

Received: 2026.01.12

Accepted: 2026.06.25

Available online: 2026.07.10

Published: 2026.XX.XX

Psychosocial Interventions for Alcohol Use Disorder: A Review of Efficacy, Mechanisms, and Clinical Implications

Authors' Contribution:

Study Design A

Data Collection B

Statistical Analysis C

Data Interpretation D

Manuscript Preparation E

Literature Search F

Funds Collection G

ABC 1,2 **Jin Peng***
BE 1 **Ling Wei***
CF 1 **Yudiao Liang***
AG 1,2 **Youguo Tan**

1 Department of Psychiatry, The Zigong Affiliated Hospital, Southwest Medical University, Zigong, Sichuan, PR China

2 Department of Psychiatry, Zigong Mental Health Center, Zigong, Sichuan, PR China

Corresponding Author:

* Jin Peng, Ling Wei, and Yudiao Liang contributed equally to this work

Youguo Tan, Department of Psychiatry, The Zigong Affiliated Hospital, Southwest Medical University; Zigong Mental Health Center, Gongjing District, Zigong City, Qingganlin Road, 643020 Zigong, China, e-mail: 13890055456@163.com

Financial support:

This study was supported by the Zigong Key Science and Technology Program (No. 2023-NKY-02-11)

Conflict of interest:

None declared

Alcohol use disorder (AUD) is a prevalent global health challenge associated with substantial morbidity, mortality, and socioeconomic burden, yet significant gaps remain in access to effective treatment. Psychosocial interventions are fundamental components of evidence-based care for AUD and play a critical role in promoting abstinence, reducing harmful alcohol consumption, preventing relapse, and improving psychosocial functioning. Despite the availability of several established therapeutic approaches, comprehensive syntheses comparing their effectiveness, mechanisms of action, and emerging applications remain limited. This narrative review synthesizes recent evidence on major psychotherapeutic interventions for AUD, including Cognitive-Behavioral Therapy (CBT), Motivational Interviewing (MI), Contingency Management (CM), Mindfulness-Based Relapse Prevention (MBRP), Twelve-Step Facilitation (TSF), and Behavioral Couples Therapy (BCT). Current evidence suggests that combined treatment modalities, particularly MI integrated with CBT, demonstrate superior outcomes in reducing alcohol consumption and enhancing treatment engagement. CBT is effective across the full spectrum of AUD severity; CM facilitates rapid initiation of abstinence through reinforcement strategies; TSF promotes sustained recovery by strengthening social support and participation in mutual-help programs; MBRP is particularly beneficial for individuals with heightened stress reactivity and relapse vulnerability; and BCT improves drinking outcomes and relationship functioning. Emerging developments include digital and mobile health interventions, integration of psychosocial therapies with pharmacological treatment, precision medicine approaches tailored to individual patient characteristics, and expanded implementation in low- and middle-income countries. This review aims to evaluate the effectiveness of psychosocial interventions on abstinence rates and other alcohol-related outcomes in individuals with AUD while highlighting current evidence, clinical applications, and future directions for optimizing treatment.

Keywords: Alcohol Use Disorder • Cognitive Behavioral Therapy • Motivational Interviewing • Psychiatry • Psychotherapy • Review Literature as Topic

Full-text PDF: <https://www.medscimonit.com/abstract/index/idArt/952777>

 5233

 2

 —

 65


Publisher's note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher

Introduction

Alcohol use disorder (AUD) is a prevalent and debilitating mental health condition, contributing to a continuously escalating global disease burden [1]. According to data from the Global Burden of Disease study, there were 111.12 million global cases of AUD in 2021. Between 2000 and 2021, the prevalence rates of alcohol-associated liver disease and alcohol-attributable liver cancer increased by 38.68% and 94.12%, respectively [1]. The burden is particularly pronounced in Asia, which accounts for 47.86% of global AUD prevalence, and among elderly populations, in which AUD prevalence is significantly higher than in younger groups [2]. In the United States, AUD affects over 29 million individuals and contributes to more than 140 000 deaths annually, with associated social and healthcare costs reaching \$249 billion each year [3,4]. Despite its high prevalence, AUD remains vastly undertreated, with nearly 70% of affected individuals receiving no treatment whatsoever [5].

The diagnosis of AUD is based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition [6], which defines AUD as a problematic pattern of alcohol use leading to clinically significant impairment or distress, as manifested by at least 2 of 11 symptoms occurring within a 12-month period.

The conceptualization of AUD has undergone substantial evolution, transitioning from a moral failing model to a model of chronic brain disease. This transition underscores the neurobiological foundations of AUD, particularly involving dysfunctions in reward, stress, and prefrontal control systems, as described by Koob [4], who proposed a heuristic 3-stage cycle of binge/intoxication, withdrawal/negative affect, and preoccupation/anticipation, which provides a framework for understanding AUD's heterogeneity and identifying therapeutic targets. Further supporting this, individuals with AUD exhibit significant impairments in risk-related decision-making, which is associated with structural and functional abnormalities in the fronto-limbic networks [7]. This neurobiological perspective lends a scientific basis for psychosocial interventions, suggesting that behavioral treatments may facilitate recovery through mechanisms of neural plasticity.

Current international treatment guidelines, such as the World Health Organization's Mental Health Gap Action Programme and the recently published Canadian guideline for the clinical management of high-risk drinking and AUD, emphasize integrated treatment approaches combining pharmacotherapy and psychosocial interventions [8]. The Canadian guideline specifically highlights psychosocial interventions—including Motivational Interviewing (MI) and Cognitive-Behavioral Therapy (CBT) as core components of AUD management [7]. A systematic review and meta-analysis published in JAMA further

supports that psychosocial interventions, when combined with medications such as naltrexone and acamprosate, significantly improve abstinence rates and reduce heavy drinking days [9]. Moreover, psychotherapy has been associated with a substantially reduced risk of developing alcohol-associated liver disease and hepatic decompensation in patients with AUD, highlighting its role in mitigating severe physical comorbidities [10].

Several evidence-based psychosocial interventions have been established for AUD. CBT teaches patients to recognize high-risk situations, challenge alcohol-related cognitions, and rehearse non-drinking coping responses [11]. Motivational Enhancement Therapy (MET), a brief intervention derived from MI, resolves ambivalence and enhances intrinsic motivation through personalized feedback and empathic counseling [12]. Contingency Management (CM) provides tangible incentives contingent on biochemically verified abstinence, leveraging operant conditioning to compete with the immediate reward of alcohol [13]. Twelve-Step Facilitation (TSF) operationalizes the Alcoholics Anonymous (AA) framework to promote acceptance, surrender, and active engagement with 12-step fellowships [14]. Despite the availability of various evidence-based psychosocial interventions, such as MI, CBT, family-based approaches, and CM, significant evidence gaps remain regarding their comparative efficacy, long-term effectiveness, underlying mechanisms, and applicability to specific populations [15,16]. For instance, in low- and middle-income countries (LMICs), the evidence for the efficacy of psychosocial interventions remains limited and highly heterogeneous [14]. Moreover, pronounced disparities exist in treatment access and receipt, with racial and ethnic minorities and socioeconomically disadvantaged groups being less likely to receive evidence-based pharmacotherapy or psychotherapy [5]. Sex differences have also been observed; women with AUD experience greater psychological distress, more maladaptive personality functioning, and lower general intellectual functioning compared with men, indicating a need for tailored treatment strategies [17]. The recent exploration of novel interventions, such as digital treatments and the repurposing of glucagon-like peptide-1 (GLP-1) agonists, further expands the landscape of psychosocially-oriented AUD care, although evidence remains preliminary [18-20].

Although recent systematic reviews and meta-analyses have quantified the efficacy of individual psychosocial interventions for AUD, they have typically examined modalities in isolation or prioritized pooled effect estimates over integrative interpretation [9,15]. Consequently, a translational gap persists, as clinicians lack a unified framework that simultaneously compares intervention classes, elucidates their distinct mechanisms of action, identifies the patient populations and clinical settings in which each approach is most effective, and incorporates emerging modalities such as digital therapeutics and ketamine-assisted therapy. This narrative review addresses this

gap by comparing the effectiveness of major psychosocial interventions, examining their underlying mechanisms, identifying the patient populations and clinical settings in which they are most effective, and discussing practical considerations for implementation. Rather than duplicating existing pooled analyses, its distinct contribution lies in boundary-condition mapping, by clarifying which intervention to select for which patient, under what circumstances, and with what mechanistic rationale, thereby translating fragmented efficacy data into actionable, patient-centered clinical strategy.

This is a clinically oriented narrative review synthesizing evidence to inform patient-centered treatment selection for AUD. Its scope encompasses high-quality randomized controlled trials, systematic reviews and network meta-analyses, international clinical guidelines, landmark cohort studies (eg, Project MATCH long-term follow-up), and selected mechanistic and implementation studies published primarily between 2020 and 2025, supplemented by seminal earlier work where foundational. The synthesis is organized around 6 established intervention classes—CBT, MI/MET, CM, 12-Step Facilitation (TSF), Mindfulness-Based Relapse Prevention (MBRP), and Behavioral Couples Therapy (BCT)—plus emerging modalities including digital therapeutics, ketamine-assisted therapy, and pharmacogenomic approaches. Thematic integration focuses on comparative effectiveness, mechanisms of action, target populations, and implementation considerations. Because this is a narrative synthesis of existing evidence rather than a *de novo* systematic review with pooled quantitative analysis, cross-intervention comparisons of relative efficacy are presented as evidence-informed interpretations intended to guide clinical decision-making rather than as definitive hierarchical rankings. The findings are intended to inform evidence-based practice, reduce treatment gaps, and identify critical directions for future research.

Therefore, this narrative review addresses the primary question: What is the comparative effectiveness of major psychosocial interventions—CBT, MI/MET, CM, TSF, MBRP, and BCT—in improving abstinence rates and other alcohol-related outcomes among individuals with AUD? Secondary aims are to synthesize the putative psychological and neurobiological mechanisms underlying each intervention, evaluate the strength of evidence for different target populations, and discuss implementation considerations for diverse clinical settings. Because this is a narrative synthesis of existing randomized controlled trials, systematic reviews, and meta-analyses rather than a *de novo* systematic review with pooled effect estimates, any cross-intervention comparisons of relative efficacy are presented as evidence-informed interpretations intended to guide clinical decision-making rather than as definitive hierarchical rankings. The findings are intended to inform evidence-based clinical practice, reduce treatment gaps, and identify critical directions for future research.

Theoretical Foundations of Psychosocial Interventions for AUD

The development and maintenance of AUD involve complex psychosocial mechanisms. Several theoretical models explain its etiology and persistence from different perspectives. These theories not only provide a framework for understanding AUD but also form the foundational rationale for designing psychosocial interventions. This section will review the main psychological theoretical models, including Social Learning Theory (SLT), the Stress-Coping Model, MI, the Transtheoretical Model, and CBT.

Social Learning Theory

SLT emphasizes that individuals learn behaviors through observation and imitation of others, particularly during adolescence and young adulthood, when the influence of peers and family is most significant [21]. This theory posits that alcohol use behavior is acquired through social interaction and reinforcement. For instance, Hendriks et al [22] found that exposure to alcohol-related content on social media significantly increased alcohol use among adolescents the following day, supporting the role of social learning mechanisms in alcohol use. Furthermore, Kehayes et al [23] demonstrated that the drinking motives of a “drinking buddy” directly influenced an individual’s drinking frequency, further underscoring the importance of peer influence in the social learning process.

Stress-Coping Model

The Stress-Coping Model proposes that individuals may turn to alcohol use as a coping strategy in the face of stress, particularly when healthier coping mechanisms are lacking [24]. This model highlights that stressors, such as discrimination, trauma, and economic hardship, increase the risk of alcohol use by elevating perceived stress levels [25]. Research by Ha et al [26] among men living with HIV in India found that depressive symptoms mediated the relationship between health-related quality of life and alcohol use, supporting the stress-coping pathway in AUD. Additionally, Robertson et al [27] found that stressors were significantly associated with drug use among female adolescent offenders, while religion and social support served as protective coping resources.

Motivational Interviewing and the Transtheoretical Model

MI and the Transtheoretical Model emphasize that behavior change is a dynamic process involving multiple stages, from precontemplation to action [28]. The Transtheoretical Model suggests that an individual’s treatment motivation and readiness to change are key predictors of treatment success. Senn et al [28] found that patients with AUD in the “action” stage were more likely to maintain abstinence, and that treatment

motivation, combined with employment status, predicted treatment outcomes. MI facilitates behavior change by enhancing intrinsic motivation and resolving ambivalence. Multiple studies have shown its efficacy in improving treatment adherence and reducing alcohol use [29].

Cognitive Behavioral Theory

CBT focuses on the influence of cognitive processes, such as expectations, beliefs, and self-efficacy, on behavior. In AUD, alcohol expectancies and drinking refusal self-efficacy are crucial constructs. Jenzer et al [30] found a bidirectional relationship between drinking refusal self-efficacy and drinking behavior, supporting the principle of “reciprocal determinism” from SLT. Furthermore, Brooks et al [31], drawing on Social Cognitive Theory, found that self-efficacy for sleep and dysfunctional beliefs about sleep predicted sleep quality and relapse risk in patients with AUD, highlighting the role of cognitive factors in the maintenance of AUD.

The Triadic Model and Neurocognitive Theories

In recent years, neurocognitive models such as the Triadic Model have been proposed to explain the neural mechanisms of AUD, emphasizing an imbalance between the impulsive, reflective, and regulatory systems [32]. This model suggests that individuals with AUD tend to over-rely on the impulsive system while exhibiting impairments in reflective and control functions. Physical activity is posited to rebalance these 3 systems by improving neuroplasticity and cognitive functioning, thereby reducing alcohol use [32].

Other Relevant Theories

The Health Belief Model emphasizes an individual's perception of health threats and beliefs about coping behaviors, which are often used to explain health behavior change [33]. The Theory of Planned Behavior posits that behavioral intention is influenced by attitudes, subjective norms, and perceived behavioral control; it has also been applied in some AUD interventions [34].

Major Psychotherapeutic Approaches

Cognitive-Behavioral Therapy

CBT for AUD assumes that drinking is maintained by identifiable antecedents and reinforcing consequences. The therapist therefore teaches patients to recognize high-risk situations, challenge alcohol-related cognitions, and rehearse non-drinking coping responses [11].

CBT: Techniques and Intervention Flow

Typical protocols contain 8 to 12 individual or group sessions integrating functional analysis, drink-refusal rehearsal, coping-with-cue exposure, cognitive restructuring, and between-session homework. Computerized CBT4CBT modules with brief telephone monitoring replicate these components on-line [34].

CBT: Mechanisms of Action

Meta-analytic mediation demonstrates that increases in active coping behaviors and abstinence self-efficacy sequentially account for reductions in the percentage of heavy drinking days, while reductions in negative-affect variability parallel the decoupling of craving from lapse episodes [35,36].

CBT: Target Populations

CBT is efficacious across mild-to-severe AUD, shows added value when insomnia is co-treated with CBT for insomnia (CBT-I) [37], and can be safely delivered by lay counselors to HIV-positive drinkers in low-resource settings [38].

Motivational Interviewing/Motivational Enhancement Therapy

MI uses collaborative, evocative empathy to resolve ambivalence. MET adds personalized feedback and a change-plan worksheet in 4 structured sessions [11].

MI/MET: Techniques and Intervention Flow

Clinicians apply open questions, affirmations, reflective listening, and summaries to elicit change-talk. Brief mobile MI delivered by WhatsApp or voice call is non-inferior to face-to-face delivery in primary care in Kenya [39].

MI/MET: Mechanisms of Action

Network meta-analysis indicates that the combination of MI plus CBT in multiple face-to-face sessions achieves the largest reduction in Alcohol Use Disorder Identification Test (AUDIT) scores, with change-talk frequency and self-efficacy mediating outcomes [40].

MI/MET: Target Populations

MI is effective for drinkers in contemplation or preparation stages, for older adults who respond poorly to non-directive counseling [41], and as a brief prelude to CBT for drinkers with depression when behavioral activation is added [42].

Twelve-Step Facilitation

TSF operationalizes the AA framework in 12 weekly sessions that promote acceptance, surrender, and active engagement with the 12-step fellowship [14].

TSF: Techniques and Intervention Flow

Interventions include step-work assignments, sponsor matching, rehearsal of meeting participation, and concurrent recording of AA attendance and drinking days to reinforce abstinence-contingent social reward.

TSF: Mechanisms of Action

Project MATCH 3-year follow-up results showed that higher TSF attendance increased subsequent AA involvement, which in turn enhanced abstinence self-efficacy and reduced heavy drinking, independent of further professional contact [43].

TSF: Target Populations

TSF is suitable for patients with moderate-to-severe AUD willing to accept a disease model. Older adults derive equal benefit compared with CBT but may prefer its community-based continuity [44].

Mindfulness-Based Relapse Prevention

MBRP integrates mindfulness meditation with relapse-prevention to foster non-reactive awareness of craving, thereby interrupting automatic approach behavior [45].

MBRP: Techniques and Intervention Flow

Eight weekly group sessions teach breath-focused attention, body scanning, urge surfing, and the SOBER pause. The daily 10-minute home practice is supported by audio recordings.

MBRP: Mechanisms of Action

Relative to standard relapse prevention, MBRP sustains post-treatment reductions in heavy drinking days through increased dispositional mindfulness and decreased cue-reactivity in the ventral striatum [46].

MBRP: Target Populations

MBRP is particularly efficacious for individuals with high stress or emotion dysregulation and for individuals who co-use cannabis and alcohol whose drinking otherwise rebounds after active treatment [45].

Contingency Management

CM provides escalating tangible reinforcers contingent on biochemically verified abstinence, leveraging operant conditioning to compete with the immediate reward of alcohol [13].

CM: Techniques and Intervention Flow

Patients submit breath, urine, or dried-blood-spot phosphatidylethanol samples 2 to 3 times weekly. Negative results earn vouchers or lottery draws, with resets after positive samples. Smartphone-guided self-collection enables fully remote CM delivery [47].

CM: Mechanisms of Action

CM increases the probability of submitting an abstinent sample by 4-fold. Dopaminergic reward substitution and improved medication adherence partially mediate drinking reductions, although effect sizes attenuate after incentives stop [13].

CM: Target Populations

CM is indicated for moderate-to-severe AUD, especially in patients with homelessness, serious mental illness, or HIV for whom psychotherapies alone show limited engagement. Its cost-effectiveness improves when vouchers are tied to employment activities [48].

Behavioral Couples Therapy

BCT views the partner as a recovery resource. Daily sobriety contracts, shared rewarding activities, and communication training create an environment where abstinence is positively reinforced [49].

BCT: Techniques and Intervention Flow

Standard BCT consists of 12 conjoint sessions including sobriety contract review, behavioral exchange planning, refusal-skills rehearsal, and relapse-prevention negotiation. Group-delivered BCT reduces cost but yields inferior 12-month outcomes.

BCT: Mechanisms of Action

Improved relationship functioning and partner-supported abstinence self-efficacy sequentially mediate the superiority of BCT over individual CBT in reducing heavy-drinking days and alcohol-related consequences [49].

Table 1. Summary of major psychotherapies for alcohol use disorder.

Approach (sessions)	Core ingredients	Key mechanism(s)	Proven target groups	Strength of evidence
CBT (8-16)	Functional analysis, coping skills, cognitive reframe	↑ Active coping, ↑ self-efficacy, ↓ negative-affect variability	Mild–severe AUD; insomnia; HIV; older adults	High (multiple RCT & meta-analysis)
MI/MET (1-4)	Change-talk evocation, decisional balance, change plan	↑ Change-talk, ↑ motivation, ↑ self-efficacy	Contemplators; older adults; depression comorbidity	High (network meta-analysis)
TSF (12)	Step work, sponsor linkage, AA attendance tracking	↑ AA involvement, ↑ abstinence social support	Moderate–severe AUD; patients open to 12-step	High (Project MATCH 3-year)
MBRP (8)	Mindfulness meditation, urge-surfing, SOBER pause	↑ Dispositional mindfulness, ↓ cue-reactivity	High stress; cannabis co-users; post-treatment relapse	Moderate–High (RCT & fMRI)
CM (12-24 wks)	Vouchers/lottery contingent on negative Peth/uEtG	Operant reward substitution, ↑ medication adherence	Severe AUD; homelessness; serious mental illness; HIV	High for abstinence initiation
BCT (12)	Sobriety contract, behavioral exchange, communication skills	↑ Partner support, ↑ relationship satisfaction, ↑ self-efficacy	Stable non-AUD partner; veterans with PTSD	High for drinking & relationship outcomes

Abbreviations: AUD, alcohol use disorder; CBT, Cognitive-Behavioral Therapy; MI/MET, Motivational Interviewing/Motivational Enhancement Therapy; TSF, Twelve-Step Facilitation; MBRP, Mindfulness-Based Relapse Prevention; CM, Contingency Management; BCT, Behavioral Couples Therapy; ↑, increase; ↓, decrease; AA, Alcoholics Anonymous; Peth, phosphatidylethanol; uEtG, urinary ethyl glucuronide; RCT, randomized controlled trial. Strength of evidence ratings are based on findings from multiple high-quality RCTs and network meta-analyses.

BCT: Target Populations

BCT is best suited to patients with a stable non-AUD partner. Among veterans with comorbid post-traumatic stress disorder, it is associated with concurrent symptom reduction, indicating BCT’s utility in dual-diagnosis populations [50]. An overview of the main psychotherapies for AUD is provided in **Table 1**.

Comparative Efficacy and Clinical Considerations

Table 2 provides a comparative summary of the core features, effect sizes, and target populations of the major psychosocial interventions for AUD. The interventions reviewed here differ substantially in their stage of evidentiary development. Established interventions—including CBT, MI/MET, CM, TSF, MBRP, and BCT—are supported by multiple high-quality randomized controlled trials (RCTs), network meta-analyses, and international clinical guidelines, and constitute first-line psychosocial care for AUD. Emerging modalities, including digital CBT (internet- or app-based CBT and blended

CBT), ketamine-assisted psychotherapy, pharmacogenomic approaches, and GLP-1 receptor agonists, are supported by early-phase trials, observational data, or pilot studies. They are mechanistically intriguing but should be considered experimental or adjunctive rather than substitutes for established evidence-based treatments. The following synthesis focuses on the comparative efficacy of established modalities mapped onto outcome domains, durability, and population fit. These interpretations integrate direct head-to-head RCTs, single-modality RCTs with limited long-term follow-up, and observational cohort data. Consequently, they should be interpreted as evidence-informed clinical heuristics rather than definitive hierarchies. In RCTs specifically evaluating CM [51], this modality has produced among the largest and most rapid abstinence gains (eg, 0% to 9% continuous 21-day abstinence), particularly when incentives are linked to employment [47]. These effects, however, are observed during the active incentive period, and direct head-to-head comparisons with other modalities for long-term abstinence are limited. In direct comparative trials, combined MI and CBT produced larger reductions in AUDIT scores (mean difference: -4.98; 95% CI: -7.04 to -2.91) [40] than CBT alone and showed better maintenance

Table 2. Comparative summary of major psychosocial interventions for alcohol use disorder.

Intervention	Primary outcome focus	Evidence strength	Typical duration	Effect size (approx.)	Cost/resource considerations	Key target populations
CBT	Drinking reduction, relapse prevention	High	8-16 sessions (individual/group)	Moderate (d ≈ 0.4-0.7)	Moderate (requires trained therapist)	Mild-severe AUD, insomnia comorbidity, HIV + patients
MI/MET	Motivation enhancement, drinking reduction	High	1-4 sessions	Small–moderate (d ≈ 0.3-0.5)	Low-moderate (brief, scalable)	Contemplators, older adults, depression comorbidity
TSF	Long-term abstinence via peer support	High	12 sessions	Moderate (via AA engagement)	Low (community-based)	Moderate-severe AUD, AA-open individuals
MBRP	Relapse prevention, stress management	Moderate-high	8 group sessions	Moderate (d ≈ 0.5-0.6 for HDD)	Moderate (requires mindfulness-trained facilitator)	High stress, cannabis co-users, emotion dysregulation
CM	Rapid abstinence initiation	High	12-24 weeks	Large (OR ~ 4 for abstinence)	High (cost of incentives, monitoring)	Severe AUD, homelessness, HIV, SMI
BCT	Drinking + relationship outcomes	High	12 conjoint sessions	Moderate for drinking & relationship (d ≈ 0.4-0.6)	Moderate (requires partner involvement)	Stable non-AUD partner, veterans with PTSD

Abbreviations: AUD, alcohol-use disorder; CBT, Cognitive-Behavioral Therapy; CBT-I, Cognitive-Behavioral Therapy for insomnia; MI, Motivational Interviewing; MET, Motivational-Enhancement Therapy; TSF, Twelve-Step Facilitation; MBRP, Mindfulness-Based Relapse-Prevention; CM, Contingency Management; BCT, Behavioral Couples Therapy; iCBT, internet-based CBT; bCBT, blended (internet + face-to-face) CBT; HDD, heavy-drinking days; OR, odds ratio; d, Cohen’s standardized mean difference; SMI, serious mental illness.

of gains at 12 months under conditions of high therapist fidelity and homework compliance [11,36]. TSF has been associated with increased long-term abstinence via enhanced AA attendance in cohort follow-up [14], although these longer-term data derive primarily from observational follow-up of trial participants rather than randomized comparisons. MBRP has shown particular promise in maintaining post-treatment gains among patients with high stress sensitivity or cannabis co-use, an effect linked to reduced striatal cue reactivity [45], but evidence for its superiority over CBT or TSF in general AUD populations remains preliminary. BCT is distinguished by concurrent improvement of relationship quality and drinking outcomes among patients with a stable, non-AUD partner [49], yet direct comparisons with individual CBT outside this specific population are sparse. Finally, CBT-I delivered early after detox lessens alcohol consequences through sleep improvement [37]. Taken together, CM for rapid abstinence initiation, MI plus CBT for sustained volume reduction, TSF for long-term sobriety via peer support, MBRP for relapse prevention under

stress, BCT when dyadic support is available, and CBT-I when insomnia is comorbid represent evidence-informed options for specific clinical scenarios rather than universally superior treatments. These conclusions integrate evidence from direct head-to-head RCTs (eg, MI + CBT vs CBT alone; MBRP vs standard relapse prevention), single-modality RCTs with limited long-term follow-up (eg, CM, BCT), and observational cohort data (eg, TSF 3-year outcomes), and therefore vary in evidentiary certainty.

This thematic synthesis of comparative evidence integrates findings from the reviewed trials and meta-analyses and reveals a consistent pattern when interventions are mapped onto outcome domains, durability, and population fit, rather than treated as uniformly interchangeable. For abstinence initiation, CM produces the largest and most rapid effect sizes because operant reward substitution directly targets the immediate behavioral contingency; however, this benefit is contingent on continuous monitoring and attenuates once incentives are

withdrawn [13,47]. For sustained reduction in drinking volume and heavy-drinking days, combined MI plus CBT demonstrates the broadest and most durable benefit across mild-to-severe AUD, supported by direct head-to-head trials showing MI plus CBT outperforms either modality alone on AUDIT scores [40]. For long-term abstinence maintenance, TSF derives unique durability from peer-support continuity beyond professional contact, as evidenced by Project MATCH 3-year follow-up data [43]. This contrasts with CM, in which durability depends on external reinforcement rather than internalized social networks. MBRP occupies a distinct niche in post-treatment durability, particularly for patients with high stress sensitivity or cannabis co-use, by decoupling craving from automatic approach behavior through neurocognitive recalibration [45,46], a mechanism not replicated by CBT or TSF. BCT is distinguished by its dual-domain efficacy (drinking plus relationship functioning), but its implementation is bounded by the requirement of a stable, non-AUD partner willing to engage in conjoint sessions [49]. These comparative interpretations rest on a mixture of evidence: direct head-to-head comparisons exist for MI plus CBT vs CBT alone [40] and for MBRP vs standard relapse prevention [45], whereas comparisons across CM, TSF, and BCT rely on indirect cross-trial synthesis involving different populations, settings, and outcome metrics. Consequently, the ranked recommendations above should be interpreted as evidence-informed clinical heuristics rather than definitive hierarchies.

In clinical practice, a stratified treatment approach should be adopted to deliver personalized interventions based on patient characteristics, readiness to change, and comorbidities. CBT is suitable for patients with comorbid insomnia or mild-to-severe AUD; CM is particularly effective for severe AUD, homelessness, or co-occurring serious mental illness; BCT can be used for patients with supportive partners to improve drinking behaviors and relationship quality; and MBRP is especially indicated for individuals with high stress or emotional dysregulation. Psychosocial interventions should be combined with medications such as naltrexone and acamprosate to synergistically enhance outcomes. Digital health tools (eg, internet-based CBT, mHealth apps) may extend service coverage in selected contexts, but should be implemented cautiously given incomplete real-world effectiveness and equity data; they are not yet substitutes for established face-to-face or guideline-concordant care. Blended models, such as blended CBT, that integrate online and in-person elements may optimize engagement and efficacy in cases in which digital infrastructure and literacy are adequate. Attention must be paid to health equity through task-sharing, culturally adapted interventions, and telehealth to reduce treatment disparities among racial/ethnic minorities, women, and socioeconomically disadvantaged groups. Mediating variables such as self-efficacy, coping skills, and craving should be monitored during treatment, and endpoint measures should extend beyond

abstinence to include harm reduction metrics, such as heavy drinking days, liver function, and quality of life.

The boundary conditions and limits to generalizability indicate that, although the stratified recommendations above provide a practical heuristic, each recommendation is constrained by specific population and contextual limits evident in the reviewed literature. CBT's broad applicability across AUD severity assumes access to trained therapists and patient capacity for cognitive engagement. Its efficacy in low-resource settings rests primarily on lay counselor adaptations with more modest effect sizes [38]. The rapid abstinence gains of CM depend critically on biochemical monitoring infrastructure and sustained funding for incentives; generalization to settings without phosphatidylethanol or breathalyzer capacity, or to populations unmotivated by monetary reinforcement, remains uncertain [13,47]. The long-term benefits of TSF presuppose patient acceptance of a disease-model framework and geographic access to 12-step fellowship meetings; it is less applicable to individuals who reject spiritual or peer-based recovery models [14]. MBRP requires a trained mindfulness facilitator and patient willingness to engage in daily meditation practice; evidence in non-stressed populations or those with severe cognitive impairment is sparse [45]. BCT is bounded by partner availability, partner absence of AUD, and relationship stability; it cannot be used for unpartnered patients or where intimate-partner violence is present [49]. Digital and mHealth interventions assume adequate digital literacy, smartphone access, and reliable connectivity, which may exclude elderly, low-income, or rural populations [52-54]. Finally, evidence for all reviewed modalities in LMICs is limited and culturally heterogeneous, and direct comparisons across racial and ethnic minorities remain underrepresented [15]. These considerations should guide clinicians in matching interventions to feasible, safe, and evidence-supported contexts rather than applying any single modality universally.

Future Directions

Digital and mHealth Interventions

RCTs consistently demonstrate that internet-based CBT is non-inferior to face-to-face CBT in reducing weekly alcohol consumption, while offering superior scalability [52]. A 3-arm trial in the United States further showed that an 8-week internet-based CBT program produced a significantly faster increase in the percentage of days abstinent than both clinician-delivered CBT and treatment-as-usual during 6-month follow-up [11]. Real-world data from Germany indicate that 78% of users completing a 30-day interactive e-health program achieved abstinence, although uptake was skewed toward highly educated women [53]. Qualitative work suggests that blended CBT—combining online modules with periodic face-to-face sessions—combines the flexibility and

anonymity of internet-delivered CBT with the relational continuity of traditional therapy, thereby enhancing engagement and self-reflection [54]. Taken together, internet-based CBT and blended CBT demonstrate promising efficacy and scalability in controlled trials, but they should be regarded as adjunctive or alternative options for selected populations rather than as replacements for established face-to-face care ready for broad routine implementation. Real-world effectiveness, long-term durability, digital-equity barriers, and cost-effectiveness remain understudied and require resolution through large-scale effectiveness trials before health systems can adopt them as standard first-line care [55].

Integrated Pharmacological and Psychosocial Treatments

A 2025 Cochrane review of 21 RCTs ($n=4746$) found that adding pharmacotherapy (mainly naltrexone or acamprosate) to psychosocial intervention reduced the proportion of heavy drinkers by 10% (risk ratio = 0.86, moderate certainty) and increased continuous abstinence by 5% (risk ratio = 1.17, low certainty) relative to psychosocial treatment alone [56]. Network meta-analyses confirm that oral naltrexone 50 mg/day and acamprosate retain the most robust evidence for relapse prevention, with numbers-needed-to-treat of 11 and 18, respectively [9]. Emerging evidence supports the safety and preliminary efficacy of ketamine-assisted therapy: 3 infusions of intravenous ketamine (0.8 mg/kg) combined with MBRP yielded 15.9% more abstinent days than saline plus alcohol education at 6 months [57]. A pilot RCT further demonstrated that sublingual esketamine enhances psychological engagement in daily mindfulness practice and transiently reduces craving [58]. These findings position ketamine-assisted therapy as a mechanistically intriguing experimental adjunct warranting dose-finding, safety profiling, and mechanism-focused trials; however, it is not supported for broad routine clinical implementation outside controlled research settings. Similarly, GLP-1 receptor agonists, such as semaglutide, liraglutide, and exenatide, have attracted interest based on pre-clinical models, retrospective observational data, and a recent phase 2 RCT suggesting reduced laboratory alcohol self-administration and craving in adults with AUD [19,20]. However, the available RCT evidence is limited to small samples and short durations. One RCT of exenatide found no significant reduction in heavy drinking days vs placebo at 24 weeks, and systematic reviews conclude that high-quality evidence demonstrating efficacy for AUD outcomes remains sparse [19]. Consequently, GLP-1 agonists should be viewed as a hypothesis-generating direction requiring rigorous controlled validation before any recommendation for routine use in AUD treatment.

Precision Medicine and Pharmacogenomics

Although naltrexone, acamprosate, baclofen, and disulfiram are guideline-recommended, response heterogeneity remains

large. A comprehensive review concluded that clinically actionable pharmacogenetic markers for AUD are still sparse, with variants in OPRM1, ALDH2, and CYP2E1 showing nominal but inconsistent moderation effects [59]. Whole-exome sequencing recently identified 6 genes (CNTNAP3, ZNF683, ALDH2, CCHCR1, ZNF45, and ESRRA) harboring rare damaging variants that may confer susceptibility to AUD and represent potential therapeutic targets [60]. Beyond genomics, predicted individual treatment effects modeling using 19 baseline characteristics from Project MATCH revealed that 37% of outpatients had an 80% probability of greater abstinence with CBT vs MET, whereas 16% showed the opposite pattern [61]. At present, neither pharmacogenomic testing nor predictive algorithms such as predicted individual treatment effects are ready for routine clinical use. They remain research tools requiring prospective validation across racially and geographically diverse populations before they can inform clinician-friendly decision tools. External validation of such algorithms will be critical for any future clinical implementation.

Adaptation and Implementation in LMICs

A 2023 Cochrane synthesis of 66 RCTs across LMICs indicated that combined pharmacological and psychosocial interventions reduced heavy drinking when compared with psychosocial treatment alone (standardized mean difference = -0.43, low certainty), but heterogeneity precluded meta-analysis of pharmacotherapy alone [15]. Brief interventions and MI remain the most evaluated and culturally portable strategies [62]. Technology-supported models, such as waiting-room screening kiosks and tablet-based decision aids, dramatically increased diagnostic detection of AUD in Colombian primary care (from approximately 0% to 2%) while remaining feasible within routine workflows [63]. Community-based studies in Nepal and India demonstrate that task-shared brief interventions delivered by student volunteers or non-specialist health workers are acceptable and reduce alcohol consumption, although stigma, medication stock-outs, and poor follow-up retention limit scalability [64,65]. Implementation trials employing hybrid effectiveness-implementation designs and cost-effectiveness evaluations are urgently needed to sustain these gains.

Future Research Agenda

Future studies should build an integrated “digital-first” hybrid ecosystem that couples therapist-guided internet-based CBT with smartphone ecological momentary assessment and wearable alcohol biosensors to deliver instantaneous feedback and relapse alerts. Simultaneously, multi-center adaptive platform trials are needed to define the optimal dose, frequency, and sequencing of ketamine- or MDMA-assisted psychotherapy while embedding peripheral neuroplasticity biomarkers to pinpoint mechanism-based responders. Cross-omic (genomic,

transcriptomic, and epigenomic) risk-prediction algorithms must be validated across racially and geographically diverse populations to generate clinician-friendly decision tools that allocate each patient to the most effective and least toxic intervention. Implementation-science cluster RCTs in LMICs should rigorously evaluate the effectiveness, cost-effectiveness and scalability of task-shared care bundles that merge digital screening, brief interventions, and pharmacotherapy. In addition, primary endpoints should expand beyond simple abstinence to encompass patient-centered harm-reduction metrics, such as fewer heavy-drinking days, improved liver function tests, and quality-adjusted life-years, which resonate with both health-care payers and policy makers.

Conclusions

This narrative review synthesizes evidence patterns to inform clinically oriented decision-making regarding psychosocial interventions for AUD. Rather than providing a definitive comparative ranking, it maps the relative strengths, mechanisms, and boundary conditions of established and emerging modalities to guide patient-centered treatment selection.

Among established interventions, CBT and MI/MET are supported by the most robust and generalizable evidence base, with multiple large RCTs and network meta-analyses confirming efficacy for reducing drinking volume and heavy drinking days across mild-to-severe AUD. The combination of MI plus CBT has demonstrated the largest effect on AUDIT total scores in network meta-analysis (mean difference of -4.98 vs usual care) and superiority over either modality alone in direct comparative trials for sustained drinking-volume reduction; however, this advantage is best established for volume-based outcomes and may not generalize uniformly to all populations or long-term abstinence endpoints. CM produces rapid abstinence initiation and has strong RCT support during active incentive periods, yet its comparative standing for long-term maintenance is uncertain given post-incentive attenuation and limited direct head-to-head evidence against other modalities. TSF shows durable long-term benefits linked to sustained peer-support engagement, although much of this evidence derives from observational follow-up rather than randomized comparisons. MBRP offers promising post-treatment durability for stress-sensitive and cannabis-co-using subgroups, but its broader superiority over standard relapse prevention or CBT remains preliminary.

References:

1. Danpanichkul P, Díaz LA, Suparan K, et al. Global epidemiology of alcohol-related liver disease, liver cancer, and alcohol use disorder, 2000-2021. *Clin Mol Hepatol*. 2025;31(2):525-47
2. Danpanichkul P, Suparan K, Ng CH, et al. Global and regional burden of alcohol-associated liver disease and alcohol use disorder in the elderly. *JHEP Rep*. 2024;6(4):101020
3. Choi HY, Balter DR, Haque LY. Epidemiology and Health Care Burden of Alcohol Use Disorder. *Clin Liver Dis*. 2024;28(4):577-88

BCT concurrently improves drinking and relationship outcomes among patients with a stable, non-AUD partner, yet its applicability is inherently bounded by this dyadic requirement.

Emerging modalities require cautious interpretation. Digital CBT and blended models demonstrate non-inferiority to face-to-face delivery in RCTs and offer scalability advantages, but real-world effectiveness, digital-equity barriers, and long-term durability remain understudied. Ketamine-assisted therapy and GLP-1 agonists represent mechanistically intriguing directions supported by early-phase RCTs and observational data, respectively; however, replication, dose optimization, safety profiling, and cost-effectiveness data are insufficient to support clinical adoption beyond research settings.

Current limitations of the evidence base warrant acknowledgment. Heterogeneity in study designs, outcome measures, and follow-up durations impedes definitive cross-study comparison. Underrepresentation of vulnerable populations, including racial and ethnic minorities, women, low-income groups, and LMIC contexts, limits the generalizability of most efficacy claims. Precision-medicine approaches, while theoretically appealing, currently lack validated clinical algorithms for matching patients to optimal interventions.

Future research directions should include adaptive platform trials that directly compare intervention sequences and combinations; mechanistic studies integrating neuroimaging, biomarkers, and ecological momentary assessment to elucidate how psychosocial interventions modulate neural and behavioral processes; hybrid effectiveness-implementation designs to evaluate scalable delivery models in LMICs and underserved settings; and rigorous cost-effectiveness analyses to inform payer and policy decisions. Cross-omic risk-prediction algorithms must be validated across diverse populations before clinical deployment.

In conclusion, psychosocial interventions remain essential, evidence-informed components of comprehensive care for AUD. Their selection should be guided by patient characteristics, treatment goals, available resources, and the specific strengths and limitations of each modality rather than by universal hierarchical rankings. By matching evidence-based practices to individualized clinical contexts and pursuing rigorous evaluation of emerging approaches, clinicians and health systems can incrementally improve outcomes for individuals with AUD.

4. Koob GF. Alcohol use disorder treatment: Problems and solutions. *Annu Rev Pharmacol Toxicol*. 2024;64:255-75
5. Le P, Rich JJ, Bernstein EY, et al. Disparities in treatment for alcohol use disorder among all of us participants. *Am J Psychiatry*. 2024;181(11):973-87
6. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Washington (DC): American Psychiatric Publishing; 2013. Available from: <https://doi.org/10.1176/appi.books.9780890425596>
7. Ariesen AD, Neubert JH, Gaastra GF, et al. Risky decision-making in adults with alcohol use disorder – A systematic and meta-analytic review. *J Clin Med*. 2023;12(8):2943
8. Wood E, Bright J, Hsu K, et al; Canadian Alcohol Use Disorder Guideline Committee. Canadian guideline for the clinical management of high-risk drinking and alcohol use disorder. *CMAJ*. 2023;195(40):E1364-E79
9. McPheeters M, O'Connor EA, Riley S, et al. Pharmacotherapy for alcohol use disorder: A systematic review and meta-analysis. *JAMA*. 2023;330(17):1653-65
10. Vannier AGL, Przybyszewski EM, Shay J, et al. Psychotherapy for alcohol use disorder is associated with reduced risk of incident alcohol-associated liver disease. *Clin Gastroenterol Hepatol*. 2023;21(6):1571-80.e7
11. Kiluk BD, Benitez B, DeVito EE, et al. A digital cognitive behavioral therapy program for adults with alcohol use disorder: A randomized clinical trial. *JAMA Netw Open*. 2024;7(9):e2435205
12. Morgenstern J, Kuerbis A, Shao S, et al. An efficacy trial of adaptive interventions for alcohol use disorder. *J Subst Abuse Treat*. 2021;123:108264
13. McDonell MG, Parent S, Jett JD, et al. Testing adaptations to contingency management for alcohol use disorders: A randomized controlled trial. *J Consult Clin Psychol*. 2025;93(8):540-50
14. Pfund RA, Hallgren KA, Maisto SA, et al. Dose of psychotherapy and long-term recovery outcomes: An examination of attendance patterns in alcohol use disorder treatment. *J Consult Clin Psychol*. 2021;89(12):1026-34
15. Greene MC, Kane J, Alto M, et al. Psychosocial and pharmacologic interventions to reduce harmful alcohol use in low- and middle-income countries. *Cochrane Database Syst Rev*. 2023;5(5):CD013350
16. Belay GM, Mak YW, Wong FKY, et al. Psychosocial treatment options for adolescents and young adults with alcohol use disorder: Systematic review and meta-analysis. *Front Public Health*. 2024;12:1371497
17. Høiland K, Arnevik EKA, Nielsen AS, Egeland J. Gender differences in alcohol use disorder treatment: Sociodemographic, mental health, personality, and neuropsychological factors. *Nord J Psychiatry*. 2025;79(5):387-96
18. Bischof G. Commentary on Hyland et al.: Digital treatment for alcohol use disorders – challenges and opportunities. *Addiction*. 2023;118(7):1244-45
19. Shen MR, Owusu-Boaitey K, Holsen LM, Suzuki J. The efficacy of GLP-1 agonists in treating substance use disorder in patients: A scoping review. *J Addict Med*. 2024;18(5):488-98
20. Lääteenvuuo M, Tiihonen J, Solismaa A, et al. Repurposing semaglutide and liraglutide for alcohol use disorder. *JAMA Psychiatry*. 2025;82(1):94-98
21. Nagata JM, Smith N, Zamora G, et al. Problematic social media use and alcohol expectancies in early adolescents. *BMC Public Health*. 2023;23(1):430
22. Hendriks H, de Nooy W, Gebhardt WA, van den Putte B. Causal effects of alcohol-related facebook posts on drinking behavior: Longitudinal experimental study. *J Med Internet Res*. 2021;23(11):e28237
23. Kehayes IL, Mackinnon SP, Sherry SB, et al. The influence of drinking buddies: A longitudinal investigation of drinking motivations and drinking behaviors in emerging adults. *Subst Use Misuse*. 2021;56(2):286-96
24. Gordon DM, Moore KE, Vincent W, et al. Intimate partner violence among low-income fathers: Testing a stress-coping model. *J Interpers Violence*. 2021;36(3-4):1634-59
25. Clark TT. Perceived discrimination, depressive symptoms, and substance use in young adulthood. *Addict Behav*. 2014;39(6):1021-25
26. Ha T, Shi H, Shrestha R, et al. The mediating effect of changes in depression symptoms on the relationship between health-related quality of life and alcohol consumption: Findings from a longitudinal study among men living with HIV in India. *Int J Environ Res Public Health*. 2023;20(8):5567
27. Robertson AA, Xu X, Stripling A. Adverse events and substance use among female adolescent offenders: Effects of coping and family support. *Subst Use Misuse*. 2010;45(3):451-72
28. Senn S, Odenwald M, Sehrg S, et al. Therapeutic success in relapse prevention in alcohol use disorder: The role of treatment motivation and drinking-related treatment goals. *J Addict Dis*. 2021;39(1):88-95
29. Rimayanti MU, O'Halloran PD, Shields N, et al. Comparing process evaluations of motivational interviewing interventions for managing health conditions and health promotions: A scoping review. *Patient Educ Couns*. 2022;105(5):1170-80
30. Jenzer T, Egerton GA, Read JP. Learning from drinking experiences in college: A test of reciprocal determinism with drinking refusal self-efficacy. *Psychol Addict Behav*. 2021;35(1):85-92
31. Brooks AT, Kazmi N, Yang L, et al. Sleep-related cognitive/behavioral predictors of sleep quality and relapse in individuals with alcohol use disorder. *Int J Behav Med*. 2021;28(1):73-82
32. Cabé N, Lanièce A, Pitel AL. Physical activity: A promising adjunctive treatment for severe alcohol use disorder. *Addict Behav*. 2021;113:106667
33. Cotache-Condor C, Peterson M, Asare M. Application of theoretical frameworks on human papillomavirus vaccine interventions in the United States: Systematic review and meta-analysis. *Cancer Causes Control*. 2022;33(1):15-24
34. Kacmarek CN, Yates BT, Nich C, Kiluk BD. A pilot economic evaluation of computerized cognitive behavioral therapy for alcohol use disorder as an addition and alternative to traditional therapy. *Alcohol Clin Exp Res*. 2021;45(5):1109-21
35. Litt MD, Tennen H, Kadden RM. Individualized Assessment and Treatment Program (IATP) for alcohol use disorder: Comparison with conventional cognitive-behavioral treatment and examination of coping skills as a mediator of treatment. *J Consult Clin Psychol*. 2024;92(10):711-26
36. Roos CR, Carroll KM, Nich C, et al. Short- and long-term changes in substance-related coping as mediators of in-person and computerized CBT for alcohol and drug use disorders. *Drug Alcohol Depend*. 2020;212:108044
37. Miller MB, Carpenter RW, et al. Effect of cognitive behavioral therapy for insomnia on alcohol treatment outcomes among US veterans: A randomized clinical trial. *JAMA Psychiatry*. 2023;80(9):905-13 [Erratum in: *JAMA Psychiatry*. 2024;81(9):948]
38. Madhombiro M, Kidd M, Dube B, et al. Effectiveness of a psychological intervention delivered by general nurses for alcohol use disorders in people living with HIV in Zimbabwe: A cluster randomized controlled trial. *J Int AIDS Soc*. 2020;23(12):e25641
39. Harder VS, Musau AM, Musyimi CW, et al. A randomized clinical trial of mobile phone motivational interviewing for alcohol use problems in Kenya. *Addiction (Abingdon, England)*. 2020;115(6):1050-60
40. Tan CJ, Shufelt T, Behan E, et al. Comparative effectiveness of psychosocial interventions in adults with harmful use of alcohol: A systematic review and network meta-analysis. *Addiction (Abingdon, England)*. 2023;118(8):1414-29
41. Kuerbis A, Behrendt S, Morgenstern J. Age as a moderator of motivational interviewing and nondirective client-centered psychotherapy for alcohol use disorder: An exploratory study. *Alcohol Clin Exp Res (Hoboken)*. 2023;47(3):527-39
42. Luoto KE, Lassila A, Leinonen E, Kampman O. Predictors of short-term response and the role of heavy alcohol use in treatment of depression. *BMC Psychiatry*. 2023;23(1):880
43. Pfund RA, Richards DK, Boness CL, et al. Relative and interactive associations of psychosocial intervention and alcoholics anonymous attendance with alcohol use disorder outcomes. *J Stud Alcohol Drugs*. 2023;84(2):281-86
44. Behrendt S, Kuerbis A, Bilberg R, et al. Impact of comorbid mental disorders on outcomes of brief outpatient treatment for DSM-5 alcohol use disorder in older adults. *J Subst Abuse Treat*. Dec 2020;119:108143
45. Skrzynski CJ, Karoly H, Ellingson JM, et al. Comparing the efficacy of mindfulness-based relapse prevention versus relapse prevention for alcohol use disorder: A randomized control trial. *J Stud Alcohol Drugs*. 2023;84(4):560-69
46. Weiss F, Aslan A, Zhang J, et al. Using mind control to modify cue-reactivity in AUD: the impact of mindfulness-based relapse prevention on real-time fMRI neurofeedback to modify cue-reactivity in alcohol use disorder: A randomized controlled trial. *BMC Psychiatry*. 2020;20(1):309
47. Jett JD, Beck R, Tyutyunnyk D, et al. Feasibility of a telehealth-based contingency management intervention for alcohol use disorders using the phosphatidylethanol (Peth) 16: 0/18: 1 alcohol biomarker: A pilot randomized trial. *Am J Drug Alcohol Abuse*. 2024;50(2):162-72
48. Novak MD, Toegel F, Holtyn AF, et al. Abstinence-contingent wage supplements for adults experiencing homelessness and alcohol use disorder: A randomized clinical trial. *Prev Med*. 2023;176:107655
49. Dunlap LJ, O'Farrell TJ, Schumm JA, et al. Group versus standard behavioral couples' therapy for alcohol use disorder patients: Cost-effectiveness. *J Stud Alcohol Drugs*. 2020;81(2):152-63

50. Flanagan JC, Nietert PJ, McCrady BS, et al. Results of a randomized controlled trial examining the efficacy of intranasal oxytocin to enhance alcohol behavioral couple therapy. *J Clin Psychiatry*. 2025;86(2):24m15627
51. Edelman EJ, Dziura J, Deng Y, et al. Integrated stepped alcohol treatment with contingency management for unhealthy alcohol use among people with HIV: A randomized controlled trial. *J Acquir Immune Defic Syndr*. 2025;98(1):72-81
52. Johansson M, Sinadinovic K, Gajecski M, et al. Internet-based therapy versus face-to-face therapy for alcohol use disorder, a randomized controlled non-inferiority trial. *Addiction (Abingdon, England)*. 2021;116(5):1088-100
53. Stüben N, Franke AG, Soyka M. [Acceptance and use of web-based interventions for alcohol abstinence.] *Nervenarzt*. 2023;94(1):1-7 [Erratum in: *Nervenarzt*. 2023;94(7):659-60 [in German]]
54. Tarp K, Christiansen R, Bilberg R, et al. Patient perspectives on blended internet-based and face-to-face cognitive behavioral therapy for alcohol use disorder: Qualitative study. *J Med Internet Res*. 2024;26:e47083
55. Gushken F, Costa GPA, de Paula Souza A, et al. Internet-based cognitive behavioral therapy for alcohol use disorder: A systematic review of evidence and future potential. *J Subst Use Addict Treat*. 2025;171:209627
56. Minozzi S, La Rosa GRM, Salis F, et al. Combined pharmacological and psychosocial interventions for alcohol use disorder. *Cochrane Database Syst Rev*. 2025;3(3):CD015673
57. Grabski M, McAndrew A, Lawn W, et al. Adjunctive ketamine with relapse prevention-based psychological therapy in the treatment of alcohol use disorder. *Am J Psychiatry*. 2022;179(2):152-62
58. Gent EM, Bryan JW, Cleary MA, et al. Esketamine combined with a mindfulness-based intervention for individuals with alcohol problems. *J Psychopharmacol (Oxford, England)*. 2024;38(6):541-50
59. Lohoff FW. Pharmacotherapies and personalized medicine for alcohol use disorder: A review. *Pharmacogenomics*. 2020;21(15):1117-38
60. Liu L, Zhang B, Dong Y, et al. Genome variation in alcohol use disorder by whole-exome sequencing. *Addict Biol*. 2025;30(8):e70070
61. Kuhlemeier A, Desai Y, Tonigan A, et al. Applying methods for personalized medicine to the treatment of alcohol use disorder. *J Consult Clin Psychol*. 2021;89(4):288-300
62. Staton CA, Vissoci JRN, El-Gabri D, et al. Patient-level interventions to reduce alcohol-related harms in low- and middle-income countries: A systematic review and meta-summary. *PLoS Med*. 2022;19(4):e1003961
63. Torrey WC, Cepeda M, Castro S, et al. Implementing technology-supported care for depression and alcohol use disorder in primary care in Colombia: Preliminary findings. *Psychiatr Serv*. 2020;71(7):678-83
64. Zewdu S, Hanlon C, Fekadu A, et al. "We improved our life because I cut my drinking": Qualitative analysis of a brief intervention for people with alcohol use disorder in Ethiopian primary health care. *J Subst Abuse Treat*. 2022;132:108636
65. Devassy SM, Scaria L, Babu S, et al. Community-level mental health screening and referral using task-sharing with student volunteers in Kerala, India: A scalable model for low and middle income countries. *BMC Psychiatry*. 2025;25(1):352