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Research Paper

Mindfulness and social support as predictors of distress tolerance in individuals with substance use disorders: A cross-sectional study

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ABSTRACT

Background: Substance use disorders (SUDs) are associated with significant psychological difficulties, including low distress tolerance, which increases relapse risk. Perceived social support and mindfulness are known protective factors, yet their predictive roles in Iranian clinical populations require further investigation. This study examined whether perceived social support and mindfulness predict distress tolerance in patients undergoing treatment for SUDs in Zabol, Iran.

Method: This applied cross-sectional study included 92 treatment-seeking individuals with clinically diagnosed SUDs recruited from addiction treatment clinics through convenience sampling. Participants completed the Multidimensional Scale of Perceived Social Support (MSPSS), Five Facet Mindfulness Questionnaire (FFMQ), and Distress Tolerance Scale (DTS). Data were analyzed using Pearson correlation and multiple linear regression in SPSS-26. Significance was set at $p < 0.05$.

Results: Perceived social support demonstrated a strong and significant positive effect on distress tolerance ($\beta = 0.607$, $p < 0.001$), explaining 36.7% of its variance. In contrast, mindfulness showed no significant predictive value ($\beta = 0.041$, $p = 0.697$), accounting for only 0.2% of the variance. Overall, participants reported relatively high levels of perceived social support, mindfulness, and distress tolerance.

Conclusion: Perceived social support emerged as a robust predictor of distress tolerance among individuals with SUDs, underscoring the essential role of supportive networks in enhancing emotional resilience and potentially reducing relapse risk. Mindfulness, however, did not independently predict distress tolerance, suggesting that dispositional mindfulness may require structured training to yield observable benefits within this population. Integrating family- and peer-based support programs into addiction treatment is strongly recommended.

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1. Introduction

Substance use disorders (SUDs) constitute a major global public health challenge, contributing substantially to morbidity, mortality, and socioeconomic burden. The Global Burden of Disease Study estimated that SUDs accounted for over 100 million disability-adjusted life years (DALYs) worldwide in 2021, with opioid use disorders representing the largest share, particularly in the Middle East [1].

In Iran, the lifetime prevalence of illicit drug use is estimated at 8.9%, with more than two million individuals affected by opioid dependence, largely due to geographic proximity to opium-producing regions and socioeconomic stressors [2].

SUDs are also associated with significant psychological and social consequences, including high rates of depression, anxiety, suicidal ideation, family disruption, unemployment, and criminal justice involvement [3,4].

Distress tolerance (DT), defined as the capacity to endure negative emotional states without maladaptive coping, plays a critical role in SUD trajectories. Low DT is associated with poor treatment adherence, increased relapse risk, and persistent substance use, whereas higher DT predicts reduced substance initiation and use severity over time [5,6]. Interventions targeting DT have demonstrated improvements in emotion regulation and treatment retention, underscoring its relevance to recovery.

Perceived social support (PSS), encompassing emotional, informational, and tangible resources from social networks, is a well-established protective factor in SUD outcomes. Higher PSS is associated with lower psychological distress, reduced relapse risk, and greater treatment engagement, partly through enhanced coping capacity and emotional regulation [3,7,8].

Similarly, mindfulness—defined as non-judgmental awareness of present-moment experiences—has been shown to enhance emotional regulation and distress tolerance. Meta-analyses indicate that mindfulness-based interventions reduce craving, substance use, and stress, while strengthening tolerance of distress through improved cognitive control and affect regulation [9–11].

Despite strong evidence for the independent roles of perceived social support and mindfulness in SUD recovery, their combined effects on distress tolerance remain insufficiently studied, particularly in non-Western contexts such as Iran. This gap is especially relevant in regions like Zabol, where strong family-based support systems coexist with limited mental health resources.

Accordingly, the present study examines the joint predictive roles of perceived social support and mindfulness on distress tolerance among patients receiving treatment in addiction clinics in Zabol, with implications for culturally responsive interventions and relapse prevention.

2. Materials and Methods

2.1 Study Design

This cross-sectional survey examined the predictive role of perceived social support and mindfulness in psychological distress tolerance among individuals diagnosed with SUDs undergoing treatment in addiction treatment clinics in Zabol between March 21, 2025, and July 22, 2025.

2.2 Population and Sample Size

The study population comprised all individuals with a confirmed diagnosis of SUD who were receiving treatment at licensed addiction treatment clinics in Zabol between March 21, 2025, and July 22, 2025 (approximately 120 patients). A convenience (available) sampling method was employed due to practical constraints, as participant recruitment was limited to individuals who were present at the clinics during the study period and willing to participate. While this approach facilitated access to a clinical population, it may have excluded individuals not actively engaged in treatment or unavailable during data collection; therefore, the generalizability of the findings to non-clinical or community-based populations is limited and is addressed further in the limitations section.

Using Cochran's formula for finite populations, a minimum sample size of 92 participants was calculated, assuming a 95% confidence level, maximum variability ($p = 0.5$), and a margin of error of 5%. Ultimately, participants meeting the eligibility criteria were enrolled until the target sample size was achieved. Eligible participants were adults aged 18 years or older with a documented diagnosis of substance use disorder [12] who were undergoing treatment at addiction treatment centers in Zabol, were able to read and complete the study questionnaires, and provided written informed consent. Exclusion criteria included withdrawal from the study at any stage, submission of incomplete questionnaires, or the presence of severe cognitive or psychiatric impairments that could compromise the accuracy of self-reported data, as determined by clinical judgment [13,14].

2.3 Multidimensional Scale of Perceived Social Support (MSPSS)

Developed by Zimet et al. (1988), the MSPSS contains 12 items rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) and assesses support from family, friends, and significant others. Total scores range from 12 to 60 [15].

2.4 Five Facet Mindfulness Questionnaire (FFMQ)

Developed by Baer et al. (2006), the FFMQ includes 39 items measuring five facets: Observing, Describing,

Acting with Awareness, Non-judging, and Non-reactivity. Each item is rated on a five-point Likert scale. Score range: 39–195 [16].

2.5 Distress Tolerance Scale (DTS)

Developed by Simons & Gaher, the DTS is a 15-item instrument that assesses individuals' perceived capacity to tolerate emotional distress. Items are rated on a five-point Likert scale. Score range: 15–75 [17].

2.6 Validity and Reliability

The content validity of the instruments was reviewed and approved by a panel of experts in clinical psychology and addiction studies. All items were deemed culturally appropriate and relevant for the Iranian population under treatment for SUDs. Cronbach's alpha coefficients were calculated to assess the internal consistency of the instruments in the present sample (Table 1).

2.7 Data Analysis

Descriptive statistics (mean, SD, frequency, percentage) summarized demographic and main variables. Pearson correlation examined relationships among perceived social support, mindfulness, and distress tolerance. Data were analyzed using SPSS version 26 and significance was set at $p < 0.05$.

3. Results

The study included 92 participants, with a slightly higher proportion of males (54.3%) compared to females (45.7%). The largest age group was 26 to 35 years (33.7%), while the smallest was participants over 45 years (10.9%). Regarding educational attainment, most participants had a Diploma (32.6%) or below Diploma (31.5%), whereas only a small proportion held an Associate's Degree (2.2%) (Table 1). The reliability analysis of the study instruments demonstrated excellent internal consistency, with Cronbach's alpha values of 0.925 for the MSPSS (12 items, score range 12–60), 0.945 for the FFMQ (39 items, score range 39–195), and 0.941 for the DTS (15 items, score range 15–75).

Descriptive analysis of the study instruments revealed that participants reported moderate levels of perceived social support (MSPSS mean = 3.51, SD = 0.92; raw total = 42.12), mindfulness (FFMQ mean = 3.22, SD = 0.63; raw total = 125.58), and psychological distress tolerance (DTS mean = 3.63, SD = 0.84; raw total = 54.45) (Table 2). Normality tests indicated that the distribution of social support and mindfulness approximated normality, whereas perceived stress significantly deviated from normality (Table 3, Figure 1. A, B, and C). Regression analyses demonstrated that perceived social support was a significant positive predictor of psychological distress tolerance ($R = 0.606$, $R^2 = 0.367$, $\beta = 0.607$, $t = 7.166$, $p < 0.001$), explaining approximately 36.7% of the variance in distress tolerance. In contrast, mindfulness did not significantly predict distress tolerance in this sample ($R = 0.041$, $R^2 = 0.002$, $\beta = 0.041$, $t = 0.390$, $p = 0.697$) (Table 4). These findings suggest that higher perceived social support is associated with greater capacity to tolerate psychological distress among individuals with substance use disorders, whereas mindfulness, as measured in this study, was not a significant contributor.

Table 1. Demographic Characteristics of Participants (N=92)

Variable	Category	Frequency (N)	Percentage (%)
Gender	Male	50	54.3
	Female	42	45.7
Age Group	Under 25 years	27	29.3
	26 to 35 years	31	33.7
	36 to 45 years	24	26.1
	Over 45 years	10	10.9
Educational Attainment	Illiterate	20	21.7
	Below Diploma	29	31.5
	Diploma	30	32.6
	Associate's Degree	2	2.2
	Bachelor's Degree	8	8.7
	Master's Degree	3	3.3

The highest frequency across all variables was observed in the 26 to 35-year-old group (33.7%) and individuals with a Diploma (32.6%). The lowest frequency was for participants with an Associate's Degree (2.2%).

Table 2. Mean Total Scores and Raw Total Scores of the Questionnaires

Questionnaire	Standard Deviation (SD)	Mean (Likert Scale)	Raw Total Score
MSPSS (Perceived Social Support)	0.92	3.51	42.12
FFMQ (Mindfulness)	0.63	3.22	125.58
DTS (Psychological Distress Tolerance)	0.84	3.63	54.45

Table 3. Results of Normality Tests for Study Variables

Questionnaire	Sample Size (N)	Shapiro-Wilk Statistic (Z)	Significance Value (p)
Perceived Stress	92	0.941	0.000
Social Support	92	0.965	0.014
Mindfulness	92	0.973	0.054

Table 4. Results of Regression Analyses for the Effects of Perceived Social Support and Mindfulness on Psychological Distress Tolerance

Predictor Variable	N	R	R^2	SE	MS	F	β	t	Significance (p)
Perceived Social Support	92	0.606	0.367	0.674	11.702	25.796	0.607	7.166	0.000
Mindfulness	92	0.041	0.002	0.841	0.108	0.152	0.041	0.390	0.697
Component	N	R	R2	SE	MS	F	β	t	Significance (p)
Perceived Social Support	92	0.606	0.367	0.674	11.702	25.796	0.607	7.166	0.000

Note: N = Sample Size; R = Correlation Coefficient; R^2 = Coefficient of Determination; SE = Standard Error; MS = Mean Square; β = Standardized Beta Coefficient; p = Significance.

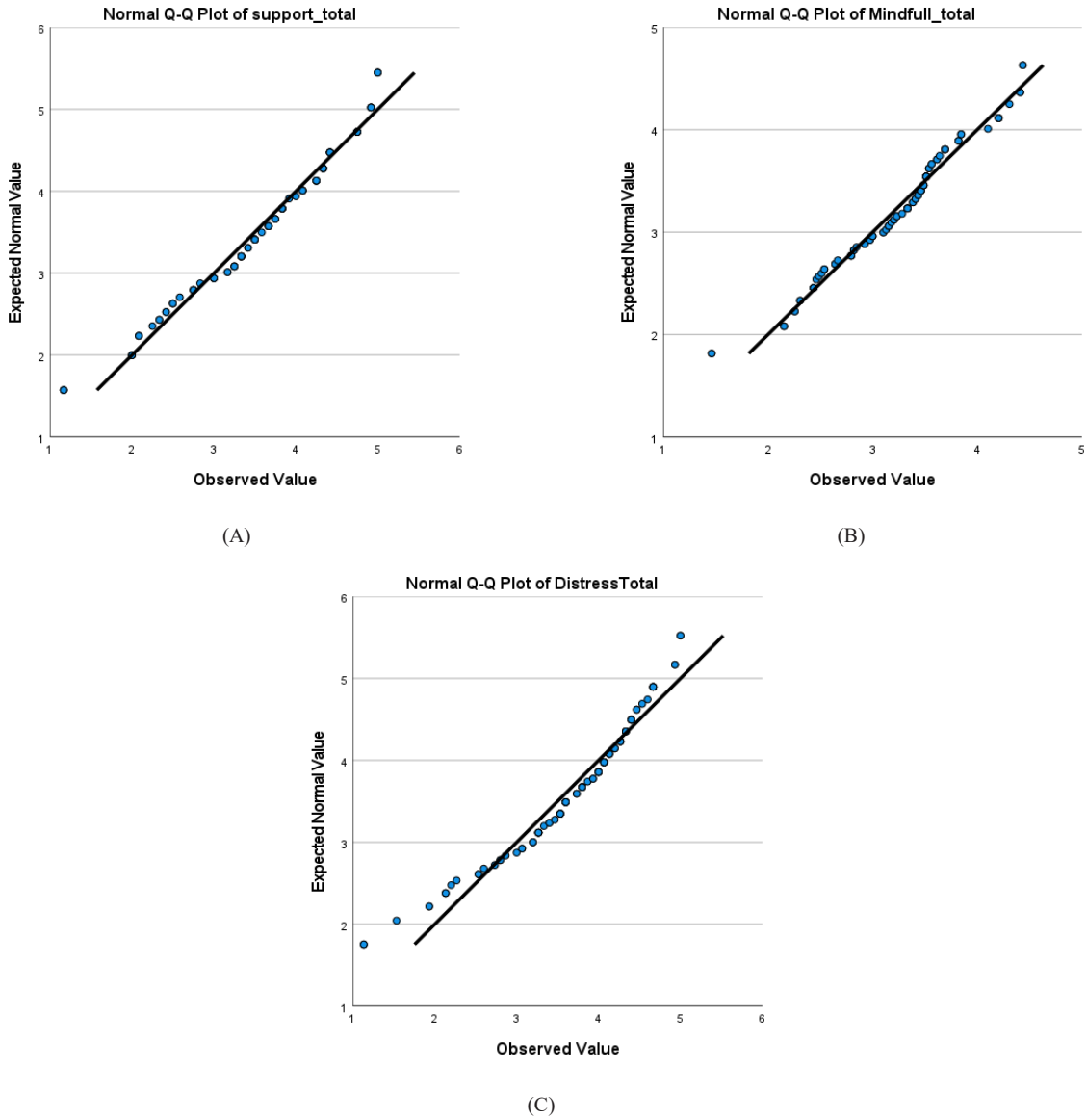

Figure 1. Quantile-Quantile (Q-Q) Plot for assessing the normality of the distribution of scores on the Perceived Social Support Questionnaire (A); on the Mindfulness Questionnaire (B); and on the Psychological Distress Tolerance Questionnaire (C).

4. Discussion

This study examined 92 patients with SUD undergoing treatment in Zabol between March and July 2025, focusing on the predictive roles of perceived social support and mindfulness on psychological distress tolerance. Results indicated that perceived social support significantly and positively predicted distress tolerance, accounting for a substantial portion of its variance. In contrast, mindfulness did not show a statistically significant association with distress tolerance in this sample.

The demographic profile, with a predominance of males (54.3%), aligns with established SUD patterns, as men typically exhibit higher prevalence rates and polysubstance use in both Iran and globally [18-20]. The relatively high proportion of females (45.7%) may reflect evolving treatment-seeking behaviors or regional

variations in substance use. Age distribution showed a concentration in the 26–35-year range, consistent with critical developmental stages and social transitions that increase SUD vulnerability, while the substantial representation of participants under 25 years mirrors prior evidence that early adulthood is a high-risk period for substance initiation and escalation [19,21]. Educational attainment was generally low, with most participants holding a Diploma or below, supporting well-documented associations between lower education, socioeconomic stressors, and SUD risk [22]. However, previous studies suggest that higher education among treatment-seeking individuals may also be linked to more severe or complex psychosocial profiles [23].

The observed positive relationship between perceived social support and distress tolerance is consistent with the buffering hypothesis, which posits that social support mitigates the psychological impact of stress and enhances coping and resilience [24]. Empirical studies in Iranian SUD populations similarly report that greater social support improves emotional functioning and resilience [25,26]. Social connections provide meaning, reduce perceived isolation, and strengthen adaptive coping strategies, all of which are critical for managing distress during recovery [27].

The lack of a significant association between mindfulness and distress tolerance contrasts with prior evidence demonstrating the efficacy of mindfulness-based interventions (MBIs) and Mindfulness-Based Cognitive Therapy (MBCT) in enhancing distress tolerance and relapse prevention [28-30]. This discrepancy may reflect the predominance of external support needs in this high-severity clinical sample, where dispositional mindfulness alone may be insufficient. Targeted, structured interventions such as MBIs or Dialectical Behavior Therapy (DBT) may be necessary to translate mindfulness into practical skills for distress regulation.

These findings suggest important implications for clinical practice. Incorporating structured social support components—such as family involvement, peer mentorship, and group therapy—into addiction treatment programs may directly enhance distress tolerance and improve overall treatment engagement and retention. Simultaneously, mindfulness-based techniques should be delivered through formal, culturally adapted interventions to ensure they are actionable and contextually relevant, particularly for patients with high clinical severity or limited prior exposure to mindfulness practices.

Future research should consider longitudinal designs to clarify causal pathways between social support, mindfulness, and distress tolerance. Additionally, examining moderating factors such as substance type, addiction severity, and comorbid psychiatric conditions may provide a more nuanced understanding of how internal and external psychosocial resources interact to support recovery. Expanding study populations beyond clinic-based samples and including community-dwelling individuals could improve generalizability and inform broader prevention and intervention strategies.

This cross-sectional study has several limitations, including the inability to infer causality, potential response biases due to social stigma, incomplete questionnaires, sample restriction to treatment-seeking individuals in Zabol, and limited control over confounding variables such as substance type, addiction severity, and duration of use. These factors should be considered when interpreting the findings and in designing future research.

Perceived social support strongly enhances distress tolerance in patients with substance use disorders, highlighting the value of family, peer, and group-based interventions in treatment. Mindfulness alone was not predictive, indicating the need for formal, culturally tailored mindfulness training to achieve measurable benefits. Integrating social support with targeted skill-based strategies can strengthen recovery and reduce relapse risk.

Ethical declarations

The present study was approved by Ethics Committee of Islamic Azad University of Zahedan (IR.IAU.ZAH.REC.1404.087).

Conflict of interest

No potential conflict of interest was reported by the authors.

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Authors' contributions

All individuals gave their informed consent to participate in the study. All authors reviewed and confirmed the final manuscript.

Declaration of using generative AI and AI-assisted technologies

We used ChatGPT to improve the grammar and language of the manuscript, and all authors reviewed and evaluated the final version.

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