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# MOTIVATIONAL INTERVIEWING AND MOTIVATIONAL ENHANCEMENT THERAPY FOR THE TREATMENT OF ALCOHOL USE DISORDER

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September 24, 2024

OHIO SUBSTANCE USE DISORDER

CENTER OF EXCELLENCE

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### **Suggested Citation:**

Olgac, T., Zielinska, E. K., Saunt, J.V., Painter, S., Ding, X., Hussey, D.L., Singer, M.I. (2024). *Motivational interviewing and motivational enhancement therapy for the treatment of alcohol use disorders*. The Begun Center, Case Western Reserve University.

<https://case.edu/socialwork/centerforebp/ohio-sud-coe/evidence-informed-practices-and-other-best-practices>

### **Acknowledgement:**

This report was supported by the Ohio Substance Use Disorder Center of Excellence (SUD COE) funded through the American Rescue Plan Act (ARPA) and directed by the Substance Abuse and Mental Health Services Administration (SAMHSA) to the Ohio Department of Mental Health and Addiction Services. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of SAMHSA.

Special thanks to research assistants Reema Sen, MSc, MBA, and to Jesse Bassett, MDiv, MSW, for their contributions in creating this report.

## **Executive Summary**

### **Background**

Alcohol use disorder (AUD) is associated with high mortality and morbidity rates in the United States. The growing rates of excessive alcohol use and AUD pose a major threat to public health. Initially developed for addressing drinking problems in 1983, motivational interviewing (MI) has since been expanded for the treatment of substance use disorders (SUDs) and other chronic conditions. Motivational enhancement therapy (MET) is a four-session manualized version of the core components of MI that was developed in 1993 as part of a large-scale alcohol use disorder study known as Project MATCH. Both MI and MET are well-established therapeutic approaches that aim to enhance motivation for change and improve treatment outcomes among individuals with AUD. This report reviews the literature on the effectiveness of MI and MET for the treatment of AUD.

### **Methods**

A comprehensive literature search was conducted using multiple databases to identify studies that investigated the effectiveness of MI and MET for individuals with AUD. To be included in the review, studies had to use an experimental design, where participants were randomly assigned to one of the treatment groups; include primary data; have samples that predominantly consisted of individuals with AUD; examine alcohol use or mortality outcomes; conducted in the United States; and published within the last ten years. The majority of the reviewed studies directly examined the effectiveness of MI or MET and compared them to control conditions. However, there were also some studies where MET was part of a blended intervention, and each incorporated a unique combination of therapeutic approaches and

components. These studies were summarized separately. The main outcomes of interest were alcohol use, treatment retention, and mortality/morbidity.

### **Findings**

The search yielded 15 relevant experimental studies that met the inclusion criteria. Twelve studies evaluated MI or MET, and three studies evaluated blended interventions that incorporated MET. The reviewed studies provided generally supportive evidence for the effectiveness of MI and MET and blended interventions in reducing alcohol use. Several studies found that MI and MET led to significant reductions in alcohol use, binge or heavy drinking, and high treatment retention. Blended interventions also showed promising outcomes. All but one study monitored fidelity to ensure adherence to the intervention protocols. The majority of the studies focused on special or vulnerable populations such as women, individuals experiencing housing insecurity, or veterans.

### **Conclusion**

Motivational interventions appear to be a feasible and effective approach for addressing AUD. Six studies showed significant effects of MI or MET on alcohol use, with three showing mixed but promising results. Blended motivational interventions also provided some evidence in reducing alcohol use. Motivational interventions also appear to be highly adaptable to the needs of specific treatment populations. Future studies should continue to examine the unique or additive effects of motivational interventions in AUD treatment.

## **Alcohol Use Trends in the U.S. and Ohio**

Over the last 30 years, alcohol related deaths have outpaced opioid related deaths by tens of thousands annually, positioning alcohol misuse at the forefront of public health discourse (Hurst, 2024). Despite widespread acceptance of alcohol use among people in the U.S. (Castro et al., 2014), recent research has demonstrated that even low levels of alcohol consumption are associated with increased risk of adverse health outcomes, while heavy alcohol use has been associated with increased risk of cancer, coronary heart disease and/or stroke (Bergmann et al., 2013; Ronksley et al., 2011). Increases in the national prevalence of alcohol use disorder (AUD), often accompanied by another substance use disorder (SUD), a co-occurring psychiatric disorder, or both, present a significant threat to public health and wellbeing in the United States (Hurst, 2024).

### **Defining Problematic Alcohol Use**

The Centers for Disease and Control and Prevention (CDC) defines “excessive alcohol use” as “four ways that people drink alcohol that can negatively impact health,” including binge-drinking (four or more drinks for women, five or more drinks for men on any occasion), weekly heavy drinking (eight or more drinks for women, 15 or more drinks for men), underage drinking (any use by people under age 21), and drinking while pregnant (any use during pregnancy) (Centers for Disease Control and Prevention [CDC], 2024a). Excessive alcohol use has a wide range of adverse health outcomes that include but are not limited to alcohol poisoning, overdose, pre- and post-natal complications (e.g., unplanned pregnancies, miscarriage, stillbirth, fetal alcohol spectrum disorder) (CDC, 2024a), increased risk of various forms of cancer (e.g., throat, colon, breast, liver) (National Cancer Institute [NCI], 2015), heightened risk for heart and liver

disease, as well as an array of mental health conditions (e.g., depression, anxiety), cognitive issues, and relationship problems with family and friends (CDC, 2024a).

Currently, the Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> ed. (DSM–5TR) defines AUD as “a problematic pattern of alcohol use leading to clinically significant impairment or distress” (American Psychiatric Association [APA], 2022). An individual may be diagnosed with AUD when they meet at least two of several criteria within a 12-month period including increased use over time, impaired ability to stop or control use, cravings, withdrawal symptoms, increased tolerance, and continued use despite negative consequences on one’s health, psychological well-being, work, and social relationships (APA, 2022). Remission from AUD involves not meeting any of the DSM–5TR criteria for AUD except for cravings (APA, 2022). Recovery from AUD is a broader term characterized by remission and cessation of heavy drinking, and for individuals who experienced severe impairments from AUD, it also involves “the fulfillment of basic needs, enhancements in social support and spirituality, and improvements in physical and mental health, quality of life, and other dimensions of well-being” (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2022). Recovery goes beyond abstinence and is influenced by a combination of biological (e.g., genes, neurobiology), psychological (e.g., cognition, behaviors, emotions), and social, environmental, or contextual (e.g., social networks, socioeconomic, systemic facilitators and barriers) factors (Witkiewitz & Maisto, 2022). Currently available treatments for AUD include withdrawal management, medications (e.g., disulfiram, naltrexone, and acamprosate), behavioral health treatments (e.g., cognitive-behavioral therapy, motivational enhancement therapy, contingency management, individual or group counseling, twelve-step facilitation), as well as continued recovery support

groups such as Alcoholics Anonymous and Self-Management and Recovery Training (SMART) (NIAAA, 2022).

### **Current Trends in Alcohol Use**

According to the 2023 National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration [SAMHSA], 2024), overall alcohol use among individuals aged 12 and older increased from 132.5 million (47.4% of the population) in 2021 to 134.7 million (47.5% of the population) in 2023. In 2023 alone, approximately 134.7 million Americans aged 12 and older reported drinking alcohol in the past month, 61.4 million reported binge use (45.6% of alcohol users), and 16.4 million reported heavy alcohol use (12.2% of alcohol users). Among all age groups, the largest cohort of binge and heavy alcohol users are those between the ages of 18 to 25 (SAMHSA, 2024). Underage binge alcohol use has seen no significant change. In 2023, among 48.5 million respondents aged 12 or older diagnosed with an SUD, 28.9 million were diagnosed with AUD (SAMHSA, 2024). Notably, the largest age cohort diagnosed with AUD are young adults between 18 and 25 years of age, followed by 26 and older (SAMHSA, 2024).

In Ohio statewide drinking habits align with national averages. Roughly 20% of adults in Ohio reported binge drinking in 2022, compared to the national average of 17% (CDC, 2024b). Among those adults who binge drink, 25% reported consuming at least nine drinks during a single binge drinking occasion, which may occur at least four times per month (CDC, 2024b). According to the 2021 Youth Risk Behavior Survey (YRBS), roughly 23% of Ohio high schoolers reported consuming at least one drink of alcohol on at least 1 day during the 30 days before the survey (CDC, 2024c). Binge drinking rates (four or more drinks of alcohol in a row if they are female or five or more drinks of alcohol in a row if they are male, within a couple of

hours, on at least 1 day during the 30 days before the survey) among Ohio high school students (12.6%) are slightly above the national average (10.5%) (CDC, 2024c).

### **Alcohol Use & Mortality**

It is estimated that 178,307 Americans died annually from excessive alcohol use in 2020-2021, representing a 29.3% increase in deaths annually from 137,927 in 2016-2017 (Esser et al., 2024). Deaths from excessive alcohol use among males during this period rose 26.8% from 94,362 to 119,606, while deaths among females increased at a higher rate of 34.7% from 43,565 to 58,701 (Esser et al., 2024). Death rates attributable to alcohol also rose during this same period from 23.2 per 100,000 to 29.4 (Esser et al., 2024). Of note, data from the COVID-19 pandemic between 2020 and 2021 saw a 46.2% increase, or 51,665 deaths, compared to the 35,344 between 2016 and 2017 (Esser et al. 2024).

In the state of Ohio, the CDC estimated that 6,750 people died from excessive alcohol use between 2020 and 2021 (CDC, 2024d). Among those deaths attributed to excessive alcohol use, close to 55% have been linked to chronic causes such as AUD (CDC, 2024d). Apart from public health costs linked to alcohol consumption, such as increased risk for certain diseases and mortality, it is estimated that in 2022 Ohio taxpayers would have paid an equivalent of \$11.502 billion as a results of excessive alcohol use (National Center for Drug Abuse Statistics [NCDAS], 2024).

In light of this escalating public health challenge, this report describes the use of motivational interventions, particularly motivational interviewing (MI) and motivational enhancement therapy (MET) for addressing AUD. The following sections define and describe MI and MET and summarize the results of a literature review that was conducted to understand



the effectiveness of MI and MET in treating AUD. The literature review focused on answering the following questions:

1. What are the alcohol use outcomes associated with the use of MI and MET to address AUD?
2. What are the treatment retention outcomes associated with the use of MI and MET to address AUD?
3. What are the mortality and morbidity related outcomes associated with the use of MI and MET to address AUD?

### **Motivational Interviewing**

Motivational interviewing is a therapeutic approach designed to support behavior change in people who are ambivalent or resistant to making changes in their lives (Motivational Interviewing Network of Trainers [MINT], 2021). The MI approach is collaborative, client-centered, and supports individual autonomy regarding behavior and choices (Miller & Rollnick, 2023). It is grounded in respect for the individual and belief in their ability to make positive and healthy decisions in their lives. Motivational interviewing works by helping to alleviate the pressure that people feel when they think they need to change but feel stuck and incapable of moving forward. As a strengths-based approach, MI empowers individuals to work through their fears about change. It employs evocative methods to draw out an individual's own motivation and commitment to change. It uses the relationship between the provider and the individual as a tool for personal growth. Because the individual is the expert on their own experience, they are encouraged to look inward to identify and understand their internal resources and skills that can be applied towards the changes they want to make. In this way, the provider and the individual enter the relationship on equal footing. This contrasts with a didactic approach to treatment

where the provider is seen as the expert focused on educating the individual. Motivational interviewing strengthens individuals' motivation for and commitment to specific goals by exploring their reasons for change within an atmosphere of acceptance and compassion (MINT, 2023). It is most commonly used alongside other treatment methods such as cognitive behavioral strategies and is built on a set of core skills, fundamental principles, and main techniques.

### **Core Skills of Motivational Interviewing**

Motivational interviewing relies on a core set of provider skills: open-ended questioning, affirming, reflecting, and summarizing (Miller & Rollnick, 2023). With open-ended questioning, the provider can create a dialogue with the individual, asking questions that encourage discussion about what is going on in the individual's life and thinking process. Affirming involves offering positive feedback and reinforcing the individual's belief in themselves and their ability to take the necessary steps to move forward in their lives. The provider needs to be a strong reflective listener, repeating the individual's thoughts and feelings back to the individual to demonstrate understanding, attunement, and empathy. When summarizing, the provider needs to be attuned to what the individual is reporting to effectively capture and restate the individual's ideas around why they are considering change.

### **Principles of Motivational Interviewing**

The fundamental principles of MI include expressing empathy, developing discrepancies, rolling with resistance, and supporting self-efficacy (Miller & Rollnick, 2023). A provider's empathic expression is first dependent on building rapport with the individual through reflective listening. To develop discrepancies for further exploration, the provider points out the gaps between the individual's stated goals, values, and current behaviors. Rolling with resistance requires the provider to avoid argumentative and confrontational language. Instead, the provider

adjusts to any resistance offered by the individual rather than combatting it. To support self-efficacy, the provider maintains a positive and optimistic mindset, supporting the individual's autonomy and belief in their capacity to execute behaviors to reach constructive goals.

### **Main Techniques of Motivational Interviewing**

Successful MI depends on a provider's ability to employ engaging, focusing, evoking, and planning techniques (Miller & Rollnick, 2023). The provider engages the individual in establishing a trusting relationship by using reflective listening to understand the individual's concerns and perspective. While engaging, the provider also focuses on developing rapport, building a relationship through helping the individual let their guard down and push past ambivalence. In this way, the provider helps the individual focus their work by establishing clear initiatives and goals while identifying potential barriers to change. Evoking technique helps the individual reveal their motivation and reasons for wanting to change. The provider uses active listening to elicit the individual's own ideas and points out the individual's use of language depicting future change-oriented behavior. In short, MI sessions focus on drawing out the individual's internal motivation and reinforcing ways to build upon it. Finally, building on the established engagement, clearly defined goals, and identified motivation, the provider assists the individual with developing concrete, tangible steps to remove or overcome barriers and to move towards positive change.

### **History of Motivational Interviewing**

While a faculty member in the Department of Psychology at the University of New Mexico in 1976, William Miller conducted clinical trials of behavioral therapies for AUD. He found that two-thirds of the variance in client's drinking outcomes were attributed to the therapist's level of empathy expressed while delivering behavioral therapy (Miller, 2023). Miller

went to Norway on sabbatical in 1982 and established role-plays and provided demonstrations of his developing therapeutic techniques. He began to identify that using Carl Rogers' client-centered approach within his own style of therapeutic practice was giving birth to a new, distinct method for working with clients. Soon thereafter, Miller published a paper describing this approach, which he called motivational interviewing. Steve Rollnick, a colleague and future collaborator with Miller, was one of the initial peer reviewers of this groundbreaking manuscript. Miller then began to focus on turning this conceptual therapeutic approach into a treatment method.

While on a subsequent sabbatical leave, Miller began to work with Steve Rollnick, who was developing his PhD thesis on brief MI with heavy drinkers in a hospital setting. The two collaborated for a year developing the first edition of the MI text on preparing people to change addictive behavior with Rollnick contributing a fresh perspective, adding the concept of resolving ambivalence (Miller & Rollnick, 1991). Miller and Rollnick also incorporated the newly emerging Transtheoretical Model (TTM) built on a recognition of stages of change developed by James Prochaska and Carlo DiClemente (1982). The stages of change, ranging from pre-contemplation to action and maintenance, became a core component of identifying where an individual was said to be on a continuum headed toward recovery.

### **Project MATCH and Motivational Enhancement Therapy**

Project MATCH (Matching Alcoholism Treatments to Client Heterogeneity) was a large-scale study initiated in 1989 by the NIAAA. It was designed to rigorously analyze the hypothesis that providing one of three AUD treatment modalities based on participants' individual characteristics and needs would improve treatment outcomes. The three treatment modalities offered were cognitive behavioral coping skills therapy (CBT), twelve-step facilitation therapy

(TSF), and motivational enhancement therapy (MET). Motivational enhancement therapy distilled several key components of MI into a structured, four-session treatment modality with a standardized manual. This is particularly relevant because it was the first study involving a manualized implementation of motivational interviewing.

Ten client characteristics were selected as matching variables, including severity of alcohol involvement, cognitive impairment, motivational readiness to change, sociopathy, and typology. It was predicted that clients in the MET group with lower levels of readiness to change would have better outcomes when compared with clients with similar characteristics in the CBT group.

Clients were recruited from across the U.S. from outpatient clinical research units for one arm of the study and aftercare clinical research units for the second arm of the study. There were 952 participants in the outpatient arm and 774 participants in the aftercare arm, all of whom had an AUD diagnosis, were actively drinking during the three months prior to the study, 18 years or older, and had at least a sixth-grade reading level. Participants were excluded if they were dependent on other drugs, in acute psychosis or had other impairments or life circumstances that would impact participation or outcomes. Treatment lasted for 12 weeks after randomization and therapy sessions were videotaped for fidelity.

The study findings indicated that the hypothesis around matching client attributes to treatment modalities were not largely supported. The only attribute that had an impact was psychopathology. The study found that those participants without psychopathology had significantly more abstinence when treated in the TSF group compared with the CBT group. Participants with low motivation initially did better in the CBT group; however, over the course of follow-up, participants who began with low motivation ultimately had better outcomes in the

MET group. This is an indication that outcomes of motivational interventions designed to change people's thinking are not always immediately evident. Overall, all three treatment modalities created reductions in participant drinking, without client attributes having a significant effect.

This project helped establish MI as a valid AUD treatment method. Unlike other models, MI places greater emphasis on assessment, using the information provided by the individual to provide personalized feedback and move towards change planning. Additionally, MI is fundamentally a client-led approach whereas MET is a structured, manualized intervention that may not sync well with a given client's current stage of change. Motivational enhancement therapy has been researched as a stand-alone treatment modality, as well as in conjunction with other methods. Motivational enhancement therapy as a term is sometimes used interchangeably with MI because it takes the core tenets of MI and incorporates them into a manualized treatment process, even if the manualized version is not entirely aligned with the collaborative and conversational spirit of MI.

### **The Evolution of Motivational Interviewing**

Miller and Rollnick have changed and revised various aspects of MI over the past four decades. Their initial training workshops focused primarily on treatment techniques, but both developers felt the implementation was missing key components. The second edition of the MI text published in 2002 explained that the spirit of MI prioritizes collaboration, evocation, and autonomy and that an MI approach emphasizes these components of the therapeutic relationship rather than any specific techniques (Miller & Rollnick, 2002). The first two editions focused on preparing people for change. The third edition (2013) included a chapter emphasizing acceptance and compassion as crucial pieces of the therapeutic approach. Based on the core components noted in these editions, Miller and Rollnick recognized that MI could be a general way of

working with clients instead of just an approach for moving clients through the stages of change. The fourth edition (2023) defined MI as a “particular way of talking with people about change and growth to strengthen their own motivation and commitment” (Miller & Rollnick, 2023, p. 3). According to Miller and Rollnick, this edition of MI focuses more on individuals’ internal motivation and less on external behavior changes. The evocation component was broadened to “empowerment” to emphasize the importance of the individual’s strengths, motivations, resourcefulness, and autonomy (Miller & Rollnick, 2023). Ongoing research combined with practitioner experiences helped move MI along its trajectory toward continuous improvement. The current adaptation of MI is focused on growth, moving beyond individual behavior change, and includes discussion and opportunity for organizational, community, and system changes. In addition, the fourth edition revised MI terminology to reflect everyday language more closely.

Although the TTM stages of change are not a core component of MI, Prochaska and DiClemente (1982) recognized that understanding the TTM stages of change and how individuals at each of the five stages may react to the prospect of change can be beneficial for professionals implementing MI. In the pre-contemplation stage, the individual has not yet considered making a change. Upon entering the contemplation stage, the individual has considered making a change but is not yet ready to commit to change. In the next stage, the preparation stage, the individual is preparing for action to change in the foreseeable future. Individuals are in the action stage when they are actively implementing a plan for change, and they enter the maintenance stage when they consistently and routinely incorporate the changes into their daily life. Table 1 outlines the primary goals and responsibilities for each of the main stages of change for MI-oriented providers.

**Table 1***Stages of Change and MI Provider Goals and Responsibilities*

Stage	Provider goals and responsibilities
Pre-contemplation	Build rapport
	Gather history and engage in active listening
	Listen for discrepancies between client's reported goals and lifestyle choices
	Provide education
Contemplation	Instill hope, providing information about possibilities through lifestyle changes
	Explore both positive and negative aspects of the lifestyle choice being considered
	Use reflective listening to help the individual begin to identify the disconnect between stated goals and current behaviors
Preparation	Apply summarizing and reflecting back techniques to help the individual move towards change
	Assess the individual's commitment towards change
	Offer a menu of choices and strategies
Action	Identify supports and barriers to change
	Identify unexpected hurdles and help individual define coping strategies
	Assist individual in identifying sources of support
Maintenance	Help individual track their progress
	Continue to track gains associated with healthy change
	Identify potential relapse triggers and continue to support skill-building to prevent relapse
	Support individual in actively maintaining changes

**Literature Review Process**

Literature reviews are often conducted to understand a topic in depth. The stages of a literature review involve creating a search strategy, identifying relevant sources, summarizing and organizing them around relevant themes, and synthesizing the information that is presented by the sources. The purpose of this literature review was to assess the effectiveness and utility of



motivational interviewing and motivational enhancement therapy by identifying and synthesizing relevant studies examining their outcomes.

The first phase of the literature review included developing and refining relevant search terms that represent the topic of interest and identifying key social and behavioral sciences research databases for use in the literature search. A comprehensive search was conducted using the following databases: PsycINFO, CINAHL, MEDLINE, SocINDEX, Psychology and Behavioral Sciences Collection. The search included combinations of key terms related to MI and MET and AUD, specifically “(Motivation\* Interview\* OR Motivation\* n3 therap\*)<sup>1</sup> AND (Alcohol Use Disorder OR Alcoholism)”. The search was carried out in July 2024 and encompassed all existing literature up to that date. The second phase included using the same search terms to conduct a related search in the Cochrane Library, a well-reputed healthcare and medical research database that includes clinical trials, systematic reviews, and meta-analyses (Cochrane, 2023). This search yielded 274 additional studies.

Both searches yielded a total of 1,218 unduplicated results. Publications older than ten years as well as reviews were excluded, which yielded to a total of 661 results. Abstracts and full texts of the articles or conference abstracts were screened. They were included in the full review if they were experimental in design, used primary data, and had samples focusing on AUD and drinking or mortality related outcomes, and were conducted in North America. When conference abstracts lacked sufficient information for inclusion in the review, an attempt was made to locate a related article using the same dataset. If a related article was not found or the article was

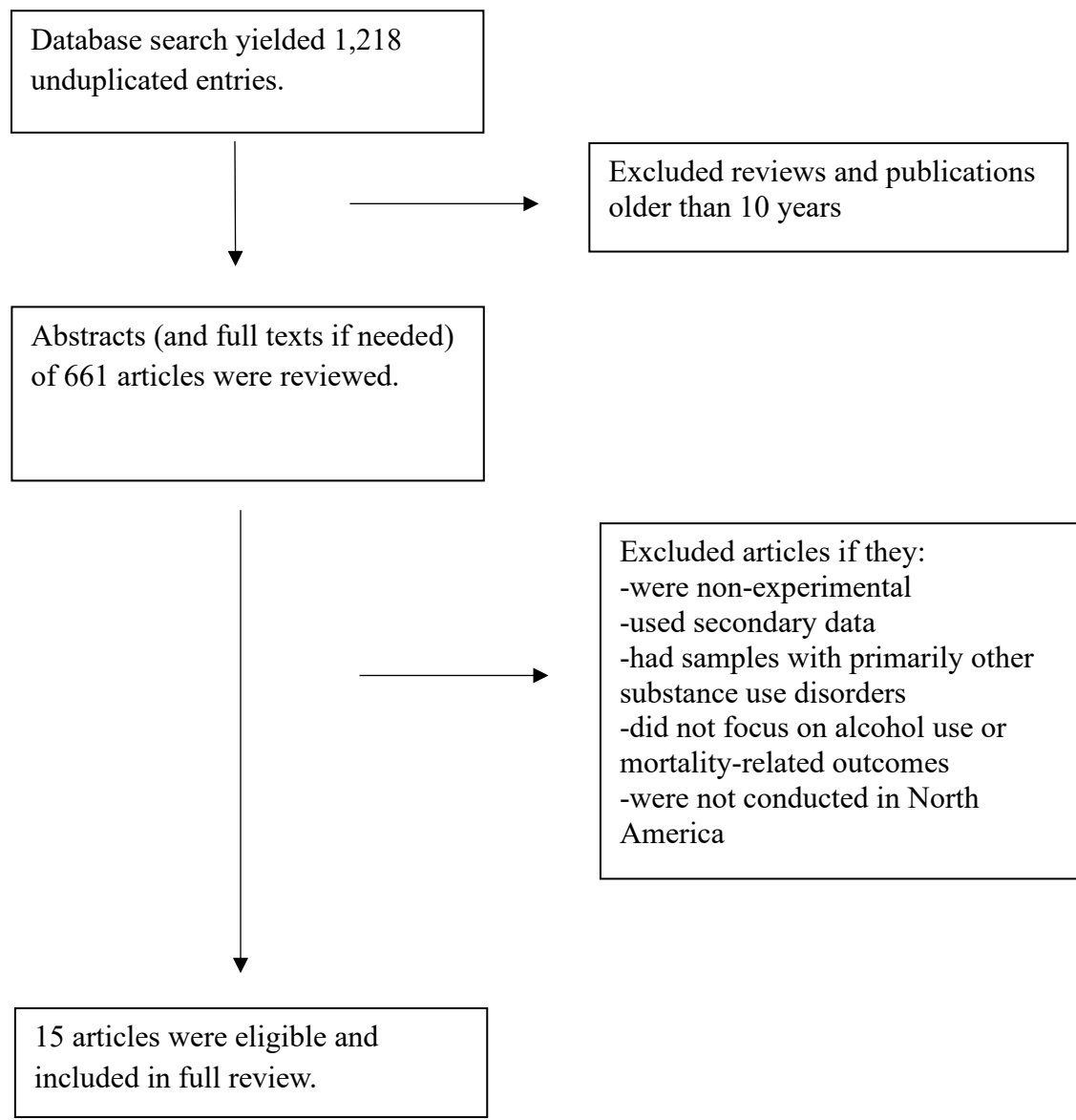
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<sup>1</sup> The "n3" specifies that the words should be within three words of each other in any order. The asterisk (\*) is a truncation symbol that will match any words starting with the given root word. For example, "therap" would search for terms like therapy, therapeutic, or therapies.

determined to be irrelevant, the conference abstract was excluded from full review. This resulted in a total of 15 articles for comprehensive review in this report.

**Figure 5**

*Literature Search Process Funnel for Identifying Motivational Interviewing/Motivational Enhancement Therapy Outcome Studies*



### **Summary of the Outcome Studies for the Motivational Interventions**

All studies included in this review employed experimental designs where participants were randomly assigned to a MI/MET condition or another treatment condition for comparison purposes. They often combined MI/MET with another treatment when evaluating the outcomes of the MI/MET. There was a total of 15 studies, however, two of them reported follow-up analysis results (Polcin et al., 2019b; Polcin et al., 2022). Studies were classified as including a blended motivational intervention when the effect of the intervention could not be solely attributed to MI or MET because the study evaluated the effects of a combined intervention. Three of the reviewed studies featured blended motivational interventions, and one examined the effects of MI and a blended intervention in later stages of the treatment (Morgenstern et al., 2021). Due to the distinct nature of blended motivational interventions, they will be discussed separately from the other MI/MET studies.

Four out of 15 studies implemented MET and three of them were part of a blended intervention. Participants across all studies were identified as having an AUD diagnosis. All 15 studies focused on alcohol use outcomes, eight studies examined treatment retention, and two reported mortality/morbidity-related outcomes. Twelve out of 15 studies included participants from special or vulnerable populations such as individuals experiencing housing insecurity (Collins et al., 2019), women (Epstein et al., 2018; Polcin et al., 2019a; Polcin et al., 2019b; Polcin et al., 2022), older adults (Andersen et al., 2020), individuals who were incarcerated (Owens & McCrady, 2016), patients with HIV (Edelman et al., 2019), army personnel (Walker et al., 2017), or veterans (Bradley et al., 2018; Dieperink et al., 2014; Santa Ana et al., 2021). All 15 studies were conducted in the U.S., with one being a multinational study that also included data from other countries (Andersen et al., 2020).

## **Motivational Interviewing and Motivational Enhancement Therapy Outcomes**

This section provides an overview of studies that have assessed the impact of MI and MET on alcohol use, treatment retention, and mortality/morbidity-related outcomes. Twelve out of 15 studies specifically examined outcomes of MI or MET, although one included a blended intervention in a later stage of the study (Morgenstern et al., 2021). All twelve studies focused on alcohol use outcomes, while six reported retention-related outcomes, and one investigated mortality and/or morbidity related outcomes. Sample sizes varied across studies, ranging from 40 to 304 participants.

The number of MI/MET sessions ranged from one (Walker et al., 2017) to 12 (Stasiewicz et al., 2023) among the studies that reported this information. For instance, Stasiewicz et al. (2023) evaluated a single MI session delivered via telephone, while Santa Ana et al. (2021) and Dieperink et al. (2014) assessed the impact of four MI or MET sessions. One study (Polcin et al., 2019a) examined an intensive MI intervention consisting of nine MI sessions among women with AUD.

### ***Alcohol Use Outcomes***

Outcomes related to alcohol use were frequently assessed through self-report measures. A few studies (e.g., Polcin et al., 2019a; Santa Ana et al., 2021) used urine drug tests to verify the self-reported alcohol use. Studies often reported the number of drinks per week, drinking frequency, and frequency of heavy drinking, and number of abstinent days. Studies were classified into three categories based on their reported outcomes. They were deemed to have a positive result if the majority of analyses showed statistically significant results favoring MI or MET. Studies were categorized as having mixed results if they reported both positive and

neutral or negative outcomes. Lastly, studies were classified as having no effect if no statistically significant results were observed.

**Studies with Positive Results.** Six studies found evidence supporting the use of MI/MET for AUD. Two of those studies reported follow-up outcomes at six-month (Polcin et al., 2019b) and 12-month (Polcin et al., 2022) assessments for the original study by Polcin et al. (2019a). Fidelity was monitored in all the studies and sample sizes ranged from 118 to 242.

Walker et al. (2017) assessed the effectiveness of a motivational interviewing plus feedback (MIF) intervention among 242 active-duty army personnel with AUD. Participants were randomized to a single session of MIF or one session of education on alcohol and other drugs. Both interventions were delivered over the phone. Average fidelity ratings were high, indicating strong adherence to motivational interviewing skills for MIF sessions. Authors hypothesized that MIF would be associated with better alcohol use outcomes compared to education condition. Participants in both groups reported statistically significant reductions in drinking over time. This included significant reductions in the number of drinks per week, in the frequency of drinking (number of days consuming alcohol per week), and in the frequency of heavy drinking episodes (number of times wherein participants drank four-plus drinks in one sitting per week for women and five-plus for men). Although the results indicated no statistically significant treatment effect on general drinking frequency, participants in the MIF group reported having statistically significantly fewer drinks per week and marginally fewer heavy drinking episodes compared to the control. Compared to the participants in the education group, fewer participants in the MIF group had an alcohol dependence diagnosis compared to the control group, but this finding was only marginally significant.

Collins et al. (2019) studied the impact of harm reduction treatment for alcohol (HaRT-A) for 169 individuals experiencing housing insecurity and had AUD. The HaRT approach is a low-barrier, low-intensity approach which is patient-driven. Participants were randomly allocated after baseline assessment to either the HaRT-A treatment group or the services-as-usual group. The HaRT-A group participants got three weekly treatment sessions as well as a one-month booster session. The components of the intervention were developed jointly with individuals who had lived experience of housing insecurity and AUD. The first of these components was joint tracking of alcohol-related metrics that participants preferred. The second was focusing primarily on eliciting participants' own harm reduction and/or quality of life goals for treatment. Thirdly, the intervention included discussion of safer drinking strategies. Treatment integrity was assessed, all staff were trained and supervised regularly, and sessions were reviewed by highly experienced licensed clinical psychologists. Alcohol outcomes measured both quantity and frequency of drinking to reflect risk for harm. Specifically, peak alcohol quantity and number of days drinking to intoxication were measured. Self-reports were used in conjunction with the Blood Alcohol Concentration Calculation System (BACCUS) (Markam et al., 1993) to note the number of standard drinks that participants had on their heaviest drinking days in the previous fortnight. Urinalysis also was undertaken. Results demonstrated that when compared to the control group, HaRT-A participants showed significantly greater increase in confidence with regard to engaging in harm reduction as well as decreases in AUD symptoms, peak alcohol use, alcohol-related harm, and positive urinary ethyl glucuronide tests. The study concluded that the HaRT-A approach can contribute in the short-term to enhancing positive AUD outcomes.

Polcin et al. (2019a; 2019b; 2022) compared the effectiveness of intensive MI (IMI) to a single session of MI (SMI) among 215 women with AUD. The first study (Polcin et al., 2019a)

examined the outcomes of the intervention after two months. Participants in the experimental group received nine sessions of IMI, while participants in the comparison group received one session of SMI plus eight hours of nutrition education to achieve time equivalence with the experimental group. Fidelity to MI was monitored by reviewing the session recordings. Both groups received weekly group-based treatment. Alcohol use was measured using timeline follow-back that recorded self-reports of drinking days and heavy drinking days. The validity of self-reported alcohol use was examined with an ethyl glucuronide (EtG) metabolite testing. The concordance between self-reported alcohol use and metabolite test results was acceptable, with about 2% of the sample at baseline and 8% at the two-month follow-up had positive EtG tests despite reporting no alcohol use in the past three days. Both groups had statistically significant reductions in alcohol use, heavy alcohol use, and addiction severity index (ASI) scores with no significant differences between the two groups. However, when comparing outcomes between subsamples characterized by heavy drinking (i.e., drinking to intoxication for more than 14 days in the past 30 days), the results showed that women in the IMI group had greater improvements in percent drinking days. Specifically, among women who were heavy drinkers, those in the IMI group reported drinking on 47% of the past 60 days, compared to 61% for those in the SMI group. Similarly, among women who were heavy drinkers, those in the IMI group reported heavy drinking on 23% of the past 60 days, compared to 32% for those in the SMI group.

The second study by Polcin et al. (2019b) compared the outcomes of the original study at 6-month follow-up and found similar results. Both IMI and SMI groups had reductions in the percent drinking days, with no statistically significant differences between the groups. Similar to the 2-month outcomes, women who were heavy drinkers in the IMI group reported greater improvements in percent drinking days compared to their counterparts in the SMI group, with a

statistically significant difference. The percent heavy drinking days, however, was not statistically significantly different between the two groups.

The last study by Polcin et al. (2022) examined the 12-month heavy drinking outcomes and assessed the effects of the moderating variables. The entire sample, including IMI and SMI groups, showed a statistically significant reduction in percent heavy drinking days, with no statistically significant differences between the groups. Women who were heavy drinkers and received IMI showed a trend towards greater improvement in heavy drinking. Further analyses showed that specific characteristics of the women were associated with better outcomes, with those who had lower psychiatric severity, higher motivation, and severe physical and impulse problems related to drinking benefiting most from MI. The effects of motivation and psychiatric severity were evident at two- and 12-month follow-ups whereas the effects of physical and impulse control problems were observed at all time points.

Santa Ana et al. (2021) evaluated the efficacy of group motivational interviewing (GMI) in reducing alcohol use among 118 veterans with SUD, AUD and co-occurring psychiatric conditions. Participants were randomized to either a GMI or treatment control group (TCC). Those in the GMI group received four sessions based on the principles of MI and a manualized GMI protocol. Fidelity measures included assessing MI therapist competence, coder training, determining inter-rater reliability, intensive training of therapists on the GMI treatment manual, practice sessions with volunteers, practice session reviews, and feedback and supervision throughout the recruitment process. Those in the TCC group had four sessions of psychoeducational intervention which lasted for as much time as GMI and was designed as a control condition with a high benchmark that included cognitive behavioral skills as well as relapse prevention. Alcohol use was measured via self-report along with some objective



measures such as breathalyzer and urinalysis to validate the self-reports of use. GMI participants showed statistically significant reductions in binge drinking days compared to TCC participants at both one and three months. GMI was linked to a 26% decrease in binge drinking days at both follow-ups. GMI participants also had statistically significant fewer alcohol use days at three months, with a 21% reduction. GMI was more effective at reducing alcohol-related consequences, showing a statistically significant 51% reduction at three months compared to TCC. While both groups saw decreases in alcohol use days and consequences from the start, the differences between groups at one month assessment were not statistically significant.

**Studies with Mixed Results.** Three studies yielded mixed but promising results on the effectiveness of motivational interventions for reducing alcohol use. Dieperink et al. (2014) reported differential findings across two alcohol-use outcome measures within their study. Owens and McCrady (2016) did not find any between group differences but found a within group difference for the MI group in one of the outcome measures that included alcohol use. Morgenstern et al. (2021) observed varying results depending on the combinations of treatment modalities employed in their study.

Dieperink et al. (2014) conducted a randomized controlled trial to assess the efficacy of MET in reducing alcohol consumption among veterans with chronic hepatitis C virus (HCV) and AUD. The study enrolled 139 participants who were randomized to either MET or control group consisting of general health education. The MET group underwent four sessions over three months, designed to enhance motivation for reducing alcohol use by highlighting the adverse effects of alcohol on liver health in the context of HCV. Fidelity to MET was high, which was monitored via audiotaped sessions. The primary outcomes measured were the percentage of days abstinent from alcohol and the number of standard drinks consumed per week, assessed at

baseline, three months, and six months. The results indicated that the MET group had a statistically significant increase in the percentage of days abstinent, rising from about 35% at baseline to 73 % at six months, compared to the control group's increase from 35% to 59%. Both groups showed reductions in the number of drinks per week, with the MET group decreasing from 35.4 to 15.5 drinks per week on average and the control group from 38.9 to 22.1, with no significant differences between the two groups. Statistically significant improvements in 30-day abstinence and reductions in heavy drinking days were observed at 6 months in both groups, again with no statistically significant differences between the groups. Finally, reductions in objective measures of alcohol use such as EtG were seen over 6 months in both groups, but there were no significant differences between the groups.

Owens and McCrady (2016) conducted a pilot study to examine the feasibility and efficacy of a brief MI aimed at reducing alcohol and substance use among 40 individuals who were incarcerated and had AUD and other SUDs. The participants were scheduled for release from jail within 30 days. Participants were randomized to either MI, which aimed to reduce alcohol and drug use and modifying social networks, or to the control group, which included an educational intervention (EI) involving substance use-related videos and quizzes. Fidelity to MI was monitored via audiotapes. The treatment condition was not a significant predictor of percentage of days of alcohol use only, drug use only, joint alcohol and drug use, or complete abstinence. Within group comparisons showed that the MI group had a statistically significant increase in the mean number of days of complete abstinence and drug use. There was no significant within- group change in the measure of alcohol use alone. The EI group did not have a significant within-group difference in any of the alcohol or drug use measures. The study concluded that while the MI intervention appeared feasible and was well-received by

participants, further research with larger sample sizes and longer follow-up periods is needed to confirm these preliminary findings and to determine the potential long-term benefits of MI for this population.

Morgenstern et al. (2021) conducted an efficacy trial using a sequential multiple assignment randomized trial (SMART) design to test adaptive interventions for individuals with AUD. The study recruited 160 participants with the goal of reducing or abstaining from alcohol use. Initially, all participants received a brief advice (BA) session, followed by a reassessment after three weeks. Nonresponders, defined as those not meeting low-risk drinking guidelines, were randomized to either additional BA (BA Plus) or two sessions of MI. After another four weeks, participants who still did not respond were re-randomized to either continued MI alone or MI combined with behavioral self-control therapy (BSCT). Fidelity to MI was monitored via session recordings and weekly supervisor meetings. The primary outcomes measured were the sum of standard drinks (SSD) and the number of heavy drinking days (HDD) at various time points. Results indicated that participants receiving any BSCT achieved the greatest reductions in drinking. Specifically, those who received MI at week 4 followed by BSCT at week 8 outperformed all other groups in reducing alcohol consumption, particularly in lowering the number of heavy drinking days. The authors hypothesized that among non-responders to initial BA, week 4 MI would outperform week 4 BA Plus, but they concluded that their findings did not support this with null findings. The study concluded that prolonged treatment involving a combination of MI and BSCT provided the most effective outcomes, suggesting that adaptive interventions could be helpful in treating AUD, especially for individuals who do not respond to initial brief interventions.

**Studies with No Statistically Significant Effect.** Three studies found no statistically significant difference between the intervention and control group in any alcohol use-related domains. Stasiewicz et al (2023) used a customized treatment approach to incorporate pretreatment changes in drinking. A total of 201 participants with AUD were assessed for changes in drinking habits during an 8-week pretreatment phase. Participants who showed a substantial change in drinking were randomized to either six sessions of relapse prevention treatment (RPT) or 12 sessions of cognitive behavioral therapy (CBT) for AUD, the latter being the active control. Those who showed a minimal change in drinking were randomized to either CBT-alone or MI plus CBT groups. The MI plus CBT group received 12 sessions of CBT with the first two sessions including MI with personalized normative feedback. Fidelity to MI was monitored. The main outcome measures were the number of days abstinent per week (NDA) and number of heavy drinking days per week (NDH). Results found that for participants with minimal pretreatment change, there was no significant difference between standard CBT and MI plus CBT groups in drinking outcomes as measured by NDA and NDH. This result was held for end-of-treatment and the three- and six-months post treatment follow-up. For those with the substantial change, the study found that six sessions of RPT were no less effective than 12 sessions of CBT for both NDA and NDH. This finding suggests that a less intensive treatment, like RPT, if provided initially can lower costs and contribute to conserving clinical resources.

Morgenstern et al. (2017) examined whether breaking MI down into relational components compared with relational components plus directional components would impact drinking outcomes among adults with AUD who wanted to reduce their drinking. The traditional MI group received four sessions of the manualized MET intervention used in the MATCH study. The key components of this intervention included empathetic and client-

centered discussions, combined with directional activities and skill-building with the goal of eliciting change talk and supporting the participants' commitment to change. The second group received spirit-only MI (SOMI), which included empathetic and client-centered discussions but distinctly removed the directional activities and change talk. The motivational interviewing treatment integrity code (MITI) (Moyers et al., 2010) was used to determine and measure fidelity to the two versions of MI offered in the study. The control group received no interventions but were encouraged to change their behavior. All three groups reduced their drinking from the start of the study, but there were no statistically significant differences between groups regarding alcohol consumption per self-report. The study also examined whether there was a greater impact on changing drinking behaviors for those who started the study with lower motivation and received traditional MI. The study found that there were no statistically significant differences in drinking outcomes between the groups, regardless of the beginning motivation levels of participants. The SOMI group demonstrated stronger empathy scores than the traditional MI group, as that was the main focus of the SOMI intervention. The traditional MI group demonstrated higher scores in evocation and direction, as that was their main area of focus.

Bradley et al. (2018) examined the effectiveness of 12 months of nurse-delivered alcohol care management (CHOICE intervention) compared to usual care among 304 veterans with or at high risk for AUD. The CHOICE intervention included outreach and engagement, repeated brief counseling using MI and shared decision making about treatment options, and AUD medications. The usual care included primary care with the possibility of accessing behavioral healthcare. Nurse practitioners were trained in MI; however, fidelity was not monitored. There were no statistically significant differences in any of the alcohol use measures between the

groups. The CHOICE group showed 39% heavy drinking days, while the usual care group had 35% at 12-month assessment. Good drinking outcomes, defined as abstinence or drinking below recommended limits in the previous 28 days, were observed in 15% of patients (18 out of 124) in the intervention group and 20% (27 out of 134) in the usual care group.

### ***Summary of Drug Use Outcomes***

The reviewed studies point to the effectiveness of motivational interventions in decreasing alcohol use among individuals with AUD. Six studies found that motivational interventions helped reduce alcohol use, three studies showed mixed results, and three studies found no statistically significant differences between or within the groups.

Among the positive findings, MI demonstrated success in reducing drinks per week and heavy drinking episodes in military personnel (Walker et al., 2017), decreasing AUD symptoms and alcohol-related harm in individuals experiencing housing insecurity (Collins et al., 2019), and improving drinking outcomes for women who were drinking heavily (Polcin et al., 2019a, 2019b, 2022). Group MI was also effective in reducing alcohol use days among veterans with SUDs and co-occurring psychiatric conditions (Santa Ana et al., 2021). Studies with mixed results showed improvements in some areas but not others. For instance, MET increased abstinence days but did not significantly reduce drinks per week in veterans with HCV and AUD compared to the control group (Dieperink et al., 2014). Finally, some studies found no statistically significant impact of MI (Morgenstern et al., 2017; Bradley et al., 2018; Stasiewicz et al., 2023) and only one of the studies involved a special or vulnerable population which included veterans (Bradley et al., 2018).

Most studies relied on self-reported measures, with some incorporating objective methods of measurement for mostly verification purposes. All except one study (Bradley et al.,

2018) monitored fidelity to MI. While many studies show that MI and MET are effective in treating AUD, particularly for specific populations, the overall evidence suggests that more research may be needed to determine the most effective applications of these approaches.

### ***Treatment Retention Outcomes***

Retention in treatment was reported by six studies. Studies often reported attendance and treatment completion rates across treatment groups. Only one study conducted statistical comparisons and found no significant difference between the groups (Santa Ana et al., 2021). Walker et al. (2017) compared MI with feedback (MIF) to a control group among 242 army personnel with AUD. Both interventions were delivered in a single phone session. The study reported high completion rates for both groups, with 79.2% of MIF participants and 86.9% of control group participants completing the intervention.

Collins et al. (2019) studied 169 individuals experiencing housing insecurity, comparing a harm reduction treatment for alcohol (HaRT-A) to services as usual. The HaRT-A group received three weekly sessions and a booster session. Retention rates were similar between groups, ranging from 100% at the first session to 76% for HaRT-A and 72% for the control group by the last session.

Dieperink et al. (2014) examined 139 veterans with HCV and AUD, comparing four sessions of MET over three months to general health education. Attendance rates were comparable, with 40 out of 70 MET participants and 38 out of 68 control participants attending all four sessions.

Santa Ana et al. (2021) studied 118 veterans with substance use disorders, comparing four sessions of group MI (GMI) to a control condition. On average, participants attended 3.4 out of 4

sessions, with 86.4% of GMI and 79.7% of control group participants attending three or more sessions. No statistically significant differences were found between groups.

Morgenstern et al. (2021) conducted a study with 160 participants with AUD and reported high overall retention rates across intervention groups, ranging from 92.0% at week four to 74.2% at the 24-week assessment. Participants in the MI-only group had a 97% attendance rate, while those in the MI plus behavioral self-control therapy (BSCT) group attended 90% of possible sessions despite having more sessions to attend.

Polcin et al. (2019a) compared intensive MI (IMI) to standard single-session MI (SMI) among 215 women with AUD. The IMI group was offered nine sessions of IMI and group treatment, while the SMI group received one MI session, eight hours of nutrition education, and weekly group treatment. Attendance rates were similar between groups, with IMI participants attending an average of 7.4 IMI sessions and 5.9 group sessions, while all SMI participants attended their single MI session and an average of 5.1 group sessions.

Overall, these studies demonstrate generally high retention and completion rates across various motivational interventions for AUD, with most studies showing comparable rates between intervention and control groups. However, it is important to note that statistical comparisons of retention rates across the groups were often not provided.

### ***Mortality/Morbidity Related Outcomes***

Only one study reported mortality/morbidity related outcomes. Dieperink et al. (2014) reported a total of 14 adverse events among participants in the control group (e.g., three deaths, seven non-alcohol- and four alcohol-related hospitalizations) and seven such events among those enrolled in the MET group (e.g., two deaths, three non- alcohol- and two alcohol-related hospitalizations).



## **Blended Motivational Interventions**

Three of the 15 reviewed studies examined outcomes of blended motivational interventions, and each incorporated a unique combination of therapeutic approaches and components along with MET. All three studies focused on alcohol use outcomes and two reported treatment retention outcomes, and one investigated mortality/morbidity-related outcomes. Sample sizes varied from 128 to 693 participants and all studies monitored fidelity.

### *Alcohol Use Outcomes*

All three studies examined drug use outcomes associated with blended motivational interventions. Alcohol use was measured through self-report among all studies, with one incorporating an objective measure of use via breathalyzer to validate the self-report data (Epstein et al., 2018) and another study using blood alcohol concentration less than 0.05% to conceptualize treatment success (Andersen et al., 2020).

Epstein et al. (2018) compared the effectiveness of group-based and individual cognitive behavioral therapy (CBT) among 155 women with AUD. Participants were randomly assigned to six weeks of group-based female-specific cognitive behavioral therapy (G-FS-CBT) or individual female-specific cognitive behavioral therapy (I-FS-CBT). An existing I-FS-CBT manual served as a blueprint for developing a treatment protocol for G-FS-CBT. Both treatment modalities consisted of 12 sessions that included elements of CBT, motivational enhancement, and relapse prevention. Therapy integrity fidelity was assessed for a subset of recorded therapy sessions and the results from independent coders showed high fidelity of delivery for both interventions. Primary study outcomes included percentage of drinking days (PDD), percentage of heavy drinking days (PHDD), mean drinks per drinking day (MDPDD), and percent of abstinent samples. The results pointed to comparable efficacy of G-FS-CBT and I-FS-CBT for

alcohol use. Women in both study conditions reported statistically significant reductions in the percent drinking days (PDD) and percent heavy days drinking (PHD) by equivalent amounts. These reductions were sustained at the 12-month follow-up. There were no statistically significant differences between the groups.

Edelman and colleagues (2019) compared the effects of integrated stepped alcohol treatment (ISAT) and treatment as usual on alcohol use and HIV outcomes among 128 individuals living with HIV who had an AUD diagnosis. Participants were recruited throughout four states and randomized 24 weeks of ISAT or TAU. Those who were in the ISAT group received a three-step adaptive treatment beginning with physician management for addiction and medication, progressing to additional MET for those still drinking heavily after 4 weeks, and continuing with referral to specialty services such as intensive outpatient or residential treatment for those who were persistent heavy drinkers at 12 weeks. To ensure fidelity, each session was recorded and randomly reviewed by a study psychologist. Primary study outcomes included alcohol use (i.e., number of drinks per week over the past 30 days). Additional outcomes included treatment completion, receipt of medication, days without heavy drinking, number of drinks per drinking day, days of abstinence, blood alcohol concentration, and two HIV measures. Authors hypothesized that assignment to ISAT would be associated with fewer drinks per week as compared to TAU. The results pointed to an overall decrease in alcohol use among participants in both study groups. At 24 weeks ISAT participants consumed an average of 10.4 drinks per week, compared to 15.6 drinks per week for TAU participants. However, this difference was not statistically significant. The proportion of participants without heavy drinking, the number of drinks per drinking day, and proportion of days abstinent were also comparable and not statistically different between the ISAT and TAU groups. At the 52-week assessment,

more participants in the ISAT group reported no heavy drinking day and fewer drinks per drinking day compared to the TAU, but none of these differences were statistically significant. However, participants in the ISAT groups were statistically significantly more likely to have a higher proportion of days abstinent compared to the TAU group.

Andersen et al. (2020) conducted a multinational randomized controlled trial to assess the effectiveness of combining the community reinforcement approach for seniors (CRA-S) and MET on alcohol use outcomes among individuals 60 years of age and older with AUD. Participants were recruited from outpatient treatment facilities in Denmark and Germany and a primary care clinic in the U.S. A total of 693 individuals were randomized to receive four weekly sessions of MI/ MET or 12 weeks sessions of MET plus age-adapted, CBT-oriented content based on the community reinforcement approach (MET plus CRA-S). Both interventions were implemented based on two manuals designed for older adults. Therapists who delivered both the MET and MET plus CRA-S interventions were trained and later supervised to ensure adherence to treatment manuals. Primary study outcome was treatment success operationalized through blood alcohol concentration less than 0.05% in the past 30 days and total alcohol abstinence. Additional outcomes included change in drinks per week, change in number of binge drinking days, and quality of life. Overall, the authors found no evidence that adding CRA-S to MET improved alcohol outcomes among seniors with AUD. Specifically, the treatment success rate was 48.9% among participants in the MET groups compared to 52.3% among those who received MET plus CRA-S. There was not a statistically significant difference in the odds of success between the two conditions. However, older age and male gender were statistically significantly associated with treatment success. Participants in both groups reported fewer drinking days and binge drinking days, as well as improved quality of life. In respect to country-

specific results, at the 12 and 26-week assessment, the rates of treatment success among U.S. participants assigned to MET plus CRA-S were higher (48.4% at 12 weeks and 57.4% at 26 weeks) compared to those among the MET group (36.1% during week 12 and 44.9% during week 26). Although promising, it is unknown whether these differences were statistically significant.

### ***Summary of Alcohol Use Outcomes***

Studies found promising results for the effectiveness of blended motivational interventions. In their comparison of individual and group-based cognitive behavioral therapy that included elements of MI, Epstein et al. (2018) found that both approaches were equally effective in reducing drinking among women with AUD. Edelman et al. (2019) compared integrated stepped alcohol treatment (ISAT) to treatment as usual for individuals with HIV and AUD, finding no significant differences in alcohol use outcomes between the two groups, except for a higher proportion of abstinent days in the ISAT group at 52 weeks. Andersen et al. (2020) found no significant effect of the addition of CRA-S to MET compared to MET alone, although both groups had reductions in drinking. Overall, these studies suggest that blended motivational interventions can be effective in reducing alcohol use.

### ***Treatment Retention Outcomes***

Two studies reported treatment retention outcomes and only one conducted statistical comparisons (Epstein et al., 2018). In their comparison of individual (I-FS-CBT) and group-based cognitive behavioral therapy (G-FS-CBT), Epstein et al. (2018) reported that women in the I-FS-CBT group attended statistically significantly more sessions on average (mean = 9.7) compared to those in the G-FS-CBT group (mean = 7.6). In addition, women in the I-FS-CBT group stayed in treatment for about 10 days longer than those in the G-FS-CBT group.

In their multinational study, Andersen et al. (2020) found that participation rates varied across sites for both MET plus CRA-S and MET-alone groups. Eighty-three percent of the MET-only group and 88% of MET plus CRA-S group completed all four sessions of MET. Regarding the additional CRA-S sessions for the MET plus CRA-S group, 37% of participants attended all eight CRA-S sessions.

### ***Mortality/Morbidity Related Outcomes***

One study examined mortality/morbidity related outcomes by investigating undetectable HIV viral loads (Edelman et al., 2019). The study compared the effects of ISAT and treatment as usual on HIV outcomes among 128 individuals living with an HIV and AUD. Despite reporting no group differences in the proportion of participants with an undetectable HIV viral load at week 24, the study found that the proportion was significantly higher at week 52 in the ISAT group than in the treatment as usual group.

### **Limitations**

This literature review provided some valuable insights into the effectiveness of MI and MET along with blended motivational interventions, but it was not without limitations. First, while the search process was systematic, it was confined to studies published within the last 10 years and conducted in North America. While the purpose was to provide current and contextually relevant information about MI and MET, it might have excluded potentially valuable research from other time periods or countries. The review also only included studies with experimental designs that ensured a high level of evidence, however, it might have overlooked important findings from observational or qualitative studies that could have provided additional context or nuance to the understanding of the effectiveness of MI and MET. Moreover, studies were included only if the whole sample or the majority of it had a diagnosis of AUD.

Secondly, studies had considerable variations in the types of interventions and the number of sessions. For example, some studies examined brief, single-session interventions (Walker et al., 2017), while others investigated more intensive approaches (Polcin et al., 2019a). The comparison groups also varied widely, ranging from treatment as usual (TAU) to other active interventions, with some comparing different types of MI (e.g., Polcin et al., 2019a; Epstein et al., 2018), another active intervention (e.g., Morgenstern et al., 2021) or TAU (e.g., Collins et al., 2019). The variety of comparison strategies created difficulty in drawing definitive conclusions about the relative effectiveness of MI and MET.

Finally, measurement of alcohol use outcome poses another limitation. Many studies relied heavily on self-report, which is subject to recall bias and social desirability. While some studies incorporated objective measures to validate self-reported data, this was not consistent across all studies. Few studies reported outcomes based on both self-report and objective measures (e.g., Dieperink et al., 2014). Operationalization of alcohol use also varied across studies with most using multiple measures to assess the outcome. As such, many studies looked at number of drinks per week (e.g., Dieperink et al., 2014; Edelman et al., 2019; Walker et al., 2017), alcohol drinking days (e.g., Polcin et al., 2019a; Santa Ana et al., 2021; Walker et al., 2017), and binge or heavy drinking (e.g., Morgenstern et al., 2021; Polcin et al., 2019a; Santa Ana et al., 2021). The variability in outcome measures used across studies made direct comparisons challenging.

Despite these limitations, this review provides valuable insights into the current state of research on MI and MET specifically for AUD. The inclusion of randomized controlled trials offers a strong foundation for understanding the potential effectiveness of these interventions.

## Conclusion

The results of the review suggest that motivational interventions can be effective in reducing alcohol consumption. Six out of twelve studies focusing on MI/MET reported positive outcomes (Walker et al., 2017; Collins et al., 2019; Polcin et al., 2019a, 2019b, 2022; Santa Ana et al., 2021), while three showed mixed results (Dieperink et al., 2014; Owens & McCrady, 2016; Morgenstern et al., 2021). For instance, MI was effective in reducing drinks per week and heavy drinking episodes in military personnel (Walker et al., 2017) and decreasing AUD symptoms and alcohol-related harm in individuals experiencing housing insecurity (Collins et al., 2019). Intensive MI showed promise for women who were drinking heavily (Polcin et al., 2019a, 2019b, 2022), suggesting that tailored MI interventions may be more effective for specific populations. Studies with mixed results also lend some evidence to effectiveness of MI or MET for at least some measures of alcohol use such as the number of abstinence days but not for drinks per week (Dieperink et al., 2014). However, it's important to note that three studies found no significant effect of MI/MET compared to control conditions (Morgenstern et al., 2017; Bradley et al., 2018; Stasiewicz et al., 2023), highlighting the need for further research to understand the factors that influence intervention effectiveness. Studies examining blended motivational interventions showed promising results, with all three reviewed studies reporting reductions in alcohol use at least in some of the measures (Epstein et al., 2018; Edelman et al., 2019; Andersen et al., 2020).

Treatment retention was examined to a lesser extent with the majority of the studies reporting high retention rates. Mortality or morbidity outcomes were almost nonexistent in the reviewed literature. While it is understandable that researchers focus on more easily measured

proxy outcomes like alcohol use, it is assumed that reductions in alcohol consumption will translate to decreased morbidity and mortality in the long term.

Several studies focused on special or vulnerable populations, including women, individuals experiencing housing insecurity, veterans, and older adults. The review showed that motivational interventions were generally effective with these special populations. MI or MET was often tailored to specific population needs in these studies. For example, one of the studies evaluated the impact of harm reduction treatment for alcohol (HaRT-A) that was developed collaboratively with the community members who had lived experience of housing insecurity and AUD to address their needs that a regular abstinence-based treatment often fell short of (Collins et al., 2019).

Since this review included articles published within the last ten years, we searched for reviews published between 2010 and 2014 to find out the impact of motivational interventions on alcohol use among the older studies. Two of the reviews included alcohol use as part of overall substance use behaviors among adolescents (Barnett et al., 2012; Jensen et al., 2011), and one focused on alcohol misuse in young adults (Foxcroft et al., 2016). Barnett et al. (2012) and Jensen et al. (2011) found support for the effectiveness of MI in reducing alcohol and drug use among adolescents, with Jensen et al. (2011) reporting a small effect size in their meta-analytic review. Foxcroft et al. (2016) examined studies with at least four months of follow-up and found that MI was effective in reducing alcohol consumption among young adults. Overall, these reviews suggest that motivational interventions could help reduce alcohol use.

In conclusion, this review highlights the potential of MI and MET in treating AUD, aligning with older reviews. The studies comparing different versions of MI-based interventions



provide valuable insights into the potential effectiveness of varying intensities, components, and delivery formats of motivational interventions.

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