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The Relationship between Alcohol-Related Protective Behavioral Strategies and Readiness to Quit Alcohol

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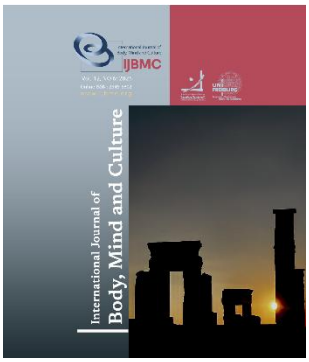

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ABSTRACT

Objective: This study aims mainly to determine the direct and indirect effects of alcohol-related protective behavioral strategies on readiness to quit alcohol.

Methods and Materials: A descriptive, cross-sectional study was conducted at selected health centers in Baghdad. A convenience sample of 274 patients diagnosed with an Alcohol Use Disorder was recruited. Data were collected using a structured questionnaire that included demographic information and a validated scale: Alcohol Use Disorders Identification Test, Alcohol-Related Protective Behavioral Strategies Scale, and Alcohol Stages of Change the Short Form. Descriptive statistics and inferential analyses were used.

Findings: The study results demonstrate that most of the participants are in the Precontemplation Stage of Change for alcohol consuming. Alcohol-related protective behavioral strategies have a statistically significant effect on readiness to quit alcohol. Protective Behavioral Strategies interventions should be integrated into Alcohol Use Disorder treatment protocols to enhance patients' readiness to change.

Conclusion: Future research should explore longitudinal PBS effects and culturally tailored motivational interventions.

Keywords: Alcohol use disorder, Readiness to Change, Protective Behavioral Strategies.

Introduction

Substance use is the use of selected substances, including alcohol, tobacco products, illicit drugs, inhalants, and other substances that can be consumed, inhaled, injected, or otherwise absorbed into the body and have addictive potential and harmful effects (Centers for Disease Prevention and Control, 2024).

The American Psychiatric Association (APA), in The Diagnostic and Statistical Manual of Mental Disorders, the fifth edition text review (DSM-5TR), described the substance use disorder as a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues using the substance despite significant substance-related problems (American Psychiatric Association, 2022).

Substance use is prevalent worldwide. Globally, the prevalence of substance-use disorders was 2.2%, with a higher prevalence of alcohol-use disorders (1.5%) than other drug use disorders (Castaldelli-Maia & Bhugra, 2022). Problems related to alcohol consumption and alcohol-related disorder are considered as public health

problems, they range from social drinking, problematic drinking, and risky drinking to alcohol addiction (Ilhan & Yapar, 2020).

Annually, alcohol use is reported by the majority of adults in Europe (59.9%), the Americas (54.1%), and the Western Pacific (53.8%). Around 2.3 billion adults drink alcohol at least annually globally (MacKillop et al., 2022). More than 30 million adults consume alcohol in the Eastern Mediterranean Region, its prevalence (6.2%) which is twofold the estimate (2.6%) in 2016, informed by the World Health Organization (Rostam-Abadi et al., 2024). This rate suggests a significant increasing in alcohol consuming within the region.

Alcohol per capita, which is the amount of alcohol consumed by persons aged 15-years and older in one year, measured in liters of pure alcohol. In Iraq, alcohol per capita is 0.16 liters of pure alcohol in 2019 (CIA, 2019). Muzil (2023) reported that alcohol has been the most common type of addiction among the treated clients (37.8%) at most health care settings (Muzil et al., 2023).

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) defines high-risk alcohol use as more than four drinks per day or 14 in a week for men, and more than three drinks a day or seven per week for women, and defines the binge drinking as drinking an amount in about two hours that brings the blood alcohol concentration (BAC) to a level of 0.08 grams per deciliter (g/dL), typically four drinks for women and five drinks for men (National Institute on Alcohol Abuse and Alcoholism, 2007).

Alcohol consumption and excessive alcohol use increase the risks of developing non-communicable diseases including liver diseases, heart diseases, and different types of cancers including breast, colon, and liver as well as psychiatric disorder and behavioral conditions including depression, anxiety, and alcohol use disorders (AUD). Alarmingly, alcohol use is responsible for more than 200 diseases, injuries, and health problems and is the third leading cause of death worldwide (World Health Organization, 2024).

Risky alcohol consuming is also associated with serious intentional or unintentional injuries, including falls, drowning, burns, sexual assault, domestic violence, and suicide (McCutcheon, 2017).

Alcohol-related protective behavioral strategies are individual actions aimed at limiting, reducing, or stopping alcohol use to minimize its harmful consequences (De Leon et al., 2023).

Alcohol-Related PBS regulate consumption practices (e.g., abstaining from shots) focus on the regulation of alcohol intake and exhibit a negative correlation with high-risk drinking behaviors, while PBS strategies aimed at significant harm reduction (e.g., utilizing a designated driver) are inversely related to adverse alcohol-related outcomes (Lee et al., 2019).

Strategies to reduce serious harm represent a treatment target that could potentially reduce negative consequences associated with drinking. (Granato et al., 2018). Studies have shown that the way individuals drink alcohol is one of the most powerful factors in reducing alcohol consumption and limiting its negative consequences. People who initially adopt more mindful drinking patterns were less likely to consume large amounts of alcohol, and were less likely to experience binge drinking or subsequent negative consequences due to drinking. In the long term, adopting meaningful harm reduction strategies was associated with significantly lower alcohol consumption frequency, suggesting the importance of these approaches in promoting safer and more sustainable drinking behaviors (Fernández-Calderón et al., 2021; Linden-Carmichael et al., 2018).

Another important psychological factor in the context of alcohol use is the Readiness to Change (RTC), which refers to an individual's current state of preparedness, to initiate, sustain, or modify a specific health-related behavior, as conceptualized within the Transtheoretical Model (TTM). It is operationalized through measurable indicators of motivational engagement and behavioral intention, which correspond to progression through the TTM's stages of change; precontemplation, contemplation, preparation, action, maintenance (Heather et al., 2010).

Excessive consumption of alcoholic beverages yields detrimental consequences not solely for the health of the consumers but also for the individuals in their vicinity. The patterns of alcohol consumption can be correlated with various factors pertaining to both communal and individual contexts, and a systematic review has identified demographic factors such as age and proximity to establishments that sell alcohol, alongside social factors including familial background,

socioeconomic status, and religious affiliations (Khamis et al., 2022).

Motivation is a central psychological factor in readiness to quit alcohol. Studies have shown that higher levels of motivation are associated with greater readiness to change alcohol use behaviors (DiClemente et al., 1999; Heather et al., 2010; Kodli, 2022). Cognitive factors such as problem recognition, ambivalence, and taking steps toward change are key components of the readiness process (De Vocht et al., 2018).

Emotional states and Self-esteem are critical psychological factors. Found that self-stigma and depression were positively associated with RTC. Patients with higher drinking severity, higher self-stigma, higher self-efficacy, and severe depression are more likely to change alcohol use (Chang et al., 2021). Social support from family and friends is a strong facilitator of readiness to change. Studies have shown that individuals with higher levels of social support are more likely to engage in treatment and exhibit higher motivation for change (Baik, 2019).

A complex interplay of psychological, social, economic, and policy factors influences readiness to quit alcohol. Psychological factors such as motivation, emotional states, and self-esteem are critical readiness drivers. Social factors, including social support and cultural influences, also play a significant role. Economic constraints and environmental access to alcohol further shape an individual's ability to change. Finally, effective policy initiatives, such as alcohol control measures and stigma reduction, are essential for creating an environment that supports readiness to quit alcohol. Addressing these factors comprehensively is key to developing effective interventions and policies to reduce alcohol use and promote recovery (De Leon et al., 2024; De Leon et al., 2023; Jankhotkaew et al., 2022; Morris et al., 2023).

This study aims mainly to determine the direct and indirect effects of alcohol-related protective behavioral strategies, alcohol use motives, and alcohol-related consequences in clients' readiness to quit alcohol.

Methods and Materials

Study Design and Participants

A descriptive and correlational study was conducted in Baghdad city. The study was conducted among patients suffering from alcohol abuse and admitted to drug rehabilitation centers and psychiatric hospitals in Baghdad. For the purposes of this study, a convenience sample (not a probability sample) of 274 patients with alcohol use disorder was purposively selected.

The sample was drawn according to the inclusion criteria set by the researcher. The inclusion criteria included the selection of alcoholism's patients who were diagnosed with alcohol use disorder (AUD) by the psychiatrist, patients aged 18years or older, with excluding the patients who suffered from a comorbid psychiatric disorder. Administrative approval was obtained from the Ministry of Health /Al-Rusafa Health Directorate, and the Medical City Health Directorate.

Ethical approval was obtained from the Research Ethics Committee of the Faculty of Nursing, University of Baghdad after reviewing the questionnaire content. Ethical consideration of the clients was achieved by asking them whether they would be willing to participate in the present study, as the purpose of participation is clearly communicated to each client before the start of the interview sessions. Each participant was aware that the purpose of the study is solely to expand scientific knowledge and to recommend for possible scientific implementation. The researcher informed each participant that he or she has the right to terminate the interview if no agreement is reached between the interviewer and the participants during the interview sessions.

Instruments

The sociodemographic including patient age, marital status, educational achievement, and social state with the monthly income in Iraqi Dinars.

Alcohol Use Disorder Identification Test (AUDIT): The Alcohol Use Disorder Identification Test (AUDIT), created by the World Health Organization (WHO), is a reliable 10-item screening instrument aimed at evaluating hazardous and harmful alcohol consumption, symptoms of dependence, and the consequences associated with alcohol use. This tool measures the frequency and quantity of alcohol consumption, as well as related behaviors, with total scores ranging from 0 to 40 (World Health Organization, 2024). The Alcohol Use Disorder Identification Test is extensively used in clinical, research, and public health environments, demonstrating robust reliability and applicability across

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different cultures, which facilitates the early detection of individuals at risk and informs intervention strategies. Its concise and straightforward nature makes it practical for use in primary care settings, although self-reporting biases may affect its accuracy. By focusing on three key areas—consumption, dependence, and harm—AUDIT aids in the development of personalized treatment plans and aligns with evidence-based strategies aimed at decreasing alcohol-related health issues and fatalities.

Alcohol-Related Protective Behavioral Strategies Scale (PBS): The questionnaire consisted of 15 items measuring cognitive-behavioral strategies for minimizing risky alcohol consumption and its negative consequences. It comprised three subscales: Cessation/Limitation of Alcohol Use (SLD; seven items), Mode of Drinking (MOD; five items), and Serious Harm Reduction (SHR; three items). Participants indicated how often they engaged in these behaviors while consuming alcohol on a five-point Likert scale (one = never, five = always), with higher scores indicating more frequent use of the alcohol-related PBS scale (Martens et al., 2013).

Alcohol Stages of Change -Short Form (ASC-SF): The Alcoholic Stages of Change – Short Form (ASC-SF) is a self-report questionnaire based on the Transtheoretical Model of Change (TTM). It assesses an individual's readiness to change their drinking behavior by categorizing them into one of five stages precontemplation, contemplation, preparation, action, and maintenance. Precontemplation when there is no intention to change drinking behavior. Contemplation, considering change but not yet committed. Preparation when the patient planning to change soon. The action stage, actively making changes to reduce or quit drinking and maintenance stage sustaining changes and preventing relapse (Laforge et al., 1998).

Data Analysis

Data were analyzed using the statistical package for social sciences, IBM, version 27. The descriptive statistical measures of frequency and percent were used. The arithmetic mean and standard deviation were also used. The Spearman rho correlation was used to identify the correlation between the independent and dependent variables.

One-way analysis of variance (ANOVA) was used to examine the differences in the mean of the dependent variables when the independent variable is composed of three or more groups. The Process Macro version 4.0 was used to identify the direct and indirect effects of the independent and mediating variables on the dependent variable.

Findings and Results

More than two-fifth reported that they drink 4 or more times a week (n = 116; 42.3%), followed by those who drink 2-3 times a week (n = 93; 33.9%), those who drink 2-4 time a month (n = 58; 21.2%), and those who drink monthly or less (n = 7; 2.6%).

Table 1

Participants' sociodemographic characteristics (N = 274)

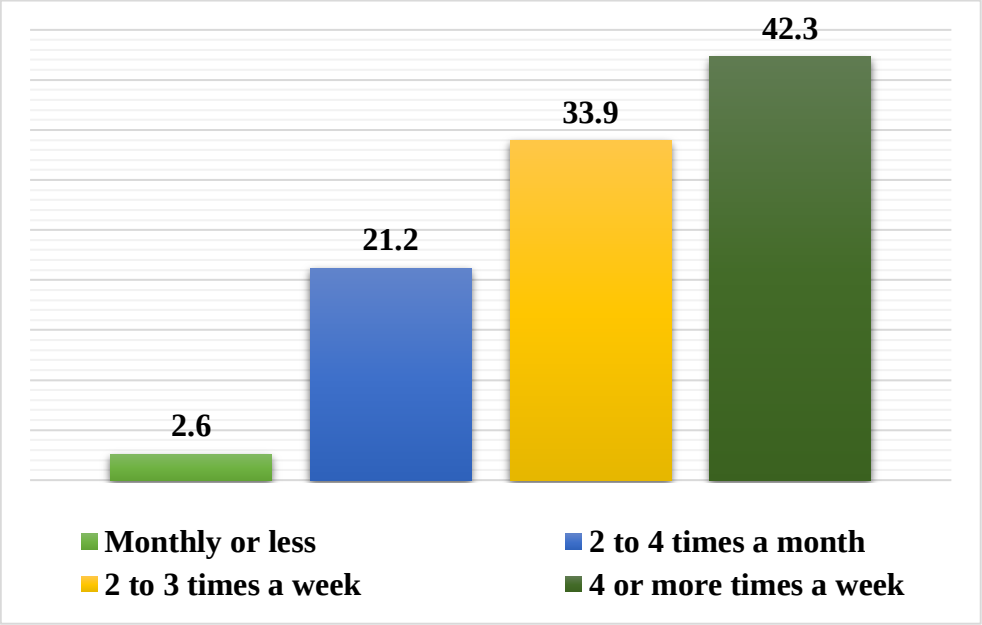
Variable	Frequency	Percent
Age (Years): Mean (SD): 29.86 ± 9.236		
16-24	97	35.4
25-33	89	32.5
34-42	53	19.3
43-51	28	10.2
52-60	7	2.6
Marital Status		
Single	122	44.5
Married	121	44.2
Divorced	30	10.9
Widow	1	0.4
Father's (or husband) level of education		
Read and write	60	21.9
Elementary school	70	25.5
Middle school	68	24.8
High school	45	16.4
Associate degree	6	2.2
Bachelor's degree	23	8.4

Master's degree	2	0.7
Mother's (or wife) level of education		
Read and write	102	37.2
Elementary school	45	16.4
Middle school	29	10.6
High school	27	9.9
Associate degree	2	0.7
Bachelor's degree	2	0.7
Postgraduate diploma	1	0.4
Missing value	66	24.1
Variable	Frequency	Percent
Household Occupation		
Unemployed	20	7.3
Unskilled worker	57	20.8
Semi-skilled worker	67	24.5
Skilled worker	97	35.4
Semi-Professional	24	8.8
Professional	9	3.3
Family's monthly income (Iraqi Dinar)		
< 300.000	58	21.2
301.000-600.000	93	33.9
601.000-900.000	67	24.5
901.000-1.200.000	22	8.0
1.201.000-1.500.000	17	6.2
1.501.000 or more	17	6.2
Family's socioeconomic class		
Lower Class	20	7.3
Lower Middle Class	206	75.2
Middle Class	39	14.2
Upper Middle Class	9	3.3

SD: Standard Deviation

Figure 1

How often do you have a drink containing alcohol?



Most reported that they have been drinking alcohol in Schoone (n = 172; 62.8%), followed by can (n = 69; 25.2%), and stubby (n = 33; 12.0%).

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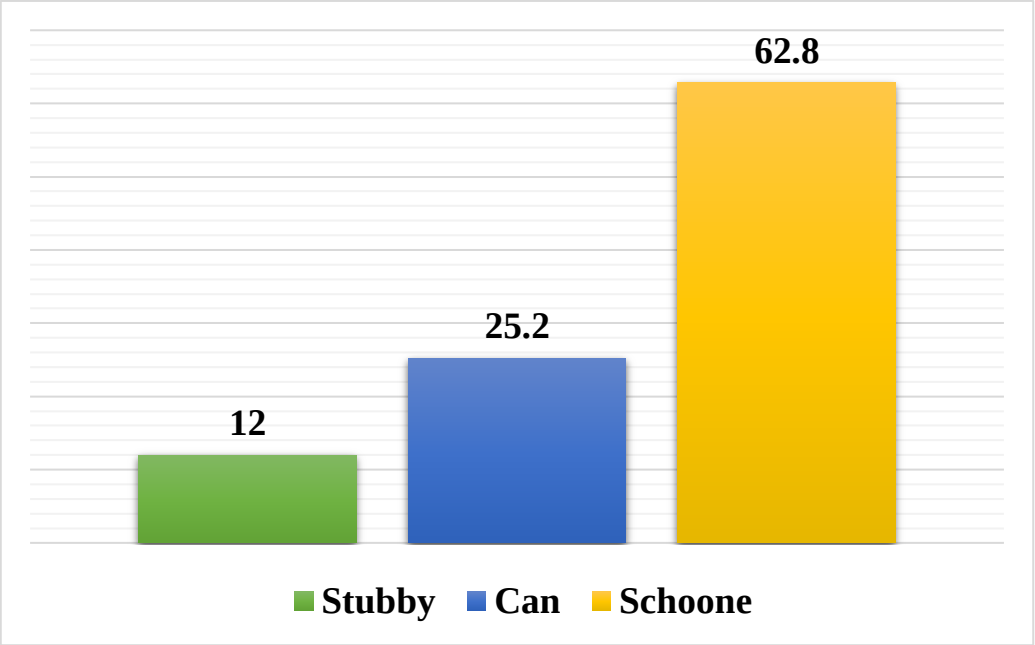
Figure 2

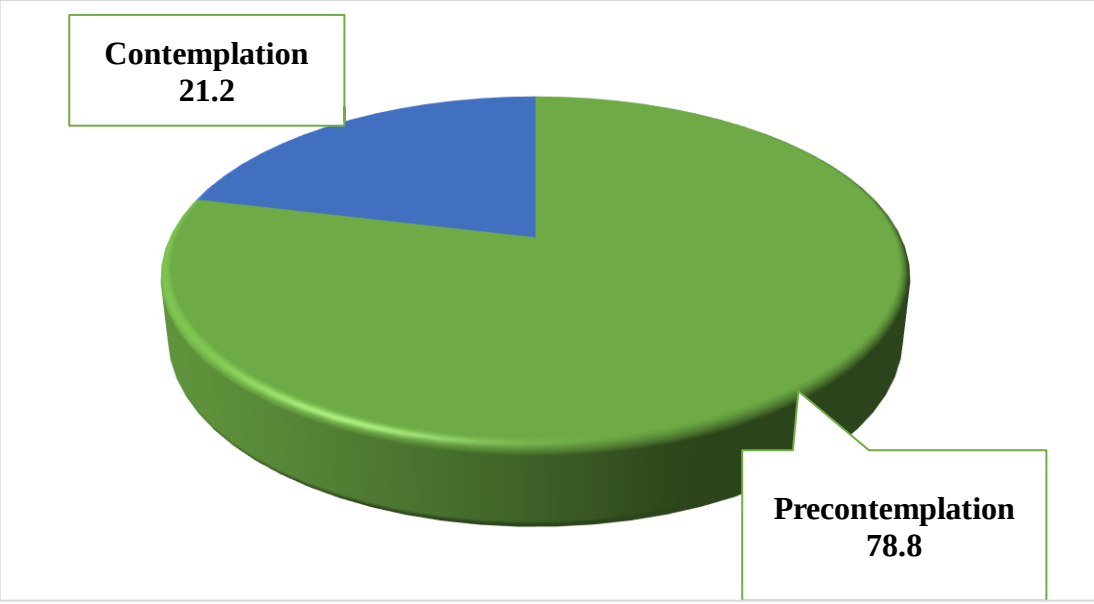
Measure of alcohol consumed



The study results demonstrate that most are in the Precontemplation Stage of Change for alcohol intake (n = 216; 78.8%) compared to those who are in the Contemplation Stage of Change (n = 58; 21.2%).

Figure 3

Participants' distribution according to Stages of Change (Readiness to Quit Alcohol)



The study results reveal that inclination to drink alcoholic beverages has a trivial effect on the effect of alcohol-related protective behavioral strategies on readiness to quit alcohol (R-sq = .0672).

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Table 2

Model summary of the effect of alcohol-related protective behavioral strategies on readiness to quit alcohol with the interaction of inclination to drink alcoholic beverages

R	R-sq	MSE	F	df1	df2	p
.2592	.0672	259.6139	4.8456	4.0000	269.0000	.0009

The study results exhibit that alcohol-related protective behavioral strategies have a statistically significant effect on readiness to quit alcohol (p-value = .0004). Family's socioeconomic status can significantly mediate the effect of alcohol-related protective behavioral strategies on readiness to quit alcohol (p-value = .0286).

Table 3

Effect of alcohol-related protective behavioral strategies on readiness to quit alcohol with the interaction of with the interaction of age, socioeconomic status, and quantity of alcohol consumed

	Coeff	se	t	P	LLCI	ULCI
constant	47.2716	7.5270	6.2803	.0000	32.4523	62.0909
PBSS	.3656	.1028	3.5578	.0004	.1633	.5679
Age	.0315	.1077	.2926	.7700	-.1805	.2436
SES	-.5228	.2376	-2.2004	.0286	-.9906	-.0550
Audit	1.5261	1.1551	1.3212	.1876	-.7480	3.8002

Discussion and Conclusion

The study results demonstrated that most were in the Precontemplation Stage of Change for alcohol intake, followed by those who are in the Contemplation Stage of Change. These findings reflect that participants have no inclination to stop alcohol intake. For those who are in the Precontemplation Stage of Change, The Transtheoretical Model of Change postulates that people may be in this stage because they may have tried to change a particular behavior a number of times and have become demoralized about their capability to change. For those who are in the Contemplation Stage of Change, The Transtheoretical Model of Change postulates that challenge of this stage is to arrive at an affirmative resolution to adopt a health-protective behavior or to eliminate a health-risk behavior "alcoholism" (DiClemente et al., 1999; Diclemente et al., 2019).

A study by Jang et al. stated that more than a half (n = 74; 57.4%) of hazardous drinkers were in the Precontemplation Stage, indicating a significant proportion of individuals who have not yet recognized their drinking as problematic (Jang et al., 2021). This stage is often marked by a lack of intention to change behavior in the near future, and individuals may not perceive their drinking as harmful (Mancini, 2021). The same study stated that (n = 55, 42.6%) were in the Contemplation Stage, where they could begin to recognize the potential benefits of change but remain ambivalent. Factors such as impulse control and social responsibility were associated with a higher likelihood of being in this stage, suggesting that personal characteristics can influence readiness to change (Jang et al., 2021).

The study results exhibited that alcohol-related protective behavioral strategies have a statistically significant effect on readiness to quit alcohol. Throughout the last two decades, the promotion of protective behavioral strategies (PBS) has become a widely adopted aspect of interventions focused on alleviating alcohol-related problems among university students (Ray et al., 2014). There exists a lack of consensus on how much improvements in the Problematic Behavior Scale (PBS) can elucidate the influence of brief motivational interventions on lowering alcohol consumption and its associated problems, with most of the evidence being based on cross-sectional research (Reid & Carey, 2015).

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The current study involved a number of limitations including using a convenience sampling which can lead to selection bias and limit the generalizability of results because it relies on accessible rather than representative participants. Second, a self-reported data carries the risk of response bias, such as social desirability or recall bias, which could compromise the reliability of the data.

The current study revealed a low level of readiness to quit alcohol among patients diagnosed with Alcohol Use Disorder in Baghdad, with the majority of participants being in the precontemplation stage. Younger individuals were more likely to show some level of contemplation, suggesting a potential window for early intervention. The findings underscore the importance of integrating readiness assessments into routine clinical evaluations for AUD patients in order to tailor appropriate therapeutic strategies.

Recommendations include interventions targeted at younger adult, focusing on risk awareness and PBS training; A longitudinal study to elucidate the mechanisms of PBS in the context of brief motivational approaches. Furthermore, the integration of phase-specific interventions, consistent with the Transtheoretical model, could facilitate the transition from the Precontemplation stage to action stage of change. Furthermore, policymakers should prioritize structural reforms that address socioeconomic inequalities to reduce alcohol-related harms.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional. The Collage of Nursing Ethics Review Committee at Baghdad University approved our interviews (approval:53) on 12 November ,2024. Respondents gave written consent for review and signature before starting interviews. All participants provided written informed consent prior to participating.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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