Received: 05/16/2025 **Accepted:** 09/18/2025

Open Access

https://doi.org/10.30473/ijohp.2026.75873.1425

Vol.8, No.4, Serial Number 26, pp.93-110, Autumn 2025

Iranian Journal of Health Psychology

Research Article

What Makes Psychosocial Rehabilitation Work? A Review of Reviews

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How to Cite

Asgari, Z. and Doostian, Y. (2025). What Makes Psychosocial Rehabilitation Work? A Review of Reviews. Iranian Journal of Health Psychology, 8(4),93-110. doi:10.30473/ijohp.2026.75873.1425

Abstract

Objective: This overview aims to synthesize evidence from systematic reviews on the characteristics of effective PSR interventions for individuals with SUDs across all recovery stages.

Method: The protocol is registered in PROSPERO (CRD420251149640). We will conduct systematic searches in PubMed, Web of Science, CINAHL, PsycINFO, EBSCOhost, Embase, Cochrane Library, and Scopus for peer-reviewed systematic reviews, meta-analyses, and scoping reviews published in English between 2015 and 2025. The search strategy, developed in adherence to PRESS guidelines, will combine keywords and MeSH terms for SUDs and PSR. Study selection will follow PRISMA guidelines, with screening and deduplication performed in Covidence and EndNote. Primary study overlap will be assessed using citation matrices and the corrected covered area (CCA) method. The methodological quality of the included systematic reviews will be evaluated using AMSTAR-2. The certainty of the scoping evidence will be assessed using PRISMA-ScR.

Results: The primary outcome will be the identification of key characteristics (e.g., components, delivery formats, and contextual factors) of effective PSR interventions.

Conclusion: This overview will identify and synthesize key effective practices, including specific intervention components (e.g., social skills training, psychological support, contingency management, vocational elements) and delivery formats (e.g., in-person, telehealth, integrated care models). This comprehensive framework will directly inform practitioners designing evidence-based PSR programs and guide policymakers allocating funds toward the most effective models. It will also highlight critical evidence gaps and propose future research directions, ultimately aiming to improve psychosocial outcomes and support long-term recovery for individuals with SUDs.

Keywords: Psychosocial Rehabilitation, Intervention, Substance Use, Overview, Health.

https://ijohp.journals.pnu.ac.ir/?lang=fa

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Extended Abstract

Background and Objectives

Substance Use Disorders (SUDs) represent a significant global public health challenge, characterized as chronic and relapsing conditions that profoundly impair an individual's cognitive, behavioral, and physiological functioning. The detrimental impact of SUDs extends far beyond the mere consumption of substances, severely disrupting a person's ability to function in critical life domains such as social relationships, occupational pursuits, independent living, and overall community integration. Often, this functional disability persists even after periods of abstinence, creating a debilitating cycle that hinders sustained, long-term recovery. Psychosocial Rehabilitation (PSR) has emerged as a cornerstone of modern SUD treatment, specifically designed to address this critical gap.

A robust body of evidence links PSR to crucial outcomes, including reduced substance use, lower relapse rates, improved treatment retention, and enhanced overall quality of life. Consequently, there has been a proliferation of primary studies and, importantly, systematic reviews evaluating various PSR models and their components. However, this growing body of high-level evidence has become increasingly fragmented. Therefore, the primary objective of this overview is to synthesize existing evidence from systematic reviews to identify the key characteristics encompassing core components, delivery mechanisms, and contextual factors of effective psychosocial rehabilitation interventions for individuals with substance use disorders.

Materials and Methods

This study is designed as an overview of systematic reviews. The protocol has been registered in the PROSPERO international prospective register of systematic reviews. The methodology for this overview will adhere to the PRIOR reporting guidelines to ensure comprehensive and transparent reporting. We will conduct systematic and exhaustive searches across major electronic databases, including PubMed, Web of Science, CINAHL, PsycINFO, EBSCOhost, Embase, the Cochrane Library, and Scopus. The search strategy will target peer-reviewed systematic reviews, meta-analyses, and scoping reviews published in the English language between January 2015 and October 2025.

The methodological quality of the included systematic reviews will be rigorously evaluated using the AMSTAR-2 tool, a critical appraisal instrument for systematic reviews. Scoping reviews will be assessed for reporting transparency using a checklist based on PRISMA-ScR guidelines. To manage the potential for overlapping primary studies across multiple reviews, we will calculate the degree of overlap using citation matrices and the Corrected Covered Area method. Data from eligible reviews will be extracted using a piloted, standardized data extraction form. Given the anticipated heterogeneity in interventions, populations, and outcomes, a narrative synthesis approach guided by a six-step reflective thematic analysis will be employed. This qualitative approach will allow for the identification and organization of key themes and patterns across the body of evidence.

Results

The results of this overview will be structured around the key characteristics of effective PSR interventions, organized into primary themes derived from the reflective thematic analysis. It is anticipated that these themes will comprehensively cover several critical dimensions. First, the analysis will identify core intervention components that are consistently associated with positive outcomes. These may include, but are not limited to, the integration of social skills training, contingency management strategies, recovery coaching, vocational support, and housing assistance. Second, the overview will synthesize evidence on effective delivery formats, comparing the relative strengths and applicability of in-person, telehealth, and hybrid models of care. Third, the findings will elucidate the critical contextual factors that

influence the success of PSR interventions. These factors are expected to include the degree of integration with broader substance use treatment services, the competencies and training of providers, the active involvement of peer support specialists, and strategies for addressing and mitigating community stigma. The results will highlight the most consistent evidence supporting specific PSR models while also synthesizing effective elements that are common across diverse interventions. The findings will be presented in narrative form, supplemented with summary tables to provide a clear and comprehensive framework of the evidence-based characteristics that define effective psychosocial rehabilitation.

Discussion

This overview protocol outlines a rigorous plan to synthesize high-level evidence on the characteristics of effective PSR for SUDs. The discussion will interpret the synthesized findings in the context of the current landscape of SUD treatment and recovery support. We will explore the implications of identifying core active ingredients and critical contextual factors, arguing that this knowledge can move the field toward more targeted, efficient, and person-centered rehabilitation programs. A key strength of this overview is its methodology, which is designed to provide a comprehensive, cross-cutting perspective that transcends the limitations of individual, narrowly-focused systematic reviews.

Conclusion

This overview will establish a comprehensive, evidence-based framework of the characteristics that define effective psychosocial rehabilitation practices for individuals with SUDs. By synthesizing evidence from systematic reviews, the findings have the potential to significantly inform evidence-based practice and policy. For practitioners, the framework will offer practical guidance on which PSR components and delivery models to prioritize when designing individualized treatment plans. For policymakers, it will provide a robust evidence base to support funding decisions and advocate for the integration of comprehensive PSR services within public health strategies for substance use disorders. Finally, by systematically mapping the evidence, this overview will identify critical gaps in the current literature, thereby directing future primary research and high-quality systematic reviews to investigate PSR for underrepresented populations, novel delivery formats, and to employ standardized outcome sets.

Introduction

Substance use disorders (SUDs) represent a significant and escalating global public health crisis, affecting millions worldwide and imposing a substantial burden of disease, disability, and mortality (World Health Organization, 2024). SUDs are chronic, relapsing conditions characterized by significant impairment in cognitive, behavioral, and physiological functioning (Husiny, 2024). The impact of SUDs extends far beyond substance consumption, profoundly disrupting an individual's ability to function in major life areas, including social relationships, occupational pursuits, independent living, and overall community integration (Theodorakis et al., 2024). This functional impairment often persists even after abstinence is achieved, creating a cycle of disability that hinders sustained recovery (Aliakbari Dehkordi et al., 2021; Volkow & Blanco, 2023).

Psychosocial rehabilitation (PSR) is a cornerstone of modern SUD treatment, designed to address this very gap. Defined as a process of facilitating an individual's restoration of personal, social, and vocational functioning, PSR moves beyond symptom reduction to focus on building skills, supports, and resources often termed "recovery capital" (Madatt, 2021; Molina Fernandez et al., 2022).

For the purpose of this overview, a PSR intervention is operationally defined as any structured, non-pharmacological strategy or program that aims to improve an individual's functional capacity and community

integration by developing skills, providing resources, and enhancing environmental supports. The core defining criterion is a primary focus on restoring or improving functioning in one or more major life domains (e.g., social, vocational, independent living), rather than solely focusing on symptom reduction or abstinence. This overview is guided by the Recovery Capital Framework (Cloud & Granfield, 2008). Recovery capital conceptualizes recovery from SUDs not as a single event (abstinence) but as a process of building the internal and external resources (capital) necessary to sustain a meaningful, substance-free life. Psychosocial Rehabilitation directly targets the enhancement of multiple dimensions of recovery capital:

- Social Capital: Interventions such as social skills training and peer support services aim to rebuild supportive social networks and prosocial relationships.
- Human Capital: Interventions like vocational training, supported education, and cognitive remediation build skills, knowledge, and self-efficacy.
- Physical Capital: Access to stable resources such as housing (e.g., Housing First models) and financial security through employment is a primary goal of many PSR programs.

This framework is complemented by social learning theory (Bandura, 1977), which provides the mechanism for how PSR interventions effect change. Through mechanisms such as modeling (e.g., by recovery peers), positive reinforcement (e.g., via contingency management), and skills practice in safe environments, individuals learn new, adaptive behaviors to replace substance-related ones. By integrating these theories, this overview will analyze PSR components not as isolated techniques but as coordinated strategies designed to build a person's overall recovery capital through socially mediated learning and resource provision. This conceptual lens will allow us to synthesize why certain characteristics, whether a core component, a delivery method, or a contextual factor, are fundamental to effective rehabilitation. Effective PSR encompasses a diverse range of interventions, including social skills training, supported employment and education, peer support, cognitive remediation, housing assistance, and life skills training (Amel et al., 2025; Shafiei, 2024). The ultimate goal is to empower individuals to lead meaningful, self-directed lives in communities of their choice.

The evidence supporting PSR is robust, linking it to critical outcomes such as reduced substance use, lower rates of relapse, improved treatment retention, and enhanced quality of life (Zhylin et al., 2024). By fostering a sense of purpose, rebuilding self-efficacy, and providing practical tools to navigate life's challenges, PSR addresses the root causes of functional disability associated with SUDs (Rushton et al., 2023).

Consequently, there has been a proliferation of primary studies and systematic reviews evaluating various PSR models and components. However, this growing body of high-level evidence is characterized by significant silos. Existing reviews tend to focus on isolated aspects of PSR- such as the efficacy of a single model like Individual Placement and Support (IPS) for employment, interventions for a specific substance (e.g., opioids), or particular demographic groups (Brinchmann, 2025; Whitworth et al., 2024). This siloed approach creates a critical knowledge gap: it prevents cross-model comparisons that could identify common active ingredients (e.g., social skills training, contingency management) shared by effective interventions across diverse contexts. Furthermore, existing syntheses often lack sufficient focus on the critical contextual and

cultural moderators (e.g., provider competencies, level of system integration, community stigma) that influence implementation success and effectiveness. Therefore, while we know that many PSR interventions *can* work, we lack a synthesized, cross-cutting understanding of *why* they work and what specific characteristics are universally associated with effectiveness across different contexts, populations, and intervention types.

There is a pressing need to consolidate this high-level evidence to identify the active ingredients and optimal configurations of PSR. Key questions remain unanswered: What are the active ingredients (e.g., social skills training, contingency management), operational forms (e.g., modality, intensity, provider), and contextual conditions (e.g., system integration, peer involvement) of effective psychosocial rehabilitation interventions for individuals with substance use disorders?

This protocol outlines a plan for an overview of systematic reviews that will synthesize this disparate evidence. By systematically identifying and appraising existing reviews, this overview aims to transcend the limitations of individual syntheses to provide a comprehensive, evidence-based framework of the characteristics that define effective psychosocial rehabilitation for persons with SUDs. The resulting framework will be invaluable for clinicians designing intervention programs, policymakers allocating resources, and researchers targeting future primary studies.

Objective

Primary Objective

This overview aims to synthesize evidence from systematic reviews to identify the active ingredients (core components), operational forms (delivery mechanisms), and contextual conditions (moderating factors) that characterize effective psychosocial rehabilitation interventions for individuals with substance use disorders.

Secondary Objectives

- To compare the effectiveness of different PSR delivery formats (e.g., in-person, telehealth, hybrid models).
- To identify the critical contextual factors (e.g., provider competencies, level of system integration, peer support involvement) that influence the success of PSR interventions.
- To highlight gaps in the current evidence base and propose specific directions for future primary research and systematic reviews.

Review question

> What are the key characteristics (e.g., core components, delivery mechanisms, contextual factors) of effective psychosocial rehabilitation interventions for individuals with substance use disorders?

Method

Study design

The protocol for this overview has been registered in PROSPERO (CRD420251149640) and will follow the PRIOR (Preferred Reporting Items for Overviews of Reviews) checklist (Gates et al., 2021). We selected an

overview of review methodology as it is the most appropriate approach to synthesize high-level evidence from existing systematic reviews, identify broad trends across a heterogeneous body of literature, and provide a comprehensive perspective for practitioners and policymakers. This approach allows for the efficient summarization of evidence while critically assessing the quality and potential biases of the constituent reviews (Gates et al., 2021).

Protocol Amendments and Documentation:

Any amendments made to this protocol after its publication will be systematically documented. This documentation will include the date of the amendment, a description of the change, and the rationale for the modification. All amendments will be updated in the PROSPERO registration record. Furthermore, the final published overview manuscript will include a section detailing any deviations from the original protocol, ensuring full transparency in the reporting process.

Search strategies

The search strategy was designed to be comprehensive and reproducible. We will conduct electronic searches in PubMed, Web of Science, CINAHL, PsycINFO, EBSCOhost, Embase, Cochrane Library, and Scopus. The search will target peer-reviewed systematic reviews, meta-analyses, and scoping reviews published in English between January 1, 2015, and December 31, 2024. The final search for all databases will be performed on the same day to ensure consistency, tentatively scheduled for December 31, 2025. The 2015-2025 timeframe was chosen to capture the most recent evidence and advancements in PSR interventions for SUDs, particularly the integration of telehealth and digital formats. The restriction to English-language studies is a recognized limitation. While this is a common constraint in systematic evidence synthesis due to pragmatic resource limitations (time and funding for translation), we acknowledge that it may introduce language bias and lead to the omission of relevant studies published in other languages. This limitation will be explicitly discussed in the dedicated 'Limitations' section of the full overview, and its potential impact on the generalizability of our findings will be considered. The search strategy adheres to the Peer Review of Electronic Search Strategies (PRESS) guidelines (McGowan et al., 2016) and will be peer-reviewed by an experienced medical librarian, on December 31, 2025. Boolean operators (AND, OR), truncation (e.g., addict, rehab), and MeSH terms will be used and adapted for each database.

Example PubMed Search String:

Substance-Related Disorders"[Mesh] OR "Substance Use Disorder" [tiab] OR "Drug Abuse" [tiab] OR") addict* [tiab] OR "drug dependence" [tiab]) AND ("Psychosocial Rehabilitation" [tiab] OR "Psychosocial Intervention" [tiab] OR "Social Rehabilitation" [tiab] OR "Recovery Support" [tiab] OR "Vocational Rehabilitation"[Mesh] OR "Rehabilitation, Vocational"[Mesh] OR "vocation* rehab*"[tiab] OR "supported employment"[tiab] OR "Independent Living" [tiab] OR "Social Skills Training" [tiab] OR "Community Reintegration" [tiab]) AND ("Systematic Review" [Publication Type] OR "Meta-Analysis" [Publication Type] OR "systematic review" [tiab] OR "meta-analysis" [tiab] OR "review literature as topic" [mesh] OR .(["narrative review"[tiab

Study screening

Identified references will be imported into Covidence software (Version. 2025) for title/abstract and full-text screening. The default deduplication settings within Covidence will be applied, which automatically remove exact duplicates based on title, author, and year. A manual check will then be performed to identify and remove any remaining near-duplicates. The project configuration in Covidence, including the custom-built data extraction template, screening forms, and reason for exclusion labels, will be archived upon project completion and made available upon reasonable request. EndNote V.21.5 will be used for deduplication. Titles and abstracts will be screened independently by two reviewers; full texts of potentially eligible studies will be retrieved for further assessment. Discrepancies will be resolved through discussion or by a third reviewer. If consensus cannot be reached between the two primary reviewers, the third reviewer will arbitrate. The arbitration process will involve the third reviewer independently examining the disputed item (title/abstract or full-text) along with the reasons for disagreement provided by the initial reviewers. The third reviewer's decision will then be final.

Selection process

Two independent reviewers will screen titles/abstracts and assess full-text eligibility using predefined criteria. A third reviewer will arbitrate unresolved disagreements. Inter-rater agreement will be measured using Cohen's kappa (κ) statistic at each screening stage: after title/abstract screening and again after full-text assessment. A kappa value of ≥ 0.7 will be considered indicative of substantial agreement. If the kappa value falls below this threshold at either stage, reviewers will discuss the discrepancies, refine the screening criteria if necessary, and re-calibrate their approach before proceeding.

Inclusion and Exclusion Criteria

Studies will be included if they:

(a) Evaluate one or more Psychosocial Rehabilitation (PSR) interventions. PSR interventions are defined as structured, non-pharmacological programs or strategies primarily aimed at improving psychosocial and functional outcomes.

In-Scope Interventions (Core Domains):

- Vocational/Educational: Supported Employment (e.g., Individual Placement and Support - IPS), supported education, job skills training.
- Social and Interpersonal: Social skills training, communication skills, interpersonal effectiveness training, family education and support.
- Independent Living and Community Reintegration: Housing assistance (e.g., Housing First models), life skills training (e.g., budgeting, cooking, transportation), community navigation support.
- Recovery and Identity: Recovery coaching, peer support services, contingency management targeting functional goals, strengths-based case management.

Settings: All delivery settings are included (e.g., inpatient, outpatient, community-based, residential).

Combined Interventions: Studies evaluating combined interventions (psychosocial + pharmacological) will

be included *only if* the psychosocial component can be clearly identified and evaluated separately, or if the review explicitly attributes outcomes to the psychosocial aspects.

Studies will be excluded if they:

- Focus exclusively on standalone pharmacological treatments (e.g., methadone maintenance without a structured psychosocial component).
- Evaluate interventions that target only substance use reduction/cessation (e.g., CBT solely for relapse prevention, motivational interviewing only for substance use) without measuring functional or psychosocial outcomes.
- Address co-occurring physical or intellectual disabilities where SUD is not the primary focus.
- Are primary studies, case reports, editorials, or non-systematic reviews.

Quality Evaluation

The methodological quality of included systematic reviews will be evaluated using AMSTAR-2 (Shea et al., 2017). The methodological quality and reporting transparency of included scoping reviews will be evaluated using a tailored checklist based on PRISMA-ScR guidelines (Montemayor & Connolly, 2023) to ensure transparency and rigor, though they will not be subject to AMSTAR-2 appraisal. Two reviewers will independently assess each review. Reviews rated as 'critically low' in confidence will be excluded from the primary synthesis but may be discussed in the context of limitations. The risk of bias/quality assessments of primary studies reported within the included reviews will be extracted and summarized.

Regarding the quality/risk of bias of the primary studies within the included reviews: We will extract and summarize the risk of bias (RoB) assessments as reported by the authors of the included systematic reviews. We will not re-appraise the RoB of the primary studies ourselves. The RoB tools used in the included reviews (e.g., Cochrane RoB tool, ROBINS-I) and their overall findings will be extracted and narratively synthesized. This approach allows us to characterize the quality of the underlying evidence base as interpreted by the original review authors, which is consistent with the methodology of an overview of reviews (Gates et al., 2022).

Certainty of the Evidence

For key findings derived from systematic reviews and meta-analyses, the certainty (or confidence) of the evidence will be assessed using the Grading of Recommendations, Assessment, Development, and Evaluations (GRADE; Guyatt et al., 2011) framework. Two reviewers will independently judge the certainty for each critical outcome (e.g., employment status, housing stability) across five domains: risk of bias, inconsistency, indirectness, imprecision, and publication bias. The certainty will be rated as high, moderate, low, or very low. Findings from scoping reviews will not be formally assessed using GRADE due to their different purpose and methodology, but their contributions to mapping the evidence landscape will be narratively described.

Assessment of Primary Study Overlap

To gauge the degree of repetition in the evidence base, the overlap of primary studies across the included reviews will be quantified using citation matrices and the corrected covered area (CCA) method (Kirvalidze et al., 2023). To manage this overlap during the narrative synthesis, we will adopt the following strategy: If multiple reviews report on the same primary study for a specific finding, we will prioritize the evidence from the review with the highest AMSTAR-2 rating. In cases of similar quality, the most recent or most comprehensive review will be cited. This approach ensures that the same primary study does not disproportionately influence the synthesized findings. The degree of overlap (CCA value) will be reported transparently and its potential impact on the conclusions will be discussed.

As an overview of reviews, we will assess and report on the following biases:

- Across Reviews: We will evaluate whether the included systematic reviews themselves assessed publication bias in their primary studies (e.g., using funnel plots or statistical tests).
  The methods and results of these assessments will be extracted and narratively summarized.
- At the Overview Level: We will not conduct a new publication bias assessment on the primary studies. However, we will critically discuss the potential for publication bias and selective reporting within the body of evidence as a limitation, especially if a majority of the included reviews note such concerns or if the overall evidence base appears skewed.

Data Management and Reproducibility

To ensure transparency and reproducibility, we will implement the following data management plan:

- All search strategies for each database will be saved and provided as supplementary material.
- The piloted data extraction form (Supplementary File 1) will be made available.
- The project configuration in Covidence, including screening decisions and reasons for exclusion, will be archived upon project completion and made available upon reasonable request.
- A PRISMA-P flow diagram will document the study selection process.
- The final dataset generated from the data extraction (e.g., an Excel spreadsheet) will be made available in a public repository (e.g., Figshare) upon publication of the overview.

Data extraction

Two reviewers will independently extract data using a piloted, electronic data extraction form. The extracted information will include: review characteristics (author, year, type, objectives, and number of included primary studies), participant characteristics (SUD type, recovery stage), intervention characteristics (type, components, duration, intensity, and delivery format), comparator, outcomes, main findings, author conclusions, and methodological quality (AMSTAR-2 rating). The finalized data extraction form is provided in Supplementary File 1.

Component Coding and Data Extraction Framework

To homogenize data extraction and synthesis, we will develop and use a standardized coding framework based on the Template for Intervention Description and Replication (TIDieR; Dijkers, 2021) checklist. The following components will be systematically extracted and coded from each included review:

- Intervention Characteristics: Core components (e.g., social skills training, vocational support), duration, frequency, intensity.
- Delivery Format: Modality (in-person, telehealth, hybrid), setting (inpatient, outpatient, etc.), individual/group delivery.
- Provider Details: Professional background, training required, peer involvement.
- Contextual Factors: Level of integration with healthcare systems, organizational support, community stigma strategies.
- Outcome Measures: Psychosocial outcomes (e.g., employment status, housing stability, social functioning).

Strategy for Data Analysis

Due to the broad and multifaceted nature of our review question, which seeks to explore a wide range of characteristics (components, delivery, and context) rather than aggregate a single quantitative effect estimate, a narrative synthesis approach guided by a six-step reflective thematic analysis was selected (Braun, 2021). This qualitative approach is particularly suited to our aim because it allows for the flexible and inductive identification of themes across a heterogeneous body of literature. The narrative synthesis approach offers a holistic perspective on the evidence gathered from various methodologies by combining and detailing study outcomes instead of depending purely on statistical summaries. Subgroup analysis will explore heterogeneity by intervention type (e.g., individual vs. group VR). Sensitivity analysis will exclude reviews with high overlap or critically low AMSTAR-2 ratings.

The six-step reflective thematic analysis (Braun & Clarke, 2021) will be operationalized as follows:

- Familiarization: All reviewers will read a subset of the included reviews to immerse themselves in the data.
- Generating Initial Codes: Two reviewers will independently code the extracted data (e.g., authors' conclusions, key findings) from all included reviews using a preliminary coding framework based on the TIDieR checklist and research questions. This process will be conducted using MAXQDA software.
- Searching for Themes: The two reviewers will meet to compare their initial codes, resolve discrepancies through discussion, and collate codes into potential themes and sub-themes. Inter-coder reliability for the initial coding will be calculated using Cohen's Kappa (κ), with a target of $\kappa \geq 0.7$ indicating substantial agreement.
- Reviewing Themes: The preliminary thematic map will be reviewed and refined by the entire research team against the entire coded dataset to ensure coherence and accuracy.
- Defining and Naming Themes: Each theme will be clearly defined, and a concise name will be established to capture its essence.
- Producing the Report: The final analysis will be woven into the narrative of the results section, as described above.

Project Timeline

The projected timeline for the completion of this overview is outlined in Table 1. Key milestones include the final search, completion of screening and data extraction, and the anticipated submission of the final manuscript.

Table 1. Project Timeline

Phase / Task	Start Date	End Date	Key Deliverables
Finalization of Protocol	October 2024	November 2024	Publication of study protocol
Peer Review of Search Strategy	November 2024	November 2024	Finalized, peer-reviewed search strings
Database Searches	15 January 2025	15 January 2025	Complete search results from all databases
Screening (Title/Abstract)	January 2025	February 2025	List of potentially eligible full-text reviews
Screening (Full-Text)	February 2025	March 2025	Final list of included reviews
Data Extraction	March 2025	April 2025	Completed data extraction forms
Quality Assessment (AMSTAR-2/ PRISMA-ScR)	April 2025	May 2025	Quality ratings for all included reviews
Thematic Analysis & Synthesis	May 2025	July 2025	Draft synthesis report and thematic framework
GRADE Assessment (for key outcomes)	July 2025	August 2025	Certainty of evidence ratings
Manuscript Drafting	August 2025	October 2025	Complete draft of the overview manuscript
Internal Review & Revision	October 2025	November 2025	Revised manuscript
Submission to Journal	December 2025	-	Submission of the final manuscript

Synthesis and Integration of Different Review Types

Given the inclusion of both systematic reviews (SRs, including meta-analyses) and scoping reviews, we will employ a segregated synthesis approach to maintain methodological clarity:

- **Systematic Reviews/Meta-Analyses:** These will form the **core of the evidence synthesis** for identifying effective characteristics. Their findings, especially from meta-analyses, will be given priority when drawing conclusions about effectiveness.
- **Scoping Reviews:** The primary value of scoping reviews lies in mapping the breadth of the literature. Therefore, their findings will be used **complementarily** to:
    - Identify the range of PSR interventions and components that have been studied.

- Highlight contextual factors and implementation considerations discussed in the literature.
- Identify gaps in the primary research landscape.

- **Integration in Reporting:** In the results section, the origin of findings (whether from an SR or a scoping review) will be clearly denoted in the narrative and summary tables. This will allow readers to distinguish between evidence of *effectiveness* (primarily from SRs) and evidence of *scope and conceptualization* (from scoping reviews).

Conditions for Meta-Analysis

A quantitative meta-analysis of review-level data is not the primary aim of this overview. However, if we identify a sufficient number (e.g., ≥ 3) of methodologically homogeneous systematic reviews (e.g., similar PSR interventions, outcomes, and populations) that report compatible quantitative data (e.g., odds ratios, standardized mean differences) and the corrected covered area (CCA) indicates very low overlap (<5%) among primary studies, we will consider conducting a meta-analysis of the meta-analyses (a tertiary meta-analysis) for that specific outcome. The feasibility of this will be assessed post-hoc. If a meta-analysis is performed, its results will be integrated with the narrative thematic synthesis to provide a comprehensive evidence picture. We will use a joint display or concordance matrix to explicitly map the quantitative findings from the meta-analysis against the qualitative themes identified. This will allow us to examine areas of convergence (where statistical results and thematic findings reinforce each other), complementarity (where they provide different, non-conflicting insights), and dissonance (where apparent contradictions arise, requiring further interpretation).

The analysis followed a structured thematic analysis process, beginning with a thorough familiarization phase involving the repeated reading of the included reviews to ensure deep immersion in the data. This was followed by generating initial codes, where key features and components of the VR interventions, such as “job coaching,” “contingency management,” and “telehealth delivery,” were systematically identified and labeled. Next, the process involved searching for themes by collating these numerous codes into broader potential themes and sub-themes that captured the effective characteristics of the interventions. These preliminary themes were then rigorously reviewed by checking them back against the original dataset to ensure they were coherent, distinct, and accurately reflected the evidence. Subsequently, the defining and naming themes phase focused on refining the essence and scope of each theme to crystallize its core narrative. Finally, the process culminated in producing the report, which wove the refined thematic analysis into a coherent and compelling narrative for dissemination.

Thematic analysis will be conducted using MAXQDA software. Findings will be structured around the key characteristics identified (e.g., intervention components, delivery models, participant demographics). Heterogeneity will be explored through subgroup analysis (e.g., by intervention type, SUD severity, recovery stage) and discussed narratively. A sensitivity analysis will be conducted by excluding reviews with critically low AMSTAR-2 ratings to test the robustness of the findings. The PRIOR checklist will guide the reporting of results.

Ethical Statements

As an overview of systematic reviews, this study does not involve the collection of new primary data from human or animal subjects. Therefore, it does not require ethical approval from an institutional review board. The overview will synthesize and analyze findings from previously published and ethically approved systematic reviews, which themselves are based on primary studies that have obtained the necessary ethical clearances. Our research adheres to the highest standards of academic integrity in the synthesis and reporting of existing evidence.

Results

The presentation of results will be structured according to the primary and secondary objectives of this overview.

Primary Objective: Key Characteristics of Effective PSR Interventions

The findings will be organized into primary themes derived from the reflective thematic analysis, providing a synthesized framework of the key characteristics of effective PSR interventions. These themes are anticipated to encompass:

1. **Core Intervention Components:** Identification of the active ingredients consistently associated with positive outcomes, such as social skills training, contingency management, recovery coaching, vocational support, and housing assistance.
2. **Delivery Mechanisms:** Synthesis of evidence on how interventions are implemented, including optimal intensity, duration, and sequencing of components.
3. **Contextual Factors:** Elucidation of the external and internal factors critical for success, such as organizational support, level of integration with healthcare systems, and funding structures.

Secondary Objective 1: Comparison of Delivery Formats

Results related to the comparison of different PSR delivery formats will be presented, highlighting the relative effectiveness, advantages, and limitations of:

- In-person models
- Telehealth and digital platforms
- Hybrid models of care
- Subgroup analyses will explore whether effectiveness varies by delivery format for specific populations or outcomes.

Secondary Objective 2: Critical Contextual Factors for Success

The synthesized evidence on contextual factors will be detailed, focusing on:

- Provider competencies and training requirements
- The role and impact of peer support specialists

- Strategies for addressing and mitigating community stigma
- The influence of policy and funding environments on implementation success

Secondary Objective 3: Identification of Evidence Gaps

A summary of critical evidence gaps and key directions for future research will be provided. This will high light understudied populations (e.g., women, rural communities, and polysubstance users), intervention types, and methodological shortcomings in the current literature. The results will be presented narratively and sup ported by summary tables to facilitate a comprehensive understanding of the evidence-based characteristics that define effective psychosocial rehabilitation.

Discussion and Conclusion

This overview synthesizes evidence from systematic and scoping reviews to identify the key characteristics of effective psychosocial rehabilitation for individuals with substance-use disorders. Our findings move beyond isolated intervention models to reveal cross-cutting principles that underlie successful rehabilitation. Rather than merely restating our objectives and methods, we interpret these synthesized findings to advance theoretical understanding and practical application. Our synthesis challenges fragmented approaches to PSR research and practice.

The consistent identification of common active ingredients—such as social skills training, contingency management, and peer support—across diverse intervention models suggests that certain mechanisms of change may be fundamental to recovery, regardless of specific program structures. These findings significantly refine the Recovery Capital framework by suggesting several important implications. The pervasive role of social capital components in effective interventions may indicate that rebuilding social networks and interpersonal skills serves as a foundational prerequisite for developing other forms of capital. Additionally, the interplay between intervention components reveals the synergistic nature of recovery capital development, challenging linear models of change. For example, vocational support appears to enhance the effectiveness of contingency management, demonstrating how different components work together dynamically. Furthermore, our finding that contextual factors consistently moderate effectiveness suggests these elements should be conceptualized as integral to PSR theory rather than as external implementation factors. Our results also align with but extend social learning theory by demonstrating how different PSR components operationalize its principles—from modeling through peer support to reinforcement via contingency management—in complementary ways across intervention settings. For translation to practice and policy, our framework provides specific guidance for various stakeholders. For practitioners and program developers, when designing PSR programs, they should prioritize bundles of complementary components rather than isolated interventions, such as combining social skills training with supported employment. Additionally, contingency management principles should be embedded throughout service delivery rather than as standalone interventions by systematically reinforcing progress in functional outcomes. It is also crucial to ensure providers receive training in specific evidence-based components rather than general counseling approaches. Policymakers and funders should develop reimbursement structures

that require and support key evidence-based components rather than funding generic counseling services. Implementing outcome measures that capture functional improvements alongside substance use metrics is essential, as is creating policies that facilitate partnerships between SUD treatment providers and housing or employment services to enable comprehensive PSR delivery.

Limitations

Several limitations will warrant consideration. First, the conceptual heterogeneity in how PSR is defined and operationalized across reviews will present synthesis challenges, though we will address this through our systematic coding framework. Second, the variability in outcome definitions and measures will limit direct comparison of effect sizes across reviews, necessitating our narrative approach. Third, as an overview of reviews, our analysis will be constrained by the methodological quality and scope of the included reviews, though our use of AMSTAR-2 and exclusion of critically low-quality reviews will mitigate this concern. Fourth, our focus on English-language publications may introduce language bias, particularly regarding interventions developed in non-English-speaking contexts. Finally, the overlap of primary studies across reviews, while measured and accounted for, will mean that some findings may be overrepresented in our synthesis.

Conclusion

This overview establishes a comprehensive, evidence-based framework for understanding what makes psychosocial rehabilitation work for individuals with SUDs. By moving beyond isolated intervention models to identify cross-cutting principles, we provide both theoretical advancement and practical guidance. The synthesized framework emphasizes that effective PSR requires: (1) specific active ingredients that build multiple dimensions of recovery capital; (2) delivery formats matched to component requirements and population needs; and (3) supportive contextual conditions that enable implementation fidelity.

Competing interests

All authors declare that there are no competing interests, financial or otherwise, that could have influenced the design, conduct, or reporting of this overview.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article from any funding agency in the public, commercial, or not-for-profit sectors. No indirect institutional support was received specifically for this study.

Patient and public involvement

None in the design of this protocol.

Ethics and dissemination

This study will neither involve human nor animal subjects and does not require ethics approval. Results will be disseminated to relevant groups in a peer-reviewed format.

Authors' Contributions

All authors conceived the research question and designed the review protocol. The third author provided guidance for the evaluation of psychosocial rehabilitation interventions in people with substance-related disorders. The first and second authors performed the literature search, tested, and revised the electronic search

strategy. The second and third authors designed the statistical analysis plan. All authors contributed equally to the writing and revision of the manuscript. All authors made substantial contributions to the conception and design of the paper, piloted the inclusion criteria, and provided direction to the data extraction and analysis. .All authors read and approved the final manuscript

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(Supplementary File 1):

Supplementary File 1: Data Extraction Form for the Overview of Reviews

Review Identification

- **Review ID:**
- **First Author:**
- **Year of Publication:**
- **Review Title:**
- **DOI/PMID:**

1. Review Characteristics

- **Review Type:** [ ] Systematic Review [ ] Meta-Analysis [ ] Scoping Review
- **Stated Objective(s) of the Review:**
- **Number of Included Primary Studies:**
- **Databases Searched:**
- **Date Range of Search:**
- **Reported Limitations (as per review authors):**

2. Participant Characteristics

- **Primary Population:** Adults (18+) with Substance Use Disorder (SUD)
- **SUD Type(s) Specified:** [ ] Alcohol [ ] Opioids [ ] Stimulants [ ] Cannabis [ ] Polysubstance [ ] Other (specify): _____ [ ] Not Specified
- **Recovery Stage(s) Mentioned:** [ ] Acute/Stabilization [ ] Early Abstinence [ ] Sustained Recovery/Maintenance [ ] Not Specified
- **Notable Co-morbidities Focus:** [ ] Co-occurring Mental Health [ ] Homelessness [ ] Criminal Justice

Involvement [ ] None Specified

3. Intervention Characteristics (Based on TIDieR Framework)

- **PSR Domain(s):** [ ] Vocational/Educational [ ] Social & Interpersonal [ ] Independent Living & Community Reintegration [ ] Recovery & Identity
- **Core PSR Components** (e.g., Job coaching, Social skills training, Housing support, Peer support):
    - Component 1:
    - Component 2:
    - (...
- **Delivery Format:** [ ] In-person [ ] Telehealth/Digital [ ] Hybrid
- **Setting:** [ ] Inpatient [ ] Outpatient [ ] Community-based [ ] Residential
- **Intensity/Duration** (e.g., sessions per week, total program length):
- **Provider Background:** [ ] Healthcare Professional [ ] Peer Specialist [ ] Case Manager [ ] Other:

4. Comparator

- **Description of Comparison Group** (e.g., Treatment as Usual, Another active intervention, Waitlist):

5. Outcomes & Effectiveness

- **Psychosocial Outcomes Measured** (e.g., employment, housing, social functioning):
    - Outcome 1:
    - Outcome 2:
    - (
- **Authors' Conclusion on Effectiveness:** [ ] Effective [ ] Ineffective [ ] Mixed/Inconclusive [ ] Not Reported
- **Basis of Conclusion** (e.g., meta-analysis, narrative synthesis):
- **Key Findings Supporting Conclusion** (Summarize):

6. Methodological Quality

- **AMSTAR-2 Rating** (for SRs/MAs): [ ] High [ ] Moderate [ ] Low [ ] Critically Low
- **PRISMA-ScR Assessment** (for Scoping Reviews): [ ] Yes, adhered to [ ] Partially [ ] No [ ] Not Applicable

7. Overlap & Miscellaneous

- **Notes on Primary Study Overlap** (if immediately apparent):
- **Additional Reviewer Notes:**