effective to integrated treatment.

Cost-effectiveness evidence

One relevant paper was identified that estimated the cost-effectiveness of an intervention for patients with SUD and a common mental health illness. However, this did not use modelling techniques and therefore no papers identified that used modelling approaches.

Contribution to existing knowledge

There is evidence of beneficial effect (pre to post treatment) for many types of psychosocial interventions. Gaps in systematic review evidence were identified (<https://tinyurl.com/35pmhve2>).

The research group provided guidance on how cost-effectiveness could be estimated using as an example, DEAL (an automated web-based self-help intervention) compared with control. This may aid future researchers attempting to estimate the cost-effectiveness of interventions for people with SUD and a common mental health illness.

Strengths and limitations of the assessment

Strengths

Good-quality systematic reviews of RCT evidence were identified supporting psychosocial interventions for the treatment of SUD and CMD/BPD.

Limitations

There is uncertainty over which type of intervention was most effective, due to heterogeneity between systematic reviews, and heterogeneity of RCTs within reviews.

One study was identified that met the cost-effectiveness criteria, and this was not a modelling paper.

Non-English language papers were excluded, and so relevant reviews may have been missed, as may reviews published since the search date.

Uncertainties

There is uncertainty over which type of intervention was most clinically and cost-effective.

Take-home message

Future research is needed comparing integrated, parallel and sequential treatment, with long-term follow-up, and more evidence is needed on required duration of therapy.

Patient and public involvement

Service users were involved in drafting the [Plain language summary](#), and provided their opinions on preferences for services, barriers and facilitators to access to services, and priorities for future research (see [Additional information](#), PPI).

Preferences for services

Aspects of services that service users reported as being important to them comprised the following:

- provide a good range of interventions, allowing use of a combination of therapies (e.g. ACT, CBT, PsyT, art therapy and mindfulness)
- provision of group therapy
- opportunities to calm and learn how to self-regulate
- having a diverse range of professionals collaborating; also roles for non-professionals (peer support, or ex-service users as trained volunteers)
- support teams having good understanding of all the provided interventions
- staff who show compassion and empathy, as more likely to encourage ongoing engagement
- range of settings, primary care, community services (inpatient care thought to be useful for some but not all service users)
- integrated services for SUD and CMD service users, treating them together as co-occurring conditions; one service user pointed out that if treat SUD only this may leave the CMD untreated which could be a cause of SUD in the first place; one service user reported two separate services delivered side-by-side had worked for them (dependent on communication between service providers)
- holistic interventions
- variety of face-to-face and online contact – Preference for face-to-face interaction, but with option for online for cases where it is difficult to meet; a role for online sessions following therapy as a form of 'aftercare'; a role for online meetings as this allows regular contact, whereas face-to-face meetings may be limited by access to building space or cost of transport.

Access to services

Barriers

- Not knowing about available local services, and what they could offer.
- Lack of up-to-date information.
- Stigma.
- Service user transport difficulties, particularly for those relying on public transport.
- Service user limited finances.
- Service user technology issues.
- Service user disabilities.
- Service user anxiety.
- Location of service provision too small to allow staff to offer individual service user therapy.
- Lack of range of interventions available.

Facilitators

- Advertising available services through local community networks, libraries, councils, health centres, and general practitioner surgeries through marketing such as flyers and posters.
- Information about what services provide.
- Adequate location for service provision, space for individual therapy, space provided for peer support groups.
- Community outreach to reduce stigma.
- Better communication between different agencies (e.g. primary care and social services).

Priorities for future research

- Comparing integrated, parallel and sequential treatment.
- Ways to better integrate different services (e.g. primary care and social services).
- Long-term follow-up.
- Outcomes related to service user experiences.
- Ways to facilitate access (at initiation of treatment, and to encourage ongoing engagement).

Participation in research

All found it acceptable to answer questions for long-term follow-up every 3 months.

One service user suggested every 1 month at the beginning, and one service user suggested changing to every 6 months after a couple of years follow-up.

Equality, diversity and inclusion

This was a review project of existing review data; therefore, we could not account for equality issues beyond what was reported in included publications.

Chapter 6 Conclusions

Headline summary of findings

Good-quality systematic reviews of RCT evidence were identified supporting psychosocial interventions for the treatment of SUD and CMD/BPD.

One relevant paper was identified that estimated the cost-effectiveness of an intervention for patients with SUD and a common mental health illness. However, this did not use modelling techniques. The research group therefore provided guidance on how cost-effectiveness could be estimated using as an example, DEAL (an automated web-based self-help intervention) compared with control.

Implications for decision-makers

There is uncertainty over which type of intervention was most effective, due to heterogeneity between systematic reviews, and heterogeneity of RCTs within reviews.

Research recommendations

Research is needed comparing integrated (co-ordinated for both conditions), parallel and sequential treatment programmes. For sequential treatments, the order in which conditions treated should be assessed. Staff (clinicians and service users) should receive training for the delivery of these programmes, including knowledge of therapeutic alliance. Outcomes should include blinded assessment of SUD and CMD/BPD outcomes, and service user views on acceptability and on barriers to access. Long-term follow-up is needed, with suggested follow-up points of every 3 months (as this was thought acceptable by service users).

Those undertaking research studies should consider the data required to perform a cost-effectiveness analysis with a sufficient time horizon to capture the longer-term benefits associated with initial costs. Collecting cost and utility data (ideally using the EQ-5D, but if not, a measure that can be mapped to the EQ-5D) would allow estimated results to be compared with cost-effectiveness thresholds published by NICE.

Future research is needed into which aspects of treatment programmes, for example peer support, can be delivered safely and effectively by unregistered staff. This should include identifying training needs.

Research is needed to identify adaptations or adjustments to standard psychological treatments for the mental health difficulties under review to make them more acceptable and accessible to people with substance use disorder. Research should investigate ways to integrate services from different agencies, to create comprehensive care pathways for service users with co-occurring diagnoses.

Additional information

CRediT contribution statement

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Katy Cooper provided feedback on the first draft of the report.

Data-sharing statement

Data were taken from published articles (reviews and RCTs). Data extracted for our project are all available in this report.

Ethics statement

No ethical approval was required for this report as the project consisted of a systematic review and illustrative cost-effectiveness model.

Information governance statement

This project did not involve any personal information. The University of Sheffield is committed to handling all personal information in line with the UK Data Protection Act (2018) and the General Data Protection Regulation (EU GDPR)

2016/679. Under Data Protection legislation, the University of Sheffield is the Data Processor, the trialists who hold the trial data supplied are the Data Controllers, and we process personal data in agreement with them and in accordance with their instructions.

Disclosure of interests

Full disclosure of interests: Completed ICMJE forms for all authors, including all related interests, are available in the toolkit on the NIHR Journals Library report publication page at <https://doi.org/10.3310/GJES1821>.

Primary conflicts of interest: All authors have no competing interests to declare.

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Publication

A map showing availability of reviews by intervention was created in EPPI-reviewer <https://tinyurl.com/35pmhve2>.

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Appendix 1 Literature search strategies

Clinical review search strategies

Systematic database searches were carried out in February 2024.

TABLE 15 Table of sources searched

Database	Dates covered	Review
Epub Ahead of Print, In-Process & Other Non-Indexed Citations, MEDLINE(R) Daily and MEDLINE(R)	1946–present	2141
EMBASE	1974–present	2432
Web of Science Science Citation Index Expanded (1900–), Conference Proceedings Citation Index – Science (1990–),	1900–present	2282
PsycInfo	1806–resent	1890
Cochrane Database of Systematic Reviews (Cochrane Library)	CDSR 1996–present	239
Total retrieved	–	8984
Unique	–	4694

19 February 2024

2141 records

TABLE 16 Ovid MEDLINE® ALL 1946–16 February 2024

#	Searches	Results
1	((comorbid* or “co morbid*” or coexist* or “co exist*” or concur* or cooccur* or “co occur*”) adj2 mental* adj2 (condition* or disease* or disorder* or disturbanc* or ill*)).tw.	2281
2	dual diagnosis.mp.	2000
3	1 or 2	4184
4	Comorbidity/ and Mental Health/	1124
5	Mood Disorders/ or Depression/	170,414
6	((depressi* or affective) adj symptom*).tw.	85,177
7	((depressi* or mood or affective or cognitiv* or adjustment) adj3 disorder*).tw.	120,482
8	dysthymi*.tw.	3333
9	exp Anxiety Disorders/	92,451
10	(anxi* or gad).tw.	299,498
11	exp Obsessive-Compulsive Disorder/	17,017
12	(obsess* or compulsi* or ocd).tw.	34,621
13	(panic* or agoraphobi*).tw.	25,059
14	Stress Disorders, Post-Traumatic/	42,545
15	((posttrauma* or post-trauma* or post trauma*) adj3 (stress* or disorder* or psych* or symptom*)).tw.	47,664

TABLE 16 Ovid MEDLINE® ALL 1946–16 February 2024 (continued)

#	Searches	Results
16	(ptsd or stress disorder* or combat disorder*).tw.	46,700
17	Borderline Personality Disorder/	8217
18	((borderline or border-line or "border line" or unstab* or instab*) adj3 (state* or personalit*)).tw.	11,387
19	(eupd or bpd).tw.	12,885
20	((emotion* or affect*) adj3 (dysregulat* or function* or label* or modulat* or reactive* or regulat*)).tw.	115,102
21	Body Dysmorphic Disorders/	1291
22	(body adj3 dysmorphi*).tw.	1565
23	exp Phobic Disorders/	14,347
24	phobi*.tw.	12,921
25	Antisocial Personality Disorder/	10,544
26	((anti-social or "anti social" or antisocial) adj3 (disorder* or syndrome*)).tw.	2715
27	aspd.tw.	606
28	or/4-27	756,618
29	((substance* or drug* or narcotic* or alcohol*) adj2 (use* or using or addict* or consum* or depend* or disorder* or habit* or misuse* or misusing or withdraw*)).tw.	377,368
30	(amphetamine* or benzodiazepine* or alcohol* or cannabis or cocaine* or crack or heroin or ketamine or marijuana or mdma or methadone or methamphetamine* or opiate* or opioid* or opium or phencyclidine).tw,kf.	712,251
31	(stimulant* or psychostimulant* or sedative* or "psychoactive substance*" or nps).tw.	120,705
32	29 or 30 or 31	997,646
33	28 and 32	73,875
34	3 or 33	77,235
35	(MEDLINE or systematic review).tw. or meta analysis.pt.	458,381
36	34 and 35	2646
37	exp Adult/	8,021,015
38	(teen* or youth* or adolescen* or juvenile* or youngster* or first-grader* or second-grader* or third-grader* or fourth-grader* or fifth-grader* or sixth-grader* or seventh-grader* or highschool* or ((secondary or high*) adj2 (school* or education))).tw. or Adolescent/	2,473,519
39	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric*).tw. or exp Child/ or exp Infant/	3,823,333
40	38 or 39	4,803,683
41	40 not (40 and 37)	2,834,723
42	36 not 41	2228
43	limit 42 to english language	2141

19 February 2024

2432 records

TABLE 17 EMBASE 1974–2024 Week 7

#	Searches	Results
1	((comorbid* or "co morbid*" or coexist* or "co exist*" or concur* or cooccur* or "co occur*") adj2 mental* adj2 (condition* or disease* or disorder* or disturbanc* or ill*)).tw.	3204
2	dual diagnosis.mp.	4370
3	1 or 2	7421
4	comorbidity/ and exp mental health/	10,590
5	exp mood disorder/ or depression/	691,784
6	((depressi* or affective) adj symptom*).tw.	110,348
7	((depressi* or mood or affective or cognitiv* or adjustment) adj3 disorder*).tw.	171,554
8	dysthymi*.tw.	4356
9	exp anxiety disorder/	329,880
10	(anxi* or gad).tw.	422,332
11	obsessive compulsive disorder/ or exp obsession/	40,155
12	(obsess* or compulsi* or ocd).tw.	49,195
13	(panic* or agoraphobi*).tw.	31,470
14	posttraumatic stress disorder/	82,730
15	((posttrauma* or post-trauma* or post trauma*) adj3 (stress* or disorder* or psych* or symptom*)).tw.	57,900
16	(ptsd or stress disorder* or combat disorder*).tw.	59,667
17	borderline state/	16,345
18	((borderline or border-line or "border line" or unstab* or instab*) adj3 (state* or personalit*)).tw.	14,116
19	(eupd or bpd).tw.	18,259
20	((emotion* or affect*) adj3 (dysregulat* or function* or label* or modulat* or reactive* or regulat*)).tw.	153,241
21	body dysmorphic disorder/	3884
22	(body adj3 dysmorphi*).tw.	2070
23	exp phobia/	38,509
24	phobi*.tw.	17,305
25	antisocial personality disorder/	3651
26	((anti-social or "anti social" or antisocial) adj3 (disorder* or syndrome*)).tw.	3532
27	aspd.tw.	790
28	or/4-27	1,319,381
29	((substance* or drug* or narcotic* or alcohol*) adj2 (use* or using or addict* or consum* or depend* or disorder* or habit* or misuse* or misusing or withdraw*)).tw.	529,600
30	(amphetamine* or benzodiazepine* or alcohol* or cannabis or cocaine* or crack or heroin or ketamine or marijuana or mdma or methadone or methamphetamine* or opiate* or opioid* or opium or phencyclidine).tw,kf.	951,770
31	(stimulant* or psychostimulant* or sedative* or "psychoactive substance*" or nps).tw.	144,674

TABLE 17 EMBASE 1974–2024 Week 7 (*continued*)

#	Searches	Results
32	29 or 30 or 31	1,324,308
33	28 and 32	136,379
34	3 or 33	141,979
35	(meta-analysis or systematic review).tw.	508,800
36	34 and 35	3664
37	exp adult/	11,040,938
38	(teen* or youth* or adolescen* or juvenile* or youngster* or first-grader* or second-grader* or third-grader* or fourth-grader* or fifth-grader* or sixth-grader* or seventh-grader* or highschool* or ((secondary or high*) adj2 (school* or education))).tw. or adolescent/	2,128,644
39	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric*).tw. or exp child/ or exp infant/	4,407,033
40	38 or 39	5,027,247
41	40 not (40 and 37)	3,248,444
42	36 not 41	3141
43	limit 42 to english language	3075
44	limit 43 to conference abstracts	643
45	43 not 44	2432

20 February 2024

2282 records

TABLE 18 Web of Science, Science Citation Index Expanded (1900–), Conference Proceedings Citation Index – Science (1990–)

#	Searches	Results
1	((comorbid* OR "co morbid*" OR coexist* OR "co exist*" OR concur* OR cooccur* OR "co occur*") NEAR/2 mental* NEAR/2 (condition* OR disease* OR disorder* OR disturbanc* OR ill*)) (Title) or ((comorbid* OR "co morbid*" OR coexist* OR "co exist*" OR concur* OR cooccur* OR "co occur*") NEAR/2 mental* NEAR/2 (condition* OR disease* OR disorder* OR disturbanc* OR ill*)) (Abstract)	3467
2	"dual diagnosis" (Title) or "dual diagnosis" (Abstract)	2314
3	#1 OR #2	5656
4	comorbidity AND "mental health" (Title) or comorbidity AND "mental health" (Abstract)	3877
5	((depressi* OR affective) NEAR/0 symptom*) (Title) or ((depressi* OR affective) NEAR/0 symptom*) (Abstract)	97,109
6	((depressi* OR mood OR affective OR cognitiv* OR adjustment) NEAR/3 disorder*) (Title) or ((depressi* OR mood OR affective OR cognitiv* OR adjustment) NEAR/3 disorder*) (Abstract)	145,280
7	dysthymi* (Title) or dysthymi* (Abstract)	3412
8	(anxi* OR gad) (Title) or (anxi* OR gad) (Abstract)	377,622
9	(obsess* OR compulsi* OR ocd) (Title) or (obsess* OR compulsi* OR ocd) (Abstract)	51,480
10	(panic* OR agoraphobi*) (Title) or (panic* OR agoraphobi*) (Abstract)	53,727

continued

TABLE 18 Web of Science, Science Citation Index Expanded (1900–), Conference Proceedings Citation Index – Science (1990–) (continued)

#	Searches	Results
11	((posttrauma* OR post-trauma* OR "post trauma*") NEAR/3 (stress* OR disorder* OR psych* OR symptom*)) (Title) or ((posttrauma* OR post-trauma* OR "post trauma*") NEAR/3 (stress* OR disorder* OR psych* OR symptom*)) (Abstract)	55,540
12	(ptsd OR "stress disorder*" OR "combat disorder*") (Title) or (ptsd OR "stress disorder*" OR "combat disorder*") (Abstract)	56,801
13	((borderline OR border-line OR "border line" OR unstab* OR instab*) NEAR/3 (state* OR personalit*)) (Title) or ((borderline OR border-line OR "border line" OR unstab* OR instab*) NEAR/3 (state* OR personalit*)) (Abstract)	23,782
14	(eupd OR bpd) (Title) or (eupd OR bpd) (Abstract)	14,811
15	((emotion* OR affect*) NEAR/3 (dysregulat* OR function* OR label* OR modul* OR reactive* OR regulat*)) (Title) or ((emotion* OR affect*) NEAR/3 (dysregulat* OR function* OR label* OR modul* OR reactive* OR regulat*)) (Abstract)	185,092
16	(body NEAR/3 dysmorphi*) (Title) or (body NEAR/3 dysmorphi*) (Abstract)	1850
17	phobi* (Title) or phobi* (Abstract)	17,055
18	((anti-social OR "anti social" OR antisocial) NEAR/3 (disorder* OR syndrome*)) (Title) or ((anti-social OR "anti social" OR antisocial) NEAR/3 (disorder* OR syndrome*)) (Abstract)	3516
19	aspd (Title) or aspd (Abstract)	718
20	#19 OR #18 OR #17 OR #16 OR #15 OR #14 OR #13 OR #12 OR #11 OR #10 OR #9 OR #8 OR #7 OR #6 OR #5 OR #4	876,639
21	((substance* OR drug* OR narcotic* OR alcohol*) NEAR/2 (use* OR using OR addict* OR consum* OR depend* OR disorder* OR habit* OR misuse* OR misusing OR withdraw*)) (Title) or ((substance* OR drug* OR narcotic* OR alcohol*) NEAR/2 (use* OR using OR addict* OR consum* OR depend* OR disorder* OR habit* OR misuse* OR misusing OR withdraw*)) (Abstract)	542,724
22	(amphetamine* OR benzodiazepine* OR alcohol* OR cannabis OR cocain* OR crack OR heroin OR ketamine OR marijuana OR mdma OR methadone OR methamphetamine* OR opiate* OR opioid* OR opium OR phencyclidine) (Title) or (amphetamine* OR benzodiazepine* OR alcohol* OR cannabis OR cocain* OR crack OR heroin OR ketamine OR marijuana OR mdma OR methadone OR methamphetamine* OR opiate* OR opioid* OR opium OR phencyclidine) (Abstract)	1,384,260
23	(stimulant* OR psychostimulant* OR sedative* OR "psychoactive substance*" OR nps) (Title) or (stimulant* OR psychostimulant* OR sedative* OR "psychoactive substance*" OR nps) (Abstract)	186,787
24	#23 OR #22 OR #21	1,844,754
25	#20 AND #24	75,780
26	#25 OR #3	80,432
27	meta-analysis or "meta analysis" or systematic review (Title) or meta-analysis or "meta analysis" or systematic review (Abstract)	611,493
28	#27 AND #26	2758
29	adult or adults (Topic)	6,955,833
30	(teen* OR youth* OR adolescen* OR juvenile* OR youngster* OR first-grader* OR second-grader* OR third-grader* OR fourth-grader* OR fifth-grader* OR sixth-grader* OR seventh-grader* OR highschool* OR ((secondary OR high*) NEAR/2 (school* OR education))) (Topic)	3,033,450
31	(child* OR stepchild* OR step-child* OR kid OR kids OR girl OR girls OR boy OR boys OR teen* OR youth* OR youngster* OR adolescent* OR adolescence OR preschool* OR pre-school* OR kindergarten* OR school* OR juvenile* OR minors OR p\$ediatric*) (Topic)	6,341,611
32	#30 OR #31	6,502,793
33	#32 NOT (#32 AND #29)	4,269,781
34	#28 NOT #33	2359
35	#28 NOT #33 and English (Languages)	2282

20 February 2024

1696 records

TABLE 19 American Psychological Association PsycInfo 1806 to February Week 3 2024

#	Searches	Results
1	((comorbid* or "co morbid*" or coexist* or "co exist*" or concur* or cooccur* or "co occur*") adj2 mental* adj2 (condition* or disease* or disorder* or disturbanc* or ill*)).tw.	2182
2	dual diagnosis.mp.	3637
3	1 or 2	5647
4	exp comorbidity/ and mental health/	1341
5	affective disorders/	16,283
6	((depressi* or affective) adj symptom*).tw.	72,379
7	((depressi* or mood or affective or cognitiv* or adjustment) adj3 disorder*).tw.	106,810
8	dysthymi*.tw.	4062
9	exp anxiety disorders/	43,919
10	(anxi* or gad).tw.	264,120
11	exp obsessive compulsive disorder/ or exp obsessions/	20,387
12	(obsess* or compulsi* or ocd).tw.	43,708
13	(panic* or agoraphobi*).tw.	20,506
14	exp posttraumatic stress disorder/	41,617
15	((posttrauma* or post-trauma* or post trauma*) adj3 (stress* or disorder* or psych* or symptom*)).tw.	53,975
16	(ptsd or stress disorder* or combat disorder*).tw.	54,856
17	borderline states/	4156
18	((borderline or border-line or "border line" or unstab* or instab*) adj3 (state* or personalit*)).tw.	15,144
19	(eupd or bpd).tw.	7456
20	((emotion* or affect*) adj3 (dysregulat* or function* or label* or modulat* or reactive* or regulat*)).tw.	63,592
21	body dysmorphic disorder/	1408
22	(body adj3 dysmorphi*).tw.	1742
23	exp phobias/	14,553
24	phobi*.tw.	17,775
25	exp antisocial personality disorder/	4855
26	((anti-social or "anti social" or antisocial) adj3 (disorder* or syndrome*)).tw.	4477
27	aspd.tw.	783
28	or/4-27	540,326
29	((substance* or drug* or narcotic* or alcohol*) adj2 (use* or using or addict* or consum* or depend* or disorder* or habit* or misuse* or misusing or withdraw*)).tw.	188,323
30	(amphetamine* or benzodiazepine* or alcohol* or cannabis or cocaine* or crack or heroin or ketamine or marijuana or mdma or methadone or methamphetamine* or opiate* or opioid* or opium or phencyclidine).tw.	247,212
31	(stimulant* or psychostimulant* or sedative* or "psychoactive substance*" or nps).tw.	26,955
		continued

TABLE 19 American Psychological Association PsycInfo 1806 to February Week 3 2024 (continued)

#	Searches	Results
32	29 or 30 or 31	326,337
33	28 and 32	57,159
34	3 or 33	61,643
35	(meta-analysis or search:).tw.	159,472
36	34 and 35	2164
37	adult*.tw.	565,005
38	(teen* or youth* or adolescen* or juvenile* or youngster* or first-grader* or second-grader* or third-grader* or fourth-grader* or fifth-grader* or sixth-grader* or seventh-grader* or highschool* or ((secondary or high*) adj2 (school* or education))).tw.	537,475
39	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric*).tw.	1,328,586
40	38 or 39	1,364,777
41	40 not (40 and 37)	1,161,693
42	36 not 41	1890
43	limit 42 to english language	1696

20 February 2024

239 records

TABLE 20 Cochrane Database of Systematic Reviews (Cochrane Library)

#	Searches	Results
#1	((comorbid* or co morbid* or coexist* or co exist* or concur* or cooccur* or co occur*) NEAR/2 mental* NEAR/2 (condition* or disease* or disorder* or disturbanc* or ill*)):ti,ab	268
#2	dual diagnosis:ti,ab,kw	3318
#3	#1 or #2	3565
#4	MeSH descriptor: [Comorbidity] explode all trees	5257
#5	MeSH descriptor: [Mental Health] this term only	3190
#6	#4 and #5	39
#7	MeSH descriptor: [Mood Disorders] this term only	1127
#8	MeSH descriptor: [Depression] this term only	17,908
#9	((depressi* or affective) NEAR symptom*):ti,ab	28,518
#10	((depressi* or mood or affective or cognitiv* or adjustment) NEAR/3 disorder*):ti,ab	19,980
#11	dysthymi*:ti,ab	684
#12	MeSH descriptor: [Anxiety Disorders] explode all trees	10,069
#13	(anxi* or gad):ti,ab	69,965
#14	MeSH descriptor: [Obsessive-Compulsive Disorder] explode all trees	1517
#15	(obsess* or compulsi* or ocd):ti,ab	4378

TABLE 20 Cochrane Database of Systematic Reviews (Cochrane Library) (continued)

#	Searches	Results
#16	(panic* or agoraphobi*):ti,ab	3294
#17	MeSH descriptor: [Stress Disorders, Post-Traumatic] this term only	4001
#18	((posttrauma* or post-trauma* or post trauma*) NEAR/3 (stress* or disorder* or psych* or symptom*)):ti,ab	11,712
#19	(ptsd or stress disorder* or combat disorder*):ti,ab	14,913
#20	MeSH descriptor: [Borderline Personality Disorder] this term only	650
#21	((borderline or border-line or "border line" or unstab* or instab*) NEAR/3 (state* or personalit*)):ti,ab	1108
#22	(eupd or bpd):ti,ab	1913
#23	((emotion* or affect*) NEAR/3 (dysregulat* or function* or label* or modulat* or reactive* or regulat*)):ti,ab	13,370
#24	MeSH descriptor: [Body Dysmorphic Disorders] this term only	104
#25	(body NEAR/3 dysmorphi*):ti,ab	165
#26	MeSH descriptor: [Phobic Disorders] explode all trees	2142
#27	phobi*:ti,ab	2685
#28	MeSH descriptor: [Antisocial Personality Disorder] this term only	291
#29	((anti-social or "anti social" or antisocial) NEAR/3 (disorder* or syndrome*)):ti,ab	146
#30	aspd:ti,ab	39
#31	OR #6-#30	133,101
#32	((substance* or drug* or narcotic* or alcohol*) NEAR/2 (use* or using or addict* or consum* or depend* or disorder* or habit* or misuse* or misusing or withdraw*)):ti,ab	46,635
#33	(amphetamine* or benzodiazepine* or alcohol* or cannabis or cocaine* or crack or heroin or ketamine or marijuana or mdma or methadone or methamphetamine* or opiate* or opioid* or opium or phencyclidine):ti,ab,kw	92,943
#34	(stimulant* or psychostimulant* or sedative* or psychoactive substance* or nps):ti,ab	12,671
#35	OR #32-#34	123,846
#36	#31 and #35	15,766
#37	#3 or #36	19,033
#38	MeSH descriptor: [Adult] explode all trees	611,867
#39	(teen* or youth* or adolescen* or juvenile* or youngster* or first-grader* or second-grader* or third-grader* or fourth-grader* or fifth-grader* or sixth-grader* or seventh-grader* or highschool* or ((secondary or high*) NEAR/2 (school* or education))):ti,ab	50,211
#40	MeSH descriptor: [Adolescent] this term only	136,261
#41	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric*):ti,ab	216,948
#42	MeSH descriptor: [Child] explode all trees	81,197
#43	MeSH descriptor: [Infant] explode all trees	45,750
#44	OR #39-#43	338,676
#45	#44 not (#44 and #38)	216,175
#46	#37 not #45 in CDSR	239

Appendix 2 Excluded studies – clinical umbrella review

TABLE 21 Excluded references not meeting eligibility criteria

Reference	Reason for exclusion
Green WM, Raut SB, James FLJ, Benedek DM, Ursano RJ, Johnson LR. MDMA assisted psychotherapy decreases PTSD symptoms, dissociation, functional disability, and depression: a systematic review and meta-analysis. <i>medRxiv</i> 2023; 20 . ¹⁰⁴	Wrong comparator
Agabio R, Baldwin DS, Amaro H, Leggio L, Sinclair JMA. The influence of anxiety symptoms on clinical outcomes during baclofen treatment of alcohol use disorder: a systematic review and meta-analysis. <i>Neurosci Biobehav Rev</i> 2021; 125 :296–313. ¹⁰⁵	Wrong intervention
Beaulieu S, Saury S, Sareen J, Tremblay J, Schutz CG, McLntyre RS, Schaffer, A. The Canadian Network for Mood and Anxiety Treatments (CANMAT) task force recommendations for the management of patients with mood disorders and comorbid substance use disorders. <i>Ann Clin Psychiatry</i> 2012; 24 :38–55. ¹⁰⁶	Wrong intervention
Boyuan Z, Yang C, Ke C, Xueyong S, Sheng L. Efficacy of acupuncture for psychological symptoms associated with opioid addiction: a systematic review and meta-analysis. <i>Evid Based Complement Alternat Med</i> 2014; 2014 :313549. ¹⁰⁷	Wrong intervention
Chen H, Feng J, Chen L, Huang J, Zhang P, Chen C, <i>et al.</i> Acupoint stimulation for alcohol use disorder: a systematic review and meta-analysis. <i>Medicine (Baltimore)</i> 2023; 102 :e32614. ¹⁰⁸	Wrong intervention
Chen Z, Wang Y, Wang R, Xie J, Ren Y. Efficacy of acupuncture for treating opioid use disorder in adults: a systematic review and meta-analysis. <i>Evid Based Complement Alternat Med</i> 2018; 2018 :3724708. ¹⁰⁹	Wrong intervention
Dave F, Tripathi R. The efficacy of neurofeedback for alcohol use disorders – a systematic review. <i>World J Biol Psychiatry</i> 2023; 24 :496–507. ¹¹⁰	Wrong intervention
Ghabrash MF, Bahremand A, Veilleux M, Blais-Normandin G, Chicoine G, Sutra-Cole C, <i>et al.</i> Depression and outcomes of methadone and buprenorphine treatment among people with opioid use disorders: a literature review. <i>J Dual Diagn</i> 2020; 16 :191–207. ¹¹¹	Wrong intervention
Gimeno C, Luisa Dorado M, Roncero C, Szerman N, Vega P, Balanza-Martinez V, <i>et al.</i> Treatment of comorbid alcohol dependence and anxiety disorder: review of the scientific evidence and recommendations for treatment. <i>Front Psychiatry</i> 2017; 8 :173. ¹¹²	Wrong intervention
Gong AT, Kamboj SK, Curran HV. Post-traumatic stress disorder in victims of sexual assault with pre-assault substance consumption: a systematic review. <i>Front Psychiatry</i> 2019; 10 :92. ¹¹³	Wrong intervention
Guo Q, Li C, Wang J. Updated review on the clinical use of repetitive transcranial magnetic stimulation in psychiatric disorders. <i>Neurosci Bull</i> 2017; 33 :747–56. ¹¹⁴	Wrong intervention
Hesse M. Achieving abstinence by treating depression in the presence of substance-use disorders. <i>Addict Behav</i> 2004; 29 :1137–41. ¹¹⁵	Wrong intervention
Kedzior KK, Gerkenmeier I, Schuchinsky M. Can deep transcranial magnetic stimulation (DTMS) be used to treat substance use disorders (SUD)? A systematic review. <i>BMC Psychiatry</i> 2018; 18 :137. ¹¹⁶	Wrong intervention
Khoramzadeh M, Effatpanah M, Mostaghimi A, Rezaei M, Mahjoub A, Shishehgar S. Treatment of amphetamine abuse/use disorder: a systematic review of a recent health concern. <i>Daru</i> 2019; 27 :743–53. ¹¹⁷	Wrong intervention
Mahoney JJ 3rd, Koch-Gallup N, Scarisbrick DM, Berry JH, Rezai AR. Deep brain stimulation for psychiatric disorders and behavioral/cognitive-related indications: review of the literature and implications for treatment. <i>J Neurol Sci</i> 2022; 437 :120253. ¹¹⁸	Wrong intervention
Marques RC, Vieira L, Marques D, Cantilino A. Transcranial magnetic stimulation of the medial prefrontal cortex for psychiatric disorders: a systematic review. <i>Braz J Psychiatry</i> 2019; 41 :447–57. ¹¹⁹	Wrong intervention
Mondino M, Bennabi D, Poulet E, Galvao F, Brunelin J, Haffen E. Can transcranial direct current stimulation (tDCS) alleviate symptoms and improve cognition in psychiatric disorders? <i>World J Biol Psychiatry</i> 2014; 15 :261–75. ¹²⁰	Wrong intervention
Nunes EV, Levin FR. Treatment of depression in patients with alcohol or other drug dependence: a meta-analysis. <i>JAMA</i> 2004; 291 :1887–96. ¹²¹	Wrong intervention

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Renaud F, Jakubiec L, Swendsen J, Fatseas M. The impact of co-occurring post-traumatic stress disorder and substance use disorders on craving: a systematic review of the literature. <i>Front Psychiatry</i> 2021; 12 :786664. ¹²²	Wrong intervention
Rosson S, de Filippis R, Croatto G, Collantoni E, Pallottino S, Guinart D, <i>et al.</i> Brain stimulation and other biological non-pharmacological interventions in mental disorders: an umbrella review. <i>Neurosci Biobehav Rev</i> 2022; 139 :104743. ¹²³	Wrong intervention
Scott K, Becker SJ, Helseth SA, Saldanha IJ, Balk EM, Adam GP, <i>et al.</i> Pharmacotherapy interventions for adolescent co-occurring substance use and mental health disorders: a systematic review. <i>Fam Pract</i> 2022; 39 :301–10. ¹²⁴	Wrong intervention
Tang Z, Zhu Z, Xu J. Psychological effects of repetitive transcranial magnetic stimulation on individuals with methamphetamine use disorder: a systematic review and meta-analysis. <i>Biol Res Nurs</i> 2023; 25 :117–28. ¹²⁵	Wrong intervention
Young JR, Smani SA, Mischel NA, Kritzer MD, Appelbaum LG, Patkar AA. Non-invasive brain stimulation modalities for the treatment and prevention of opioid use disorder: a systematic review of the literature. <i>J Addict Dis</i> 2020; 38 :186–99. ¹²⁶	Wrong intervention
Bailey K, Trevillion K, Gilchrist G. What works for whom and why: a narrative systematic review of interventions for reducing post-traumatic stress disorder and problematic substance use among women with experiences of interpersonal violence. <i>J Subst Abuse Treat</i> 2019; 99 :88–103. ¹²⁷	Wrong outcomes
Bouchard M, Lecomte T, Cloutier B, Herrera-Roberge J, Potvin S. Dropout rates in psychosocial interventions for people with both severe mental illness and substance misuse: a systematic review and meta-analysis. <i>Front Psychiatry</i> 2022; 13 :842329. ¹²⁸	Wrong outcomes
Butler M, Kane RL, McAlpine D, Kathol RG, Fu SS, Hagedorn H, <i>et al.</i> Integration of mental health/substance abuse and primary care. <i>Evid Rep Technol Assess (Full Rep)</i> 2008; 1 :362. ¹²⁹	Wrong outcomes
Davis L, Uezato A, Newell JM, Frazier E. Major depression and comorbid substance use disorders. <i>Curr Opin Psychiatry</i> 2008; 21 :14–8. ¹³⁰	Wrong outcomes
Deol E, Siddiqui Z, Paracha A, Mujovic H, Abro Z, Chang SR, <i>et al.</i> Exploring the link between ACEs and opioid use: a systematic review. <i>J Opioid Manag</i> 2023; 19 :343–64. ¹³¹	Wrong outcomes
Edward KL, Munro I. Nursing considerations for dual diagnosis in mental health. <i>Int J Nurs Pract</i> 2009; 15 :74–9. ¹³²	Wrong outcomes
Facer-Irwin E, Blackwood NJ, Bird A, Dickson H, McGlade D, Alves-Costa F, MacManus D. PTSD in prison settings: a systematic review and meta-analysis of comorbid mental disorders and problematic behaviours. <i>PLOS ONE</i> 2019; 14 :e0222407. ¹³³	Wrong outcomes
Fisher A, Mills K, Teesson M, Marel C. Shared decision-making among people with problematic alcohol/other drug use and co-occurring mental health conditions: a systematic review. <i>Drug Alcohol Rev</i> 2021; 40 :307–24. ¹³⁴	Wrong outcomes
Forster SE, DePhilippis D, Forman SD. 'I's' on the prize: a systematic review of individual differences in Contingency Management treatment response. <i>J Subst Abuse Treat</i> 2019; 100 :64–83. ¹³⁵	Wrong outcomes
Hien DA, Fitzpatrick S, Saavedra LM, Ebrahimi CT, Norman SB, Tripp J, <i>et al.</i> What's in a name? A data-driven method to identify optimal psychotherapy classifications to advance treatment research on co-occurring PTSD and substance use disorders. <i>Eur J Psychotraumatol</i> 2022; 13 :2001191. ¹³⁶	Wrong outcomes
Hildebrand A, Behrendt S, Hoyer J. Treatment outcome in substance use disorder patients with and without comorbid posttraumatic stress disorder: a systematic review. <i>Psychother Res</i> 2015; 25 :565–82. ⁷	Wrong outcomes
Hoertel N, Lopez S, Wang S, Gonzalez-Pinto A, Limosin F, Blanco C. Generalizability of pharmacological and psychotherapy clinical trial results for borderline personality disorder to community samples. <i>Personal Disord</i> 2015; 6 :81–7. ¹³⁷	Wrong outcomes
Iudici A, Girolimetto R, Volponi G, Eletto A. Dual diagnosis and application problems in the use of the construct: a review of literature. <i>J Nerv Ment Dis</i> 2020; 208 :181–9. ¹³⁸	Wrong outcomes
Kang B, Xu H, McConnell ES. Neurocognitive and psychiatric comorbidities of posttraumatic stress disorder among older veterans: a systematic review. <i>Int J Geriatr Psychiatry</i> 2019a; 34 :522–38. ¹³⁹	Wrong outcomes
Kuhns L, Kroon E, Colyer-Patel K, Cousijn J. Associations between cannabis use, cannabis use disorder, and mood disorders: longitudinal, genetic, and neurocognitive evidence. <i>Psychopharmacology (Berl)</i> 2022; 239 :1231–49. ¹⁴⁰	Wrong outcomes

continued

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Lagerveld SE, Bultmann U, Franche RL, van Dijk FJH, Vlasveld MC, van der Feltz-Cornelis CM, <i>et al.</i> Factors associated with work participation and work functioning in depressed workers: a systematic review. <i>J Occup Rehabil</i> 2010; 20 :275–92. ¹⁴¹	Wrong outcomes
Leeman RF, Hefner K, Frohe T, Murray A, Rosenheck RA, Watts BV, Sofuoglu M. Exclusion of participants based on substance use status: findings from randomized controlled trials of treatments for PTSD. <i>Behav Res Ther</i> 2017; 89 :33–40. ¹⁴²	Wrong outcomes
McHugh RK, Whittton SW, Peckham AD, Welge JA, Otto MW. Patient preference for psychological vs pharmacologic treatment of psychiatric disorders: a meta-analytic review. <i>J Clin Psychiatry</i> 2013; 74 :595–602. ¹⁴³	Wrong outcomes
Miralles I, Granell C, Diaz-Sanahuja L, Van Woensel W, Breton-Lopez J, Mira A, <i>et al.</i> Smartphone apps for the treatment of mental disorders: systematic review. <i>JMIR Mhealth Uhealth</i> 2020; 8 :e14897. ¹⁴⁴	Wrong outcomes
Moraleda-Barreno E, Caceres Pachon MDP, Lozano OM, Perez Moreno PJ, Lorca Marin JA, Fernandez-Calderon F, <i>et al.</i> Impairments in executive functioning in patients with comorbid substance use and personality disorders: a systematic review. <i>J Dual Diagn</i> 2021; 17 :64–79. ¹⁴⁵	Wrong outcomes
Onaemo VN, Fawehinmi TO, D'Arcy C. Comorbid cannabis use disorder with major depression and generalized anxiety disorder: a systematic review with meta-analysis of nationally representative epidemiological surveys. <i>J Affect Disord</i> 2021; 281 :467–75. ¹⁴⁶	Wrong outcomes
Preuss U, Gouzoulis-Mayfrank E, Havemann-Reinecke U, Schafer I, Beutel M, Hoch E, <i>et al.</i> Psychiatric comorbidity in alcohol use disorders: results from the German S3 guidelines. <i>Eur Arch Psychiatry Clin Neurosci</i> 2018; 268 :219–29. ¹⁴⁷	Wrong outcomes
Reilly J, Meurk C, Heffernan E, Sara G. Substance use disorder screening and brief intervention in routine clinical practice in specialist adult mental health services: a systematic review. <i>Aust N Z J Psychiatry</i> 2023; 57 :793–810. ¹⁴⁸	Wrong outcomes
Searby A, Maude P, McGrath I. Dual diagnosis in older adults: a review. <i>Issues Ment Health Nurs</i> 2015; 36 :104–11. ¹⁴⁹	Wrong outcomes
Sloan E, Hall K, Moulding R, Bryce S, Mildred H, Staiger PK. Emotion regulation as a transdiagnostic treatment construct across anxiety, depression, substance, eating and borderline personality disorders: a systematic review. <i>Clin Psychol Rev</i> 2017; 57 :141–63. ¹⁵⁰	Wrong outcomes
Soe-Agnie SE, Paap MCS, VanDerNagel JEL, Nijman HJM, de Jong CAJ. The generalizability of the structure of substance abuse and antisocial behavioral syndromes: a systematic review. <i>Psychiatry Res</i> 2018; 259 :412–21. ¹⁵¹	Wrong outcomes
Spaducci G, Oram S, Thiara R, Robson D, Peeren S, Gibbs A, Trevillion K. The mental health and substance use treatment experiences of racially and ethnically minoritised women who have experienced sexual violence. <i>Int J Ment Health Nurs</i> 2023; 33 :546–59. ¹⁵²	Wrong outcomes
Tweed EJ, Thomson RM, Lewer D, Sumpter C, Kirolos A, Southworth PM, <i>et al.</i> Health of people experiencing co-occurring homelessness, imprisonment, substance use, sex work and/or severe mental illness in high-income countries: a systematic review and meta-analysis. <i>J Epidemiol Community Health</i> 2021; 75 :1010–8. ¹⁵³	Wrong outcomes
van Minnen A, Zoellner LA, Harned MS, Mills K. Changes in comorbid conditions after prolonged exposure for PTSD: a literature review. <i>Curr Psychiatry Rep</i> 2015; 17 :549. ¹⁵⁴	Wrong outcomes
Vitali M, Sorbo F, Mistretta M, Scalese B, Porrari R, Galli D, <i>et al.</i> ; Interdisciplinary Study Group CRARL – SITAC – SIPaD – SITD – SIPDip. Dual diagnosis: an intriguing and actual nosographic issue too long neglected. <i>Riv Psichiatr</i> 2018b; 53 :154–9. ¹⁵⁵	Wrong outcomes
Wu LT, Blazer DG. Substance use disorders and psychiatric comorbidity in mid and later life: a review. <i>Int J Epidemiol</i> 2014; 43 :304–17. ¹⁵⁶	Wrong outcomes
Zilberman ML, Tavares H, Blume SB, el-Guebaly N. Substance use disorders: sex differences and psychiatric comorbidities. <i>Can J Psychiatry</i> 2003; 48 :5–13. ¹⁵⁷	Wrong outcomes
Alsuhaibani R, Smith DC, Lowrie R, Aljhani S, Paudyal V. Scope, quality and inclusivity of international clinical guidelines on mental health and substance abuse in relation to dual diagnosis, social and community outcomes: a systematic review. <i>BMC Psychiatry</i> 2021; 21 :209. ¹⁵⁸	Wrong population
Anderson GS, Di Nota PM, Groll D, Carleton RN. Peer support and crisis-focused psychological interventions designed to mitigate post-traumatic stress injuries among public safety and frontline healthcare personnel: a systematic review. <i>Int J Environ Res Public Health</i> 2020; 17 :7645–20. ¹⁵⁹	Wrong population

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Anvari MS, Hampton T, Tong MP, Kahn G, Triemstra JD, Magidson JF, Felton JW. Behavioral activation disseminated by non-mental health professionals, paraprofessionals, and peers: a systematic review. <i>Behav Ther</i> 2023; 54 :524–38. ¹⁶⁰	Wrong population
Apostolo J, Bobrowicz-Campos E, Rodrigues M, Castro I, Cardoso D. The effectiveness of non-pharmacological interventions in older adults with depressive disorders: a systematic review. <i>Int J Nurs Stud</i> 2016; 58 :59–70. ¹⁶¹	Wrong population
Arntz A, Mensink K, Cox WR, Verhoef REJ, van Emmerik AAP, Rameckers SA, <i>et al.</i> Dropout from psychological treatment for borderline personality disorder: a multilevel survival meta-analysis. <i>Psychol Med</i> 2023; 53 :668–86. ¹⁶²	Wrong population
AshaRani PV, Hombali A, Seow E, Ong WJ, Tan JH, Subramaniam M. Non-pharmacological interventions for methamphetamine use disorder: a systematic review. <i>Drug Alcohol Depend</i> 2020; 212 :108060. ¹⁶³	Wrong population
Bartlett A, Jhanji E, White S, Anne Harty M, Scammell J, Allen S. Interventions with women offenders: a systematic review and meta-analysis of mental health gain. <i>J Forens Psychiatry Psychol</i> 2015; 26 :133–65. ¹⁶⁴	Wrong population
Baker AL, Hides L, Lubman DI. Treatment of cannabis use among people with psychotic or depressive disorders: a systematic review. <i>J Clin Psychiatry</i> 2010; 71 :247–54. ¹⁶⁵	Wrong population
Bjorkman F, Ekblom O. Physical exercise as treatment for PTSD: a systematic review and meta-analysis. <i>Mil Med</i> 2022; 187 :e1103–13. ¹⁶⁶	Wrong population
Becker TD, Castaneda Ramirez S, Bruges Boude A, Leong A, Ivanov I, Rice TR. Interventions for prevention and treatment of substance use in youth with traumatic childhood experiences: a systematic review and synthesis of the literature. <i>Eur Child Adolesc Psychiatry</i> 2023; 33 :3419–38. ¹⁶⁷	Wrong population
Berruiguet S, Baca-Garcia E, Brandt S, Walter M, Courtet P. Fundamentals for future mobile-health (mHealth): a systematic review of mobile phone and web-based text messaging in mental health. <i>J Med Internet Res</i> 2016; 18 :e135. ¹⁶⁸	Wrong population
Bolinski F, Boumparis N, Kleiboer A, Cuijpers P, Ebert DD, Riper H. The effect of e-mental health interventions on academic performance in university and college students: a meta-analysis of randomized controlled trials. <i>Internet Interv</i> 2020; 20 :100321. ¹⁶⁹	Wrong population
Bou Nassif Y, Rahioui H, Varescon I. Psychological interventions for cannabis use among adolescents and young adults: a systematic review. <i>Int J Environ Res Public Health</i> 2023; 20 :6346. ¹⁷⁰	Wrong population
Bourke M, Patten RK, Dash S, Pascoe M, Craike M, Firth J, <i>et al.</i> The effect of interventions that target multiple modifiable health behaviors on symptoms of anxiety and depression in young people: a meta-analysis of randomized controlled trials. <i>J Adolesc Health</i> 2022; 70 :208–19. ¹⁷¹	Wrong population
Bond GR, Drake RE, Pogue JA. Expanding individual placement and support to populations with conditions and disorders other than serious mental illness. <i>Psychiatr Serv</i> 2019; 70 :488–98. ¹⁷²	Wrong population
Brinsley J, Schuch F, Lederman O, Girard D, Smout M, Immink MA, <i>et al.</i> Effects of yoga on depressive symptoms in people with mental disorders: a systematic review and meta-analysis. <i>Br J Sports Med</i> 2021; 55 :992–1000. ¹⁷³	Wrong population
Byrne SP, Haber P, Baillie A, Costa DSJ, Fogliati V, Morley K. Systematic reviews of mindfulness and acceptance and commitment therapy for alcohol use disorder: should we be using third wave therapies? <i>Alcohol Alcohol</i> 2019; 54 :159–66. ¹⁷⁴	Wrong population
Brierley ME, Thompson EM, Albertella L, Fontenelle LF. Lifestyle interventions in the treatment of obsessive-compulsive and related disorders: a systematic review. <i>Psychosom Med</i> 2021; 83 :817–33. ¹⁷⁵	Wrong population
Colledge F, Gerber M, Puhse U, Ludyga S. Anaerobic exercise training in the therapy of substance use disorders: a systematic review. <i>Front Psychiatry</i> 2018; 9 :644. ¹⁷⁶	Wrong population
Currie CL, Larouche R, Voss ML, Trottier M, Spiwak R, Higa E, <i>et al.</i> Effectiveness of live health professional-led group ehealth interventions for adult mental health: systematic review of randomized controlled trials. <i>J Med Internet Res</i> 2022; 24 :e27939. ¹⁷⁷	Wrong population
de Winter L, Couwenbergh C, van Weeghel J, Sanches S, Michon H, Bond GR. Who benefits from individual placement and support? A meta-analysis. <i>Epidemiol Psychiatr Sci</i> 2022; 31 :e50. ¹⁷⁸	Wrong population
Dewar M, Paradis A, Fortin CA. Identifying trajectories and predictors of response to psychotherapy for post-traumatic stress disorder in adults: a systematic review of literature. <i>Can J Psychiatry</i> 2020; 65 :71–86. ¹⁷⁹	Wrong population

continued

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Di Nota PM, Bahji A, Groll D, Carleton RN, Anderson GS. Proactive psychological programs designed to mitigate posttraumatic stress injuries among at-risk workers: a systematic review and meta-analysis. <i>Syst Rev</i> 2021; 10 :126. ¹⁸⁰	Wrong population
Donker T, Blankers M, Hedman E, Ljotsson B, Petrie K, Christensen H. Economic evaluations of Internet interventions for mental health: a systematic review. <i>Psychol Med</i> 2015; 45 :3357–76. ¹⁸¹	Wrong population
Donker T, Petrie K, Proudfoot J, Clarke J, Birch MR, Christensen H. Smartphones for smarter delivery of mental health programs: a systematic review. <i>J Med Internet Res</i> 2013; 15 :e247. ¹⁸²	Wrong population
Dowla R, Sinmaz H, Mavros Y, Murnion B, Cayan E, Rooney K. The effectiveness of exercise as an adjunct intervention to improve quality of life and mood in substance use disorder: a systematic review. <i>Subst Use Misuse</i> 2022; 57 :911–28. ¹⁸³	Wrong population
Druss BG, von Esenwein SA. Improving general medical care for persons with mental and addictive disorders: systematic review. <i>Gen Hosp Psychiatry</i> 2006; 28 :145–53. ¹⁸⁴	Wrong population
Dubad M, Winsper C, Meyer C, Livanou M, Marwaha S. A systematic review of the psychometric properties, usability and clinical impacts of mobile mood-monitoring applications in young people. <i>Psychol Med</i> 2018; 48 :208–28. ¹⁸⁵	Wrong population
Duckworth J, Hasan A, Kamardeen I. Mental health challenges of manual and trade workers in the construction industry: a systematic review of causes, effects and interventions. <i>Eng Const Arch Man</i> 2022; 31 :1497–516. https://doi.org/10.1108/ecam-11-2021-1022 ¹⁸⁶	Wrong population
Dumaine ML. Meta-analysis of interventions with co-occurring disorders of severe mental illness and substance abuse: implications for social work practice. <i>Res Soc Work Pract</i> 2003; 13 :142–65. ¹⁸⁷	Wrong population
Eddie D, Hoffman L, Vilsaint C, Abry A, Bergman B, Hoepfner B, et al. Lived experience in new models of care for substance use disorder: a systematic review of peer recovery support services and recovery coaching. <i>Front Psychol</i> 2019; 10 :1052. ¹⁸⁸	Wrong population
Flogdren G, Rachas A, Farmer AJ, Inzitari M, Shepperd S. Interactive telemedicine: effects on professional practice and health care outcomes. <i>Cochrane Database Syst Rev</i> 2015; 2015 :CD002098. https://doi.org/10.1002/14651858.CD002098.pub2 ¹⁸⁹	Wrong population
Fedoroff IC, Taylor S. Psychological and pharmacological treatments of social phobia: a meta-analysis. <i>J Clin Psychopharmacol</i> 2001; 21 :311–24. ¹⁹⁰	Wrong population
Fitzgerald HE, Hoyt DL, Kredlow M, Smits JA, Schmidt NB, Edmondson D, et al. Anxiety sensitivity as a malleable mechanistic target for prevention interventions: a meta-analysis of the efficacy of brief treatment interventions. <i>Clin Psychol Sci Pract</i> 2021; 28 :323–37. ¹⁹¹	Wrong population
Fuhrmann LM, Weisel KK, Harrer M, Kulke JK, Baumeister H, Cuijpers P, et al. Additive effects of adjunctive app-based interventions for mental disorders – a systematic review and meta-analysis of randomised controlled trials. <i>Internet Interv</i> 2024; 35 :100703. ¹⁹²	Wrong population
Giesen ES, Deimel H, Bloch W. Clinical exercise interventions in alcohol use disorders: a systematic review. <i>J Subst Abuse Treat</i> 2015; 52 :1–9. ¹⁹³	Wrong population
Jimenez-Meseguer J, Ballester-Penalva L, Serrano-Ramon JM, Sanchis-Soler G. Benefits of physical exercise and suitable types of exercise in alcohol-use disorders patients: a systematic review. <i>J Subst Use</i> 2023; 30 :86–97. https://doi.org/10.1080/14659891.2023.2284947 ¹⁹⁴	Wrong population
Jimenez-Meseguer J, Tortosa-Martinez J, Cortell-Tormo JM. The benefits of physical exercise on mental disorders and quality of life in substance use disorders patients. systematic review and meta-analysis. <i>Int J Environ Res Public Health</i> 2020; 17 :3680 ¹⁹⁵	Wrong population
Gould RA, Buckminster S, Pollack MH, Otto MW, Yap L. Cognitive-behavioral and pharmacological treatment for social phobia: a meta-analysis. <i>Clin Psychol Sci Pract</i> 1997; 4 :291–306. ¹⁹⁶	Wrong population
Goyal M, Singh S, Sibinga EMS, Gould NF, Rowland-Seymour A, Sharma R, et al. Meditation programs for psychological stress and well-being: a systematic review and meta-analysis. <i>JAMA Intern Med</i> 2014; 174 :357–68. ¹⁹⁷	Wrong population
Grant S, Colaiaco B, Motala A, Shanman R, Booth M, Sorbero M, Hempel S. Mindfulness-based relapse prevention for substance use disorders: a systematic review and meta-analysis. <i>J Addict Med</i> 2017; 11 :386–96. ¹⁹⁸	Wrong population
Gur F, Can Gur G. Is exercise a useful intervention in the treatment of alcohol use disorder? Systematic review and meta-analysis. <i>Am J Health Promot</i> 2020; 34 :520–37. ¹⁹⁹	Wrong population

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Hagi K, Kurokawa S, Takamiya A, Fujikawa M, Kinoshita S, Iizuka M, <i>et al.</i> Telepsychiatry versus face-to-face treatment: systematic review and meta-analysis of randomised controlled trials. <i>Br J Psychiatry</i> 2023; 223 :407–14. ²⁰⁰	Wrong population
Hallgren M, Vancampfort D, Giesen ES, Lundin A, Stubbs B. Exercise as treatment for alcohol use disorders: systematic review and meta-analysis. <i>Br J Sports Med</i> 2017; 51 :1058–64. ²⁰¹	Wrong population
Hedman E, Ljotsson B, Lindefors N. Cognitive behavior therapy via the Internet: a systematic review of applications, clinical efficacy and cost-effectiveness. <i>Expert Rev Pharmacoecon Outcomes Res</i> 2012; 12 :745–64. ²⁰²	Wrong population
Heim N, Bobou M, Tanzer M, Jenkinson PM, Steinert C, Fotopoulou A. Psychological interventions for interoception in mental health disorders: a systematic review of randomized-controlled trials. <i>Psychiatry Clin Neurosci</i> 2023; 77 :530–40. ²⁰³	Wrong population
Hetrick SE, Purcell R, Garner B, Parslow R. Combined pharmacotherapy and psychological therapies for post traumatic stress disorder (PTSD). <i>Cochrane Database Syst Rev</i> 2010; 7 :CD007316. ²⁰⁴	Wrong population
Hobden B, Freund M, Lawson S, Bryant J, Walsh J, Leigh L, Sanson-Fisher R. The impact of organisational factors on treatment outcomes for those seeking alcohol or other drug treatment: a systematic review. <i>Drug Alcohol Rev</i> 2023; 42 :1220–34. ²⁰⁵	Wrong population
Hofmann SG, Asnaani A, Vonk IJJ, Sawyer AT, Fang A. The efficacy of cognitive behavioral therapy: a review of meta-analyses. <i>Cognit Ther Res</i> 2012; 36 :427–40. ²⁰⁶	Wrong population
Hoskins MD, Sinnerton R, Nakamura A, Underwood JFG, Slater A, Lewis C, <i>et al.</i> Pharmacological-assisted psychotherapy for post-traumatic stress disorder: a systematic review and meta-analysis. <i>Eur J Psychotraumatol</i> 2021; 12 :1853379. ²⁰⁷	Wrong population
Huibers MJ, Beurskens AJ, Bleijenberg G, van Schayck CP. The effectiveness of psychosocial interventions delivered by general practitioners. <i>Cochrane Database Syst Rev</i> 2003:CD003494. ²⁰⁸	Wrong population
Huibers MJ, Beurskens A, Bleijenberg G, van Schayck CP. Psychosocial interventions by general practitioners. <i>Cochrane Database Syst Rev</i> 2007:CD003494. https://doi.org/10.1002/14651858.CD003494.pub2 ²⁰⁹	Wrong population
Hunt GE, Siegfried N, Morley K, Brooke-Sumner C, Cleary M. Psychosocial interventions for people with both severe mental illness and substance misuse. <i>Cochrane Database Syst Rev</i> 2019; 2019 :CD001088. https://doi.org/10.1002/14651858.CD001088.pub4 ²¹⁰	Wrong population
Jardine J, Bowman R, Doherty G. Digital interventions to enhance readiness for psychological therapy: scoping review. <i>J Med Internet Res</i> 2022; 24 :e37851. ²¹¹	Wrong population
Jia D, Zhou J, Xu Y. Effectiveness of traditional chinese health-promoting exercise as an adjunct therapy for drug use disorders: a systematic review and meta-analysis. <i>J Integr Complement Med</i> 2022; 28 :294–308. ²¹²	Wrong population
Kang D, Fairbairn CE, Ariss TA. A meta-analysis of the effect of substance use interventions on emotion outcomes. <i>J Consult Clin Psychol</i> 2019b; 87 :1106–23. ²¹³	Wrong population
Kekic M, Boysen E, Campbell IC, Schmidt U. A systematic review of the clinical efficacy of transcranial direct current stimulation (tDCS) in psychiatric disorders. <i>J Psychiatr Res</i> 2016; 74 :70–86. ²¹⁴	Wrong population
Khazanov GK, Morris PE, Beed A, Jager-Hyman S, Myhre K, McKay JR, <i>et al.</i> Do financial incentives increase mental health treatment engagement? A meta-analysis. <i>J Consult Clin Psychol</i> 2022; 90 :528–44. ²¹⁵	Wrong population
Klamert L, Bedi G, Craike M, Kidd S, Pascoe MC, Parker AG. Physical activity interventions for young people with increased risk of problematic substance use: a systematic review including different intervention formats. <i>Ment Health Phys Act</i> 2023; 25 :100551. ²¹⁶	Wrong population
Kock P, Meyer M, Elsner J, Dursteler KM, Vogel M, Walter M. Co-occurring mental disorders in transitional aged youth with substance use disorders-a narrative review. <i>Front Psychiatry</i> 2022; 13 :827658. ²¹⁷	Wrong population
Krisanaprakornkit T, Sriraj W, Piyavhatkul N, Laopaiboon M. Meditation therapy for anxiety disorders. <i>Cochrane Database Syst Rev</i> 2006:CD004998. https://doi.org/10.1002/14651858.CD004998.pub2 ²¹⁸	Wrong population
Kruse CS, Lee K, Watson JB, Lobo LG, Stoppelmoor AG, Oyibo SE. Measures of effectiveness, efficiency, and quality of telemedicine in the management of alcohol abuse, addiction, and rehabilitation: systematic review. <i>J Med Internet Res</i> 2020; 22 :e13252. ²¹⁹	Wrong population

continued

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Kukucska D, Whitehall J, Shorter GW, Howlett N, Wyld K, Chater AM. A systematic review of positive psychology interventions (PPIs) to improve the health behaviours, psychological wellbeing and/or physical health of police staff. <i>J Police Crim Psychol</i> 2023; 38 :728–42. ²²⁰	Wrong population
Kumar S, Malone D. Panic disorder. <i>BMJ Clin Evid</i> 2008; 2008 :1010. ²²¹	Wrong population
Leach LS, Christensen H. A systematic review of telephone-based interventions for mental disorders. <i>J Telemed Telecare</i> 2006; 12 :122–9. ²²²	Wrong population
Leichsenring F, Klein S. Evidence for psychodynamic psychotherapy in specific mental disorders: a systematic review. <i>Psychoanal Psychother</i> 2014; 28 :4–32. ²²³	Wrong population
Leichsenring F. Are psychodynamic and psychoanalytic therapies effective?: a review of empirical data. <i>Int J Psychoanal</i> 2005; 86 :841–68. ²²⁴	Wrong population
Leichsenring F, Leweke F, Klein S, Steinert C. The empirical status of psychodynamic psychotherapy – an update: Bambi's alive and kicking. <i>Psychother Psychosom</i> 2015; 84 :129–48. ²²⁵	Wrong population
Lewis AJ, Dennerstein M, Gibbs PM. Short-term psychodynamic psychotherapy: review of recent process and outcome studies. <i>Aust N Z J Psychiatry</i> 2008; 42 :445–55. ²²⁶	Wrong population
Lorenzo-Luaces L, Johns E, Keefe JR. The generalizability of randomized controlled trials of self-guided internet-based cognitive behavioral therapy for depressive symptoms: systematic review and meta-regression analysis. <i>J Med Internet Res</i> 2018; 20 :e10113. ²²⁷	Wrong population
Mayo-Wilson E, Hutfless S, Li T, Gresham G, Fusco N, Ehmsen J, <i>et al.</i> Integrating multiple data sources (MUDS) for meta-analysis to improve patient-centered outcomes research: a protocol for a systematic review. <i>Syst Rev</i> 2015; 4 :143. ²²⁸	Wrong population
McCarty D, Braude L, Lyman D, Dougherty RH, Daniels AS, Ghose SS, <i>et al.</i> Substance abuse intensive outpatient programs: assessing the evidence. <i>Psychiatr Serv</i> 2014; 65 :718–26. ²²⁹	Wrong population
McLean CP, Levy HC, Miller ML, Tolin DF. Exposure therapy for PTSD: a meta-analysis. <i>Clin Psychol Rev</i> 2022; 91 :102115. ²³⁰	Wrong population
Meis LA, Griffin JM, Greer N, Jensen AC, MacDonald R, Carlyle M, <i>et al.</i> Couple and family involvement in adult mental health treatment: a systematic review. <i>Clin Psychol Rev</i> 2013; 33 :275–86. ²³¹	Wrong population
Mekonen T, Chan GCK, Connor JP, Hall WD, Hides L, Leung J. Estimating the global treatment rates for alcohol use disorder and depression: a systematic review and meta-analysis. <i>Drug Alcohol Rev</i> 2021; 40 :S107. ²³²	Wrong population
Menon V, Rajan TM, Sarkar S. Psychotherapeutic applications of mobile phone-based technologies: a systematic review of current research and trends. <i>Indian J Psychol Med</i> 2017; 39 :4–11. ²³³	Wrong population
Merkouris SS, Rodda SN, Dowling NA. Affected other interventions: a systematic review and meta-analysis across addictions. <i>Addiction</i> 2022; 117 :2393–414. ²³⁴	Wrong population
Miller MB, Donahue ML, Carey KB, Scott-Sheldon LAJ. Insomnia treatment in the context of alcohol use disorder: a systematic review and meta-analysis. <i>Drug Alcohol Depend</i> 2017; 181 :200–7. ²³⁵	Wrong population
Milligan K, Meixner T, Tremblay M, Tarasoff LA, Usher A, Smith A, <i>et al.</i> Parenting interventions for mothers with problematic substance use: a systematic review of research and community practice. <i>Child Maltreat</i> 2020; 25 :247–62. ²³⁶	Wrong population
Morris L, Stander J, Ebrahim W, Eksteen S, Meaden OA, Ras A, Wessels A. Effect of exercise versus cognitive behavioural therapy or no intervention on anxiety, depression, fitness and quality of life in adults with previous methamphetamine dependency: a systematic review. <i>Addict Sci Clin Pract</i> 2018; 13 :4. ²³⁷	Wrong population
Mutschler C, Malivoire BL, Schumm JA, Monson CM. Mechanisms and moderators of behavioural couples therapy for alcohol and substance use disorders: an updated review of the literature. <i>Behav Cogn Psychother</i> 2022; 50 :312–33. https://doi.org/10.1017/S1352465822000042 ²³⁸	Wrong population
Negre F, Lemerrier-Dugarin M, Kahn-Lewin C, Gomet R, Zerdazi EHM, Zerhouni O, Romo L. Virtual reality efficiency as exposure therapy for alcohol use: a systematic literature review. <i>Drug Alcohol Depend</i> 2023; 253 :111027. ²³⁹	Wrong population
Nguyen T, Seiler N, Brown E, O'Donoghue B. The effect of clinical practice guidelines on prescribing practice in mental health: a systematic review. <i>Psychiatry Res</i> 2020; 284 :112671. ²⁴⁰	Wrong population

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Oliveira C, Pereira A, Vagos P, Nobrega C, Goncalves J, Afonso B. Effectiveness of mobile app-based psychological interventions for college students: a systematic review of the literature. <i>Front Psychol</i> 2021; 12 :647606. ²⁴¹	Wrong population
Palumbo B, Federico B. A systematic review of the health effects of sailing on persons with disabilities. <i>J Sport Health Res</i> 2020; 12 :18–27. ²⁴²	Wrong population
Per M, Spinelli C, Sadowski I, Schmelefske E, Anand L, Khoury B. Evaluating the effectiveness of mindfulness-based interventions in incarcerated populations: a meta-analysis. <i>Crim Justice Behav</i> 2020; 47 :310–30. ²⁴³	Wrong population
Peters W, Rice S, Alvarez-Jimenez M, Hetrick SE, Halpin E, Kamitsis I, <i>et al.</i> Relative efficacy of psychological interventions following interpersonal trauma on anxiety, depression, substance use, and PTSD symptoms in young people: a meta-analysis. <i>Early Interv Psychiatry</i> 2022; 16 :1175–84. ²⁴⁴	Wrong population
Phillips EA, Gordeev VS, Schreyogg J. Effectiveness of occupational e-mental health interventions: a systematic review and meta-analysis of randomized controlled trials. <i>Scand J Work Environ Health</i> 2019; 45 :560–76. ²⁴⁵	Wrong population
Pinquart M, Oslejsek B, Teubert D. Efficacy of systemic therapy on adults with mental disorders: a meta-analysis. <i>Psychother Res</i> 2016; 26 :241–57. ²⁴⁶	Wrong population
Probyn K, Engedahl MS, Rajendran D, Pincus T, Naeem K, Mistry D, <i>et al.</i> The effects of supported employment interventions in populations of people with conditions other than severe mental health: a systematic review. <i>Prim Health Care Res Dev</i> 2021; 22 :e79. ²⁴⁷	Wrong population
Ramadas E, Lima MP, Caetano T, Lopes J, Dixe MDA. Effectiveness of mindfulness-based relapse prevention in individuals with substance use disorders: a systematic review. <i>Behav Sci</i> 2021; 11 :29. ²⁴⁸	Wrong population
Reangsing C, Wimolphan P, Wongsuraprakit S, Oerther S. Effects of mindfulness-based interventions on depressive symptoms and alcohol craving in individuals with comorbid alcohol use disorder and depression: a systematic review. <i>J Psychosoc Nurs Ment Health Serv</i> 2021; 59 :41–7. ²⁴⁹	Wrong population
Reif S, Braude L, Lyman D, Dougherty RH, Daniels AS, Ghose SS, <i>et al.</i> Peer recovery support for individuals with substance use disorders: assessing the evidence. <i>Psychiatr Serv</i> 2014; 65 :853–61. ²⁵⁰	Wrong population
Rosenbaum S, Tiedemann A, Stanton R, Parker A, Waterreus A, Curtis J, Ward PB. Implementing evidence-based physical activity interventions for people with mental illness: an Australian perspective. <i>Australas Psychiatry</i> 2016; 24 :49–54. ²⁵¹	Wrong population
Sabri B, Greene C, Lucas GM. A systematic review of comprehensive interventions for substance abuse: focus on victimization. <i>Aggress Violent Behav</i> 2019; 48 :46–59. ²⁵²	Wrong population
Shalaby R, Adu MK, El Gindi HM, Agyapong VIO. Text messages in the field of mental health: rapid review of the reviews. <i>Front Psychiatry</i> 2022; 13 :921982. ²⁵³	Wrong population
Simmons MB, Cartner S, MacDonald R, Whitson S, Bailey A, Brown E. The effectiveness of peer support from a person with lived experience of mental health challenges for young people with anxiety and depression: a systematic review. <i>BMC Psychiatry</i> 2023; 23 :194. ²⁵⁴	Wrong population
Takeshima M, Otsubo T, Funada D, Murakami M, Usami T, Maeda Y, <i>et al.</i> Does cognitive behavioral therapy for anxiety disorders assist the discontinuation of benzodiazepines among patients with anxiety disorders? A systematic review and meta-analysis. <i>Psychiatry Clin Neurosci</i> 2021; 75 :119–27. ²⁵⁵	Wrong population
Talbot EC, Vollm B, Khalifa N. Effectiveness of work skills programmes for offenders with mental disorders: a systematic review. <i>Crim Behav Ment Health</i> 2017; 27 :40–58. ²⁵⁶	Wrong population
Tanvir Z, Bokhari MZ, Kareem R, Butt MG. The effectiveness of DBT compared to other psychological therapies in patients with a dual diagnosis of PTSD and BPD: a systematic review. <i>J Popul Ther Clin Pharmacol</i> 2023; 30 :1121–33. ²⁵⁷	Wrong population
Taubin D, Berger A, Greenwald D, Greenwald H, Burke C, Gongora DS, Wilens T. A systematic review of virtual reality therapies for substance use disorders: impact on secondary treatment outcomes. <i>Am J Addict</i> 2023; 32 :13–23. ²⁵⁸	Wrong population
Taylor CB, Graham AK, Flatt RE, Waldherr K, Fitzsimmons-Craft EE. Current state of scientific evidence on Internet-based interventions for the treatment of depression, anxiety, eating disorders and substance abuse: an overview of systematic reviews and meta-analyses. <i>Eur J Public Health</i> 2021; 31 :i94. ²⁵⁹	Wrong population

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TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Thal SB, Maunz LA, Quested E, Bright SJ, Myers B, Ntoumanis N. Behavior change techniques in physical activity interventions for adults with substance use disorders: a systematic review. <i>Psychol Addict Behav</i> 2023; 37 :416–33. ²⁶⁰	Wrong population
Thekkumkara SN, Jagannathan A, Muliya KP, Murthy P. Psychosocial interventions for prisoners with mental and substance use disorders: a systematic review. <i>Indian J Psychol Med</i> 2022; 44 :211–7. ²⁶¹	Wrong population
Turi E, McMenamin A, Kueakomoldej S, Kurtzman E, Poghosyan L. The effectiveness of nurse practitioner care for patients with mental health conditions in primary care settings: a systematic review. <i>Nurs Outlook</i> 2023; 71 :101995. ²⁶²	Wrong population
Valiente-Gomez A, Moreno-Alcazar A, Treen D, Cedron C, Colom F, Perez V, Amann BL. EMDR beyond PTSD: a systematic literature review. <i>Front Psychol</i> 2017; 8 :1668. ²⁶³	Wrong population
Veale D, Naismith I, Miles S, Gledhill LJ, Stewart G, Hodsoll J. Outcomes for residential or inpatient intensive treatment of obsessive-compulsive disorder: a systematic review and meta-analysis. <i>J Obsessive Compuls Relat Disord</i> 2016; 8 :38–49. ²⁶⁴	Wrong population
Vidal C, Simon KM, Brooks C, White J, Hinckley JD. A systematic review of evidence on integrated management of psychiatric disorders in youth who use cannabis. <i>Drug Alcohol Depend Rep</i> 2024; 10 :100216. ²⁶⁵	Wrong population
Vieira S, Liang X, Guimar R, Mechelli A. Can we predict who will benefit from cognitive-behavioural therapy? A systematic review and meta-analysis of machine learning studies. <i>Clin Psychol Rev</i> 2022; 97 :102193. ²⁶⁶	Wrong population
von Sydow K, Beher S, Schweitzer J, Retzlaff R. The efficacy of systemic therapy with adult patients: a meta-content analysis of 38 randomized controlled trials. <i>Fam Process</i> 2010; 49 :457–85. ²⁶⁷	Wrong population
Wang D, Wang Y, Li R, Zhou C. Impact of physical exercise on substance use disorders: a meta-analysis. <i>PLOS ONE</i> 2014; 9 :e110728. ²⁶⁸	Wrong population
Wang K, Varma DS, Prosperi M. A systematic review of the effectiveness of mobile apps for monitoring and management of mental health symptoms or disorders. <i>J Psychiatr Res</i> 2018; 107 :73–8. ²⁶⁹	Wrong population
Warner N, Murphy M. Dialectical behaviour therapy skills training for individuals with substance use disorder: a systematic review. <i>Drug Alcohol Rev</i> 2022; 41 :501–16. ²⁷⁰	Wrong population
Walia N, Matas J, Turner A, Gonzalez S, Zoorob R. Yoga for substance use: a systematic review. <i>J Am Board Fam Med</i> 2021; 34 :964–73. ²⁷¹	Wrong population
Watson T, Simpson S, Hughes C. Text messaging interventions for individuals with mental health disorders including substance use: a systematic review. <i>Psychiatry Res</i> 2016; 243 :255–62. ²⁷²	Wrong population
Weisel KK, Fuhrmann LM, Berking M, Baumeister H, Cuijpers P, Ebert DD. Standalone smartphone apps for mental health-a systematic review and meta-analysis. <i>NPJ Digit Med</i> 2019; 2 :118. ²⁷³	Wrong population
Wheeler SW, Dyer NL. A systematic review of psychedelic-assisted psychotherapy for mental health: an evaluation of the current wave of research and suggestions for the future. <i>Psychol Conscious</i> 2020; 7 :279–315. ²⁷⁴	Wrong population
Wilens TE, Woodward DW, Ko JD, Berger AF, Burke C, Yule AM. The impact of pharmacotherapy of childhood-onset psychiatric disorders on the development of substance use disorders. <i>J Child Adolesc Psychopharmacol</i> 2022; 32 :200–14. ²⁷⁵	Wrong population
Ye X, Liu R. Intervention effect of aerobic exercise on physical fitness, emotional state and mental health of drug addicts: a systematic review and meta-analysis. <i>Int J Environ Res Public Health</i> 2023; 20 :2272. ²⁷⁶	Wrong population
Zhang P, Li Z, Yang Q, Zhou J, Ma X. Effects of Taijiquan and Qigong exercises on depression and anxiety levels in patients with substance use disorders: a systematic review and meta-analysis. <i>Sports Med Health Sci</i> 2022; 4 :85–94. ²⁷⁷	Wrong population
Bailey S, Newton N, Perry Y, Grummitt L, Baams L, Barrett E. Trauma-informed prevention programmes for depression, anxiety, and substance use among young people: protocol for a mixed-methods systematic review. <i>Syst Rev</i> 2023; 12 :203. ²⁷⁸	Wrong study design
Berner M, Gunzler C, Frick K, Kriston L, Loessl B, Bruck R, et al. Finding the ideal place for a psychotherapeutic intervention in a stepped care approach – a brief overview of the literature and preliminary results from the Project PREDICT. <i>Int J Methods Psychiatr Res</i> 2008; 17 :S60–4. ²⁷⁹	Wrong study design

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Ashtdown-Franks G, Firth J, Carney R, Carvalho AF, Hallgren M, Koyanagi A, <i>et al.</i> Exercise as medicine for mental and substance use disorders: a meta-review of the benefits for neuropsychiatric and cognitive outcomes. <i>Sports Med</i> 2020; 50 :151–70. ²⁸⁰	Wrong study design
Baldwin G, Beazley P. A systematic review of the efficacy of psychological treatments for people detained under the Mental Health Act. <i>J Psychiatr Ment Health Nurs</i> 2023; 30 :600–19. ²⁸¹	Wrong study design
Bennett A, Crosse K, Ku M, Edgar NE, Hodgson A, Hatcher S. Interventions to treat post-traumatic stress disorder (PTSD) in vulnerably housed populations and trauma-informed care: a scoping review. <i>BMJ Open</i> 2022; 12 :e051079. ²⁸²	Wrong study design
Bennett CB, Ruggero CJ, Sever AC, Yanouri L. eHealth to redress psychotherapy access barriers both new and old: a review of reviews and meta-analyses. <i>J Psychother Integr</i> 2020; 30 :188–207. ²⁸³	Wrong study design
Benson C, Cameron JJ, Allan J. Social work, mental health and substance use: a scoping review. <i>Adv Dual Diagn</i> 2023; 16 :71–85. ²⁸⁴	Wrong study design
Bogenschutz MP, Geppert CM, George J. The role of twelve-step approaches in dual diagnosis treatment and recovery. <i>Am J Addict</i> 2006; 15 :50–60. ²⁸⁵	Wrong study design
Burrows T, Teasdale S, Rocks T, Whatnall M, Schindlmayr J, Plain J, <i>et al.</i> Effectiveness of dietary interventions in mental health treatment: a rapid review of reviews. <i>Nutr Diet</i> 2022; 79 :279–90. ²⁸⁶	Wrong study design
Cuijpers P. Four decades of outcome research on psychotherapies for adult depression: an overview of a series of meta-analyses. <i>Can Psychol</i> 2017; 58 :7–19. ²⁸⁷	Wrong study design
Cuijpers P, Miguel C, Ciharova M, Aalten P, Batelaan N, Salemink E, <i>et al.</i> Prevention and treatment of mental health and psychosocial problems in college students: an umbrella review of meta-analyses. <i>Clin Psychol Sci Pract</i> 2021; 28 :229–44. ²⁸⁸	Wrong study design
Carr A. Couple therapy, family therapy and systemic interventions for adult-focused problems: the current evidence base. <i>J Fam Ther</i> 2019; 41 :492–536. ²⁸⁹	Wrong study design
Chinman M, George P, Dougherty RH, Daniels AS, Ghose SS, Swift A, Delphin-Rittmon ME. Peer support services for individuals with serious mental illnesses: assessing the evidence. <i>Psychiatr Serv</i> 2014; 65 :429–41. ²⁹⁰	Wrong study design
Cocozza JJ, Jackson EW, Hennigan K, Morrissey JP, Reed BG, Fallot R, Banks S. Outcomes for women with co-occurring disorders and trauma: program-level effects. <i>J Subst Abuse Treat</i> 2005; 28 :109–19. ²⁹¹	Wrong study design
Colette C, Olivier J. Integrative approaches for the treatment of substance use disorders: a systematic review. <i>Rev Psiquiatria Clin</i> 2023; 50 :84–90. ²⁹²	Wrong study design
Currie CL, Larouche R, Voss ML, Higa EK, Spiwak R, Scott D, Tallow T. The impact of eHealth group interventions on the mental, behavioral, and physical health of adults: a systematic review protocol. <i>Syst Rev</i> 2020; 9 :217. ²⁹³	Wrong study design
Drebing CE, Van Ormer E, Krebs C, Rosenheck R, Rounsaville B, Herz L, <i>et al.</i> The impact of enhanced incentives on vocational rehabilitation outcomes for dually diagnosed veterans. <i>J Appl Behav Anal</i> 2005; 38 :359–72. ²⁹⁴	Wrong study design
Emmelkamp PM, Vedel E. Psychological treatments for antisocial personality disorder: where is the evidence that group treatment and therapeutic community should be recommended? <i>Personal Ment Health</i> 2010; 4 :30–3. ²⁹⁵	Wrong study design
Fitzpatrick-Lewis D, Ganann R, Krishnaratne S, Ciliska D, Kouyoumdjian F, Hwang SW. Effectiveness of interventions to improve the health and housing status of homeless people: a rapid systematic review. <i>BMC Public Health</i> 2011; 11 :638. ²⁹⁶	Wrong study design
Fonagy P. The effectiveness of psychodynamic psychotherapies: an update. <i>World Psychiatry</i> 2015; 14 :137–50. ²⁹⁷	Wrong study design
Freeman D, Reeve S, Robinson A, Ehlers A, Clark D, Spanlang B, Slater M. Virtual reality in the assessment, understanding, and treatment of mental health disorders. <i>Psychol Med</i> 2017; 47 :2393–400. ²⁹⁸	Wrong study design
Fisher A, Rochesson SED, Mills K, Marel C. Guiding principles for managing co-occurring alcohol/other drug and mental health conditions: a scoping review. <i>Int J Ment Health Addict</i> 2022; 22 :1251–98. https://doi.org/10.1007/s11469-022-00926-7 ²⁹⁹	Wrong study design

continued

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Gregorowski C, Seedat S, Jordaan GP. A clinical approach to the assessment and management of co-morbid eating disorders and substance use disorders. <i>BMC Psychiatry</i> 2013; 13 :289. ³⁰⁰	Wrong study design
Hellem TL, Lundberg KJ, Renshaw PF. A review of treatment options for co-occurring methamphetamine use disorders and depression. <i>J Addict Nurs</i> 2015; 26 :14–23; quiz E1. ³⁰¹	Wrong study design
Hakobyan S, Vazirian S, Lee-Cheong S, Krausz M, Honer WG, Schutz CG. Concurrent disorder management guidelines. Systematic review. <i>J Clin Med</i> 2020; 9 :2406–16. ³⁰²	Wrong study design
Holland HS, Tickle A. The effectiveness of psychological interventions for borderline personality disorder for those who misuse substances: a systematic review and narrative synthesis. <i>Ment Health Rev J</i> 2023; 28 :214–29. ³⁰³	Wrong study design
Iob E, Pingault JB, Munafo MR, Stubbs B, Gilthorpe MS, Maihofer AX. Testing the causal relationships of physical activity and sedentary behaviour with mental health and substance use disorders: a Mendelian randomisation study. <i>Mol Psychiatry</i> 2023; 28 :3429–43. https://doi.org/10.1038/s41380-023-02133-9 ³⁰⁴	Wrong study design
Ivanovski B, Malhi GS. The psychological and neurophysiological concomitants of mindfulness forms of meditation. <i>Acta Neuropsychiatr</i> 2007; 19 :76–91. ³⁰⁵	Wrong study design
Lima KHM, Gomes JS, Tucci AM. Electroencephalographic neurofeedback as a tool for reducing harm and risk associated with alcohol use disorder: a critical review. <i>Drug Alcohol Rev</i> 2022; 41 :594–602. ³⁰⁶	Wrong study design
Liu F, Cui J, Liu X, Chen KW, Chen X, Li R. The effect of tai chi and qigong exercise on depression and anxiety of individuals with substance use disorders: a systematic review and meta-analysis. <i>BMC Complement Med Ther</i> 2020; 20 :161. ³⁰⁷	Wrong study design
Lyman DR, Braude L, George P, Dougherty RH, Daniels AS, Ghose SS, Delphin-Rittmon ME. Consumer and family psychoeducation: assessing the evidence. <i>Psychiatr Serv</i> 2014; 65 :416–28. ³⁰⁸	Wrong study design
Magee JC, Adut S, Brazill K, Warnick S. Mobile app tools for identifying and managing mental health disorders in primary care. <i>Curr Treat Options Psychiatry</i> 2018; 5 :345–62. ³⁰⁹	Wrong study design
Leichsenring F, Steinert C, Rabung S, Ioannidis JP. The efficacy of psychotherapies and pharmacotherapies for mental disorders in adults: an umbrella review and meta-analytic evaluation of recent meta-analyses. <i>World Psychiatry</i> 2022; 21 :133–45. ³¹⁰	Wrong study design
Meshberg-Cohen S, Ross MacLean R, Schnakenberg Martin AM, Sofuoglu M, Petrakis IL. Treatment outcomes in individuals diagnosed with comorbid opioid use disorder and posttraumatic stress disorder: a review. <i>Addict Behav</i> 2021; 122 :107026. ³¹¹	Wrong study design
Munro I, Edward KL. Mental illness and substance use: an Australian perspective. <i>Int J Ment Health Nurs</i> 2008; 17 :255–60. ³¹²	Wrong study design
Marshall T, Goldberg RW, Braude L, Dougherty RH, Daniels AS, Ghose SS, et al. Supported employment: assessing the evidence. <i>Psychiatr Serv</i> 2014; 65 :16–23. ³¹³	Wrong study design
Masin-Moyer M, Kim JC, Engstrom M, Solomon P. A scoping review of the Trauma Recovery and Empowerment Model (TREM). <i>Trauma Violence Abuse</i> 2022; 23 :699–715. ³¹⁴	Wrong study design
McCallum S, Mikocka-Walus A, Turnbull D, Andrews JM. Continuity of care in dual diagnosis treatment: definitions, applications, and implications. <i>J Dual Diagn</i> 2015; 11 :217–32. ¹²	Wrong study design
Mijnster T, Boersma GJ, Meijer E, Lancel M. Effectivity of (personalized) cognitive behavioral therapy for insomnia in mental health populations and the elderly: an overview. <i>J Pers Med</i> 2022; 12 :1070. ³¹⁵	Wrong study design
Monahan CJ, McDevitt-Murphy ME, Dennhardt AA, Skidmore JR, Martens MP, Murphy JG. The impact of elevated posttraumatic stress on the efficacy of brief alcohol interventions for heavy drinking college students. <i>Addict Behav</i> 2013; 38 :1719–25. ³¹⁶	Wrong study design
Morrissey JP, Jackson EW, Ellis AR, Amaro H, Brown VB, Najavits LM. Twelve-month outcomes of trauma-informed interventions for women with co-occurring disorders. <i>Psychiatr Serv</i> 2005; 56 :1213–22. ³¹⁷	Wrong study design
Mueller LN. Self-help in vocational rehabilitation: impact of a job search workbook on employment, job search behavior, skill, and self-efficacy. <i>Diss Abstr Int B</i> 2007; 68 :2663. ³¹⁸	Wrong study design
Murray J, Wickramasekera N, Elings M, Bragg R, Brennan C, Richardson Z, et al. The impact of care farms on quality of life, depression and anxiety among different population groups: a systematic review. <i>Campbell Syst Rev</i> 2019; 15 :15. ³¹⁹	Wrong study design

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
O'Shea L, Watkins E, Farrand P. Psychological interventions for the treatment of depression, anxiety, alcohol misuse or anger in armed forces veterans and their families: systematic review and meta-analysis protocol. <i>Syst Rev</i> 2017; 6 :112. ³²⁰	Wrong study design
Oliveira LM, Bermudez MB, Macedo MJDA, Passos IC. Comorbid social anxiety disorder in patients with alcohol use disorder: a systematic review. <i>J Psychiatr Res</i> 2018; 106 :8–14. ³²¹	Wrong study design
Philippe TJ, Sikder N, Jackson A, Koblanski ME, Liow E, Pilarinos A, Vasarhelyi K. Digital health interventions for delivery of mental health care: systematic and comprehensive meta-review. <i>JMIR Ment Health</i> 2022; 9 :e35159. ³²²	Wrong study design
Parloff MB, London P, Wolfe B. Individual psychotherapy and behavior change. <i>Annu Rev Psychol</i> 1986; 37 :321–49. ³²³	Wrong study design
Priester MA, Browne T, Iachini A, Clone S, DeHart D, Seay KD. Treatment access barriers and disparities among individuals with co-occurring mental health and substance use disorders: an integrative literature review. <i>J Subst Abuse Treat</i> 2016; 61 :47–59. ³²⁴	Wrong study design
Ralevski E, Olivera-Figueroa LA, Petrakis I. PTSD and comorbid AUD: a review of pharmacological and alternative treatment options. <i>Subst Abuse Rehabil</i> 2014; 5 :25–36. ³²⁵	Wrong study design
Rao R, Crome I, Crome P, Iliffe S. Substance misuse in later life: challenges for primary care: a review of policy and evidence. <i>Prim Health Care Res Dev</i> 2019; 20 :e117. ³²⁶	Wrong study design
Roberts NP, Lotzin A, Schafer I. Psychological treatment of PTSD with comorbid substance use disorder (SUD): expert recommendations of the European Society for Traumatic Stress Studies (ESTSS). <i>Eur J Psychotraumatol</i> 2023; 14 :2265773. ²²	Wrong study design
Rodas JD, Sorkhou M, George TP. Contingency management for treatment of cannabis use disorder in co-occurring mental health disorders: a systematic review. <i>Brain Sci</i> 2023; 13 :36. ³²⁷	Wrong study design
Sandler I, Wolchik SA, Cruden G, Mahrer NE, Ahn S, Brincks A, Brown CH. Overview of meta-analyses of the prevention of mental health, substance use, and conduct problems. <i>Annu Rev Clin Psychol</i> 2014; 10 :243–73. ³²⁸	Wrong study design
Schulte SJ, Meier PS, Stirling J. Dual diagnosis clients' treatment satisfaction - a systematic review. <i>BMC Psychiatry</i> 2011; 11 :64. https://doi.org/10.1186/1471-244X-11-64 ³²⁹	Wrong study design
Shahzadi M, Hafeez S, Abbas Q, Ehsaan S, Khan MU. The leading role of evidence-based practices in the treatment of patients with substance use disorders: a systematic review. <i>J Pak Med Assoc</i> 2023; 73 :1675–83. ³³⁰	Wrong study design
Shreffler J, Genova G, Huecker M. Physical activity and exercise interventions for individuals with opioid use disorder: a scoping review. <i>J Addict Dis</i> 2022; 40 :452–62. ³³¹	Wrong study design
Steinauer R, Huber CG, Petitjean S, Wiesbeck GA, Dursteler KM, Lang UE, et al. Effect of door-locking policy on inpatient treatment of substance use and dual disorders. <i>Eur Addict Res</i> 2017; 23 :87–96. ³³²	Wrong study design
Tapia G. Review of EMDR interventions for individuals with substance use disorder with/without comorbid posttraumatic stress disorder. <i>J EMDR Pract Res</i> 2019; 13 :345–53. ³³³	Wrong study design
Torchalla I, Nosen L, Rostam H, Allen P. Integrated treatment programs for individuals with concurrent substance use disorders and trauma experiences: a systematic review and meta-analysis. <i>J Subst Abuse Treat</i> 2012; 42 :65–77. ³³⁴	Wrong study design
Tourjman SV, Buck G, Jutras-Aswad D, Khullar A, McInerney S, Saraf G, et al. Canadian network for mood and anxiety treatments (CANMAT) task force report: a systematic review and recommendations of Cannabis use in bipolar disorder and major depressive disorder. <i>Can J Psychiatry</i> 2023; 68 :299–311. ³³⁵	Wrong study design
Vega VP. Music therapy with addiction and co-occurring disorders. <i>Music Med</i> 2017; 9 :45–9. ³³⁶	Wrong study design
Vitali M, Sorbo F, Mistretta M, Coriale G, Messina MP, Alessandrini G, et al.; Interdisciplinary Study Group CRARL – SITAC – SIPaD – SITD – SIPDiP. Drafting a dual diagnosis program: a tailored intervention for patients with complex clinical needs. <i>Riv Psichiatria</i> 2018; 53 :149–53. ³³⁷	Wrong study design
Vujanovic AA, Back SE, Leonard SJ, Zoller L, Kaysen DL, Norman SB, et al. Mental health clinician practices and perspectives on treating adults with co-occurring posttraumatic stress and substance use disorders. <i>J Dual Diagn</i> 2023; 19 :189–98. ³³⁸	Wrong study design
continued	

TABLE 21 Excluded references not meeting eligibility criteria (continued)

Reference	Reason for exclusion
Watkins KE, Hunter SB, Burnam MA, Pincus HA, Nicholson G. Review of treatment recommendations for persons with a co-occurring affective or anxiety and substance use disorder. <i>Psychiatr Serv</i> 2005; 56 :913–26. ³³⁹	Wrong study design
Clark A. The efficacy of mindfulness-based interventions for soldiers and veterans: a meta-analysis. <i>Diss Abstr Int B</i> 2018; 79 . ³⁴⁰	Other (dissertation)
Dolan J. Treatment of dual diagnosis post traumatic stress disorder and substance use disorders: a meta-analysis. <i>Diss Abstr Int B</i> 2013; 73 . ³⁴¹	Other (dissertation)
de Jesus Mari J, Tofoli LF, Noto C, Li LM, Diehl A, Claudino AM, Jurueña MF. Pharmacological and psychosocial management of mental, neurological and substance use disorders in low- and middle-income countries: issues and current strategies. <i>Drugs</i> 2013; 73 :1549–68. ³⁴²	Other (low and middle income countries)
Alvaro Lefio L, Raul Villarroel S, Rebolledo C, Zamorano P, Rivas K. Effective interventions in the problematic use of alcohol and other drugs. <i>Rev Panam Salud Publica</i> 2013; 34 :257–66. ³⁴³	Other (non-English language)

TABLE 22 Reviews that have updates available/superseded reviews

Review that has been updated	Included review
Pennay A, Cameron J, Reichert T, Strickland H, Lee NK, Hall K, Lubman DI. A systematic review of interventions for co-occurring substance use disorder and borderline personality disorder. <i>J Subst Abuse Treat</i> 2011; 41 :363–73. ³⁴⁴	Update available – Lee (2015) ³⁹
Perry AE, Neilson M, Martyn-St James M, Glanville JM, Woodhouse R, Godfrey C, Hewitt C. Interventions for drug-using offenders with co-occurring mental illness. <i>Cochrane Database Syst Rev</i> 2015. https://doi.org/10.1002/14651858.CD010901 ⁶¹	Update available – Perry (2019) ⁶¹
Preuss U, Gouzoulis-Mayfrank E, Havemann-Reinecke U, Schafer I, Beutel M, Hoch E, et al. Psychiatric comorbidity in alcohol use disorders: results from the German S3 guidelines. <i>Eur Arch Psychiatry Clin Neurosci</i> 2018; 268 :219–29. ¹⁴⁷	Protocol for O'Donnell (2022) ⁴¹
Roberts NP, Roberts PA, Jones N, Bisson JI. Psychological interventions for post-traumatic stress disorder and comorbid substance use disorder: a systematic review and meta-analysis. <i>Clin Psychol Rev</i> 2015; 38 :25–38. ³⁴⁵	Update available – Roberts (2022) ⁶⁸
Roberts NP, Roberts PA, Jones N, Bisson JI. Psychological therapies for post-traumatic stress disorder and comorbid substance use disorder. <i>Cochrane Database Syst Rev</i> 2016; 2016 :CD010204. https://doi.org/10.1002/14651858.CD010204.pub2 ³⁴⁶	Update available – Roberts (2022) ⁶⁸
Saavedra LM, Morgan-Lopez AA, Hien DA, Lopez-Castro T, Ruglass LM, Back SE, et al.; CAST, the Consortium on Addictions, Stress and Trauma. Evaluating treatments for posttraumatic stress disorder, alcohol and other drug use disorders using meta-analysis of individual patient data: design and methodology of a virtual clinical trial. <i>Contemp Clin Trials</i> 2021; 107 :106479. ³⁴⁷	Protocol for Hien (2023a) ⁶³
Simpson TL, Lehavot K, Petrakis IL. No wrong doors: findings from a critical review of behavioral randomized clinical trials for individuals with co-occurring alcohol/drug problems and posttraumatic stress disorder. <i>Alcohol Clin Exp Res</i> 2017; 41 :681–702. ⁷²	Update available – Simpson (2021) ⁷⁰
Brazier J, Tumor I, Holmes M, Ferriter M, Parry G, Dent-Brown K, Paisley S. Psychological therapies including dialectical behaviour therapy for borderline personality disorder: a systematic review and preliminary economic evaluation. <i>Health Technol Assess</i> 2006; 10 :1–61. ³⁸	All RCTs in Lee (2015) ³⁹
Holmes NA, van Agteren JE, Dorstyn DS. A systematic review of technology-assisted interventions for comorbid depression and substance use. <i>J Telemed Telecare</i> 2019; 25 :131–41. ⁴⁰	All RCTs in O'Donnell (2022) and Schouten (2022) ^{41,42}
Hobbs JDJ, Kushner MG, Lee SS, Reardon SM, Maurer EW. Meta-analysis of supplemental treatment for depressive and anxiety disorders in patients being treated for alcohol dependence. <i>Am J Addict</i> 2011; 20 :319–29. ³⁴⁸	All RCTs in Hesse (2009) ⁴³
Lo Coco G, Melchiori F, Oieni V, Infurna MR, Strauss B, Schwartz D, et al. Group treatment for substance use disorder in adults: a systematic review and meta-analysis of randomized-controlled trials. <i>J Subst Abuse Treat</i> 2019; 99 :104–16. ⁴⁴	All studies in Mehta (2021) ⁴⁵
Sugarman DE, Campbell ANC, Iles BR, Greenfield SF. Technology-based interventions for substance use and comorbid disorders: an examination of the emerging literature. <i>Harv Rev Psychiatry</i> 2017; 25 :123–34. ⁴⁶	All studies in Schouten (2022) ⁴² or Dugdale (2019) ⁴⁷

TABLE 23 Reviews with broader criteria than the inclusion criteria for our project

Reviews with broader criteria
Agarwal I, Draheim AA. Seeking safety for women in incarceration: a systematic review. <i>Arch Womens Ment Health</i> 2023; 27 :317–27. https://doi.org/10.1007/s00737-023-01411-3 ³⁴⁹
Alpers SE, Furulund E, Pallesen S, Mamen A, Dyrstad SM, Fadnes LT. The role of physical activity in opioid substitution therapy: a systematic review of interventional and observational studies. <i>Subst Abuse</i> 2022; 16 :1178221822111840. ³⁵⁰
Alsheikh AM, Elemam MO, El-Bahnasawi M. Treatment of depression with alcohol and substance dependence: a systematic review. <i>Cureus</i> 2020; 12 :e11168. ³⁵¹
Bailey K, Trevillion K, Gilchrist G. What works for whom and why: a narrative systematic review of interventions for reducing post-traumatic stress disorder and problematic substance use among women with experiences of interpersonal violence. <i>J Subst Abuse Treat</i> 2019; 99 :88–103. ¹²⁷
Baillie AJ, Stapinski L, Crome E, Morley K, Sannibale C, Haber P, Teesson M. Some new directions for research on psychological interventions for comorbid anxiety and substance use disorders. <i>Drug Alcohol Rev</i> 2010; 29 :518–24. ³⁵²
Carter T, Panisch LS. A systematic review of music therapy for psychosocial outcomes of substance use clients. <i>Int J Ment Health Addict</i> 2021; 19 :1551–68. ³⁵³
Cassioello-Robbins C, Southward MW, Tirpak JW, Sauer-Zavala S. A systematic review of Unified Protocol applications with adult populations: facilitating widespread dissemination via adaptability. <i>Clin Psychol Rev</i> 2020; 78 :101852. ³⁵⁴
Cooper K, Chatters R, Kaltenthaler E, Wong R. Psychological and psychosocial interventions for cannabis cessation in adults: a systematic review short report. <i>Health Technol Assess</i> 2015; 19 :1–130. ³⁵⁵
Corthesy-Blondin L, Genest C, Dargis L, Bardon C, Mishara BL. Reducing the impacts of exposure to potentially traumatic events on the mental health of public safety personnel: a rapid systematic scoping review. <i>Psychol Serv</i> 2021; 19 :80–94. https://doi.org/10.1037/ser000572 ³⁵⁶
Cui J, Liu F, Liu X, Li R, Chen X, Zeng H. The impact of qigong and tai chi exercise on drug addiction: a systematic review and meta-analysis. <i>Front Psychiatry</i> 2022; 13 :826187. ³⁵⁷
Donald M, Dower J, Kavanagh D. Integrated versus non-integrated management and care for clients with co-occurring mental health and substance use disorders: a qualitative systematic review of randomised controlled trials. <i>Soc Sci Med</i> 2005; 60 :1371–83. ⁹¹
Fluckiger C, Del Re AC, Munder T, Heer S, Wampold BE. Enduring effects of evidence-based psychotherapies in acute depression and anxiety disorders versus treatment as usual at follow-up – a longitudinal meta-analysis. <i>Clin Psychol Rev</i> 2014; 34 :367–75. ³⁵⁸
Foulds JA, Adamson SJ, Boden JM, Williman JA, Mulder RT. Depression in patients with alcohol use disorders: systematic review and meta-analysis of outcomes for independent and substance-induced disorders. <i>J Affect Disord</i> 2015; 185 :47–59. ³⁵⁹
Fredman Stein K, Allen JL, Robinson R, Smith C, Sawyer K, Taylor G. Do interventions principally targeting excessive alcohol use in young people improve depression symptoms?: a systematic review and meta-analysis. <i>BMC Psychiatry</i> 2022; 22 :417. ³⁶⁰
Gilmore AK, Wilson SM, Skopp NA, Osenbach JE, Reger G. A systematic review of technology-based interventions for co-occurring substance use and trauma symptoms. <i>J Telemed Telecare</i> 2017; 23 :701–9. ³⁶¹
Gutierrez G, Meartsi D, Nikjoo N, Sajid S, Moghimi E, Alavi N. Online psychotherapy for the management of alcohol use disorder, a systematic review and network meta-analysis. <i>Int J Ment Health Addict</i> 2023; 23 :650–81. https://doi.org/10.1007/s11469-023-01132-9 ³⁶²
Hobden B, Bryant J, Carey M, Baker AL, Farrell M, Oldmeadow C, <i>et al.</i> Finding the optimal treatment model: a systematic review of treatment for co-occurring alcohol misuse and depression. <i>Aust N Z J Psychiatry</i> 2018; 52 :737–50. ⁹²
Hohmann L, Bradt J, Stegemann T, Koelsch S. Effects of music therapy and music-based interventions in the treatment of substance use disorders: a systematic review. <i>PLOS ONE</i> 2017; 12 :e0187363. ³⁶³
Hurzeler T, Giannopoulos V, Uribe G, Louie E, Haber P, Morley KC. Psychosocial interventions for reducing suicidal behaviour and alcohol consumption in patients with alcohol problems: a systematic review of randomized controlled trials. <i>Alcohol Alcohol</i> 2021; 56 :17–27. ³⁶⁴
Johnstone S, Dela Cruz GA, Kalb N, Tyagi SV, Potenza MN, George TP, Castle DJ. A systematic review of gender-responsive and integrated substance use disorder treatment programs for women with co-occurring disorders. <i>Am J Drug Alcohol Abuse</i> 2023; 49 :21–42. ³⁶⁵
Kelly TM, Daley DC, Douaihy AB. Treatment of substance abusing patients with comorbid psychiatric disorders. <i>Addict Behav</i> 2012; 37 :11–24. ³⁶⁶
Liu JJW, Ein N, Forchuk C, Wanklyn SG, Ragu S, Saroya S, <i>et al.</i> A meta-analysis of internet-based cognitive behavioral therapy for military and veteran populations. <i>BMC Psychiatry</i> 2023; 23 :223. ³⁶⁷

continued

TABLE 23 Reviews with broader criteria than the inclusion criteria for our project (continued)

Reviews with broader criteria
Mahoney A, Karatzias T, Hutton P. A systematic review and meta-analysis of group treatments for adults with symptoms associated with complex post-traumatic stress disorder. <i>J Affect Disord</i> 2019; 243 :305–21. ³⁶⁸
Martinez-Vispo C, Martinez U, Lopez-Duran A, Fernandez Del Rio E, Becona E. Effects of behavioural activation on substance use and depression: a systematic review. <i>Subst Abuse Treat Prev Policy</i> 2018; 13 :36. ³⁶⁹
May D, Litvin B, Allegrante J. Behavioral activation, depression, and promotion of health behaviors: a scoping review. <i>Health Educ Behav</i> 2022; 51 :321–31. https://doi.org/10.1177/10901981221090157 ³⁷⁰
Minozzi S, Saulle R, Amato L, Traccis F, Agabio R. Psychosocial interventions for stimulant use disorder. <i>Cochrane Database Syst Rev</i> 2024; 2 :CD011866. https://doi.org/10.1002/14651858.CD011866.pub3 ³⁷¹
O'Donnell R, Savaglio M, Vicary D, Skouteris H. Effect of community mental health care programs in Australia: a systematic review. <i>Aust J Prim Health</i> 2020; 26 :443–51. ³⁷²
Pott SL, Delgadillo J, Kellett S. Is behavioral activation an effective and acceptable treatment for co-occurring depression and substance use disorders? A meta-analysis of randomized controlled trials. <i>J Subst Abuse Treat</i> 2022; 132 :108478. ³⁷³
Schade A, Marquenie LA, van Balkom AJ, de Beurs E, van Dyck R, van den Brink W. Do comorbid anxiety disorders in alcohol-dependent patients need specific treatment to prevent relapse? <i>Alcohol Alcohol</i> 2003; 38 :255–62. ³⁷⁴
Simpson TL, Lehavot K, Petrakis IL. No wrong doors: findings from a critical review of behavioral randomized clinical trials for individuals with co-occurring alcohol/drug problems and posttraumatic stress disorder. <i>Alcohol Clin Exp Res</i> 2017; 41 :681–702. ⁷²
Storebø OJ, Stoffers-Winterling JM, Völlm BA, Kongerslev MT, Mattivi JT, Jørgensen MS, et al. Psychological therapies for people with borderline personality disorder. <i>Cochrane Database Syst Rev</i> 2020; 5 :CD012955. https://doi.org/10.1002/14651858.CD012955.pub2 ³⁷⁵
Taylor M, Petrakis I, Ralevski E. Treatment of alcohol use disorder and co-occurring PTSD. <i>Am J Drug Alcohol Abuse</i> 2017; 43 :391–401. ³⁷⁶
Tonigan JS, Pearson MR, Magill M, Hagler KJ. AA attendance and abstinence for dually diagnosed patients: a meta-analytic review. <i>Addiction</i> 2018; 113 :1970–81. ³⁷⁷
Van Dam D, Vedel E, Ehring T, Emmelkamp PMG. Psychological treatments for concurrent posttraumatic stress disorder and substance use disorder: a systematic review. <i>Clin Psychol Rev</i> 2012; 32 :202–14. ³⁷⁸
Wolitzky-Taylor K. Integrated behavioral treatments for comorbid anxiety and substance use disorders: a model for understanding integrated treatment approaches and meta-analysis to evaluate their efficacy. <i>Drug Alcohol Depend</i> 2023; 253 :110990. ⁹³

TABLE 24 Studies for which full text was not available

Dela Cruz GA, Johnstone S, Kim HS, Castle DJ. Review of third-wave therapies for substance use disorders in people of color and collectivist cultures: current evidence and future directions. <i>Psychol Addict Behav</i> 2023; 37 :681–94. ³⁷⁹
Enns MW, Swenson JR, McIntyre RS, Swinson RP, Kennedy SH; CANMAT Depression Work Group. Clinical guidelines for the treatment of depressive disorders. VII. Comorbidity. <i>Can J Psychiatry</i> 2001; 46 :77S–90S. ³⁸⁰
Holland HS, Tickle A. The effectiveness of psychological interventions for borderline personality disorder for those who misuse substances: a systematic review and narrative synthesis. <i>Ment Health Rev J</i> 2023; 28 :214–29. ³⁰³
Kaner EFS, Brown N, Jackson K. A systematic review of the impact of brief interventions on substance use and co-morbid physical and mental health conditions. <i>Ment Health Subst Use</i> 2011; 4 :38–61. ³⁸¹
Tseng I, Ganz A, Mitton AG, Tsuang J. Comorbidity of alcohol use disorder and depression: a case report and review of the literature. <i>Addict Disord Their Treat</i> 2017; 16 :121–8. ³⁸²
Yohannes AM. Anxiety and post-traumatic stress disorders in patients with chronic respiratory diseases. <i>Curr Opin Support Palliat Care</i> 2023; 17 :290–5. ³⁸³

Appendix 3 Data extraction/clinical included study details

TABLE 25 Data extraction – study characteristics

Author, year	Review objectives	Search dates	Number of databases searched	Inclusion/exclusion criteria	Types of study design included	Total number of studies in the review	Number of RCTs relevant to our project	Country of origin of RCTs	Are there RCTs overlapping with other included reviews?
Amato, 2011 ⁴⁸	To evaluate the effectiveness of any psychosocial plus any agonist maintenance treatment vs. standard agonist treatment for opiate dependence	June 2011	4 plus 2 trial registers	Adults > 18 years who are opiate addicts undergoing any psychosocial associated with any agonist maintenance intervention. There were no restrictions for people with physical or psychological illnesses. Pregnant women were excluded	RCTs and controlled clinical trial	35	3	USA N = 3	No
Baker, 2012 ⁵⁴	To evaluate the effectiveness of psychological interventions in people who misuse alcohol with co-occurring depressive or anxiety disorders	March 2010	2	People with AUD and depression or anxiety or phobia diagnosis (excluding large proportion psychosis); using treatment manual intervention; report data on alcohol use outcomes	RCTs	8	8	Australia N = 3 USA N = 3 The Netherlands N = 1 Canada N = 1	Yes. Hesse (2009); Schouten (2022)
Boniface, 2018 ⁵⁵	To evaluate the effectiveness of brief interventions for alcohol among adults with risky alcohol consumption and comorbid mental health conditions	May 2016	3	AUD and mental health condition (includes SMI). Brief interventions	RCT	17	11	USA N = 9 UK N = 1 Germany N = 1	Yes. One RCT overlap with Schouten (2022); one study overlap Baker (2012)
Cavicchioli, 2018 ⁵⁶	To evaluate the effectiveness of MBIs compared with clinical practice to treat SUD	August 2017	4	SUD diagnosed by DSM, with or without comorbid disorder. MBIs	RCT or non-RCT	37	8	NR	Yes. BPD studies – overlaps with Lee (2015), Brazier (2006), Grant (2021), Chetty (2023). No overlap for eating disorders, anxiety disorders, mood/depressive disorders, PTSD.
Chetty, 2023 ⁵⁷	To examine the evidence on integrated and non-integrated treatment outcomes for participants with dual diagnosis	NR (included studies up to 2018)	10	Adults ≥ 18 years with dual diagnosis (i.e. SUD and co-occurring MH) as verified by the American Psychiatric Association's DSM-IV	RCTs	11	9	USA N = 6 Australia N = 2 Norway N = 1	Yes. Roberts (2022), Mehta (2021), Molina (2022), Simpson (2021), Cavicchioli (2018)

TABLE 25 Data extraction – study characteristics (continued)

Author, year	Review objectives	Search dates	Number of databases searched	Inclusion/exclusion criteria	Types of study design included	Total number of studies in the review	Number of RCTs relevant to our project	Country of origin of RCTs	Are there RCTs overlapping with other included reviews?
Cuijpers, 2023 ⁴⁹	To examine the effectiveness of psychological treatments compared with control groups in participants with depression and other comorbid MH disorders.	January 2022	4	Psychological intervention (primarily targeting either depression, the comorbid disorder, or both) compared with a control condition in people with both depression and a comorbid MH problem or substance use. Only individual, group and guided self-help interventions were included. Studies in people with general medical disorders (including dementia) were excluded	RCTs	35	8	USA N = 5 Australia N = 2 Europe N = 1	Yes. Hides (2019), Hassan (2017), Riper (2014)
Dugdale, 2019 ⁴⁷	To evaluate the effectiveness of computer-based interventions at improving substance misuse and MH outcomes	March 2019	6	SUD (disorder or hazardous use) and MH. Age 16+. Computer-based or Internet-delivered intervention	Quantitative, experimental or intervention studies including RCTs, single-group pre- and post-measures, longitudinal, and cross-sectional studies	28	19	USA n = 6 UK n = 2 Australia n = 5 Switzerland n = 2 Germany n = 2 The Netherlands n = 1 Austria n = 1	Yes. Some overlap (Roberts 2022; Schouten 2022), but includes four RCTs not in other included reviews
Ghetti, 2022 ⁵⁸	To compare the effectiveness of music therapy on psychological symptoms, substance craving, motivation for treatment and motivation to stay clean/sober.	February 2021	10	Participants with formal diagnosis of SUD. People with dual diagnoses with MH problems or learning problems were eligible. Intervention: must be labelled 'music therapy', and conducted by a qualified music therapist and compared with Standard care without music therapy	RCTs, including the first phase of cross-over trials, and cluster-RCTs	21	2	USA N = 1 Venezuela N = 1	No
continued									

TABLE 25 Data extraction – study characteristics (continued)

Author, year	Review objectives	Search dates	Number of databases searched	Inclusion/exclusion criteria	Types of study design included	Total number of studies in the review	Number of RCTs relevant to our project	Country of origin of RCTs	Are there RCTs overlapping with other included reviews?
Gibbon, 2020 ⁷¹	To evaluate the potential benefits and adverse effects of psychological interventions for adults with AsPD.	September 2019	16 plus 2 trial registers	Adults, with an AsPD or dissocial personality disorder. Participants with other comorbid personality disorders or other MH problems were eligible. Included both group- and individual-based psychological interventions. Studies of people with major functional mental illnesses, organic brain disease, and intellectual disability were excluded.	RCTs	19	Nine (but data only available from four studies)	USA N = 8 Denmark N = 1	No
Glover-Wright, 2023 ⁵⁹	To evaluate the impact of physically colocating specialist services SUD and MH services	October 2021	5	Adults with dual diagnosis of SUD and MH with and without evidence of a formal diagnosis. Outpatient services consisting of either: (1) MH specialist care colocated in alcohol and other drug treatment service settings; (2) alcohol and other drug specialist care colocated in mental healthcare service settings; or (3) dedicated dual diagnosis services providing care from both mental healthcare and alcohol and other drug treatment specialists in the same service location. comparators – none; either SUD or MH treatment; non-colocated services	Not specified	28 (10 RCTs, but some SMI)	4	USA N = 4	No
Grant, 2021 ⁵⁰	To evaluate the effectiveness of clinical interventions for improving symptoms of adults with co-occurring AUDs and depressive disorders	December 2020	7	Adult participants (at least 50% were 18 years of age or older) with clinical diagnoses for both AUD and depressive disorder. Any clinical interventions intended to improve depressive symptoms or reduce alcohol use	RCTs (parallel-group, individually or cluster)	36	Nine (four intervention)	Thailand N = 2 USA N = 4 Ireland N = 2	Yes. Hesse (2009), Hides (2019), Schouten (2022), Holmes (2019), Ripper (2014)

TABLE 25 Data extraction – study characteristics (continued)

Author, year	Review objectives	Search dates	Number of databases searched	Inclusion/exclusion criteria	Types of study design included	Total number of studies in the review	Number of RCTs relevant to our project	Country of origin of RCTs	Are there RCTs overlapping with other included reviews?
Hassan, 2017 ⁵¹	To evaluate studies of pharmacotherapy/PsyT for treating symptoms of depression or anxiety in participants receiving OAT	January 2017	3	Participants on OAT (either methadone or buprenorphine) to treat OUD with the presence of anxiety or depression (excluded major depression population but included population with psychotic symptoms or other major psychiatric diagnoses other than SUD)	RCT or non-RCT for PsyT	22	4	NR	Yes. Hides (2019), Cuijpers (2023)
Henderson, 2020 ⁶²	To explore the literature on group interventions, integrated to treat SUD and PTSD, for women in the criminal justice system	July 2020	5	Adult women with SUD and PTSD who are involved in criminal justice system. Integrated treatment for SUD and PTSD	RCTs and non-RCTs	13	6	USA N = 6	Yes. One RCT overlap (Zlotnick 2009; Roberts 2022; Simpson 2021; Sherman 2023), but includes five RCTs not in other included reviews
Hesse, 2009 ⁴³	To assess integrated treatment of SUD and comorbid conditions, such as depression or anxiety	NR	4	Adults with SUD and depressive or anxiety symptoms or a diagnosis of depression or anxiety. Comparing integrated non-somatic treatment for both SUD and depression or anxiety with a treatment programme solely focusing on SUD. Interventions with a mixture of somatic and non-somatic treatments were excluded. Only RCT and published studies were included with data at post-treatment and/or at follow-up on retention, psychiatric symptoms or substance use outcomes.	RCTs	10	10	NR	Yes. Hides (2019), Mehta (2021a), Riper (2014), Hobbs (2011), Grant (2021a), Baker (2012)-
continued									

TABLE 25 Data extraction – study characteristics (continued)

Author, year	Review objectives	Search dates	Number of databases searched	Inclusion/exclusion criteria	Types of study design included	Total number of studies in the review	Number of RCTs relevant to our project	Country of origin of RCTs	Are there RCTs overlapping with other included reviews?
Hides, 2019 ⁵²	To assess the efficacy of psychological interventions delivered alone or in combination with pharmacotherapy for people diagnosed with comorbid depression and SUD	February 2019	Four plus Google Scholar and clinical trials registers	RCTs of psychological treatments for people diagnosed with comorbid depression and SUD, using structured clinical interviews. Studies were included if some of the sample were experiencing another MH disorder (e.g. anxiety); however, studies with a third disorder were excluded. Where possible, those with psychosis, bipolar disorder and intellectual disability were excluded. Studies were included if psychological interventions (with or without pharmacotherapy) were compared with no treatment, delayed treatment, treatment as usual or other psychological treatments	RCTs	7	Six (one study excluded as in adolescents – mean age:13–18 years)	USA N = 6	Yes. Hesse (2009), Mehta (2021a), Riper (2014), Hobbs (2011), Grant (2021a), Cuijpers (2023), Hassan (2017), Perry (2019)
Hien, 2023a ⁶³	To evaluate the effectiveness of behavioural and pharmacological therapies for adults with co-occurring PTSD and alcohol or other drug use disorders	December 2020	3	Participants with SUD and PTSD, and treated with psychological or pharmacological interventions	RCTs	36	27	NR	Yes. Hien (2023b), Roberts (2022), Molina (2022), Sherman (2023), Simpson (2021) [note Mehta 2021(a) overlaps, but PTSD from Mehta not data extracted]
Hien, 2023b ⁶⁴	To evaluate the evidence base of PsyT and pharmacological interventions for SUD and PTSD	August 2019	8	Adults (age 18–75), SUD and PTSD (diagnosed or subthreshold); psychological or pharmacological interventions aimed at SUD or PTSD or both	Primary studies (RCTs or single-arm studies)	39	24 (psychosocial therapies of which 16 RCTs in NMA)	USA (majority), Germany, Australia, Sweden and France (numbers NR)	Yes. Hien (2023a)
Hill, 2024 ⁶⁵	To examine differences in trauma-focused and non-TfT outcomes for individuals who did and did not endorse baseline cannabis use	2017	2	Participants with SUD and PTSD. PsyT interventions – trauma focused. comparator non-trauma focused. Measured baseline cannabis use	RCT	4	4	NR	Yes. All RCTs overlap with Hien (2023a)

TABLE 25 Data extraction – study characteristics (continued)

Author, year	Review objectives	Search dates	Number of databases searched	Inclusion/exclusion criteria	Types of study design included	Total number of studies in the review	Number of RCTs relevant to our project	Country of origin of RCTs	Are there RCTs overlapping with other included reviews?
Kara-pereddy, 2019 ⁶⁰	To determine whether existing service models are effective in treating combined MH and SUD and to examine whether an integrated model of service delivery should be recommended to policymakers.	2015	Eight plus trial register	Studies published between 2004 and 2015 in English with no age or population limit, and outcomes include substance use/abuse/disorder, dependency, and MH disorder and/or total costs or treatment costs	Quantitative/ qualitative	12	4	NR	No
Lee, 2015 ³⁹	To evaluate the effective treatment options for co-occurring substance use and BPD.	2014	4	• Included any outcome data from treatment or intervention for both BPD and SUD. • > 70% sample size of BPD. • English language. • Study years 1999–2014.	RCTs	10	10	USA N = 9 The Netherlands N = 1	No
Logsdon, 2023 ⁶⁶	To synthesise existing studies on the effectiveness of both trauma-focused and addiction-focused EMDR for people with SUD	NR, but included studies conducted from 2008 to 2021	2 +EBSCO Discovery platform	SUD, EMDR, controlled study, outcome of SUD, PTSD, depression or other mental health	RCT, experimental or quasi-experimental design with control groups	10	3	Islamic Republic of Iran N = 1 USA N = 1 France N = 1	No
Mehta, 2021 ⁴⁵	To examine the efficacy of an integrated cognitive-behavioural intervention delivered to individuals with an alcohol or other drug use disorder and a co-occurring MH disorder	December 2019	Several (Cochrane Register and EBSCO)	Adults (age ≥ 18) meeting criteria for alcohol or other drug use disorder and at least one co-occurring MH disorder, published in English language between 1990 and 2019 and were RCTs	RCTs	15	12	NR	Yes. Hesse (2009), Hides (2019), Riper (2014), Cuijpers (2023), Chetty (2023), Simpson (2021)
Molina, 2022 ⁶⁷	To assess the effectiveness of psychological interventions on emotion regulation, PTSD and SUD symptoms in adults with adverse childhood experiences	April 2019	5	Adults with adverse childhood experiences with SUD and PTSD or complex PTSD Interventions: Psychological, trauma-focused or trauma-informed psychological intervention, in an individual, couple or group format. Outcomes: treatment effect or implementation. Published after 2008	RCT or quasi-experimental	13	Eight (note nine RCTs, but one study excluded as compares pharma with placebo)	Australia N = 2 Germany N = 1 USA N = 5	Yes. Three studies in both Roberts (2022) and Simpson (2021), one more study in Roberts, also two studies overlap with Sherman (2023). Chetty (2023).

continued

TABLE 25 Data extraction – study characteristics (continued)

Author, year	Review objectives	Search dates	Number of databases searched	Inclusion/exclusion criteria	Types of study design included	Total number of studies in the review	Number of RCTs relevant to our project	Country of origin of RCTs	Are there RCTs overlapping with other included reviews?
O'Donnell, 2022 ⁴¹	Evaluate the effectiveness of combined digital interventions for comorbid heavy drinking and major depression or clinical depression in community-dwelling populations	October 2021	8	Participants with AUD (heavy drinking) and depression ICD-10 or DSM-V (major depression disorder, persistent depressive disorder or clinical depression). Intervention: digital interventions, personal-ised, for AUD and depression	RCTs	5	5	Australia N = 3 USA N = 1 Switzerland, Germany, and Austria N = 1	Yes. Four/five trials also in Schouten (2022)
Perry, 2019 ⁴¹	To assess the effectiveness of interventions for drug-using offenders with co-occurring MH problems in reducing criminal activity or drug use, or both.	February 2019	12	People involved in the criminal justice system with co-occurring MH problems and drug misuse problems regardless of gender, age, or ethnicity. Included interventions were designed, wholly or in part, to eliminate or prevent relapse to drug use or criminal activity, or both, among participants.	RCT	13	Seven (although some studies only report criminal activity)	USA N = 6 Spain N = 1	Yes. Hides (2019) – but only one study; Johnson JE, Zlotnick C. Pilot study of treatment for major depression among women prisoners with substance use disorder. <i>J Psychiatr Res</i> 2012; 46 (9):1174–83
Riper, 2014 ⁵³	To evaluate the effectiveness of combining CBT and MI to treat comorbid clinical and subclinical AUD and major depression and estimate the effect of this compared with usual care	June 2013	Three plus trial register	Included studies that examined effects of CBT and MI on AUD, abuse or dependence and depression. Included studies in which (1) CBT or MI was compared with TAU or (2) CBT or MI was compared with another psychological treatment. No age or language restriction applied	RCT or non-RCT controlled trials	12	9	USA N = 4 Australia N = 4 Ireland N = 1	Yes. Hides (2019), Mehta (2021a), Hobbs (2011), Grant (2021a), Baker (2012), Hesse (2009), Cuijpers (2023), Schouten (2022), Holmes (2019), O'Donnell (2022)
Roberts, 2022 ⁶⁸	To evaluate psychological treatments for PTSD or PTSD and SUD, when compared to treatment for SUD only or other active treatments	2021	8	Participants with formal diagnosis for PTSD (ICD-10) or (DSM-V), or subthreshold PTSD using predefined subthreshold criteria, which included re-experiencing symptoms. Formal diagnosis for SUD according to ICD or DSM (not nicotine). evaluating one or more psychological interventions, in comparison to a control condition or an alternative psychological intervention	RCTs or cluster RCTs	27	26 (note one trial age 16 +, not in MA)	USA N = 24 Australia N = 1 Germany N = 1	Yes. Molina (2022), Sherman (2023), Mehta (2021), Chetty (2023), Simpson (2021)

TABLE 25 Data extraction – study characteristics (continued)

Author, year	Review objectives	Search dates	Number of databases searched	Inclusion/exclusion criteria	Types of study design included	Total number of studies in the review	Number of RCTs relevant to our project	Country of origin of RCTs	Are there RCTs overlapping with other included reviews?
Schouten, 2022 ⁴²	To assess the effectiveness of digital interventions addressing depressive symptoms and alcohol use simultaneously among people with co-occurring AUD and depression	June 2020	7	Participants with AUD and depression, using digital intervention that targeted both depressive symptoms and alcohol use simultaneously	RCTs	6	6	Ireland N = 2 Australia N = 3 USA N = 1	Yes. Baker (2012)
Sherman, 2023 ⁶⁹	To examine the effect of SS on comorbid PTSD and SUD	January 2023	5	Participants with SUD and PTSD SS intervention	RCT	7	7	USA N = 7	Yes. Simpson (2021), all RCTs in Roberts (2022)
Simpson, 2021 ⁷⁰	To investigate the efficacy and acceptability of trauma-focused, non-trauma-focused and cognitive-behavioural Manualised SUD therapies for AUD and PTSD	July 2021	10 and trial registries	Adults ≥ 18 years old with current comorbid SUD and PTSD; examined the effects of cognitive and/or behavioural treatments (i.e. psychotherapies) to address both PTSD and SUD	RCTs	28	25	NR	Yes. Roberts (2022), Molina (2022), Sherman (2023), Mehta (2021), Chetty (2023), Henderson (2020), Hien (2023a)
AsPD, antisocial personality disorder; DSM, <i>Diagnostic and Statistical Manual of Mental Disorders</i> ; ICD-10, <i>International Classification of Diseases</i> , 10th Revision; MH, mental health; NR, not reported; OAT, opiate agonist therapy; OUD, Opiate use disorder.									

TABLE 26 Data extraction – population characteristics

First author, year	Population characteristics (summary description of included participants eligible for the review)	Settings	Population SUD	Population CMD	Number of participants (eligible for the review)	Mean age range (years), if reported	Sex (female %), if reported
Amato, 2011 ⁴⁸	Adults ≥ 18 years, opiate addicts with depression undergoing treatment with any psychosocial associated with any agonist maintenance intervention.	Drug treatment centre	SUD drug (opioid)	Depression	279	37–42 years	0–51%
Baker, 2012 ⁵⁴	Co-occurring alcohol misuse among people with mood (unipolar depression or dysthymia) or anxiety disorders.	NR	AUD	Mixed (depression, anxiety, panic disorder, phobias)	738	32–45 years	31–57%
Boniface, 2018 ⁵⁵	Participants experiencing both a mental health condition and identified as drinking alcohol at risky levels, but were not seeking alcohol treatment.	Any mental health treatment settings (e.g. inpatient, outpatient or community), or other health or social care setting, for example GP surgery or counselling centre	AUD	Mixed (depression, anxiety, PTSD, social phobia)	2421	20–54 years	16–100%
Cavicchioli, 2018 ⁵⁶	Participants with SUD and mixed CMD or BPD	NR but both group and individual treatment	SUD any	Mixed CMD (depression, anxiety, eating disorders, PTSD, BPD)	412	NR	NR
Chetty, 2023 ⁵⁷	Adults > 18 years with dual diagnosis of SUD and co-occurring mental health, including homeless men.	Inpatient, outpatient, community, specialised substance use and mental health clinic	SUD any	Mixed (depression, anxiety, PTSD, eating disorders)	1011	33–43 years	0–100%
Cuijpers, 2023 ⁴⁹	In people with both depression (according to a diagnostic interview or a score above the cut-off of a self-report depression measure) and comorbid SUD	NR	SUD any	Depression	NR	35–46 years	42–100%
Dugdale, 2019 ⁴⁷	People aged 16 years or older, (including veterans, employees, youths and students, and deaf adults) who are experiencing symptoms of substance misuse (disorder or hazardous use) and mental health difficulties	Inpatient or outpatient or community or veteran services	SUD any	Depression, PTSD	NR	20–59 years (where reported)	12–83% (where reported)
Ghetti, 2022 ⁵⁸	People with problem substance use, with a formal diagnosis of SUD and MHD	Inpatient or outpatient rehabilitation settings	SUD any	Mixed (depression, anxiety, PTSD, BPD)	24	16–60 years	0–20%

TABLE 26 Data extraction – population characteristics (continued)

First author, year	Population characteristics (summary description of included participants eligible for the review)	Settings	Population SUD	Population CMD	Number of participants (eligible for the review)	Mean age range (years), if reported	Sex (female %), if reported
Gibbon, 2020 ⁷¹	ASPD with SUD (substance dependence, alcohol or drug use while homeless, being sentenced for a drug-related offence or driving while intoxicated or receiving outpatient treatment for SUD). Up to 75%+ of population receiving psychological intervention	Outpatient, community setting, in a prison or custodial environment	SUD any	BPD (AsPD)	367	NR	NR
Glover-Wright, 2023 ⁵⁹	Adults with dual diagnosis of mental illness and SUD, both with and without evidence of a formal diagnosis	Primary care/community	SUD any	Mixed (depression, MDD, anxiety, panic disorder, PTSD)	2497	39–74 years	26–62%
Grant, 2021 ⁵⁰	Adult participants (at least 50% were 18 years of age or older) with clinical diagnoses for both AUD and depressive disorder.	Inpatient or outpatient	AUD	Depression	755	37–49 years	12–100%
Hassan, 2017 ⁵¹	Participants known to have opioid dependence on MMT and psychiatric disorders – included mothers receiving methadone therapy	NR	SUD drug (opiate)	Depression, anxiety	240	NR	NR
Henderson, 2020 ⁶²	SUD and PTSD in women who are involved in the criminal justice system.	Criminal justice system – prison, community outpatient service for parolees/women with prior incarceration	SUD any	PTSD	894	34–43 years	100%
Hesse, 2009 ⁴³	Participants with comorbid depression or depressive symptoms or anxiety and SUD	Inpatient or outpatient/ dual diagnosis programme	SUD any	Mixed (depression, anxiety, OCD, PTSD)	223	NR	NR
Hides, 2019 ⁵²	Individuals (adults and adolescents) with co-occurring DSM or ICD depression and SUD. The studies included a diverse range of participants (e.g. veterans, incarcerated females)	Outpatient or outpatient clinic with dual diagnosis treatment services for veterans/prisons	SUD any	Depression	438	33–49 years	8–100%
Hien, 2023a ⁶³	Adults diagnosed with SUD and PTSD (diagnosed or subthreshold by DSM)	Civilian (inpatient or outpatient), veteran services, or prison	SUD any	PTSD	4046	NR	NR
Hien, 2023b ⁶⁴	SUD and PTSD (diagnosed or subthreshold), psychological or pharmacological interventions	Civilian (inpatient or outpatient), veteran services, or prison	SUD any	PTSD	NR. Across all studies in NMA n = 1240 with PTSD outcomes, n = 1207 with alcohol outcomes	32–49 years	NR

continued

TABLE 26 Data extraction – population characteristics (continued)

First author, year	Population characteristics (summary description of included participants eligible for the review)	Settings	Population SUD	Population CMD	Number of participants (eligible for the review)	Mean age range (years), if reported	Sex (female %), if reported
Hill, 2024 ⁶⁵	SUD and PTSD	Not specified, but inpatient and outpatient treatment allowed	SUD any	PTSD	413	NR	NR
Karapereddy, 2019 ⁶⁰	SUD and MHD including the homeless, veterans	Outpatient or inpatient	SUD any	Mixed (anxiety, social phobia, PTSD)	615	36–46 years	NR
Lee, 2015 ³⁹	Participants with > 70% BPD with measurable outcomes for substance use and BPD	Inpatient or community	SUD any	BPD	487	27–38 years	6–100%
Logsdon, 2023 ⁶⁶	SUD and trauma or traumatic experiences	Outpatient or inpatient	SUD any	PTSD	66	NR	NR
Mehta, 2021 ⁴⁵	Individuals with an alcohol or other drug use disorder and a co-occurring MHD	NR	SUD any	Mixed CMD (depression, anxiety, PTSD)	1646	NR	NR
Molina, 2022 ⁶⁷	Adults with adverse childhood experiences who have SUD and PTSD	Inpatient or outpatient or prison	SUD any	PTSD	1230	NR	NR
O'Donnell, 2022 ⁴¹	AUD (heavy drinking) and depression ICD-10 or DSM-V (major depression disorder, persistent depressive disorder or clinical depression)	Community or outpatient	AUD	Depression, MDD	1503	20–43 years	43–62.4%
Perry, 2019 ⁶¹	People involved in the criminal justice system with co-occurring mental health problems and drug misuse problems	Prison or prison and release into the community	SUD any	Mixed CMD (depression, anxiety, phobias, PTSD, BPD/AsPD)	1197	30.9 (SD 7.4) years	0%
Riper, 2014 ⁵³	Participants ≥ 16 years, AUD (clinical or subclinical) and MDD. Some studies were conducted in veterans	Outpatient or inpatient	AUD	MDD	1291	NR	NR
Roberts, 2022 ⁶⁸	SUD and PTSD, adults/adolescents, including veterans, prisoners, victims of interpersonal violence	Range of services including outpatient/inpatient/prison/community/veteran's mental health service/psychiatric clinic	SUD any	PTSD	2816	34–49 years	0–100%.
Schouten, 2022 ⁴²	Adults with depression or elevated depressive symptoms and any form of problematic alcohol use.	Outpatient or inpatient	AUD	Depression	647	20–49 years	43–62%

TABLE 26 Data extraction – population characteristics (*continued*)

First author, year	Population characteristics (summary description of included participants eligible for the review)	Settings	Population SUD	Population CMD	Number of participants (eligible for the review)	Mean age range (years), if reported	Sex (female %), if reported
Sherman, 2023 ⁶⁹	Adults with SUD and PTSD including military veterans, adults in community residential treatment facilities and prisoners.	Outpatient clinics in the veterans affairs and the community, community residential substance use treatment facility and prison.	SUD any	PTSD	363	35–54 years	0–100%
Simpson, 2021 ⁷⁰	Adults ≥ 18 years old with current comorbid SUD and PTSD	NR	SUD any	PTSD	2805	30–54 years	0–100%
AsPD, antisocial personality disorder; DSM, <i>Diagnostic and Statistical Manual of Mental Disorder</i> ; GP, general practice; ICD-10, <i>International Classification of Diseases</i> , 10th Revision; MDD, major depression disorder; MHD, mental health disorder; MMT, methadone maintenance treatment; NR, not reported; SD, standard deviation; SUD any, drug and/or alcohol use disorder; SUD drug, drug use disorder.							

TABLE 27 Data extraction – intervention and comparator

Author, year	Psychosocial intervention categories	Description of intervention/phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)
Amato, 2011 ⁴⁸	CBT; ACT; PsyT; support; peer	Any psychosocial intervention plus pharm (standard clinic counselling, ACT, 12S, Supportive-Expressive Therapy, CBT)	181	TAU (support)	Any agonist treatments alone for opiate maintenance therapy – Pharm standard	98
Baker, 2012 ⁵⁴	CBT; MI; BT; PsyT	Manual-guided CBT/MI (CBT and/or MI, interpersonal PsyT, manual-led therapy, integrated cognitive, or sequential BT)	NR (across both groups <i>n</i> = 738)	Support, brief	Information package or brief supportive therapy	NR
Boniface, 2018 ⁵⁵	Brief; support	Brief interventions or brief advice at reducing alcohol consumption	NR (across 11 relevant RCTs <i>n</i> = 2421)	CBT; MI; or no treatment	Active intervention (e.g. MI/CBT) or minimally active comparator (e.g. assessment only)	NR
Cavicchioli, 2018 ⁵⁶	Mind; BT	MBI (MBRP mindfulness-based relapse prevention, MABT mindfulness-based therapeutic community, 12S + ACT, DBT + MMP)	NR	TAU (includes CBT, peer)	TAU CBT, psychoeducation, CVT, 12S, rational thinking skills	NR
Chetty, 2023 ⁵⁷	CBT; Tft; BT	ICBT; prolonged exposure; DBT	NR (across both groups <i>n</i> = 1011)	TAU (includes support)	Non-integrated TAU, includes supportive counselling	NR
Cuijpers, 2023 ⁴⁹	CBT; PsyT	Psychological interventions primarily targeting either depression, the comorbid disorder, or both (with or without antidepressants) – CBT, IPT	NR	TAU or no treatment	WL, TAU, or non-active control (with or without antidepressants)	NR
Dugdale, 2019 ⁴⁷	Digital CBT, MI, ACT, mind	Computer-based interventions aimed at mental health	NR (NR in one study, <i>n</i> = 580 across others) Across both groups, all RCTs, <i>n</i> = 1177	No treatment	WL	NR (NR in one study, 288 across others)
Dugdale, 2019 ⁴⁷	Digital CBT, MI, ACT, mind, peer	Computer-based or internet-delivered intervention [includes based on CBT, MI, ACT, CR, mindfulness, peer support (12S)]	381	TAU or no treatment	TAU or information/education or WL	738
Dugdale, 2019 ⁴⁷	Digital, peer	Computer-based interventions aimed at substance use	997	No treatment	WL	318
Ghetti, 2022 ⁵⁸	Music, PsyT, CBT, support	Music therapy plus TAU – music therapy must be conducted by a qualified music therapist	12	TAU (PsyT, CBT, support)	TAU (PsyT, CBT, support)	12
Gibbon, 2020 ⁷¹	CBT	CBT + TAU	14	TAU	TAU	12

TABLE 27 Data extraction – intervention and comparator (*continued*)

Author, year	Psychosocial intervention categories	Description of intervention/phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)
Gibbon, 2020 ⁷¹	Contingency	Contingency management + TAU	66	TAU	TAU	61
Gibbon, 2020 ⁷¹	Contingency	Contingency management + CBT + TAU	7	TAU	TAU	12
Gibbon, 2020 ⁷¹	MI	Driving while intoxicated programme (MI technique) + incarceration	30	TAU	Incarceration	13
Gibbon, 2020 ⁷¹	Support	Impulsive lifestyle counselling (ILC) + TAU	96	TAU	TAU	80
Glover-Wright, 2023 ⁵⁹	Colocation of services	Colocation of SUD and MH services (integrated and colocated in primary care; colocated psychiatric care)	NR. Across both groups n = 2497	Support; contingency; peer	Referrals to separate MH services; community psychiatry and parallel SUD treatment TAU; 12S	NR
Grant, 2021 ⁵⁰	CBT, ACT	CBT, CBT/ACT, inpatient programme (all interventions were provided as adjunctive to TAU in the study setting)	NR (n = 30 this comparison)	TAU	Psychological placebo (attention matched)	NR
Grant, 2021 ⁵⁰	PsyT	IPT for depression + pharmacotherapy, self-help group (all interventions were provided as adjunctive to TAU in the study setting)	NR (n = 26 this comparison)	PsyT	Brief supportive PsyT	NR
Grant, 2021 ⁵⁰	PsyT	IPT + outpatient programme (all interventions were provided as adjunctive to TAU in the study setting)	NR (n = 48 this comparison)	TAU	No additional treatment	NR
Grant, 2021 ⁵⁰	Digital, support, peer	SMS – supportive text messaging + outpatient aftercare programme support group (all interventions were provided as adjunctive to TAU in the study setting)	NR (n = 95 this comparison)	TAU, peer	No additional treatment	NR
Grant, 2021 ⁵⁰	Digital, support,	SMS – supportive text messaging + inpatient and outpatient programme; activity level monitoring and social skills training + inpatient and outpatient program; activity level monitoring + inpatient and outpatient programme (all interventions were provided as adjunctive to TAU in the study setting)	NR (n = 54 this comparison)	TAU	Psychological placebo (attention matched) (and in- and outpatient programmes)	NR
Grant, 2021 ⁵⁰	CBT, brief	CBT – brief CBT + PsyT, pharmacotherapy; CBT Self Help Book + PsyT (all interventions were provided as adjunctive to TAU in the study setting)	NR (n = 430 this comparison)	TAU	No additional treatment	NR
						continued

TABLE 27 Data extraction – intervention and comparator (continued)

Author, year	Psychosocial intervention categories	Description of intervention/phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)
Hassan, 2017 ⁵¹	BT	BTDD	18	TAU	Recovery training	20
Hassan, 2017 ⁵¹	CBT, PsyT	OAT + CBT or PsyT (RPMG)	105	TAU	TAU, non-directive group therapy, relaxation therapy, recovery training	97
Henderson, 2020 ⁶²	Peer, BT	Gender responsive therapy (HWR/ beyond trauma)/BT	145	Peer	Therapeutic community/ mix gender treatment	120
Henderson, 2020 ⁶²	Peer	Therapeutic community (challenge to change)	257	CBT	CBT	211
Henderson, 2020 ⁶²	SS	SS	42	TAU	TAU	54
Henderson, 2020 ⁶²	TfT	Group intervention – TARGET	38	TAU, support	TAU (supportive group therapy)	34
Hesse, 2009 ⁴³	PsyT	Psychotherapeutic integrated treatment for substance use and comorbid (SET, ICBT, LETS, IPT)	62	TAU (includes peer)	12FT, TAU, BST	53
Hesse, 2009 ⁴³	PsyT	Psychotherapeutic integrated treatment (coping with depression, ICBT, IPT)	61 SUD; 90 depression	TAU (includes peer)	12FT, TAU, BST	50 SUD; 65 depression
Hesse, 2009 ⁴³	CBT, BT	Integrated non-somatic treatment for SUD and CMD (CBT + SUD treatment programme)	NR	TAU (includes peer)	Treatment for SUDs alone (regular programme)	NR
Hides, 2019 ⁵²	CBT	Group-based ICBT	155	peer	12FT	141
Hides, 2019 ⁵²	BT	Group-based BTDD	18	TAU	Group-based structured REL	20
Hides, 2019 ⁵²	CBT	Cognitive therapy	15	TAU	Narrative therapy and prescriptive therapy	25
Hides, 2019 ⁵²	PsyT	IPT-D	33	TAU	Other therapeutic interventions (brief supportive PsyT or psychoeducation)	31
Hien, 2023a ⁶³	BT	Behavioural intervention for SUD (alcohol or other drug)	NR (across all studies in review <i>n</i> = 4046)	TAU	TAU	NR
Hien, 2023a ⁶³	BT	Non-trauma-focused integrated BT	NR (across all studies in review <i>n</i> = 4046)	TAU	TAU	NR

TABLE 27 Data extraction – intervention and comparator (continued)

Author, year	Psychosocial intervention categories	Description of intervention/phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)
Hien, 2023a ⁶³	TfT, BT	TfT non-integrated BT	NR (across all studies in review <i>n</i> = 4046)	TAU	TAU	NR
Hien, 2023a ⁶³	TfT, BT	TfT integrated BT	NR (across all studies in review <i>n</i> = 4046)	TAU	TAU	NR
Hien, 2023a ⁶³	TfT; CBT; MI; BT; TfT; SS; EMDR	Psychological/behavioural intervention, with or without pharmacology. TfT, COPE; CBT; ICBT; CPT; EMDR; TARGET; MET; MI; SWT; SS; CR	NR (across all studies in review <i>n</i> = 4046)	TAU	TAU	NR
Hien, 2023b ⁶⁴	TfT; CBT; ACT; support; TfT; SS	Integrated TfT (COPE, PE) or non-trauma-focused (SS), integrated or non-integrated. CBT or ICBT, ACT, CC, SDPT, CPT, SWT, TARGET, Individual counselling, Relapse prevention	NR (across all studies in NMA <i>n</i> = 1240 with PTSD outcomes, <i>n</i> = 1207 with alcohol outcomes)	TAU	Integrated non-trauma-focused TAU, or other active comparator	NR
Hien, 2023b ⁶⁴	TfT	Integrated TfT	NR (across all studies in NMA <i>n</i> = 1240 with PTSD outcomes, <i>n</i> = 1207 with alcohol outcomes)	TAU	SUD only treatment	NR
Hien, 2023b ⁶⁴	TfT	Integrated TfT	NR (across all studies in NMA <i>n</i> = 1240 with PTSD outcomes, <i>n</i> = 1207 with alcohol outcomes)	PsyT/TAU	PsyT TAU	NR
Hien, 2023b ⁶⁴	TfT	Integrated TfT	NR (across all studies in NMA <i>n</i> = 1240 with PTSD outcomes, <i>n</i> = 1207 with alcohol outcomes)	TfT	Integrated TfT + PTSD medication	NR
Hill, 2024 ⁶⁵	TfT.	TfT, COPE	NR (across both groups <i>n</i> = 413)	SS	TAU, SS, relapse prevention	NR
Karapereddy, 2019 ⁶⁰	ACT, contingency	Integrated service models (ACT, CWT with enhanced incentives)	NR	Contingency	Standard care, CWT alone	NR
Lee, 2015 ³⁹	BT/CBT	DBT	52	TAU	Community treatment by experts, CTBE	49
Lee, 2015 ³⁹	BT/CBT	DBT	27	TAU	TAU	31
continued						

TABLE 27 Data extraction – intervention and comparator (continued)

Author, year	Psychosocial intervention categories	Description of intervention/phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)
Lee, 2015 ³⁹	BT/CBT	Adapted DBT + medication (replacement)	12	TAU, CaseM	TAU, case management	16
Lee, 2015 ³⁹	BT/CBT	Adapted DBT + medication (opiate antagonist)	11	peer	CVT+ 12S	12
Lee, 2015 ³⁹	PsyT	DDP	15	TAU	Optimised community care	15
Lee, 2015 ³⁹	PsyT	DDP	30	TAU	TAU	30
Lee, 2015 ³⁹	PsyT	DFST	15	Peer	12FT	15
Lee, 2015 ³⁹	PsyT	DFST	54	TAU	Individual drug counselling	51
Lee, 2015 ³⁹	PsyT	DFST	NR (across both groups n = 52)	TAU	SAC	NR
Logsdon, 2023 ⁶⁶	EMDR	EMDR	NR (across both groups n = 66)	TAU	Active control	NR
Mehta, 2021 ⁴⁵	CBT; support; Tft; peer	ICBT + TAU, ICBI: (CET + usual clinic service, Group CBT for depression and SU, Group CBT for dep and SU + TAU, hybrid CBT, specialised integrated treatment for alcohol and comorbid anxiety and/or mood disorder)	NR (across both groups n = 912)	TAU, some CBT	TAU, single disorder intervention (12FT, group addiction counselling, progressive muscle relaxation training, treatment for alcohol only, CBT for alcohol only)	NR
Mehta, 2021 ⁴⁵	CBT	ICBT (ICBT): (ICBT + usual care, concurrent treatment of PTSD and alcohol or drug use disorder using prolonged exposure, Concurrent treatment of PTSD and alcohol or drug use disorder using prolonged exposure + usual care, Thinking Forward + usual VA service)	NR. Across both groups n = 734	TAU, some CBT	Usual care, usual VA Services, Individual Addiction Counselling, Relapse Prevention Therapy for SUD, CBT for SUD, assessment/monitoring	NR
Molina, 2022 ⁶⁷	Tft, CBT, SS	Trauma-focused or trauma-informed psychological intervention, in an individual, couple or group format. Includes PE, SS, ICBT, TREM	608	TAU or no treatment	TAU, WL, no intervention, other psychosocial intervention	622
O'Donnell, 2022 ⁴¹	Digital, support, CBT; MI;	Digital interventions, personalised, for AUD and depression. Includes clinician assisted computer-based intervention, integrated digital or web-based interventions	NR (across both groups n = 1503)	TAU (brief, MI) or no treatment	Face-to-face manualised brief intervention with or without MI; alcohol only web-based; attention-control web-based	NR

TABLE 27 Data extraction – intervention and comparator (*continued*)

Author, year	Psychosocial intervention categories	Description of intervention/phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)
Perry, 2019 ⁶¹	CBT; MI, mind	MI, MBI, and CBT	19	No treatment	WL (data not reported for ACT)	13
Perry, 2019 ⁶¹	CBT; MI, mind	MI, MBI, and CBT [the Re-entry Values and Mindfulness Program (REVAMP)]	21	TAU	TAU	19
Perry, 2019 ⁶¹	PsyT	IPT	19	TAU	Psychoeducation	19
Perry, 2019 ⁶¹	Support, peer	Therapeutic community and peer support	163	CBT	CBT, educational format	151
Perry, 2019 ⁶¹	Support, peer	TCAC (secure establishment-based or re-entry modified)	142	TAU, case management	TAU, parole supervision case management	94
Perry, 2019 ⁶¹	Support, peer	TCAC	247	No treatment	No-treatment WL	290
Riper, 2014 ⁵³	CBT; MI	CBT/MI (CBT, ICBT, CBT-D, ICBT/MI-c) NOTE: some are group sessions and some include + Pharm	799	TAU (includes brief)	TAU/Brief treatment (psychosocial counselling and/or medication treatment/12FT)	492
Roberts, 2022 ⁶⁸	CBT	ICBT + TAU for SUD	NR (across both groups <i>n</i> = 349)	TAU	TAU for SUD only	NR
Roberts, 2022 ⁶⁸	CBT	Creating change + TAU for SUD	NR (across both groups <i>n</i> = 52)	SS, support	Present-focused treatments (SS, coping skills) + TAU for SUD	NR
Roberts, 2022 ⁶⁸	CBT, brief	Brief cognitive restructuring training	NR (across both groups <i>n</i> = 58)	ACT, brief	Brief experiential acceptance training	NR
Roberts, 2022 ⁶⁸	CBT, digital	Web-based CBT + TAU	NR (across both groups <i>n</i> = 49)	TAU	TAU	NR
Roberts, 2022 ⁶⁸	CBT, digital, peer	Web-based CBT + peer support	NR (across both groups <i>n</i> = 10)	CBT, digital	Web-based CBT	NR
Roberts, 2022 ⁶⁸	SS, support	Present-focused treatments + TAU for SUD (SS or coping skills)	NR (across both groups <i>n</i> = 337 AUD; 765 SUD; 814 PTSD)	TAU	TAU for SUD only	NR
Roberts, 2022 ⁶⁸	TfT	TfTs + TAU for SUD (based on PE)	NR (across both groups 234 AUD; 170 SUD; 544 PTSD)	TAU	TAU for SUD only	NR
continued						

TABLE 27 Data extraction – intervention and comparator (continued)

Author, year	Psychosocial intervention categories	Description of intervention/phenomena of interest	Number of participants in Intervention group (N)	Comparator categories	Description of comparator	Number of participants in comparator group (N)
Roberts, 2022 ⁶⁸	TfT	TfTs + TAU for SUD	NR (across both groups n = 119)	SS, support	Present-focused treatment (SS, coping skills) + TAU for SUD	NR
Roberts, 2022 ⁶⁸	TfT	Sequential TfT + TAU for SUD	NR (across both groups n = 183)	TfT	Integrated TfT + TAU for SUD	NR
Roberts, 2022 ⁶⁸	TfT, contingency	Incentivised TfT + TAU for SUD	NR (across both groups n = 58)	TfT	Standard TfT + TAU for SUD	NR
Schouten, 2022 ⁴²	Digital, CBT/MI, support, brief	Integrated digital intervention	NR (across both groups n = 647)	TAU	Any type of control group (e.g. WL, active treatment, assessment only, attention control)	NR
Sherman, 2023 ⁶⁹	SS	SS	179	TAU	TAU, community care, individual therapy or education	184
Simpson, 2021 ⁷⁰	TfT, CBT	Prolonged exposure, trauma-focused CBT	NR	TAU	TAU, WL	NR
Simpson, 2021 ⁷⁰	CBT, SS, digital, peer	CBT, or ICBT, SS, web-based peer support	NR	TAU	TAU, WL	NR

12S, Twelve-Step focused; brief, brief intervention; BST, brief supportive psychotherapy; CaseM, case management; CC, Creating Change; CET, cognitive enhancement therapy; contingency, contingency management; COPE, Concurrent Treatment of PTSD and Substance Use Disorders Using Prolonged Exposure; CPT, cognitive processing therapy; CR, cognitive remediation; CTBE, community treatment by experts; CVT, comprehensive validation therapy; CWT, compensated work therapy; digital, digital intervention (i.e. delivered via computer or text message or internet based intervention); ICBI, integrated cognitive behavioural intervention; ILC, impulsive lifestyle counselling; IPT, interpersonal psychotherapy therapy; IPT-D, interpersonal psychotherapy for depression; LETS, Life Enhancement Treatment for Substance Use program; MABT, mindfulness-based therapeutic community; MBRP, mindfulness-based relapse prevention; MET, motivational enhancement therapy; MH, mental health; MMP, methadone maintenance program; music, music therapy; NR, not reported; OAT, opiate agonist therapy; PE, prolonged exposure; peer, peer support; Pharm, pharmacotherapy; REL, Relaxation Intervention; SAC, substance abuse counselling; SDPT, substance dependence posttraumatic stress disorder therapy; SET, self-examination therapy; SMS, self-management support; support, supportive counselling or self-management support; SWT, structured writing therapy; TCAC, therapeutic community intervention with aftercare; TREM, Trauma Recovery and Empowerment Model; WL, waitlist.

TABLE 28 Data extraction outcomes assessed

First author, year	Method of analysis	MA outcomes assessed SUD	MA outcomes assessed CMD	MA outcomes assessed functioning/QoL	Outcome assessed SUD (if no MA, or if differs from MA)	Outcome assessed CMD (if no MA, or if differs from MA)	Outcome assessed functioning/QoL (if no MA, or if differs from MA)
Amato, 2011 ⁴⁸	MA	NR	Psychiatric symptoms/ distress, (post-pre treatment) BDI, SCL-90		NA	NA	NR
Baker, 2012 ⁵⁴	Narrative	NA	NA	NA	Abstinence, heavy drinking days, alcohol units in a week	BDI; SPAI; Mobility Inventory – alone; ACQ; BSQ	NR
Boniface, 2018 ⁵⁵	Narrative	NA	NA	NA	AUDIT; BASICS; drinks per week, hazardous drinking; DDQ; TLFB	NR	NR
Cavicchioli, 2018 ⁵⁶	MA	NA	NA	NA	Abstinence, cravings	PTSD symptoms (post treatment) PCL-C, IES-R, MPSS, avoidance coping strategies	NR
Chetty, 2023 ⁵⁷	Narrative	NA	NA	NA	Substance use outcomes, reduction, severity, craving, con- sumption, toxicology, AUDIT, Structured Clinical Interview	Clinician-administered PTSD Scale, BDI, Post-traumatic Stress Diagnostic Scale	NR
Cuijpers, 2023 ⁴⁹	MA	Substance use problem	Depression; HAM- D-17, BDI, BDI-II, clinician-rated instru- ment and self-report instrument		NA	NA	NR
Dugdale, 2019 ⁴⁷	Narrative	NA	NA		Consumption or frequency of use, haz- ardous and harmful use, disordered use or dependence, negative consequences associated with substance misuse, and cravings; includes TLFB; AUDIT; ASI	Depression, anxiety, PTSD. includes PCL-C; PHQ-9; BDI; HADS	NR
continued							

TABLE 28 Data extraction outcomes assessed (continued)

First author, year	Method of analysis	MA outcomes assessed SUD	MA outcomes assessed CMD	MA outcomes assessed functioning/QoL	Outcome assessed SUD (if no MA, or if differs from MA)	Outcome assessed CMD (if no MA, or if differs from MA)	Outcome assessed functioning/QoL (if no MA, or if differs from MA)
Ghetti, 2022 ⁵⁸	Narrative		Self-reported depression, BDI, HRSD,				NR
Gibbon, 2020 ⁷¹	All one study only, so not MA	ASI, days abstinent in previous 30 days, complete abstinence, %participants reporting daily use, urinalysis, DrInC-2R-questionnaire, Form 90	BPAQ, BRAQ-SF, SRASBM				Composite family/social domain scores Drink-driving Social functioning: mean family/social domain scores on the ASI Incarceration, reconviction Employment status: mean ASI employment domain scores
Glover-Wright, 2023 ⁵⁹	Narrative				UDS; drinks per week, past month binge episodes	Psychological distress, Hopkins severity index, Checklist Global Severity Index, SCL-90-R, GSI	NR
Grant, 2021 ⁵⁰	NMA	Remission from alcohol use, alcohol use withdrawal, craving symptoms, mean cubic cm per day, mean percentage days abstinent mean OCDS for alcohol use and	Depressive symptoms, remission from depression, BDI, BDI-II, HDRS				GAF
Hassan, 2017 ⁵¹	Narrative					Depressive symptoms; BDI, HDRS, Zung, Depression scale Anxiety symptoms using STA	NR
Henderson, 2020 ⁶²	Narrative				ASI; UDS; Colorado Department of Corrections (CDOC) standardised offender assessment; TLFB	TSI, CAPS; TSC-40; THQ, PSS-I; PCL-C	NR

TABLE 28 Data extraction outcomes assessed (continued)

First author, year	Method of analysis	MA outcomes assessed SUD	MA outcomes assessed CMD	MA outcomes assessed functioning/QoL	Outcome assessed SUD (if no MA, or if differs from MA)	Outcome assessed CMD (if no MA, or if differs from MA)	Outcome assessed functioning/QoL (if no MA, or if differs from MA)
Hesse, 2009 ⁴³	MA	Substance use; per cent days abstinent	Depression; HDRS, SCL-90 or BDI				NR
Hides, 2019 ⁵²	MA	Alcohol or substance use (post treatment) PDA	Depression (post treatment) HDRS				NR
Hien, 2023a ⁶³	MA	Latent substance use severity (post treatment) VAS; TLFB; ASI; CRI; SUI; AUDIT; DrInC; CIDI; OTI; OCDS; UDS; GAIN	Latent PTSD severity (post treatment) CAPS, PCL, IES, MPSS-R, PDS, PSS-I				NR
Hien, 2023b ⁶⁴	NMA and pairwise MA	Substance use (post treatment) TLFB; ASI; UDS; GAIN; CIDI; OCDS	PTSD severity (post treatment) CAPS, PCL, IES, PSS-I, PSS-SR, MPSS-R, TSC-40				NR
Hill, 2024 ⁶⁵	Outcome model				Alcohol, and non-cannabis drug use severity ASI, TLFB, clinical interview item	PTSD symptom severity, CAPS-5, CAPS-IV, PCL-M, MPSS-SR	NR
Karapereddy, 2019 ⁶⁰	Narrative				Substance use/abstinence.	MH severity measure	Reductions in homelessness, crime, and violence
Lee, 2015 ³⁹	Narrative	NA	NA	NA	Substance use; structured clinical interview, urinalysis, TLFB, ASI, European version of ASI, DSM-V, timeline calendar, abstinent days, mean number of drinking days, mean number of days using illicit substances	Suicidal/self-harm behaviour, Parasuicide history Interview, Lifetime Parasuicide Count, STAXI, BSI, BDI, DES, SPS, Inventory of Interpersonal Problems – Circumplex, Early Maladaptive Schema Questionnaire, Multiple-Affect Adjective Checklist, BEST	Anger, GSF, social history interview institutional care, Social Provisions Scale

continued

TABLE 28 Data extraction outcomes assessed (continued)

First author, year	Method of analysis	MA outcomes assessed SUD	MA outcomes assessed CMD	MA outcomes assessed functioning/QoL	Outcome assessed SUD (if no MA, or if differs from MA)	Outcome assessed CMD (if no MA, or if differs from MA)	Outcome assessed functioning/QoL (if no MA, or if differs from MA)
Logsdon, 2023 ⁶⁶	MA		Symptoms of PTSD (post treatment) PCL		NR		NR
Mehta, 2021 ⁴⁵	MA	Drug/alcohol use (post treatment), days/proportion abstinent, days used, polydrug days, proportion not relapsed	HDRS, BDI-II, STAI, composite depression anxiety stress scales, composite social phobia and anxiety				NR
Molina, 2022 ⁶⁷	Narrative				ASI, ADOM	PTSD severity (CAPS, PSS-I, PSS-SR, IES-R)	NR
O'Donnell, 2022 ⁴¹	Narrative				Mean alcohol consumption; drinking days, abstinence,	BDI-II; CES-D; PHQ-9, mental distress	NR
Perry, 2019 ⁶¹	Narrative				Substance use, ASI, Abstinence Self-reported drug use, drug-related crime	BDI, GSI, PDS	Re-arrests and re-incarceration – criminal activity
Riper, 2014 ⁵³	MA	Alcohol use; drinks per drinking day, mean number of alcohol use day, mean drinks per day, % days abstinent, % with ≥ 50% reduction, % drinking above harmful threshold, number of days abstinent, number of days to first drink, AUDIT	Depression symptoms: BDI-II, HAM-D-21, HADS, HAM-D, BDI				NR
Roberts, 2022 ⁶⁸	MA	Alcohol or substance use, ASI, SADQ-C	PTSD severity or diagnosis, CAPS, CIDI, IES-R, PCL, PCL-C, PCL-M, PSS-I				

TABLE 28 Data extraction outcomes assessed (continued)

First author, year	Method of analysis	MA outcomes assessed SUD	MA outcomes assessed CMD	MA outcomes assessed functioning/QoL	Outcome assessed SUD (if no MA, or if differs from MA)	Outcome assessed CMD (if no MA, or if differs from MA)	Outcome assessed functioning/QoL (if no MA, or if differs from MA)
Schouten, 2022 ⁴²	MA	Alcohol use; units per day, or per week, or alcohol use occasions per day	Depressive symptoms; BDI; PHQ-9				NR
Sherman, 2023 ⁶⁹	MA	ASI	PTSD symptoms; CAPS-1		Drug/urine screen; saliva alcohol tests; Substance Use Inventory; Breathalyzer; Mini Neuropsychiatric Interview—AUD; TLFB	IES-R; Trauma Symptoms Checklist; MPSS; Clinical Global Impression PTSD; PSS-SR; Mini Neuropsychiatric Interview—PTSD Module	NR
Simpson, 2021 ⁷⁰	MA	TLFB; ASI; urine drug screen	CAPS; PCL; IES	NR	NA	NA	NR

ACQ, Agoraphobic Cognitions Questionnaire; ADOM, Alcohol and Drug Outcome Measure score; ASI, addiction severity index; AUDIT, Alcohol Use Disorders Identification Test; BASICS, Brief Alcohol Screening and Intervention of College Students; BEST, borderline evaluation of severity over time; BPAQ, Buss-Perry Aggression Questionnaire; BSI, Brief Symptom Inventory; BSQ, Body Sensations Questionnaire; CAPS, Clinician-Administered PTSD Scale; CES-D, Centre of Epidemiologic Studies of Depression Scale; CIDI, Composite International Diagnostic Interview; CMD, common mental disorder; CRI, Coping Responses Inventory; DDQ, Daily Drinking Questionnaire; DES, Dissociative Experience Scale; DrInC, Drinker Inventory of Consequences; GAF, global assessment of function; GAIN, Global Appraisal of Individual Needs; GSF, Global and Social Functioning; GSI, Global Symptom/Severity Index; HADS, Hospital Anxiety and Depression Scale; HAM-D-17, Hamilton Depression Rating Scale-17 items; HAM-D-21, Hamilton Depression Rating Scale- 21 items; HDRS, Hamilton Depression Rating Scale; HRSD, Hamilton Rating Scale for Depression; IES, Impact of Events Scale; IES-R, impact of event scale-revised; MPSS, Modified PTSD Symptom Scale; MPSS-R, Modified PTSD Symptom Scale-Revised; NA, not applicable; NR, not reported; OCDS, Obsessive–Compulsive Drinking Scale; OTI, Opiate Treatment Index; PCL, PTSD Checklist; PCL-C, PTSD Checklist – civilian version; PCL-M, PTSD Checklist –military version; PDA, per cent days abstinent; PDS, Post-traumatic Diagnostic scale; PSS-I, PTSD Symptom Scale–Interview; PSS-SR, PTSD symptom scale-self reported; QoL, quality of life; SADQ-C, severity of alcohol dependence questionnaire; SAS, Social Adjustment Scale; SCL-90, Symptom Check List -90 scale; SHI, Social History Interview; SPAI, Social Phobia and Anxiety Inventory; SPS, Social Provisions Scale; SRASBM, Self-Report of Aggression and Social Behaviour Measure; STA, State-Trait Anxiety; STAI, State-Trait Anxiety Inventory; STAXI, Spielberg State–Trait Anger Expression Inventory; STAXI, State-Trait Anger Expression Inventory; SUI, Substance Use Inventory; THQ, trauma history questionnaire; TLFB, timeline follow back; TSC-40, trauma symptom checklist-40; TSI, trauma symptom inventory; UDS, urine drug screen; VAS, visual analogue scale.

Appendix 4 Additional searching

Stage 2

Additional searches

To supplement the findings of the umbrella review, target searches for RCTs were undertaken to identify interventions that were highlighted in the evidence gap map in EPPI-reviewer^{73,74} <https://tinyurl.com/35pmhve2>. We searched for studies for the following interventions: supportive housing; yoga and exercise; case management; art therapy including music; and EMDR. Searches were undertaken by looking through the reference list of reviews that were excluded due to having broader criteria than the inclusion criteria for this project. Through these targeted searches, we identified eight RCTs^{75–82} that had not been included in the umbrella review. The study and population characteristics are provided in [Table 23](#), and [Table 24](#) provides details of intervention and outcomes.

In summary, the studies were generally small with sample size ranging from 18⁷⁷ to 189⁸⁰ with studies published between 2005⁷⁵ and 2019.⁸⁰ Three RCTs included yoga intervention;^{77,80,81} of these, two studies were based in the USA,^{80,81} and one study was based in Sweden.⁷⁷ Reddy *et al.*⁸¹ included civilian women and veterans with PTSD and SUD (drugs and/or alcohol). Lyons *et al.*⁸⁰ included male prisoners with PTSD and drug use disorder; however, only 35.8% of the participants met the criteria for PTSD.

Only one RCT of 30 participants based in Germany was identified that focused on EMDR.⁷⁸ The study included chronically alcohol-dependent patients with mental health problems including PTSD, depression, social phobia, BPD and panic disorder. However, only 22/30 patients were comorbid.⁷⁸

For art therapy, only one RCT using music therapy interventions by Silver *et al.*⁸² was identified. The study took place in an inpatient detoxification unit in the USA and included patients with depression using alcohol or drugs.

No RCTs were identified that looked at case management interventions or compared sheltered housing with non-sheltered housing. However, three studies^{75,76,79} based in the USA, targeting homeless people suffering from SUD and mental health were identified. Lester *et al.*⁷⁹ and Burns *et al.*⁷⁶ recruited patients with drug use disorder and PTSD; however, in Burns *et al.*⁷⁶ only 21/102 were diagnosed with PTSD at the start of the study. Bradford *et al.*⁷⁵ included patients with either drug or/and alcohol disorder with a variety of mental health disorders including mood, anxiety and psychotic disorder. Bradford *et al.*⁷⁵ looked at a sheltered-based psychiatric clinic with a control which did not include a psychiatric clinic, while both Burns *et al.*⁷⁶ and Lester *et al.*⁷⁹ compared contingency-managed housing and therapy plus behavioural day treatment with contingency management alone.

TABLE 29 Study and population characteristics

Author, year	Intervention	Country, setting	Population characteristics	Population CMD	Population SUD	Number of participants	Mean age (SD) years	Sex (female %)
Hallgren, 2014 ⁷⁷	Yoga	Sweden, Outpatient	Not specified	Depression, anxiety	AUD	18	NR	NR
Lyons, 2019 ⁸⁰	Yoga	USA, Therapeutic community in prison	Male prisoners	PTSD (only 35.8% met criteria for PTSD)	SUD drug	189	35.8 (11.3)	0%
Reddy, 2014 ⁸¹	Yoga	USA, Primary care	Veterans and civilian women	PTSD	SUD any	38	44.4 (12.4)	100%
Bradford, 2005 ⁷⁵	Housing	USA, Community mental health centre	Homeless individuals	Mix MH (mood, anxiety, psychotic)	SUD any	102	NR (I: 39.09; C: 39.68)	31.37%
Burns, 2010 ⁷⁶	Housing	USA, Community-based outpatient clinic	Homeless individuals	PTSD (only 21 participants had PTSD diagnosis at start of study)	SUD drug	206 (102 assessed)	40.1 (7.1)	27.70%
Lester, 2007 ⁷⁹	Housing	USA, Community-based outpatient clinic	Homeless individuals	PTSD	SUD drug	206 (118 assessed)	40 (NR)	25%
Silverman, 2011 ⁸²	Music	USA, Inpatient detoxification unit	Not specified	Depression	SUD any	140	43.2 (NR)	50%
Hase, 2008 ⁷⁸	EMDR	Germany, Inpatient	Chronically alcohol-dependent patients	Mix MH (PTSD, depression, social phobia, BPD, panic disorder) – only 22/30 patients comorbid	AUD	34 (30 assessed)	NR (I: 45.7, C: 42.5)	40%

C, control; I, intervention; MH, mental health; NR, not reported; SD, standard deviation; SUD any, substance use disorder drug and/or alcohol; SUD drug, substance use disorder drug only.

Quality assessment

The Cochrane risk-of-bias tool for randomised trials (RoB 2)⁸³ was used to assess the risk of bias in the eligible studies and is presented in [Table 24](#). Studies had a range of biases with most studies having at least one domain at high risk of bias apart from Silver *et al.*⁸² and Lester *et al.*⁷⁹ Although patients were randomly assigned in all the included studies, four studies did not provide further details on allocation concealment or methods used.^{76,79,81,82} All studies at baseline had no significant clinical or demographic differences between the study groups. Three studies did not report on how missing data were dealt with.^{76,77,81} However, the main area of concern showing a high or unclear risk of bias was due to blinding. In Bradford *et al.*,⁷⁵ the social worker delivered the intervention, conducted the study assessments, and collected outcome data. In Burns *et al.*,⁷⁶ participants and Structured Clinical Interview for *Diagnostic and Statistical Manual of Mental Disorders* (SCID) administrators were not blinded to treatment conditions and in Hase *et al.*⁷⁸ treatment was applied by the same person evaluating the study. However, it should be noted that due to the nature of psychological interventions, blinding can be difficult.

Results and findings

The key findings are presented in [Table 25](#).

Yoga

Reddy *et al.*⁸¹ and Lyons *et al.*⁸⁰ reported statistically significant improvement in PTSD symptoms in the yoga group compared with the control group, while Hallgren *et al.*⁷⁷ showed no significant difference between the groups for depression or anxiety. For substance use, both Reddy *et al.*⁸¹ and Hallgren *et al.*⁷⁷ showed improvements in the yoga intervention group, but this was not statistically significant and Lyons *et al.*⁸⁰ reported a decline in craving scores in both arms with no statistical difference between groups.

TABLE 30 Risk of bias of including RCTs using Cochrane RoB 2tool

	Risk of bias arising from randomisation process	Risk of bias due to intended intervention (effect of assignment to intervention)	Risk of bias due to intended intervention (effect of adhering to intervention)	Risk of bias due to missing outcome data	Risk of bias in measurement of the outcome	Risk of bias in selection of the reported result	Overall risk of bias
Bradford, 2005 ⁷⁵	Low	High	High	Low	Low	Some concern	High
Burns, 2010 ⁷⁶	Some concern	High	Some concern	High	Some concern	Low	High
Hallgren, 2014 ⁷⁷	Low	Some concern	Some concern	High	Some concern	Low	High
Hase, 2008 ⁷⁸	Low	Some concern	Some concern	Low	High	Some concern	High
Lester, 2007 ⁷⁹	Some concern	Some concern	Some concern	Low	Some concern	Some concern	Some concern
Lyons, 2019 ⁸⁰	Low	High	High	Low	Low	Low	High
Reddy, 2014 ⁸¹	Some concern	High	High	High	High	Low	High
Silverman, 2011 ⁸²	Some concern	Some concern	Some concern	Low	Some concern	Low	Some concern

Low, low risk of bias; High, high risk of bias; Some concern, some risk of bias.

Homeless

When comparing contingency management + BT with contingency management alone, both studies^{76,79} showed a significantly greater reduction in PTSD symptoms in the intervention group. Burns *et al.*⁷⁶ also reported a reduction in substance use in the intervention group during aftercare. However, Lester *et al.*⁷⁹ did not report the effect of the intervention on substance use. Bradford *et al.*⁷⁵ compared sheltered-based psychiatric clinic with control which did not include a psychiatric clinic in the shelter but individuals could schedule appointments with volunteer shelter staff (who had social service experience but did not hold a graduate degree in any human services discipline) on their own initiative. The study showed that the individuals receiving the sheltered-based intervention were statistically significantly more likely to engage with substance use programmes and attend the community mental health centre.

Eye movement desensitisation and reprocessing

The addition of EMDR intervention to TAU showed significant reductions in cravings and relapse at post treatment and 1-month follow-up.⁷⁸ In addition, lower depressive symptoms were seen in EMDR + TAU group compared with TAU.⁷⁸ These findings are similar to those observed in the review by Logsdon *et al.*⁶⁶ where the authors compared EMDR with an active control and found EMDR led to significantly more improvement in PTSD symptoms. EMDR intervention was also included in the review by Hien 2023a,⁶³ but the authors did not provide any separate analysis.

Music therapy

Music therapy compared with group verbal therapy was assessed in one study.⁸² The study reported no significant difference in depression between the groups. The findings were in agreement with the findings from the review by Ghatti *et al.*⁵⁸ The study did not report data on the impact of music therapy on substance use.

TABLE 31 Results of additional searching

Author, year	Intervention (N)	Psychosocial intervention categories	Comparator (N)	Comparator categories	Follow-up	SUD outcome	SUD – outcome measures used	CMD outcome effect size (95% CI)	CMD – outcome measures used
Hallgren, 2014 ⁷⁷	Yoga + TAU, N = 8	Yoga; TAU	TAU, N = 6	TAU	6 months	Alcohol consumption reduced more yoga group (from 6.32 to 3.36 drinks per day) compared to the TAU only group (from 3.42 to 3.08 drinks per day). The difference was not statistically significant ($p = 0.17$)	Alcohol consumption (TLFB, DSM-IV criteria for alcohol dependence, and the Short Alcohol Dependence Data questionnaire)	Not significant difference on perceived stress or HADS ($p = 0.67$)	HAD, PSS
Lyons, 2019 ⁸⁰	Yoga + mindfulness meditation, N = 88	Yoga; mind	Attention control (communication skills session), N = 189	TAU	45 days	Craving scores declined in both arms	Penn Alcohol/Drug Craving Scale	PTSD declined in both arms, and mindfulness increased. When controlled for Freiburg mindfulness pre-test, decline in anxiety and PTSD was greater in the intervention group than control group ($p < 0.05$)	Five Facets Mindfulness Questionnaire; Freiburg Mindfulness Inventory; BAI, PTSD Symptom Checklist
Reddy, 2014 ⁸¹	Yoga, N = 20	Yoga	Assessment control (no Yoga), N = 18	TAU	1 month	The mean AUDIT and DUDIT scores decreased in the yoga group – a non-statistically significant trend towards decreased alcohol and drug use risk among yoga participants relative to the control group.	AUDIT, DUDIT	69% of participants in the yoga group reported fewer PTSD symptoms, and 92% reported coping better with symptoms ($p < 0.001$).	PTSD Checklist, PSS-I, Treatment-Seeking Questionnaire
Bradford, 2005 ⁷⁵	Shelter-based psychiatric clinic, N = 51	Support	Control (subjects could schedule appointments with part-time, volunteer shelter staff members on their initiative), N = 51	TAU	NR	Individuals receiving sheltered-based intervention were more likely to participate in a substance abuse programme (51.4% vs. 12.5%, $p = 0.0006$)	Participation in a substance abuse programme	Individuals receiving sheltered-based intervention were more likely to attend 1 CMHC appointment (64.7% vs. 37.3%, $p = 0.006$)	First appointment attendance at a CMHC

TABLE 31 Results of additional searching (*continued*)

Author, year	Intervention (N)	Psychosocial intervention categories	Comparator (N)	Comparator categories	Follow-up	SUD outcome	SUD – outcome measures used	CMD outcome effect size (95% CI)	CMD – outcome measures used
Burns, 2010 ⁷⁶	Contingency managed housing and work therapy + behavioural day treatment (CM+), N = 103	Contingency; BT	Contingency managed housing and work therapy alone (CM), N = 103	Contingency	6 months (end of active treatment), 12 months (end of aftercare)	No difference between treatment groups (i.e. CM and CM+) in positive urine screens across active treatment Phases I and II. However, during aftercare the CM + group tested substance-positive less often than the CM group ($p < 0.01$).	Urine drug screenings	Individuals in the CM+ group reported fewer PTSD symptoms at 6 months than those in CM ($p < 0.05$)	PDS
Lester, 2007 ⁷⁹	Contingency management (abstinence contingent housing and vocational training) + behavioural day treatment group (CM+), N = 41	Contingency; BT	Contingency management (CM), N = 49	Contingency	6 months	NR	ASI	Significantly greater reductions in PTSD symptomatology in CM+ group than CM group	BSI, PDS, SCID
Silverman, 2011 ⁸²	Music therapy (song writing), N = 69	Music	Group verbal therapy, N = 71	Support	Post-test, 1 month	NR	Self-reported	Immediate post-test: no significant difference between groups in change readiness or depression although the MT group had slightly higher mean change and slightly lower mean depression scores. At follow-up: slightly lower depression score in MT but not significant	URICA BDI-II 7-point Likert scales
continued									

TABLE 31 Results of additional searching (continued)

Author, year	Intervention (N)	Psychosocial intervention categories	Comparator (N)	Comparator categories	Follow-up	SUD outcome	SUD – outcome measures used	CMD outcome effect size (95% CI)	CMD – outcome measures used
Hase, 2008 ⁷⁸	EMDR + TAU, N = 15	EMDR	TAU, N = 15	TAU	Pre, post and 1 month	The TAU + EMDR group showed a significant reduction in craving post-treatment and 1 month after treatment, whereas TAU did not. At follow-up, 15 TAU patients relapsed and 10 TAU + EMDR patients relapsed $p < 0.05$ (statistically significant)	OCDS, MALT	At follow-up, patients allocated to TAU + EMDR had lower depressive symptoms than patients in TAU group	PTSS, BDI, STAXI X1 and X2,

AUDIT, Alcohol Use Disorder Identification Test; ASI, addiction severity index; BAI, Beck Anxiety Inventory; BSI, Brief Symptom Inventory; CM, contingency management; CM+, contingency management plus behavioural day treatment; CMCH, Community Mental Health Centre; DUDIT, Drug Use Disorder Identification Test; HADS, Hospital Anxiety and Depression Scale; MALT, Münchner-Alkoholismus Test; mind, mindfulness; music, music therapy; NR, not reported; OCDS, Obsessive–Compulsive Drinking Scale; PDS, Posttraumatic Diagnostic Scale; PSS, Perceived Stress Scale; PSS-I, PTSD Symptom Scale Interview; PTSS, Posttraumatic Stress Scale 10-Items; STAI X1 and X2, State-Trait Anxiety Inventory Scale Form; TLFB, timeline follow-back; URICA, University of Rhode Island Change Assessment.

Appendix 5 Critical appraisal of included systematic reviews

TABLE 32 Critical appraisal of included systematic reviews

First author, year	1. Is the review question clearly and explicitly stated?	2. Were the inclusion criteria appropriate for the review question?	3. Was the search strategy appropriate?	4. Were the sources and resources used to search for studies adequate?	5. Were the criteria for appraising studies appropriate?	6. Was critical appraisal conducted by two or more reviewers independently?	7. Were there methods to minimise errors in data extraction?	8. Were the methods used to combine studies appropriate?	9. Was the likelihood of publication bias assessed?	10. Were recommendations for policy and/or practice supported by the reported data?	11. Were the specific directives for new research appropriate?
Amato, 2011 ⁴⁸	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baker, 2012 ⁵⁴	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	No	Yes	Yes
Boniface, 2018 ⁵⁵	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cavicchioli, 2018 ⁵⁶	Yes	Yes	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	Yes	Yes
Chetty, 2023 ⁵⁷	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	No	Yes	Yes
Cuijpers, 2023 ⁴⁹	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Yes
Dugdale, 2019 ⁴⁷	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	No	Yes	Yes
Ghetti, 2022 ⁵⁸	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gibbon, 2020 ⁷¹	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Glover-Wright, 2023 ⁵⁹	Yes	Yes	Yes	Yes	Yes	Unclear	Unclear	Yes	No	Yes	Yes
Grant, 2021 ⁵⁰	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hassan, 2017 ⁵¹	Yes	Yes	Unclear	Yes	Yes	Yes	Yes	NA	Unclear	Yes	Yes
Henderson, 2020 ⁶²	Yes	Yes	Yes	Yes	Yes	Unclear	Unclear	Yes	No	Yes	Yes
Hesse, 2009 ⁴³	Yes	Yes	Yes	Yes	NA	NA	No	Yes	No	Yes	Yes
Hides, 2019 ⁵²	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hien, 2023a ⁶³	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Yes
Hien, 2023b ⁶⁴	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes

continued

TABLE 32 Critical appraisal of included systematic reviews (continued)

First author, year	1. Is the review question clearly and explicitly stated?	2. Were the inclusion criteria appropriate for the review question?	3. Was the search strategy appropriate?	4. Were the sources and resources used to search for studies adequate?	5. Were the criteria for appraising studies appropriate?	6. Was critical appraisal conducted by two or more reviewers independently?	7. Were there methods to minimise errors in data extraction?	8. Were the methods used to combine studies appropriate?	9. Was the likelihood of publication bias assessed?	10. Were recommendations for policy and/or practice supported by the reported data?	11. Were the specific directives for new research appropriate?
Hill, 2024 ⁶⁵	Yes	Yes	Yes	Yes	NA	NA	Unclear	Yes	No	Yes	Yes
Karapereddy, 2019 ⁶⁰	Yes	Yes	Yes	Yes	NA	NA	Unclear	Yes	Yes	Yes	Yes
Lee, 2015 ³⁹	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	No	Yes	Yes
Logsdon, 2023 ⁶⁶	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mehta, 2021 ⁴⁵	Yes	Yes	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Yes	Yes
Molina, 2022 ⁶⁷	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	No	Yes	Yes
O'Donnell, 2022 ⁴¹	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Perry, 2019 ⁶¹	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Riper, 2014 ⁵³	Yes	Yes	Unclear	Yes	Yes	Yes	Unclear	Yes	Yes	Yes	Yes
Roberts, 2022 ⁶⁸	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Schouten, 2022 ⁴²	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Sherman, 2023 ⁶⁹	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Simpson, 2021 ⁷⁰	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

NA, not applicable.

Appendix 6 Critical appraisal of the primary randomised controlled trials within systematic reviews

TABLE 33 Critical appraisal of the primary RCTs within systematic reviews

First author, year	Number of RCTs relevant to our project	Appraisal instrument used	Appraisal rating
Amato, 2011 ⁴⁸	3	Cochrane RoB1 ⁸³	Low or unclear, except for high risk of bias for randomisation and allocation concealment in one trial
Baker, 2012 ⁵⁴	8	PEDro Scale quality rating ⁹⁰	Score ranges 5–8/9 (higher scores, better quality)
Boniface, 2018 ⁵⁵	11	Cochrane RoB1 ⁸³	Three low risk, two high risk, rest unclear risk of bias
Cavicchioli, 2018 ⁵⁶	8	Cochrane RoB1 ⁸³	73.71% low risk, the rest unclear or high risk of bias
Chetty, 2023 ⁵⁷	9	CASP checklist ⁸⁹	Moderate to high quality
Cuijpers, 2023 ⁴⁹	8	Cochrane RoB1 ⁸³	Four scored low risk of bias but had self-reported outcomes, four high risk for sequence generation, allocation concealment, blind assessor
Dugdale, 2019 ⁴⁷	19	Quality assessment tool for quantitative studies ³⁸⁴	Mostly high risk of bias, some moderate
Ghetti, 2022 ⁵⁸	2	Cochrane RoB1 ⁸³	Unclear or low risk of bias
Gibbon, 2020 ⁷¹	9	Cochrane RoB1 ⁸³	Unclear risk of bias except one study high risk for attrition bias and one study high risk for outcome assessor not blinded
Glover-Wright, 2023 ⁵⁹	4	MASTER scale ⁸⁸	Proportion of bias safeguards present in the included studies ranged from 60% to 80% – which are considered as low risk of bias, high quality
Grant, 2021 ⁵⁰	9	Cochrane RoB1 ⁸³	High to moderate risk of bias
Hassan, 2017 ⁵¹	4	Cochrane RoB1 ⁸³	RoB Outcomes NR
Henderson, 2020 ⁶²	6	Quality Assessment Framework ⁸⁷	One RCT moderate, rest considered high standard
Hesse, 2009 ⁴³	10	NR	NA
Hides, 2019 ⁵²	6	Cochrane RoB1 ⁸³	High risk of bias
Hien, 2023a ⁶³	27	Cochrane RoB2 ⁸⁴	Six RCT at high risk of bias or unpublished, the rest low to moderate risk of bias
Hien, 2023b ⁶⁴	24	Cochrane RoB2 ⁸⁴	60% RCTs low risk of bias, rest with some concerns
Hill, 2024 ⁶⁵	4	NR	NA
Karaperreddy, 2019 ⁶⁰	4	NR	NA
Lee, 2015 ³⁹	10	Adapted quality checklists NICE and Petticrew and Roberts ^{85,86}	Good quality
Logsdon, 2023 ⁶⁶	3	Cochrane RoB2 ⁸⁴	Two studies some risk of bias and one study high risk
Mehta, 2021 ⁴⁵	12	Cochrane RoB1 ⁸³	Moderate to high risk of bias
Molina, 2022 ⁶⁷	8	Cochrane RoB1 ⁸³	Moderate to high risk of bias, with high variability across studies
O'Donnell, 2022 ⁴¹	5	Cochrane RoB2 ⁸⁴	Some concerns

continued

TABLE 33 Critical appraisal of the primary RCTs within systematic reviews (*continued*)

First author, year	Number of RCTs relevant to our project	Appraisal instrument used	Appraisal rating
Perry, 2019 ⁶¹	7	Cochrane RoB1 ⁸³	Unclear risk of bias, except high risk of bias for selective reporting in one study and attrition in one study.
Riper, 2014 ⁵³	9	Cochrane RoB1 ⁸³	Low to moderate risk of bias
Roberts, 2022 ⁶⁸	26	Cochrane RoB1 ⁸³ and GRADE	Two studies with low risk of bias, five studies with one or more domains with unclear risk of bias and 19 studies with one or more domains with high risk of bias.
Schouten, 2022 ⁴²	6	Cochrane RoB2, ⁸⁴ GRADE	High risk of bias
Sherman, 2023 ⁶⁹	7	Cochrane RoB2 ⁸⁴	Low risk of bias
Simpson, 2021 ⁷⁰	25	Cochrane RoB1 ⁸³	Varied from low to unclear to high risk of bias
NA, not applicable; NR, not reported; RoB, risk of bias.			

Appendix 7 Literature search strategies for the cost-effectiveness review

TABLE 34 Sources searched in the cost-effectiveness review

Database	Dates covered	Review
Epub Ahead of Print, In-Process & Other Non-Indexed Citations, MEDLINE(R) Daily and MEDLINE(R)	1946–present	428
EMBASE	1974 –present	569
EconLit	1886 –present	5
Health Technology Assessment Database	1995–2018	92
Database of Abstracts of Reviews of Effect	1995–2015	45
Total retrieved	–	1139
Unique	–	948

13 May 2024

428 records

TABLE 35 Cost review – Ovid MEDLINE® ALL 1946–10 May 2024

#	Searches	Results
1	((comorbid* or “co morbid*” or coexist* or “co exist*” or concur* or cooccur* or “co occur*”) adj2 mental* adj2 (condition* or disease* or disorder* or disturbanc* or ill*)).tw.	2329
2	dual diagnosis.mp.	2022
3	1 or 2	4254
4	Comorbidity/ and Mental Health/	1142
5	Mood Disorders/ or Depression/	172,533
6	((depressi* or affective) adj symptom*).tw.	86,765
7	((depressi* or mood or affective or cognitiv* or adjustment) adj3 disorder*).tw.	122,297
8	dysthymi*.tw.	3336
9	exp Anxiety Disorders/	94,014
10	(anxi* or gad).tw.	305,301
11	exp Obsessive-Compulsive Disorder/	17,993
12	(obsess* or compulsi* or ocd).tw.	35,018
13	(panic* or agoraphobi*).tw.	25,324
14	Stress Disorders, Post-Traumatic/	43,033
15	((posttrauma* or post-trauma* or post trauma*) adj3 (stress* or disorder* or psych* or symptom*)).tw.	48,409
16	(ptsd or stress disorder* or combat disorder*).tw.	47,462
		continued

TABLE 35 Cost review – Ovid MEDLINE® ALL 1946–10 May 2024 (continued)

#	Searches	Results
17	Borderline Personality Disorder/	8277
18	((borderline or border-line or "border line" or unstab* or instab*) adj3 (state* or personalit*)),tw.	11,510
19	(eupd or bpd).tw.	13,073
20	((emotion* or affect*) adj3 (dysregulat* or function* or label* or modul* or reactive* or regulat*)),tw.	117,029
21	Body Dysmorphic Disorders/	1307
22	(body adj3 dysmorphi*).tw.	1593
23	exp Phobic Disorders/	14,437
24	phobi*.tw.	13,008
25	Antisocial Personality Disorder/	10,587
26	((anti-social or "anti social" or antisocial) adj3 (disorder* or syndrome*)),tw.	2732
27	aspd.tw.	607
28	or/4-27	768,661
29	((substance* or drug* or narcotic* or alcohol*) adj2 (use* or using or addict* or consum* or depend* or disorder* or habit* or misuse* or misusing or withdraw*)),tw.	382,018
30	(amphetamine* or benzodiazepine* or alcohol* or cannabis or cocaine* or crack or heroin or ketamine or marijuana or mdma or methadone or methamphetamine* or opiate* or opioid* or opium or phencyclidine).tw,kf.	720,108
31	(stimulant* or psychostimulant* or sedative* or "psychoactive substance*" or nps).tw.	123,002
32	29 or 30 or 31	1,009,767
33	28 and 32	74,901
34	3 or 33	78,323
35	exp Adult/	8,061,416
36	(teen* or youth* or adolescen* or juvenile* or youngster* or first-grader* or second-grader* or third-grader* or fourth-grader* or fifth-grader* or sixth-grader* or seventh-grader* or highschool* or ((secondary or high*) adj2 (school* or education))).tw. or Adolescent/	2,487,579
37	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric*).tw. or exp Child/ or exp Infant/	3,855,441
38	36 or 37	4,839,144
39	38 not (38 and 35)	2,862,081
40	34 not 39	69,608
41	((colocat* or co-locat* or digital* or technology* or integrated or "non-integrated model*" or psychological or psychosocial or "peer support*" or "peer support*" or "exercise based" or exercise-based or "group intervention" or "trauma focused") adj5 (care or service* or intervention*)) or "music therap*").ti,ab,kw.	102,400
42	("12-step facilitation" or "12-step facilitation" or "twelve step facilitation" or "alcoholics anonymous" or "acceptance and commitment therap*" or "behavioral activation" or "behavioral therap*" or "behavioral skills training" or "client-centred therap*" or "cognitive intervention*" or "community based intervention*" or "computer based intervention*" or cbt or "web based intervention*" or "dialectical behaviour therap*" or "dynamic deconstructive psychotherap*" or "dual-focused schema" or "integrated non-somatic" or "interpersonal therap*" or "interpersonal psychotherap*" or "manual-guided intervention*" or "mindfulness-based intervention*" or "motivational interview*" or present focused intervention*" or "prolonged exposure" or psychoeducation or "relapse prevention" or "seeking safety" or "supportive psychotherap*" or "brief supportive therap*" or "text messag*" or "art therap*" or "behaviour therap*" or "brief counselling session" or "case management" or "contingency management" or "coping skills training" or "ecognitive behavioural therap*" or "eye movement desensitization therap*" or "helping women recover" or "beyond trauma" or "personalised feedback" or qigong or "relaxation training" or "relational psychotherap*" or "social work practice" or "substance free activity" or "tai chi" or "protocol for transdiagnostic treatment" or "therapeutic community" or "challenge to change" or "trauma affect regulation" or yoga).mp.	129,552

TABLE 35 Cost review – Ovid MEDLINE® ALL 1946–10 May 2024 (*continued*)

#	Searches	Results
43	41 or 42	221,627
44	Economics/	27,533
45	"costs and cost analysis"/	51,959
46	Cost-benefit analysis/	94,605
47	Cost control/	21,685
48	Cost savings/	12,812
49	Cost of illness/	32,294
50	Cost sharing/	2783
51	"deductibles and coinsurance"/	1876
52	Medical savings accounts/	549
53	Health care costs/	44,936
54	Direct service costs/	1217
55	Drug costs/	17,603
56	Employer health costs/	1098
57	Hospital costs/	12,047
58	Health expenditures/	24,707
59	Capital expenditures/	2003
60	Value of life/	5826
61	exp economics, hospital/	25,836
62	exp economics, medical/	14,433
63	Economics, nursing/	4013
64	Economics, pharmaceutical/	3132
65	exp "fees and charges"/	31,442
66	exp budgets/	14,209
67	(low adj cost).mp.	94,903
68	(high adj cost).mp.	21,353
69	(health?care adj cost\$).mp.	18,220
70	(fiscal or funding or financial or finance).tw.	214,330
71	(cost adj estimate\$).mp.	2855
72	(cost adj variable).mp.	54
73	(unit adj cost\$).mp.	3248
74	(cost* or economic* or pharmacoeconomic* or price* or pricing).tw.	1,158,484
75	or/44-74	1,460,797
76	40 and 43 and 75	440
77	limit 76 to english language	428

13 may 2024

569 records

TABLE 36 Cost review – EMBASE 1974–2024 week 19

#	Searches	Results
1	((comorbid* or "co morbid*" or coexist* or "co exist*" or concur* or cooccur* or "co occur*") adj2 mental* adj2 (condition* or disease* or disorder* or disturbanc* or ill*)).tw.	3272
2	dual diagnosis.mp.	4515
3	1 or 2	7633
4	comorbidity/ and exp mental health/	10,985
5	exp mood disorder/ or depression/	704,941
6	((depressi* or affective) adj symptom*).tw.	112,479
7	((depressi* or mood or affective or cognitiv* or adjustment) adj3 disorder*).tw.	174,377
8	dysthymi*.tw.	4381
9	exp anxiety disorder/	336,033
10	(anxi* or gad).tw.	430,864
11	obsessive compulsive disorder/ or exp obsession/	40,750
12	(obsess* or compulsi* or ocd).tw.	49,840
13	(panic* or agoraphobi*).tw.	31,885
14	posttraumatic stress disorder/	84,260
15	((posttrauma* or post-trauma* or post trauma*) adj3 (stress* or disorder* or psych* or symptom*)).tw.	58,864
16	(ptsd or stress disorder* or combat disorder*).tw.	60,673
17	borderline state/	16,586
18	((borderline or border-line or "border line" or unstab* or instab*) adj3 (state* or personalit*)).tw.	14,291
19	(eupd or bpd).tw.	18,521
20	((emotion* or affect*) adj3 (dysregulat* or function* or label* or modulat* or reactive* or regulat*)).tw.	155,921
21	body dysmorphic disorder/	3969
22	(body adj3 dysmorphi*).tw.	2114
23	exp phobia/	39,056
24	phobi*.tw.	17,448
25	antisocial personality disorder/	3744
26	((anti-social or "anti social" or antisocial) adj3 (disorder* or syndrome*)).tw.	3561
27	aspd.tw.	791
28	or/4-27	1,342,652
29	((substance* or drug* or narcotic* or alcohol*) adj2 (use* or using or addict* or consum* or depend* or disorder* or habit* or misuse* or misusing or withdraw*)).tw.	536,375
30	(amphetamine* or benzodiazepine* or alcohol* or cannabis or cocain* or crack or heroin or ketamine or marijuana or mdma or methadone or methamphetamine* or opiate* or opioid* or opium or phencyclidine).tw,kf.	962,768
31	(stimulant* or psychostimulant* or sedative* or "psychoactive substance*" or nps).tw.	147,382

TABLE 36 Cost review – EMBASE 1974–2024 week 19 (continued)

#	Searches	Results
32	29 or 30 or 31	1,340,950
33	28 and 32	138,481
34	3 or 33	144,270
35	exp adult/	11,216,303
36	(teen* or youth* or adolescen* or juvenile* or youngster* or first-grader* or second-grader* or third-grader* or fourth-grader* or fifth-grader* or sixth-grader* or seventh-grader* or highschool* or ((secondary or high*) adj2 (school* or education))).tw. or adolescent/	2,154,439
37	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric*).tw. or exp child/ or exp infant/	4,459,789
38	36 or 37	5,085,881
39	38 not (38 and 35)	3,279,030
40	34 not 39	129,882
41	((colocat* or co-locat* or digital* or technology* or integrated or "non-integrated model*" or psychological or psychosocial or "peer support*" or "peer support*" or "exercise based" or exercise-based or "group intervention" or "trauma focused") adj5 (care or service* or intervention*)) or "music therap*").ti,ab,kw.	137,367
42	("12-step facilitation" or "12-step facilitation" or "twelve step facilitation" or "alcoholics anonymous" or "acceptance and commitment therap*" or "behavio?ral activation" or "behavio?ral therap*" or "behavio?ral skills training" or "client-centred therap*" or "cognitive intervention*" or "community based intervention*" or "computer based intervention*" or cbt or "web based intervention*" or "dialectical behaviour therap*" or "dynamic deconstructive psychotherap*" or "dual-focused schema" or "integrated non-somatic" or "interpersonal therap*" or "interpersonal psychotherap*" or "manual-guided intervention*" or "mindfulness-based intervention*" or "motivational interview*" or present focused intervention*" or "prolonged exposure" or psychoeducation or "relapse prevention" or "seeking safety" or "supportive psychotherap*" or "brief supportive therap*" or "text messag*" or "art therap*" or "behaviour therap*" or "brief counselling session" or "case management" or "contingency management" or "coping skills training" or "ecognitive behavioural therap*" or "eye movement desensitization therap*" or "helping women recover" or "beyond trauma" or "personalised feedback" or qigong or "relaxation training" or "relational psychotherap*" or "social work practice" or "substance free activity" or "tai chi" or "protocol for transdiagnostic treatment" or "therapeutic community" or "challenge to change" or "trauma affect regulation" or yoga).mp.	186,336
43	41 or 42	308,784
44	Socioeconomics/	166,841
45	Cost benefit analysis/	96,850
46	Cost effectiveness analysis/	190,034
47	Cost of illness/	21,663
48	Cost control/	78,140
49	Economic aspect/	127,677
50	Financial management/	123,616
51	Health care cost/	234,741
52	Health care financing/	14,102
53	Health economics/	36,481
54	Hospital cost/	26,216
55	(fiscal or financial or finance or funding).tw.	321,141
56	Cost minimization analysis/	4112
		continued

TABLE 36 Cost review – EMBASE 1974–2024 week 19 (*continued*)

#	Searches	Results
57	(cost adj estimate\$).mp.	4325
58	(cost adj variable\$).mp.	336
59	(unit adj cost\$).mp.	5707
60	or/44-59	1,176,910
61	40 and 43 and 60	584
62	limit 61 to english language	569

13 May 2024

Five records

TABLE 37 Cost review – EconLit 1886–2 May 2024

#	Searches	Results
1	((comorbid* or "co morbid*" or coexist* or "co exist*" or concur* or cooccur* or "co occur*") adj2 mental* adj2 (condition* or disease* or disorder* or disturbanc* or ill*)).tw.	4
2	dual diagnosis.mp.	3
3	1 or 2	7
4	((depressi* or affective) adj symptom*).tw.	204
5	((depressi* or mood or affective or cognitiv* or adjustment) adj3 disorder*).tw.	168
6	dysthymi*.tw.	2
7	(anxi* or gad).tw.	1587
8	(obsess* or compulsi* or ocd).tw.	564
9	(panic* or agoraphobi*).tw.	1424
10	((posttrauma* or post-trauma* or post trauma*) adj3 (stress* or disorder* or psych* or symptom*)).tw.	59
11	(ptsd or stress disorder* or combat disorder*).tw.	51
12	((borderline or border-line or "border line" or unstab* or instab*) adj3 (state* or personalit*)).tw.	155
13	(eupd or bpd).tw.	16
14	((emotion* or affect*) adj3 (dysregulat* or function* or label* or modulat* or reactive* or regulat*)).tw.	1955
15	(body adj3 dysmorphi*).tw.	1
16	phobi*.tw.	50
17	((anti-social or "anti social" or antisocial) adj3 (disorder* or syndrome*)).tw.	2
18	aspd.tw.	0
19	or/4-18	6054
20	((substance* or drug* or narcotic* or alcohol*) adj2 (use* or using or addict* or consum* or depend* or disorder* or habit* or misuse* or misusing or withdraw*)).tw.	2516
21	(amphetamine* or benzodiazepine* or alcohol* or cannabis or cocaine* or crack or heroin or ketamine or marijuana or mdma or methadone or methamphetamine* or opiate* or opioid* or opium or phencyclidine).tw.	3905
22	(stimulant* or psychostimulant* or sedative* or "psychoactive substance*" or nps).tw.	229

TABLE 37 Cost review – EconLit 1886–2 May 2024 (continued)

#	Searches	Results
23	20 or 21 or 22	5165
24	19 and 23	91
25	3 or 24	98
26	((colocat* or co-locat* or digital* or technology* or integrated or "non-integrated model*" or psychological or psychosocial or "peer support*" or "peer support*" or "exercise based" or exercise-based or "group intervention" or "trauma focused") adj5 (care or service* or intervention*)) or "music therap*").ti,ab,kw.	3278
27	("12-step facilitation" or "12-step facilitation" or "twelve step facilitation" or "alcoholics anonymous" or "acceptance and commitment therap*" or "behavio?ral activation" or "behavio?ral therap*" or "behavio?ral skills training" or "client-centred therap*" or "cognitive intervention*" or "community based intervention*" or "computer based intervention*" or cbt or "web based intervention*" or "dialectical behaviour therap*" or "dynamic deconstructive psychotherap*" or "dual-focused schema" or "integrated non-somatic" or "interpersonal therap*" or "interpersonal psychotherap*" or "manual-guided intervention*" or "mindfulness-based intervention*" or "motivational interview*" or present focused intervention*" or "prolonged exposure" or psychoeducation or "relapse prevention" or "seeking safety" or "supportive psychotherap*" or "brief supportive therap*" or "text messag*" or "art therap*" or "behaviour therap*" or "brief counselling session" or "case management" or "contingency management" or "coping skills training" or "ecognitive behavioural therap*" or "eye movement desensitization therap*" or "helping women recover" or "beyond trauma" or "personalised feedback" or qigong or "relaxation training" or "relational psychotherap*" or "social work practice" or "substance free activity" or "tai chi" or "protocol for transdiagnostic treatment" or "therapeutic community" or "challenge to change" or "trauma affect regulation" or yoga).mp.	630
28	26 or 27	3881
29	25 and 28	5

13 May 2024

92 NHSEED and 46 HTA

TABLE 38 Cost review – Cochrane Database of Systematic Reviews (Cochrane Library)

#	Searches	Results
1	((comorbid* OR co morbid* OR coexist* OR co exist* OR concur* OR cooccur* OR co occur*) NEAR2 mental* NEAR2 (condition* OR disease* OR disorder* OR disturbanc* OR ill*)))	13
2	((dual diagnosis))	11
3	#1 OR #2	23
4	((depressi* OR affective) NEAR1 symptom*))	397
5	((depressi* OR mood OR affective OR cognitiv* OR adjustment) NEAR3 disorder*))	1450
6	((depressi* OR mood OR affective OR cognitiv* OR adjustment) NEAR3 disorder*))	1450
7	((dysthymi*))	85
8	((anxi* OR gad))	1792
9	((obsess* OR compulsi* OR ocd))	143
10	((panic* OR agoraphobi*))	149
11	((posttrauma* OR post-trauma* OR post trauma*) NEAR3 (stress* OR disorder* OR psych* OR symptom*))	217
12	((ptsd OR stress disorder* OR combat disorder*))	252
13	((borderline OR border-line OR border line OR unstab* OR instab*) NEAR3 (state* OR personalit*))	70
14	((eupd OR bpd))	53

continued

TABLE 38 Cost review – Cochrane Database of Systematic Reviews (Cochrane Library) (*continued*)

#	Searches	Results
15	((((emotion* OR affect*) NEAR3 (dysregulat* OR function* OR label* OR modulat* OR reactive* OR regulat*))))	136
16	((body NEAR3 dysmorphi*))	6
17	((phobi*))	131
18	((((anti-social OR anti social OR antisocial) NEAR3 (disorder* OR syndrome*))))	18
19	((aspd))	3
20	#4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19	3434
21	(((((substance* OR drug* OR narcotic* OR alcohol*) NEAR2 (use* OR using OR addict* OR consum* OR depend* OR disorder* OR habit* OR misuse* OR misusing OR withdraw*))))	2493
22	((amphetamine* OR benzodiazepine* OR alcohol* OR cannabis OR cocaine* OR crack OR heroin OR ketamine OR marijuana OR mdma OR methadone OR methamphetamine* OR opiate* OR opioid* OR opium OR phencyclidine))	2537
23	#21 OR #22	4110
24	#20 AND #23	469
25	#3 OR #24	489
26	(#25) IN NHSEED	92
27	(#25) IN HTA	46

Appendix 8 Studies not meeting eligibility criteria for review of cost-effectiveness

TABLE 39 Studies not meeting eligibility criteria for review of cost-effectiveness

Citations		Excluded on which criteria
Lu TT, Parent SC, Chaytor N, Amiri S, Palmer K, McPherson S, <i>et al.</i> Budget impact tool for implementing contingency management for co-occurring alcohol use disorders and serious mental illness. <i>Psychiatr Serv</i> 2024; 75 :326–32.	385	Population
Clark RE, Teague GB, Ricketts SK, Bush PW, Xie H, McGuire TG, <i>et al.</i> Cost-effectiveness of assertive community treatment versus standard case management for persons with co-occurring severe mental illness and substance use disorders. <i>Health Services Res</i> 1998; 33 :1285–308.	386	Population
Judd PH, Thomas N, Schwartz T, Outcalt A, Hough R. A dual diagnosis demonstration project: treatment outcomes and cost analysis. <i>J Psychoactive Drugs</i> 2003; 35 :181–92.	387	Population
Stapinski LA, Prior K, Newton NC, Biswas RK, Kelly E, Deady M, <i>et al.</i> Are we making Inroads? A randomized controlled trial of a psychologist-supported, web-based, cognitive behavioral therapy intervention to reduce anxiety and hazardous alcohol use among emerging adults. <i>eClinicalMedicine</i> 2021; 39 :101048.	388	Outcomes
Lowe AL, Abou-Saleh MT. The British experience of dual diagnosis in the national health service. <i>Acta Neuropsychiatr</i> 2004; 16 :41–6.	389	Outcomes
Abrantes AM, Blevins CE, Battle CL, Read JP, Gordon AL, Stein MD. Developing a Fitbit-supported lifestyle physical activity intervention for depressed alcohol dependent women. <i>J Subst Abuse Treat</i> 2017; 80 :88–97.	390	Outcomes
Timko C, Chen S, Sempel J, Barnett P. Dual diagnosis patients in community or hospital care: one-year outcomes and health care utilization and costs. <i>J Ment Health</i> 2006; 15 :163–77.	391	Outcomes
Gregory RJ, DeLucia-Deranja E, Mogle JA. Dynamic deconstructive psychotherapy versus optimized community care for borderline personality disorder co-occurring with alcohol use disorders: a 30-month follow-up. <i>J Nerv Ment Dis</i> 2010; 198 :292–8.	392	Outcomes
Glover-Wright C, Coupe K, Campbell AC, Keen C, Lawrence P, Kinner SA, <i>et al.</i> Health outcomes and service use patterns associated with co-located outpatient mental health care and alcohol and other drug specialist treatment: a systematic review. <i>Drug Alcohol Rev</i> 2023; 42 :1195–219.	59	Outcomes
Rucci P, Tedesco D, Senese F, Travaglini C, Messina R, Quargnolo M, <i>et al.</i> Healthcare resource utilization and direct medical costs in patients with dual diagnosis in Italy. <i>J Psychopathol</i> 2019; 25 :29–38.	393	Outcomes
Domino M, Maxwell J, Cody M, Cheal K, Busch A, Stone WV, <i>et al.</i> The influence of integration on the expenditures and costs of mental health and substance use care: results from the randomized PRISM-E study. <i>Ageing Int</i> 2008; 32 :108–27.	394	Outcomes
Isaacs S, Jellinek P, Garcel JM, Hunt KA, Bunch W. New york state health foundation: integrating mental health and substance abuse care. <i>Health Aff (Millwood)</i> 2013; 32 :1846–50.	395	Outcomes
Luciano MT, McDevitt-Murphy ME, Murphy JG, Zakarian RJ, Olin CC. Open trial of a personalized feedback intervention and substance-free activity supplement for veterans with PTSD and hazardous drinking. <i>J Behav Cogn Ther</i> 2022; 32 :136–44.	396	Outcomes
Domino ME, Morrissey JP, Chung S, Huntington N, Larson MJ, Russell LA. Service use and costs for women with co-occurring mental and substance use disorders and a history of violence. <i>Psychiatr Serv</i> 2005; 56 :1223–32.	95	Outcomes
Worley MJ, Trim RS, Tate SR, Hall JE, Brown SA. Service utilization during and after outpatient treatment for comorbid substance use disorder and depression. <i>J Subst Abuse Treat</i> 2010; 39 :124–31.	397	Outcomes
Sugarman DE, Campbell ANC, Iles BR, Greenfield SF. Technology-based interventions for substance use and comorbid disorders: an examination of the emerging literature. <i>Harv Rev Psychiatry</i> 2017; 25 :123–34.	46	Outcomes
Tiet QQ, Mausbach B. Treatments for patients with dual diagnosis: a review. <i>Alcohol Clin Exp Res</i> 2007; 31 :513–36.	398	Outcomes
Goldwater J. HTA2 the cost effectiveness of telehealth and in-person care versus in-person care for adults with co-occurring mental health and substance use disorders. <i>Value Health</i> 2023; 26 :S259.	399	Conference proceeding

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