

Effectiveness of Mentalization-Based Treatment in Reducing Suicidal Ideation Among Middle-Aged Women: A Quasi-Experimental Study

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ABSTRACT

Objective: This study aimed to determine the effectiveness of mentalization-based treatment (MBT) in reducing suicidal ideation among middle-aged women and to examine whether its therapeutic effects were maintained at a one-month follow-up.

Methods and Materials: This quasi-experimental study employed a pretest–posttest control-group design with a one-month follow-up. The statistical population consisted of women aged 40–60 years attending counseling and psychotherapy centers. Thirty eligible participants were selected and allocated to an intervention group ($n = 15$) and a control group ($n = 15$). The intervention group received ten weekly 90-minute online group sessions of mentalization-based treatment, whereas the control group received no psychological intervention during the study period and was placed on a waiting list. Suicidal ideation was measured at pretest, posttest, and one-month follow-up using the Beck Scale for Suicide Ideation. Data were analyzed using inferential statistical procedures. Because the assumption of homogeneity of regression slopes was violated for suicidal ideation, between-group comparisons of change scores were used to complement covariance-based analyses.

Findings: Inferential analyses demonstrated that the reduction in suicidal ideation from pretest to posttest was significantly greater in the mentalization-based treatment group than in the control group ($t = -38.488$, $p < 0.001$). Similarly, the change in suicidal ideation from pretest to the one-month follow-up differed significantly between the two groups ($t = -35.849$, $p < 0.001$), indicating that the therapeutic improvement achieved following the intervention was maintained during the follow-up period.

Conclusion: Mentalization-based treatment was effective in significantly reducing suicidal ideation among middle-aged women, and its beneficial effect persisted for at least one month after treatment. By strengthening individuals' capacity to understand and interpret their own and others' mental and emotional states, MBT may provide a useful psychotherapeutic approach for addressing suicidal thoughts in this population. Nevertheless, replication with larger samples and longer follow-up periods is recommended to establish the durability and generalizability of these findings.

Keywords: Mentalization-Based Treatment; Suicidal Ideation; Middle-Aged Women; Psychotherapy.

1. Introduction

Suicidal ideation represents a major psychological and public health concern because it reflects a spectrum of thoughts ranging from passive wishes for death to active consideration, planning, and preparation for suicide. Although suicidal ideation does not inevitably progress to suicidal behavior, it is one of the most important proximal indicators of suicide risk and therefore requires careful clinical assessment and timely psychological intervention. Contemporary models of suicide emphasize that suicidal thinking emerges through the interaction of psychological pain, interpersonal disconnection, perceived burdensomeness, hopelessness, impaired coping, and the progressive development of capability for self-harm. Joiner's interpersonal theory of suicide proposed that the desire for suicide is particularly likely to arise when individuals simultaneously experience thwarted belongingness and perceived burdensomeness, while repeated exposure to painful or fear-inducing experiences may facilitate the transition from suicidal desire to suicidal behavior (Joiner, 2005). This framework was later elaborated through the interpersonal theory of suicide, which highlighted the joint contribution of impaired belongingness, perceived burden on others, and acquired capability in the development of serious suicidal risk (Van Orden et al., 2010). From another perspective, the integrated motivational-volitional model distinguishes between the processes that contribute to the emergence of suicidal ideation and those that influence whether ideation progresses to suicidal behavior. Within this model, experiences of defeat, humiliation, entrapment, social disconnection, and impaired problem solving can intensify suicidal thinking, whereas volitional factors contribute to the enactment of suicidal behavior (O'Connor, 2011). These theoretical perspectives collectively suggest that suicidal ideation should not be understood as an isolated symptom, but rather as the product of complex emotional, cognitive, interpersonal, and contextual processes.

Suicidality is influenced not only by individual psychopathology but also by broader social and relational conditions. Social determinants such as family strain, economic stress, lack of interpersonal support, social exclusion, adverse life events, and limited access to mental health services can create or intensify vulnerability to suicidal thoughts. A recent mixed-methods systematic review demonstrated that suicidality is deeply embedded in social contexts and is shaped by interpersonal relationships,

social adversity, family environments, and structural determinants, indicating that suicide prevention requires attention to both intrapsychic and social processes (Bahamondes-Álvarez et al., 2026). Family relationships may also influence suicidal ideation through perceived emotional burden, worry about relatives, and the psychological consequences of physical or mental illness within the family system. Evidence from community populations suggests that suicidal ideation is associated with the health status of relatives and that the strength and direction of this relationship may vary according to family role and degree of kinship (Li et al., 2022). These findings are relevant because suicidal ideation often develops within an interpersonal field in which the individual interprets the intentions, responses, availability, and emotional states of significant others, making the quality of interpersonal understanding a potentially important therapeutic target.

Middle adulthood may constitute a particularly significant developmental period in which several biological, psychological, familial, and social transitions converge. Women between approximately 40 and 60 years of age may experience substantial changes in family responsibilities, marital relationships, caregiving roles, occupational expectations, social identity, physical health, and perceptions of aging. For many women, this period may also coincide with the menopausal transition, during which hormonal and physical changes can interact with preexisting psychological vulnerabilities and environmental stressors. Contemporary recommendations concerning the mental health of women at menopausal age emphasize that this developmental stage can involve increased vulnerability to mood disturbances, anxiety, sleep difficulties, emotional instability, and other mental health concerns, particularly when biological changes are accompanied by psychosocial stress or limited support (Khadilkar et al., 2026). In parallel, midlife may bring an increasing burden of noncommunicable disease, functional limitations, chronic pain, and multiple medical conditions, all of which can influence psychological well-being and perceived quality of life. Comorbidity is especially important in middle-aged and older adults because the accumulation of chronic conditions may increase treatment burden, functional impairment, dependency concerns, and psychological distress (Drapkina et al., 2024). Thus, the psychological experience of middle-aged women must be considered within a multidimensional context that includes physical health, developmental transition, family responsibilities, and relational changes.

Physiological changes associated with midlife may further contribute to psychological vulnerability. For example, vasomotor symptoms such as hot flashes and night sweats may affect sleep, concentration, energy, and daily functioning and can be experienced as distressing when persistent or severe. Research among midlife women has also examined the association between vasomotor symptoms and markers of physical health, illustrating the broader clinical significance of menopausal symptoms beyond their immediate subjective discomfort (Ryu et al., 2022). Although such symptoms cannot be regarded as direct causes of suicidal ideation, their interaction with insomnia, emotional distress, chronic medical concerns, role strain, and reduced coping resources may contribute to a context in which psychological difficulties become more difficult to regulate. Accordingly, interventions for middle-aged women with suicidal ideation should attend not only to explicit suicidal thoughts but also to the broader emotional and interpersonal processes through which stressful experiences are understood and managed.

Loneliness is another important factor in understanding suicidal ideation across adulthood. It is distinct from objective social isolation and refers to the subjective experience that one's social relationships are insufficient in quality or quantity relative to personal needs. Population-based research has demonstrated that loneliness is associated with a wide range of mental health difficulties, including depressive symptoms, anxiety, reduced life satisfaction, and impaired psychological functioning (Beutel et al., 2017). Importantly, longitudinal evidence indicates that loneliness is not merely correlated with suicidal ideation but may prospectively predict suicidal thoughts and behaviors over time. A systematic review and meta-analysis of prospective studies found that loneliness was associated with increased risk of subsequent suicidal ideation and suicidal behavior, reinforcing the importance of interpersonal connectedness in suicide prevention (McClelland et al., 2020). For middle-aged women, loneliness may arise in the context of marital dissatisfaction, bereavement, children leaving the household, caregiving burden, reduced social participation, or a sense of being emotionally misunderstood despite the presence of others. These experiences are particularly relevant to mentalization because feelings of isolation can be intensified when individuals interpret interpersonal events rigidly, assume negative intentions in others, or struggle to communicate their own internal states effectively.

Emotion regulation also appears central to the emergence and maintenance of suicidality. Individuals experiencing

intense emotional arousal may have difficulty identifying, tolerating, and modifying painful affective states, which can increase the appeal of suicidal thinking as a means of escape from intolerable psychological distress. Research examining the association between mindfulness, emotion regulation, and suicidality indicates that specific emotion regulation strategies may help explain how dispositional mindfulness relates to suicidal thoughts and behaviors (Höller et al., 2025). The broader literature likewise suggests that repetitive negative thinking, rumination, and cognitive inflexibility can prolong distress and weaken adaptive coping. A recent systematic review and meta-analysis of mindfulness-based cognitive therapy found beneficial effects on rumination and related psychological indicators, supporting the value of interventions that improve awareness of internal experience while reducing maladaptive engagement with repetitive thought patterns (Wei et al., 2025). Although mindfulness-based approaches and mentalization-based interventions are conceptually distinct, both emphasize the importance of changing the individual's relationship to thoughts and emotions rather than responding to them automatically. In the context of suicidal ideation, this capacity may allow the individual to recognize a suicidal thought as a mental event arising within a particular emotional state rather than as an inevitable conclusion or command for action.

Existing psychological treatments for suicidal ideation demonstrate that suicidality can be reduced through structured psychotherapy. Internet-based cognitive behavioral interventions, for example, have shown beneficial effects not only on suicidal ideation and behavior but also on related psychological outcomes such as depression, anxiety, and hopelessness (Sander et al., 2023). These findings highlight the usefulness of structured interventions that target cognitive and emotional mechanisms associated with suicide risk. Nevertheless, suicidal ideation often occurs within highly charged interpersonal contexts, and some individuals may continue to struggle despite acquiring conventional cognitive or behavioral coping skills. In such cases, interventions that directly target the capacity to understand mental states may provide an additional therapeutic pathway.

Mentalization refers to the capacity to understand one's own behavior and the behavior of others in terms of underlying mental states, including feelings, beliefs, wishes, intentions, motives, and perspectives. Mentalizing is not a fixed trait but a dynamic capacity that can fluctuate depending on emotional arousal, attachment activation,

interpersonal threat, and contextual stress. Individuals may mentalize effectively under calm conditions but lose this capacity when experiencing rejection, shame, fear, anger, or intense attachment-related distress. The developmental mentalization framework proposed by Fonagy and Luyten emphasizes that failures of mentalizing are closely associated with emotional dysregulation, unstable interpersonal functioning, impulsive behavior, and maladaptive responses to perceived rejection or abandonment (Fonagy & Luyten, 2009). When mentalization collapses, individuals may become overly certain about the motives of others, treat subjective feelings as objective reality, focus excessively on observable behavior without considering internal motives, or become trapped in abstract and emotionally disconnected reasoning. Such states may intensify hopelessness, interpersonal conflict, and self-destructive thinking.

Mentalization-Based Treatment was developed to strengthen reflective functioning and restore flexible understanding of self and others, particularly during periods of emotional arousal. The intervention encourages a curious, non-knowing stance in which interpretations are treated as hypotheses rather than facts. Instead of assuming certainty regarding another person's motives or one's own internal state, patients are encouraged to explore alternative explanations, recognize ambiguity, identify emotional shifts, and connect feelings with interpersonal events. This process may be particularly relevant to suicidal ideation because suicidal crises frequently involve narrowed attention, rigid conclusions, heightened emotional certainty, and a perceived absence of alternatives. By improving the ability to reflect on distress and interpersonal experience, MBT may help create psychological distance from suicidal thoughts and increase opportunities for alternative coping.

The broader evidence base for mentalizing as a mechanism of psychological treatment has expanded substantially. A recent systematic review of mentalizing in adult psychological interventions concluded that mentalization is relevant across a range of psychological disorders and treatment approaches, although the strength and consistency of evidence vary across populations and study designs (Luyten et al., 2024). The review also emphasized the need for more rigorous research examining how changes in mentalization relate to clinical improvement and which populations may benefit most from explicitly mentalization-focused interventions. Mentalization has also been examined as a potential mediator of psychological functioning in conditions characterized by social and

emotional difficulties. For example, research on depression in autistic populations has suggested that mentalization may interact with attachment, social support, and psychological flexibility in explaining depressive symptoms (Komoróczy et al., 2024). Although these findings arise from a different population, they reinforce the broader proposition that the ability to understand mental states may influence psychological adaptation through both intrapersonal and interpersonal pathways.

Evidence specifically linking MBT with self-harm and suicidality is also promising. A systematic review and meta-analysis examining MBT for self-harm found that mentalization-based approaches may reduce self-harming behavior, although variability in study populations, treatment formats, and methodological quality indicates that further controlled research is needed (Hajek Gross et al., 2024). The potential relevance of MBT to suicidal ideation is supported by the conceptual overlap between self-harm, emotional dysregulation, interpersonal distress, and impaired mentalizing. Individuals who experience suicidal thoughts may have difficulty identifying the emotional and relational antecedents of these thoughts, distinguishing transient affective states from enduring reality, or interpreting interpersonal experiences in a flexible manner. MBT may therefore reduce suicidality by interrupting the sequence through which interpersonal stress produces emotional escalation, rigid interpretation, hopelessness, and self-destructive ideation.

More direct evidence has begun to emerge regarding mentalization-focused interventions and suicidal ideation. In a randomized intervention study among adolescents with depressive disorder, mindfulness therapy combined with mentalization-based family therapy was associated with improvement in suicidal ideation, suggesting that interventions incorporating mentalization may have beneficial effects on suicide-related outcomes when embedded within a broader therapeutic framework (Fan et al., 2024). In an Iranian study of women, Mentalization-Based Treatment was also reported to be effective in reducing suicidal ideation and improving emotion regulation indicators, providing preliminary evidence for the applicability of MBT in a culturally relevant female population (Tahmasebi Ashtiani et al., 2022). These findings are encouraging, but they do not eliminate the need for additional research focused specifically on middle-aged women, whose developmental, relational, and health-related circumstances may differ substantially from those of adolescents or younger clinical populations.

The importance of targeted research is further reinforced by evidence that suicidal and self-harm ideation can occur in demographic groups that have historically received limited attention in suicide research. For example, a systematic review and meta-analysis found meaningful levels of suicidal and self-harm ideation among fathers during the perinatal and early parenting period, illustrating how suicide risk can emerge during major life transitions outside populations traditionally considered high risk (Fogarty et al., 2024). Such findings support a life-course perspective in which suicidal ideation is understood as potentially arising during periods of developmental transition, changing responsibilities, altered identity, and relational stress. Middle-aged women may similarly face a convergence of biological transition, caregiving demands, changes in family structure, concerns about aging and health, occupational pressures, and shifts in perceived social value. These experiences can become especially difficult when the individual has limited ability to mentalize painful emotions or ambiguous interpersonal experiences.

Taken together, existing theory and evidence suggest that suicidal ideation among middle-aged women may be influenced by the interaction of interpersonal disconnection, loneliness, emotion dysregulation, physical and developmental changes, family stress, rigid cognitive-emotional processing, and difficulty understanding mental states. Contemporary suicide models clarify the importance of entrapment, burdensomeness, and impaired belongingness, while research on loneliness and social determinants demonstrates that suicidality is embedded within relationships and social environments. At the same time, mentalization theory provides a clinically relevant framework for understanding how interpersonal and emotional stress may become translated into self-destructive thinking. Although psychological interventions for suicidality have shown efficacy, and emerging evidence supports mentalization-focused approaches, there remains a need for focused studies assessing whether MBT can reduce suicidal ideation among middle-aged women and whether any improvement persists beyond the immediate posttreatment period.

Therefore, the present study aimed to investigate the effectiveness of Mentalization-Based Treatment in reducing suicidal ideation among middle-aged women and to determine whether its effects were maintained at a one-month follow-up.

2. Methods and Materials

2.1. Study design and Participant

This study employed a quantitative, quasi-experimental design with a pretest–posttest control group and a one-month follow-up to investigate the effectiveness of Mentalization-Based Treatment (MBT) in reducing suicidal ideation among middle-aged women. Participants were assessed at three measurement occasions, including before the intervention as the pretest, immediately after completion of the intervention as the posttest, and one month after the posttest as the follow-up assessment. The intervention group received group-based MBT, whereas the control group received no psychological intervention during the study period and was placed on a waiting list. The statistical population consisted of 180 middle-aged women aged 40–60 years who had attended Nihad and Rasta counseling and psychotherapy centers in Tehran during the previous six years and who, based on clinical records or preliminary assessments, had been identified as experiencing moderate-to-severe existential anxiety or suicidal ideation. Given the clinical characteristics of the target population and the need to recruit individuals who met specific psychological criteria, purposive sampling was initially employed to identify potentially eligible participants. Following preliminary screening, explanation of the study procedures, and provision of written informed consent, eligible participants were assigned to the intervention and control conditions using simple random assignment. To compensate for potential attrition during the intervention and follow-up phases, 36 women were initially recruited. Following attrition, 30 participants completed the treatment and all assessment stages and constituted the final sample, with 15 participants in the intervention group and 15 in the control group. The minimum sample size of 15 participants per group was determined with consideration of a statistical power of 0.80 and an alpha level of 0.05. Eligibility criteria included being a woman aged 40–60 years, obtaining a score above the specified cutoff on either the Beck Scale for Suicide Ideation or the Existential Anxiety Questionnaire during screening, having sufficient literacy to understand and complete the questionnaires, voluntarily agreeing to participate, and providing written informed consent. Participants were also required not to have an active psychotic disorder, bipolar disorder, or substance dependence and not to be concurrently participating in another structured psychotherapy program during the study period. Exclusion criteria consisted of absence from more

than two treatment sessions, development of severe symptom exacerbation or an acute psychological crisis requiring immediate professional intervention, and voluntary withdrawal at any stage of the study. Following approval by the relevant university authorities and coordination with the participating counseling and psychotherapy centers, potentially eligible women were identified with the assistance of center personnel. Women with evidence of suicidal ideation or clinically relevant psychological distress based on their records or preliminary assessments were invited for further screening. The purpose, procedures, potential benefits, voluntary nature of participation, confidentiality of information, and right to withdraw were explained prior to enrollment, after which written informed consent was obtained. At baseline, participants completed the study instruments individually, with the researcher available to clarify procedural questions without influencing responses. Eligible participants were then allocated to the intervention or control group. Immediately after the tenth treatment session, both groups completed the posttest assessment, and the same measures were administered again one month later to evaluate the maintenance of treatment effects. Participants assigned to the waiting-list control group were offered access to the intervention after completion of the follow-up assessment.

2.2. Measures

Suicidal ideation was assessed using the Beck Scale for Suicide Ideation (BSS), developed by Beck, Kovacs, and Weissman (1979) as a clinical self-report instrument for evaluating the presence and severity of suicidal thoughts, attitudes, wishes, intentions, and plans. The scale consists of 19 scored items addressing important dimensions of suicidality, including desire to live or die, duration and frequency of suicidal thoughts, attitudes toward suicidal behavior, perceived control over suicidal impulses, deterrents against suicide, degree of preparation, and specificity of suicidal planning. Each item is rated on a three-point scale ranging from 0 to 2, producing a total score ranging from 0 to 38, with higher scores indicating greater severity of suicidal ideation and suicidal intent. The initial items have a screening function and assess the presence of fundamental indicators of suicidal thinking, whereas subsequent items provide a more detailed evaluation of the nature and intensity of suicidal intentions when relevant indicators are present. In the scoring framework applied in the present study, scores from 0 to 5 represented suicidal

ideation, scores from 6 to 19 reflected a greater degree of preparation for suicide, and scores from 20 to 38 indicated serious suicidal intent. The BSS has demonstrated satisfactory psychometric properties across clinical and research populations. Previous studies have reported Cronbach's alpha coefficients ranging from approximately 0.87 to 0.97, indicating high internal consistency, while test-retest reliability estimates have also supported its temporal stability. In an Iranian psychometric investigation, Anisi et al. reported a Cronbach's alpha coefficient of 0.95 and a split-half reliability coefficient of 0.75, providing evidence for the reliability of the instrument in Iranian populations. Accordingly, the BSS was considered an appropriate measure for evaluating changes in suicidal ideation across the pretest, posttest, and one-month follow-up phases of the present study (Anisi et al., 2005; Beck et al., 1979).

2.3. Interventions

The intervention consisted of ten weekly 90-minute online group sessions of Mentalization-Based Treatment and was developed according to the theoretical and clinical principles of MBT proposed by Bateman and Fonagy. MBT conceptualizes psychological difficulties partly in terms of disruptions in mentalizing, defined as the capacity to understand one's own behavior and the behavior of others in relation to underlying mental states such as emotions, beliefs, intentions, wishes, and motives. The intervention therefore sought to strengthen participants' ability to recognize and reflect on internal experiences, distinguish thoughts and feelings from external reality, consider alternative explanations for interpersonal events, and maintain reflective functioning under conditions of emotional arousal (Bateman & Fonagy, 2016). The protocol retained the principal therapeutic components of MBT while adapting examples, discussions, and experiential exercises to developmental and psychosocial concerns commonly encountered during middle adulthood, including interpersonal conflict, loneliness, perceived rejection, loss, changes in social and family roles, meaning-related concerns, and thoughts of self-harm. Sessions were conducted online through video calls by a therapist trained in the principles and techniques of MBT. Throughout treatment, the therapist adopted the characteristic mentalizing stance of curiosity, openness, and not-knowing, avoided presenting assumptions about participants' mental states as established facts, and encouraged participants to examine multiple possible interpretations of emotionally

charged experiences. The first session introduced the concept of mentalization, established group rules and therapeutic expectations, differentiated mentalization from certainty or mind-reading, and encouraged participants to become attentive to the relationship between thoughts, emotions, and behavior. The second session addressed the principal dimensions of mentalizing, including self versus other, cognitive versus affective, internal versus external, and implicit versus explicit mentalizing, with emphasis on recognizing situations in which balance across these dimensions could be disrupted. The third session focused on mentalizing emotions by helping participants identify emotional states, bodily manifestations of emotional arousal, and the manner in which intense affect could reduce reflective capacity and contribute to self-harm or suicidal thoughts. The fourth session addressed attachment relationships, loneliness, interpersonal sensitivity, and experiences of feeling ignored, rejected, or misunderstood, particularly in the context of middle adulthood. The fifth session focused on interpersonal mentalizing and encouraged participants to examine emotionally difficult interactions from multiple perspectives rather than relying on immediate assumptions regarding the motives or intentions of others. The sixth session addressed experiences of loss, adverse life events, and unresolved grief, with an emphasis on distinguishing present circumstances from past emotional experiences and maintaining a reflective, here-and-now perspective when discussing painful memories. The seventh session emphasized present-moment mentalization and used ongoing group interactions as opportunities to identify misunderstandings, changes in emotional arousal, and failures of mentalizing as they occurred within interpersonal exchanges. The eighth session focused on restoring balance among the dimensions of mentalization, particularly between self- and other-focused perspectives and between emotional and cognitive processing, and encouraged participants to recognize when one mode became excessively dominant. The ninth session examined recurring interpersonal and emotional patterns, promoted emotional validation without assuming certainty about mental states, and encouraged the reconstruction of personal meaning in relation to stressful or painful experiences. The final session consolidated the skills developed throughout treatment, reviewed situations in which mentalizing was most likely to collapse, identified individualized strategies for restoring reflective functioning during emotional crises, and emphasized continued practice and relapse prevention after treatment. The control group did

not receive a structured psychological intervention during the ten-week treatment period and continued under waiting-list conditions until completion of the one-month follow-up assessment, after which participants were offered the opportunity to receive the intervention (Bateman & Fonagy, 2016).

2.4. Data Analysis

Data were analyzed using IBM SPSS Statistics version 26. Descriptive statistics, including means and standard deviations, were initially calculated to characterize suicidal ideation scores in the intervention and control groups across the pretest, posttest, and one-month follow-up assessments. Prior to conducting inferential analyses, the statistical assumptions relevant to parametric between-group comparisons and covariance-based analysis were examined. Normality of the dependent variable was evaluated to determine whether the distribution of suicidal ideation scores was sufficiently compatible with parametric analysis, while homogeneity of variances was assessed to establish whether variability in scores was comparable across the intervention and control groups. Because adjustment for baseline differences was initially intended, the homogeneity of regression slopes assumption was also evaluated by examining whether the relationship between pretest scores and subsequent outcome scores was comparable between the two study groups. Analysis of covariance (ANCOVA) was initially considered for comparing posttest suicidal ideation scores while statistically controlling for pretest scores; however, examination of the assumptions indicated that the homogeneity of regression slopes assumption was violated for suicidal ideation. Consequently, ANCOVA estimates were interpreted cautiously and were not used as the primary basis for evaluating the intervention effect. To provide a more appropriate comparison under these conditions, change scores were calculated separately for the change from pretest to posttest and from pretest to the one-month follow-up. These change scores represented the magnitude of improvement or deterioration experienced by each participant relative to baseline. Independent-samples *t* tests were subsequently performed to compare the intervention and control groups with respect to pretest-to-posttest and pretest-to-follow-up changes in suicidal ideation. This analytical approach permitted direct evaluation of whether the magnitude of change over time differed significantly between participants who received MBT and those assigned to the waiting-list control condition. All statistical tests were

conducted using a two-tailed criterion, and the level of statistical significance was set at $p < 0.05$.

3. Findings and Results

The inferential evaluation of the effectiveness of Mentalization-Based Treatment (MBT) in reducing suicidal ideation was preceded by an examination of the descriptive pattern of scores across the three measurement occasions.

Table 1

Descriptive Statistics for Suicidal Ideation by Group and Assessment Time

Group	Pretest, M (SD)	Posttest, M (SD)	One-Month Follow-Up, M (SD)
MBT	28.47 (4.03)	13.07 (2.71)	12.40 (2.75)
Control	28.00 (3.96)	27.47 (3.68)	28.47 (3.68)

As shown in Table 1, the two groups had relatively similar mean suicidal ideation scores at pretest, with a mean of 28.47 (SD = 4.03) in the MBT group and 28.00 (SD = 3.96) in the control group. Following the intervention, however, the mean suicidal ideation score in the MBT group declined markedly to 13.07 (SD = 2.71), whereas the corresponding score in the control group remained relatively stable at 27.47 (SD = 3.68). At the one-month follow-up, the mean suicidal ideation score in the MBT group decreased slightly further to 12.40 (SD = 2.75), indicating maintenance of the reduction observed immediately after treatment. In contrast, the control group's mean score increased to 28.47 (SD = 3.68) at follow-up. Thus, the descriptive findings indicated a substantial and sustained reduction in suicidal ideation among participants who received MBT, whereas no comparable improvement was observed in the control group.

Prior to conducting the inferential analyses, the assumptions underlying parametric statistical procedures were examined. The Shapiro–Wilk tests were nonsignificant for both the MBT and control groups at all three measurement occasions (all $p > .05$), indicating that suicidal ideation scores did not significantly deviate from a normal distribution. The Lilliefors-corrected Kolmogorov–Smirnov tests similarly yielded nonsignificant results at pretest, posttest, and follow-up (all $p > .05$). Moreover, skewness coefficients ranged from 0.028 to 0.316, and kurtosis coefficients ranged from -1.024 to -0.462 , providing

Descriptive statistics were calculated separately for the intervention and control groups at pretest, posttest, and the one-month follow-up. These statistics provide an initial indication of the direction and magnitude of changes in suicidal ideation over time and facilitate interpretation of the subsequent inferential analyses. The means and standard deviations of suicidal ideation scores for both groups across the three assessment points are presented in Table 1.

additional support for the acceptability of the score distributions. The assumption of homogeneity of variances was also supported, as Levene's tests were nonsignificant at pretest, $F = 0.078$, $p = .782$, posttest, $F = 1.334$, $p = .258$, and one-month follow-up, $F = 2.170$, $p = .152$. However, examination of the homogeneity of regression slopes assumption revealed a statistically significant interaction between group membership and pretest suicidal ideation scores, $F = 42.594$, $p < .001$. Therefore, the relationship between the covariate and the dependent variable differed significantly across the groups, indicating violation of a key assumption of conventional analysis of covariance. Accordingly, the ANCOVA results were reported for completeness but interpreted cautiously, and between-group comparisons of change scores were subsequently employed as a complementary and more appropriate basis for evaluating the intervention effect.

An analysis of covariance was initially conducted to compare posttest suicidal ideation scores between the intervention and control groups while statistically adjusting for differences in pretest suicidal ideation. After adjustment for baseline scores, the estimated marginal mean of suicidal ideation at posttest was 12.88 (SE = 0.17, 95% CI [12.53, 13.23]) for the MBT group and 27.65 (SE = 0.17, 95% CI [27.30, 28.00]) for the control group. The ANCOVA results for posttest suicidal ideation are presented in Table 2.

Table 2
Analysis of Covariance for Posttest Suicidal Ideation

Source	SS	df	MS	F	p	Partial η^2
Pretest	280.734	1	280.734	635.205	< .001	.959
Group	1630.095	1	1630.095	3688.351	< .001	.993
Error	11.933	27	0.442	—	—	—

As shown in Table 2, pretest suicidal ideation had a statistically significant association with posttest suicidal ideation, $F(1, 27) = 635.205$, $p < .001$, partial $\eta^2 = .959$. After controlling statistically for baseline suicidal ideation, the effect of group was also statistically significant, $F(1, 27) = 3688.351$, $p < .001$, partial $\eta^2 = .993$. The adjusted posttest mean was substantially lower in the MBT group than in the control group, suggesting a pronounced difference in suicidal ideation following treatment. Nevertheless, because the group $\times$ pretest interaction demonstrated that the homogeneity of regression slopes assumption had been violated, the adjusted group effect obtained from ANCOVA could not be interpreted as an independent and definitive test of treatment effectiveness. Therefore, the ANCOVA findings were considered supportive descriptive evidence, while the primary interpretation of between-group treatment

differences was supplemented by direct comparisons of change scores.

Because the assumption of homogeneous regression slopes was not satisfied, change scores were calculated to assess changes in suicidal ideation relative to baseline without relying exclusively on covariance adjustment. Two change scores were calculated for each participant: the difference between pretest and posttest scores and the difference between pretest and one-month follow-up scores. Negative values represented reductions in suicidal ideation relative to baseline, whereas positive values represented increases. Independent-samples t tests were then used to compare the magnitude of change between the MBT and control groups. The results of these comparisons are presented in Table 3.

Table 3
Between-Group Comparison of Mean Changes in Suicidal Ideation

Assessment Interval	Group	Mean Change	SD	t	df	p
Pretest to Posttest	MBT	-15.40	1.40	-38.488	28	< .001
	Control	-0.53	0.52			
Pretest to Follow-Up	MBT	-16.07	1.71	-35.849	28	< .001
	Control	0.47	0.52			

As presented in Table 3, from pretest to posttest, participants in the MBT group demonstrated a mean reduction of 15.40 points in suicidal ideation ($M_{\text{change}} = -15.40$, $SD = 1.40$), whereas participants in the control group showed a mean reduction of only 0.53 points ($M_{\text{change}} = -0.53$, $SD = 0.52$). The difference in change scores between the two groups was statistically significant, $t(28) = -38.488$, $p < .001$, indicating that the reduction in suicidal ideation was significantly greater among participants who received MBT. The same pattern was observed when changes from pretest to the one-month follow-up were examined. The MBT group showed a mean reduction of 16.07 points ($M_{\text{change}} = -16.07$, $SD = 1.71$), whereas the control group showed a slight mean increase of 0.47 points ($M_{\text{change}} = 0.47$, $SD = 0.52$). This between-group difference was also statistically significant, $t(28) =$

-35.849 , $p < .001$. Collectively, these findings indicate that MBT produced a substantial reduction in suicidal ideation compared with the control condition and that this reduction was not only evident immediately following treatment but was also maintained, and descriptively slightly strengthened, at the one-month follow-up.

4. Discussion

The present study examined the effectiveness of Mentalization-Based Treatment (MBT) in reducing suicidal ideation among middle-aged women and assessed whether any treatment gains were maintained at a one-month follow-up. The findings showed that women who received MBT experienced a substantial reduction in suicidal ideation from pretest to posttest, whereas the control group showed only minimal change. The between-group difference in change

scores was statistically significant, indicating that the reduction observed in the intervention group could not be attributed merely to the passage of time or repeated measurement. Moreover, the improvement was maintained at the one-month follow-up, with suicidal ideation remaining markedly lower than baseline levels in the MBT group, while the control group showed no meaningful improvement. Although the analysis of covariance also indicated a large adjusted group effect, the homogeneity of regression slopes assumption was violated; therefore, the change-score comparisons provided the more appropriate basis for interpreting the intervention effect. Overall, the results suggest that MBT can meaningfully reduce suicidal ideation among middle-aged women and that its benefits may persist beyond the immediate treatment period.

The observed reduction in suicidal ideation is consistent with previous evidence indicating that mentalization-focused interventions can be effective in addressing self-destructive thoughts and behaviors. A systematic review and meta-analysis examining MBT for self-harm found that mentalization-based approaches were associated with improvements in self-harming outcomes, supporting the therapeutic relevance of strengthening reflective functioning in individuals who experience intense emotional and interpersonal difficulties (Hajek Gross et al., 2024). The present results are also consistent with findings from an Iranian study in which MBT was associated with reductions in suicidal ideation and improvements in emotion regulation indicators among women (Tahmasebi Ashtiani et al., 2022). The convergence between these findings and those of the present study is important because it suggests that MBT may be applicable not only in populations characterized by severe personality pathology or recurrent self-harm, but also among women in middle adulthood who experience clinically significant suicidal thinking.

The findings can be explained in part by the theoretical mechanisms of mentalization. Mentalization refers to the ability to interpret one's own behavior and the behavior of others in terms of underlying mental states such as thoughts, emotions, beliefs, wishes, and intentions. Under conditions of emotional arousal, attachment threat, perceived rejection, or interpersonal conflict, this capacity may become impaired, leading individuals to adopt rigid, overly certain, or distorted interpretations of internal and interpersonal experiences. Fonagy and Luyten proposed that disruptions in mentalization contribute to emotional dysregulation, unstable interpersonal relationships, impulsive reactions, and maladaptive responses to distress (Fonagy & Luyten,

2009). From this perspective, suicidal ideation may emerge or intensify when an individual is unable to reflect flexibly on painful emotional experiences and instead experiences them as immediate, overwhelming, and inescapable realities. MBT may reduce suicidal ideation by helping individuals recognize thoughts and feelings as mental states that can change rather than as fixed truths requiring action.

The present findings are also compatible with contemporary models of suicide that emphasize interpersonal disconnection, perceived burdensomeness, defeat, and entrapment. Joiner's model proposes that suicidal desire is particularly likely when individuals experience both thwarted belongingness and perceived burdensomeness (Joiner, 2005). The interpersonal theory of suicide further elaborates that a sense of disconnection from others and the belief that one is a burden can contribute substantially to suicidal desire (Van Orden et al., 2010). Similarly, the integrated motivational-volitional model highlights the role of defeat and entrapment in the development of suicidal ideation and distinguishes these motivational processes from factors that facilitate progression toward suicidal behavior (O'Connor, 2011). MBT may influence these processes by helping participants reconsider rigid interpersonal interpretations, identify alternative meanings in relational experiences, and differentiate between transient emotional states and objective social reality. A woman who feels rejected, misunderstood, or burdensome may, through improved mentalization, become more capable of questioning the certainty of those interpretations and considering alternative explanations for others' behavior.

Loneliness may also help explain the effectiveness of MBT in this population. Previous research has shown that loneliness is strongly associated with poorer mental health and is related to depression, anxiety, and reduced psychological well-being (Beutel et al., 2017). More importantly, prospective evidence indicates that loneliness predicts suicidal ideation and suicidal behavior over time (McClelland et al., 2020). Middle-aged women may be particularly vulnerable to loneliness because of changes in family roles, marital relationships, caregiving demands, bereavement, social withdrawal, or children leaving the household. MBT does not simply attempt to increase the quantity of social contact; rather, it focuses on how individuals interpret and understand relationships. This distinction is clinically important because a person may remain lonely even in the presence of others if she repeatedly assumes that others are critical, unavailable, indifferent, or

unable to understand her. By improving the capacity to reflect on interpersonal experiences and tolerate ambiguity in others' motives, MBT may reduce the subjective sense of alienation that contributes to suicidal thinking.

The improvement observed in suicidal ideation may also be related to better emotion regulation. Suicidal thoughts frequently intensify during periods of overwhelming affect when individuals feel unable to control or tolerate emotional pain. Evidence suggests that emotion regulation strategies play an important role in the relationship between mindfulness-related processes and suicidality (Höller et al., 2025). Although MBT is not a mindfulness intervention, it similarly encourages participants to notice internal states, pause before acting, and reflect on the meaning of emotional experiences. The ability to identify an emotion, link it to a specific interpersonal trigger, and recognize that the emotion may be temporary can weaken the sense that suicide represents the only available escape from distress. Related evidence also indicates that psychological interventions targeting repetitive negative thinking and rumination can produce meaningful improvements in emotional functioning (Wei et al., 2025). In the present study, the MBT sessions emphasized recognizing emotional arousal, exploring alternative perspectives, and avoiding immediate conclusions about self or others, all of which may have reduced the repetitive cognitive-emotional cycles that maintain suicidal ideation.

The findings are further supported by broader research on mentalization as a therapeutic process. A systematic review of mentalizing in adult psychological interventions concluded that mentalization appears relevant across several forms of psychopathology and may represent an important mechanism through which psychological treatment produces change (Luyten et al., 2024). The review also emphasized that mentalizing is not confined to one diagnostic category and can contribute to improved emotional and interpersonal functioning across diverse populations. This broader conceptualization is particularly relevant to the present study because the participants were not selected exclusively on the basis of a specific personality disorder or severe psychiatric diagnosis. Instead, MBT was used as a transdiagnostic intervention targeting a psychological capacity that may influence suicidal ideation across multiple clinical presentations.

Research examining mentalization in relation to depression and psychological flexibility also provides support for this interpretation. Mentalization has been shown to interact with attachment, social support, and

psychological flexibility in explaining depressive symptoms and emotional difficulties (Komoróczy et al., 2024). This suggests that improved mentalization may not reduce distress through a single pathway but instead may strengthen several interrelated capacities, including interpersonal understanding, flexible thinking, emotional awareness, and use of social support. Such mechanisms may be especially relevant for suicidal ideation, which is often sustained by cognitive constriction, interpersonal hopelessness, and the perception that no alternative solution is available.

The findings also align with intervention research showing that mentalization-based components can reduce suicidal ideation when combined with other therapeutic strategies. In adolescents with depressive disorder, the combination of mindfulness therapy and mentalization-based family therapy was associated with improvements in suicidal ideation (Fan et al., 2024). Although the developmental stage and intervention format differ from those of the present study, the result supports the general proposition that interventions aimed at increasing awareness of mental states and improving relational understanding may be beneficial for individuals experiencing suicidal thoughts. The present study extends this line of evidence by demonstrating a similar effect in middle-aged women using group-based MBT.

The sustained reduction observed at the one-month follow-up is another important finding. The maintenance of improvement suggests that participants may have continued using mentalization skills after the formal intervention ended. Unlike strategies that depend solely on therapist-guided symptom management, MBT aims to cultivate a transferable reflective stance that can be applied in everyday situations. Participants may therefore have become more capable of identifying when emotional arousal was disrupting their capacity to think clearly, pausing before drawing conclusions, and examining alternative interpretations of interpersonal situations. This may help explain why suicidal ideation did not rebound during the follow-up period.

The maintenance of treatment effects is also relevant when compared with the broader literature on psychological interventions for suicidal ideation. Internet-based cognitive behavioral interventions have shown that structured psychological treatments can reduce suicide-related symptoms and can also improve associated depression, anxiety, and hopelessness (Sander et al., 2023). The present findings suggest that MBT may offer a complementary pathway by targeting interpersonal and reflective

mechanisms rather than relying primarily on cognitive restructuring or behavioral change. This may be particularly useful for individuals whose suicidal ideation is closely linked to interpersonal conflict, perceived rejection, loneliness, or difficulties understanding their own emotional responses.

The developmental context of middle-aged women should also be considered when interpreting the results. Midlife may involve simultaneous changes in physical health, reproductive status, family relationships, occupational roles, caregiving responsibilities, and identity. Recommendations regarding women's mental health during the menopausal period emphasize the importance of recognizing mood disturbance, anxiety, sleep difficulties, and other psychological vulnerabilities during this stage of life (Khadiilkar et al., 2026). Moreover, physiological and health-related changes can add to cumulative stress during middle adulthood. Vasomotor symptoms and other menopausal experiences may affect sleep, daily functioning, and quality of life (Ryu et al., 2022), while the increasing burden of comorbid noncommunicable conditions may further contribute to distress and functional strain (Drapkina et al., 2024). MBT may be particularly useful in this context because it does not require eliminating external stressors; instead, it helps individuals understand how they interpret and respond to those stressors.

The social context of suicidality also supports the relevance of a mentalization-based approach. Suicidality is influenced by social determinants, including interpersonal adversity, family stress, social isolation, and broader structural pressures (Bahamondes-Álvarez et al., 2026). Family members' physical and mental health can likewise be associated with an individual's suicidal ideation, highlighting the relational embeddedness of suicide risk (Li et al., 2022). Middle-aged women may occupy central caregiving positions within families and may experience substantial emotional burden related to spouses, children, aging parents, or other relatives. Mentalization may help reduce the psychological impact of such burdens by improving the capacity to differentiate one's own emotional states from those of others, recognize limits of personal responsibility, and interpret family interactions with greater flexibility.

5. Conclusion

The present findings also have significance from a life-course perspective. Suicidal ideation is not confined to

populations traditionally considered at highest risk, and research increasingly demonstrates that suicide-related thoughts may emerge during periods of major developmental transition. For example, evidence of suicidal and self-harm ideation among fathers during the perinatal and early parenting period illustrates that identity shifts, changing responsibilities, and relational stress can create vulnerability even in groups not typically foregrounded in suicide research (Fogarty et al., 2024). Similarly, middle-aged women may experience a convergence of transitions that create psychological strain. The present results therefore contribute to the growing recognition that suicide prevention should be tailored to the developmental and relational context of specific populations.

6. Limitations and Suggestions

Despite the strength and consistency of the observed treatment effect, several limitations should be considered. First, the final sample consisted of only 30 participants, which limits statistical power, precision of effect estimates, and generalizability to broader populations of middle-aged women. Second, participants were recruited from two counseling and psychotherapy centers in Tehran and were selected purposively before random allocation, which may have introduced selection bias and reduced external validity. Third, suicidal ideation was assessed through a self-report instrument, and responses may have been influenced by social desirability, fear of disclosure, or participants' willingness to report suicidal thoughts accurately. Fourth, the follow-up period was limited to one month, making it impossible to determine whether the observed benefits would persist over several months or longer. Fifth, the homogeneity of regression slopes assumption was violated, limiting the interpretability of the ANCOVA findings and requiring reliance on change-score analyses. Finally, the study did not examine potential mechanisms of change such as improvement in reflective functioning, emotion regulation, loneliness, or interpersonal functioning, and therefore cannot determine which specific components of MBT were responsible for the reduction in suicidal ideation.

Future research should replicate the present study using larger and more diverse samples recruited from multiple clinical and community settings. Longer follow-up periods, such as three, six, and twelve months, would provide stronger evidence regarding the durability of treatment effects. Future studies should also compare MBT with active treatment conditions rather than waiting-list controls in order

to determine whether its effects exceed those of other established psychological interventions. Incorporating repeated measures of mentalization, emotion regulation, loneliness, hopelessness, perceived burdensomeness, and interpersonal functioning would allow researchers to test mediational pathways and clarify the mechanisms through which MBT reduces suicidal ideation. Studies could also investigate whether treatment effects differ according to menopausal status, psychiatric comorbidity, baseline severity of suicidal ideation, marital status, social support, or history of self-harm. In addition, future trials should consider therapist fidelity assessment, blinded outcome evaluation, and multisource measurement to strengthen methodological rigor.

From a practical perspective, mental health professionals working with middle-aged women should consider assessing not only the severity of suicidal ideation but also the interpersonal and reflective processes surrounding suicidal thoughts. MBT-informed strategies may be useful in counseling centers, outpatient psychotherapy services, and suicide-prevention programs, particularly for women whose suicidal thinking is linked to relationship conflict, loneliness, emotional overwhelm, or perceived rejection. Group-based MBT may also offer a feasible format for services with limited resources because it allows several participants to receive structured intervention simultaneously while providing opportunities for interpersonal learning within the group itself. Clinicians should receive adequate training in maintaining a mentalizing stance, recognizing breakdowns in reflective functioning, and responding appropriately to acute suicide risk. Because suicidal ideation can fluctuate rapidly, MBT should be embedded within broader clinical risk-management procedures that include regular suicide assessment, crisis planning, referral pathways, and access to emergency support when needed.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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Declaration of Interest

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

References

- Bahamondes-Álvarez, R., van Hulst, B. M., Lund, C., Nooteboom, L. A., Oehm, L. M., Woermann, E., & Vermeiren, R. R. (2026). Understanding the Social Determinants of Suicidality Among Young People Aged 12-26 Years: A Mixed-Methods Systematic Review. *Community Mental Health Journal*, 1-25. <https://doi.org/10.1007/s10597-026-01638-1>
- Beutel, M. E., Klein, E. M., Brähler, E., Reiner, I., Jünger, C., Michal, M., & Tibubos, A. N. (2017). Loneliness in the general population: Prevalence, determinants and relations to mental health. *BMC psychiatry*, 17(1), 97. <https://doi.org/10.1186/s12888-017-1262-x>
- Drapkina, O. M., Kontsevaya, A. V., Kalinina, A. M., Avdeev, S. N., Agaltsov, M. V., Alekseeva, L. I., & Yakushin, S. S. (2024). Comorbidity of patients with noncommunicable diseases in general practice. *Eurasian guidelines. Cardiovascular Therapy and Prevention*, 23(3), 3996. <https://doi.org/10.15829/1728-8800-2024-4154>
- Fan, X. F., Peng, J. Y., Zhang, L., Hu, Y. L., Li, Y., Shi, Y., & Zhang, T. M. (2024). The impact of mindfulness therapy combined with mentalization-based family therapy on suicidal ideation in adolescents with depressive disorder: Randomized intervention study. *Annals of General Psychiatry*, 23(1), 16. <https://doi.org/10.1186/s12991-024-00503-3>
- Fogarty, A., McMahon, G., Findley, H., Hosking, C., Schulz, M., Seymour, M., & Giallo, R. (2024). Prevalence of suicidal and self-harm ideation in fathers during the perinatal and early parenting period: A systematic review and meta-analysis. *Australian & New Zealand Journal of Psychiatry*, 58(12), 1020-1033. <https://doi.org/10.1177/00048674241267896>
- Fonagy, P., & Luyten, P. (2009). A developmental, mentalization-based approach to the understanding and treatment of borderline personality disorder. *Development and Psychopathology*, 21(4), 1355-1381. <https://doi.org/10.1017/S0954579409990198>
- Hajek Gross, C., Oehlke, S. M., Prillinger, K., Goreis, A., Plener, P. L., & Kothgassner, O. D. (2024). Efficacy of mentalization-based therapy in treating self-harm: A systematic review and meta-analysis. *Suicide and Life-Threatening Behavior*, 54(2), 317-337. <https://doi.org/10.1111/sltb.13044>

- Höller, I., Martens, J., Fönschau, C., & Forkmann, T. (2025). A cross-sectional study on the influence of emotion regulation strategies on the association between trait mindfulness and suicidality. *BMC psychology*, 13(1), 340. <https://doi.org/10.1186/s40359-025-02530-5>
- Joiner, T. E. (2005). *Why People Die by Suicide* (Vol. 10). Harvard University Press.
- Khadilkar, S., Divakar, H., Benedetto, C., Genazzani, A., Ramos, D., Argale, E., & Balkrishnan, M. (2026). FIGO best practice recommendations for the mental health of women at menopausal age. *International Journal of Gynecology & Obstetrics*, 173(2), 588-601. <https://doi.org/10.1002/ijgo.70943>
- Komoróczy, E., Sörnyei, D., Vass, Á., Szuromi, B., Vizin, G., Réthelyi, J. M., & Farkas, K. (2024). Understanding depression in autism: The mediating role of mentalization, attachment, social support, and psychological flexibility. *medRxiv*. <https://doi.org/10.1101/2024.07.12.24310324>
- Li, C., Wei, Z., Wang, Y., & Sun, L. (2022). Associations between suicidal ideation and relatives' physical and mental health among community residents: Differences between family members and lineal consanguinity. *International journal of environmental research and public health*, 19(23), 15997. <https://doi.org/10.3390/ijerph192315997>
- Luyten, P., Campbell, C., Moser, M., & Fonagy, P. (2024). The role of mentalizing in psychological interventions in adults: Systematic review and recommendations for future research. *Clinical psychology review*, 108, 102380. <https://doi.org/10.1016/j.cpr.2024.102380>
- McClelland, H., Evans, J. J., Nowland, R., Ferguson, E., & O'Connor, R. C. (2020). Loneliness as a predictor of suicidal ideation and behaviour: A systematic review and meta-analysis of prospective studies. *Journal of affective disorders*, 274, 880-896. <https://doi.org/10.1016/j.jad.2020.05.004>
- O'Connor, R. C. (2011). The integrated motivational-volitional model of suicidal behavior. *Crisis*. <https://doi.org/10.1027/0227-5910/a000120>
- Ryu, K. J., Park, H., Park, J. S., Lee, Y. W., Kim, S. Y., Kim, H., & Kim, T. (2022). Vasomotor symptoms and carotid artery intima-media thickness among Korean midlife women. *Maturitas*, 159, 1-6. <https://doi.org/10.1016/j.maturitas.2021.12.005>
- Sander, L. B., Beisemann, M., Doebl, P., Micklitz, H. M., Kerkhof, A., Cuijpers, P., & Büscher, R. (2023). The effects of internet-based cognitive behavioral therapy for suicidal ideation or behaviors on depression, anxiety, and hopelessness in individuals with suicidal ideation: Systematic review and meta-analysis of individual participant data. *Journal of medical Internet research*, 25, e46771. <https://doi.org/10.2196/46771>
- Tahmasebi Ashtiani, H. R., Karami, A., & Sohrabi, F. (2022). Effectiveness of Mentalization-Based Treatment (MBT) on Suicidal Ideation and Emotion Regulation Indicators in Women. *Journal of Medical Sciences of Islamic Azad University*, 32(4), 310-322.
- Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner, T. E., Jr. (2010). The interpersonal theory of suicide. *Psychological review*, 117(2), 575. <https://doi.org/10.1037/a0018697>
- Wei, S., Qin, W., Yu, Z., Cao, Y., & Li, P. (2025). The effectiveness of mindfulness-based cognitive therapy on rumination and related psychological indicators: A systematic review and meta-analysis. *BMC psychology*, 13(1), 968. <https://doi.org/10.1186/s40359-025-03348-x>