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Effectiveness of a Logotherapy-Based Suicide Prevention Package on Suicide Resilience, Hope, and Meaning in Life Among University Students with Suicidal Ideation at Isfahan University of Medical Sciences

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A B S T R A C T

Purpose: This study aimed to determine the effectiveness of a logotherapy-based suicide prevention package in improving suicide resilience, hope, and meaning in life among university students experiencing suicidal ideation.

Methods and Materials: This quasi-experimental study employed a pretest–posttest design with a control group and a two-month follow-up. The study population consisted of students with suicidal ideation at Isfahan University of Medical Sciences in 2025. Forty eligible students were selected through purposive extreme-case sampling and randomly assigned to an experimental group (n = 20) or a control group (n = 20). The experimental group received a logotherapy-based suicide prevention intervention in 10 weekly 60-minute sessions, whereas the control group received no intervention during the study period. Data were collected using the Suicide Resilience Inventory (SRI), Snyder's Adult Hope Scale (AHS), and the Meaning in Life Questionnaire (MLQ), which assesses the presence of meaning and search for meaning. Outcomes were measured at pretest, posttest, and two-month follow-up. Data were analyzed using repeated-measures analysis of variance and Bonferroni post hoc comparisons.

Findings: Repeated-measures analyses demonstrated significant group-by-time effects for suicide resilience, hope, presence of meaning, and search for meaning ($p < 0.05$). Compared with the control group, students receiving the logotherapy-based intervention showed significantly greater improvements in all four outcomes at posttest ($p < 0.05$). Bonferroni comparisons further indicated that these improvements remained statistically significant at the two-month follow-up, demonstrating maintenance of the intervention effects over time ($p < 0.05$).

Conclusion: The logotherapy-based suicide prevention package effectively enhanced suicide resilience, hope, and both dimensions of meaning in life among students with suicidal ideation, with effects sustained for two months. The intervention may therefore serve as a useful adjunct to university-based suicide prevention and psychological support programs for students at elevated suicide risk.

Keywords: *Suicide Prevention; Logotherapy; Suicide Resilience; Hope; Meaning in Life; University Students; Suicidal Ideation*

1. Introduction

Suicide is a major public health concern and one of the most serious manifestations of psychological distress among adolescents and young adults. University students constitute a particularly vulnerable population because they encounter a convergence of developmental, academic, interpersonal, and occupational pressures during a period characterized by identity formation, increased autonomy, uncertainty about the future, and changing social roles. Within medical universities, these stressors may be compounded by demanding curricula, frequent examinations, exposure to illness and suffering, competitive educational environments, and concerns about future professional responsibilities. Evidence from Iranian medical students has shown that suicidal ideation is a clinically important phenomenon associated with a range of psychological and contextual factors, emphasizing the need for university-based preventive strategies that go beyond the identification of psychiatric symptoms and strengthen psychological resources capable of protecting students against progression from distress to suicidal thinking and behavior (Zarei, 2021). Contemporary models of suicidal behavior similarly suggest that suicide risk should not be understood as the product of a single disorder or stressor, but rather as the outcome of complex interactions among vulnerability, motivational processes, psychological pain, defeat, entrapment, reduced coping capacity, and factors that facilitate or inhibit movement toward suicidal behavior (Rezaeian, 2025).

The Integrated Motivational-Volitional model provides an especially useful framework for understanding this complexity. According to this perspective, suicidal behavior develops through distinct but interrelated phases in which background vulnerabilities and stressful experiences may contribute to feelings of defeat and entrapment, which in turn facilitate suicidal ideation, while volitional factors determine whether ideation progresses toward suicidal behavior (Rezaeian, 2025). Recent longitudinal evidence has further shown that psychological variables such as loneliness and resilience can influence pathways within the motivational phase of suicidal behavior, underscoring the importance of dynamic protective factors that may interrupt the progression from distress to suicidal ideation (Xiao et al., 2026). Such findings support a shift in suicide prevention from an exclusive focus on pathology and risk reduction toward strengthening protective psychological processes that can enhance an individual's capacity to tolerate distress, preserve future orientation, construct meaning, and maintain reasons for living.

One of the central psychological constructs in this context is suicide resilience. Suicide resilience refers to an individual's capacity to withstand, regulate, and recover from suicide-related stress, impulses, and psychological crises while maintaining access to internal and external protective resources. Conceptual analyses have emphasized that suicide resilience involves more than general adaptability; it specifically encompasses emotional regulation, perceived personal resources, supportive relationships, and the capacity to resist suicidal thoughts and behaviors under conditions of adversity (Wang et al., 2022). Meta-analytic evidence has demonstrated an inverse relationship between resilience and suicide risk, indicating that individuals with stronger resilience are less likely to experience severe suicidal ideation and related outcomes (Liu et al., 2022). Similarly, research on university populations has suggested that resilience can act as a protective factor and that interventions explicitly designed to strengthen resilient coping may contribute to reducing suicide vulnerability among students (Kopler et al., 2022). These findings are particularly important because resilience is not necessarily a fixed personality characteristic; rather, it may be enhanced through structured psychological intervention.

Recent empirical studies have further clarified the protective role of resilience across different high-risk populations. Among university students, psychological resilience has been shown to mediate or moderate relationships between severe personality-related symptoms and suicidal ideation, suggesting that resilient functioning may buffer the impact of underlying vulnerability on suicide-related cognition (Elsokkary et al., 2026). In medical students, resilience has also emerged as an important factor in the association between adverse childhood experiences and suicidal ideation, particularly when emotional processing difficulties such as alexithymia are present (Gao et al., 2025). Among adolescents with major depressive disorder, resilience has similarly been implicated in the relationship between emotional and personality vulnerabilities and suicidal or nonsuicidal self-harm behaviors (Adak et al., 2025). Evidence from studies of cybervictimization and self-injury also indicates that resilience can attenuate pathways through which rumination and interpersonal adversity contribute to harmful behaviors (Liu et al., 2025). Likewise, resilience has been found to reduce the strength of associations between rumination,

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loneliness, and nonsuicidal self-injury among adolescents with major depressive disorder (Wang et al., 2025). These findings collectively suggest that increasing resilience may provide a transdiagnostic route for reducing the psychological impact of multiple suicide-related stressors.

The importance of resilience is also evident in family and social contexts. Family resilience has been associated with lower levels of nonsuicidal self-injury, partly through mechanisms involving mindfulness and individual resilience (Yuan et al., 2025). Similarly, emotional intelligence and family resilience have been shown to influence self-injurious behavior among adolescents with mental disorders, indicating that psychological adaptation occurs within broader relational systems (Zhu, 2025). In populations exposed to bullying and interpersonal victimization, resilience may also influence help-seeking and behavioral responses to psychological distress (Ge, 2025). Taken together, these studies indicate that suicide resilience is shaped by both intrapersonal and interpersonal resources and that effective interventions should ideally enhance individuals' ability to respond to distress while simultaneously strengthening their sense of agency, emotional stability, connectedness, and purpose.

Hope is another major protective construct relevant to suicide prevention. From Snyder's theoretical perspective, hope is not merely a positive emotion but a goal-directed cognitive system involving agency, or the motivation to pursue goals, and pathways, or the perceived capacity to identify routes toward those goals. In the context of suicidal ideation, hopelessness is one of the most consistently identified proximal cognitive risk factors, whereas hope may function as a protective resource by preserving expectations of change and increasing perceived alternatives to self-destructive action. Research on young adults has shown that dispositional hope and future orientation may protect against suicidal behavior by strengthening individuals' ability to anticipate meaningful future possibilities and sustain goal-directed motivation during psychological crises (Chad & Gregory, 2020). More recent evidence suggests that hope can moderate the association between loneliness and suicidal ideation and can reduce the impact of depression on suicidal thinking, supporting its role as a potentially modifiable protective factor (Xie et al., 2025).

The relevance of hope is also supported by research examining developmental adversity. Childhood maltreatment has been associated with suicidal ideation through psychological pathways involving depression, emotional suppression, and reduced hope, suggesting that diminished expectations for the future may represent an important mechanism linking early adversity with later suicide risk (Ye et al., 2024). Interpersonal victimization likewise appears to exert its effects partly through hopelessness. Among Chinese university and high school students, bullying victimization has been associated with suicidal ideation, with hopelessness and impaired interpersonal relationships functioning as important explanatory mechanisms (Cao et al., 2025). Studies of adolescents engaging in nonsuicidal self-injury have also highlighted the importance of loneliness, hopelessness, and maladaptive coping patterns as interconnected risk factors (J. Li et al., 2024). These findings strengthen the rationale for suicide prevention approaches that directly address hopelessness while simultaneously developing goal orientation, alternative pathways, and confidence in the possibility of a meaningful future.

Meaning in life represents a third major psychological resource with direct relevance to suicidal ideation. Meaning can be understood as the degree to which individuals perceive their lives as coherent, purposeful, and significant. A systematic review of meaning in life and suicidality concluded that a stronger sense of meaning is generally associated with lower suicidal ideation and behavior, while meaninglessness and existential emptiness may contribute to psychological states in which death is increasingly perceived as an escape from suffering (Costanza et al., 2019). Recent studies have expanded this evidence by demonstrating complex relationships among meaning in life, coping patterns, and suicidal ideation. Network analysis has shown that meaning-related variables are closely interconnected with coping strategies and suicide-related cognition, suggesting that meaning may influence how individuals interpret and respond to adversity (He et al., 2025). Research conducted in Iran has similarly shown that meaning in life is related to suicidal thoughts and may interact with earlier traumatic experiences through coping styles, indicating that meaning can function as a central psychological mechanism rather than merely a general indicator of well-being (Fathi et al., 2025).

Meaning in life also appears to mediate the effects of unmet psychological needs on suicidal ideation. Research has shown that satisfaction of basic psychological needs may contribute to lower suicidal ideation partly by strengthening individuals' sense of meaning, implying that the experience of purpose and significance can transform the psychological consequences of frustration, disconnection, and lack of autonomy (X. Li et al., 2024). This is especially relevant in

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university students, who often face transitions involving educational identity, occupational uncertainty, changing relationships, and questions concerning personal purpose. Interventions capable of helping students reinterpret suffering, identify personally meaningful values, and construct attainable purposes may therefore address a psychological domain closely linked to suicide vulnerability.

Logotherapy offers a theoretically coherent intervention for strengthening meaning, hope, and resilience. Rooted in an existential understanding of human functioning, logotherapy proposes that the striving to find meaning is a primary motivational force and that psychological suffering becomes particularly destructive when individuals experience existential emptiness, helplessness, or a loss of purpose. Rather than promising the elimination of suffering, logotherapy emphasizes the possibility of adopting meaningful attitudes toward unavoidable pain, exercising freedom within constraints, assuming responsibility for choices, and discovering meaning through relationships, work, creativity, values, and the stance taken toward suffering. These principles are highly relevant to suicidal crises, in which individuals may experience cognitive constriction, hopelessness, perceived entrapment, and an inability to identify reasons for continued living. By expanding perceived possibilities and helping individuals develop a meaningful orientation toward future action, logotherapy may directly target several psychological processes implicated in suicidal ideation.

The potential value of meaning-centered and integrative psychological approaches is supported by intervention research demonstrating that suicidal ideation and hopelessness can respond to structured psychotherapy. Group therapy integrating acceptance and commitment therapy with schema therapy has been shown to reduce perceived stress, suicidal ideation, and hopelessness among women with chronic pain, illustrating that interventions targeting psychological flexibility, maladaptive schemas, and existentially relevant distress may influence suicide-related outcomes (Azhdari et al., 2025). Self-compassion-based training has likewise demonstrated effectiveness in reducing suicidal thoughts and death anxiety among individuals with chronic physical illness, further indicating that psychological interventions focused on adaptive self-relating and emotional processing can reduce suicide-related cognition (Zeinal Langroudi, 2024). Although these approaches are not equivalent to logotherapy, they provide convergent evidence that suicide-related thoughts can be modified through structured interventions addressing internal psychological resources rather than symptom reduction alone.

The broader literature also indicates that interventions aimed at cognitive, emotional, and self-regulatory processes can produce meaningful changes in university populations. Training programs targeting mental imagery and tolerance of ambiguity, for example, have demonstrated that structured psychological education can modify maladaptive patterns among students, reinforcing the general feasibility of intervention-based approaches within academic settings (Mahvash et al., 2024). This is relevant because students with suicidal ideation may experience uncertainty, rigid negative expectations, impaired future imagery, and difficulty tolerating unresolved life problems. Within a logotherapeutic framework, these experiences can be addressed through exploration of responsibility, freedom, values, suffering, and future-directed meaning rather than through direct symptom suppression alone.

The rationale for a logotherapy-based suicide prevention package becomes even stronger when contemporary models of suicidal ideation are considered. Recent latent network research suggests that suicidal ideation is dynamically connected with hopelessness, psychopathology, emotion regulation difficulties, and behavioral coping deficits (Villacura-Herrera et al., 2025). Such evidence suggests that effective prevention should simultaneously strengthen coping capacity, improve emotional tolerance, reduce hopelessness, and promote alternative responses to distress. Logotherapy may be particularly suitable for this purpose because its therapeutic mechanisms cut across several of these domains. Reframing suffering can reduce the perception that distress is meaningless or permanent; emphasizing freedom of attitude can strengthen perceived agency; focusing on responsibility can facilitate behavioral engagement; and identifying meaningful relationships, work, and values can broaden alternatives to suicide.

Furthermore, suicidal ideation frequently occurs in the context of interpersonal disconnection, loneliness, and perceived lack of belonging. Evidence indicates that loneliness may increase suicide risk through depression and hopelessness, whereas hope can attenuate this association (Xie et al., 2025). Other research has shown that interpersonal relationships play an important role in pathways linking victimization to suicidal ideation (Cao et al., 2025). These observations are compatible with logotherapeutic emphasis on self-transcendence, love, relatedness, and commitment to meaningful responsibilities beyond the self. A therapeutic program that helps students

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recognize valued interpersonal bonds and meaningful roles may therefore counteract the social and existential isolation that often accompanies suicidal thinking.

The role of emotional regulation must also be considered. Difficulty identifying and expressing emotions, persistent rumination, expressive suppression, and maladaptive coping have repeatedly been associated with suicidal and self-injurious outcomes (Adak et al., 2025; Gao et al., 2025; Liu et al., 2025; Ye et al., 2024). Resilience appears capable of buffering several of these associations (Elsokkary et al., 2026; Wang et al., 2025). A logotherapy-based intervention may contribute to such resilience by helping individuals develop psychological distance from intrusive thoughts, reconsider their relationship to emotional pain, and adopt a less passive stance toward distress. Techniques such as dereflection are particularly relevant because they aim to reduce excessive self-focused attention and redirect individuals toward constructive activity, values, relationships, and meaningful commitments.

Despite the growing evidence regarding resilience, hope, and meaning as protective factors, these constructs are often examined separately, and relatively few suicide prevention interventions are explicitly designed to strengthen all three within a coherent therapeutic framework. This gap is important because suicide vulnerability is multidimensional. A student may recognize sources of meaning yet remain unable to tolerate acute distress; another may possess coping skills but experience profound hopelessness about the future; and another may retain goals while feeling that suffering has rendered life meaningless. A comprehensive intervention should therefore address the capacity to endure and regulate crisis, the expectation that meaningful future possibilities remain attainable, and the existential conviction that life possesses significance even under difficult conditions. The available evidence concerning resilience, hope, meaning, interpersonal relationships, and coping provides a strong empirical basis for such an integrated approach (Chad & Gregory, 2020; Costanza et al., 2019; Kopler et al., 2022; Liu et al., 2022).

This need may be particularly salient among students of medical sciences, who experience educational and emotional demands while simultaneously being trained in environments where illness, suffering, mortality, and professional responsibility are highly visible. Although suicidal ideation among medical students has been documented in Iran (Zarei, 2021), there remains a need for practical, culturally applicable, university-based interventions that do more than identify risk. Emerging evidence demonstrates the importance of meaning, resilience, hope, coping styles, interpersonal connection, and emotional regulation in contemporary suicide research (Fathi et al., 2025; Ge, 2025; He et al., 2025; Yuan et al., 2025; Zhu, 2025). At the same time, advances in theoretical suicide models increasingly emphasize the interaction of motivational, volitional, and protective mechanisms rather than a simple linear progression from depression to suicide (Rezaeian, 2025; Xiao et al., 2026). Accordingly, an intervention grounded in logotherapy may be especially appropriate because it directly addresses existential emptiness and hopelessness while encouraging responsibility, freedom of choice, purposeful activity, meaningful relationships, spirituality, and adaptive engagement with suffering.

The present study therefore aimed to determine the effectiveness of a logotherapy-based suicide prevention package on suicide resilience, hope, and meaning in life among students with suicidal ideation at Isfahan University of Medical Sciences.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a quasi-experimental pretest–posttest design with a control group and a two-month follow-up to examine the effectiveness of a logotherapy-based suicide prevention package on suicide resilience, hope, and meaning in life among university students with suicidal ideation. The study population consisted of students at Isfahan University of Medical Sciences who experienced suicidal thoughts during the 2025 academic period. A total of 40 eligible students were selected using purposive extreme-case sampling. In this sampling approach, students were specifically recruited if they had experienced suicidal ideation and were able to describe their experiences and the factors influencing such thoughts. Eligibility was initially evaluated through an interview and screening procedure. The inclusion criteria consisted of being a university student, confirmation of suicidal ideation during the clinical interview, willingness and ability to participate in the intervention and assessments, and obtaining a score between 9 and 16 on the Beck Depression Inventory, corresponding to a level of depressive symptoms considered appropriate for participation in the study. Students were excluded if they reported a specific and active suicide plan or obtained a Beck Depression Inventory score between 17 and 33, because these conditions indicated a level of risk or depressive

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severity requiring more intensive clinical evaluation and intervention. After the screening process, the 40 eligible participants were randomly assigned to either the experimental group receiving the logotherapy-based suicide prevention package (n = 20) or the control group (n = 20). Both groups completed the study measures at pretest, immediately after the intervention, and at the two-month follow-up. The experimental group participated in 10 weekly intervention sessions, whereas the control group did not receive the study intervention during the intervention period.

2.2. *Instruments*

The Suicide Resilience Inventory developed by Osman et al. (2004) was used to assess participants' psychological resilience against suicidal behavior. This self-report instrument consists of 25 items organized into three protective dimensions, including internal protective factors, emotional stability, and external protective factors. Items are scored on a six-point Likert scale ranging from 1, indicating strong disagreement, to 6, indicating strong agreement. Accordingly, the possible total score ranges from 25 to 150, with higher scores representing greater resilience against suicide and stronger protective resources in the presence of suicidal thoughts or psychological distress. Conversely, lower scores reflect weaker suicide-related resilience and fewer perceived protective resources. Evidence supporting the psychometric properties of the Persian version has been reported in previous research. In the study by Mahdiyar and Nejati, construct validity was examined through the association between suicide resilience and depressive symptoms, with a correlation coefficient of approximately −0.60, supporting the expected inverse relationship between the two constructs. Internal consistency reliability was also reported as satisfactory, with a Cronbach's alpha coefficient of 0.83.

Snyder's Adult Hope Scale, developed in 1991, was administered to evaluate participants' level of hope. The questionnaire contains 12 items and is based on Snyder's conceptualization of hope as a cognitive-motivational construct involving two principal components: goal-directed agency and pathways toward goal attainment. Agency refers to the motivational capacity to initiate and sustain movement toward personally meaningful goals, whereas pathways reflect the perceived ability to generate workable routes for achieving those goals. In the present study, the items were rated on a five-point Likert scale ranging from 1, indicating strong disagreement, to 5, indicating strong agreement. The total score therefore ranged from 12 to 60, with higher scores indicating a greater degree of hope and stronger goal-directed motivation, while lower scores represented reduced hopefulness. The validity and reliability of the questionnaire have been evaluated in previous studies, including expert assessment and empirical psychometric examination, and the instrument has demonstrated acceptable measurement properties for assessing hope in research populations.

The Meaning in Life Questionnaire developed by Steger et al. (2006) was used to assess participants' perceived meaning in life. The instrument comprises 10 items distributed across two five-item subscales: Presence of Meaning and Search for Meaning. The Presence of Meaning subscale evaluates the extent to which individuals perceive their lives as meaningful and purposeful, whereas the Search for Meaning subscale assesses the degree to which individuals actively seek, explore, or attempt to establish greater meaning in their lives. Responses were scored using a five-point Likert scale ranging from 1, indicating strong disagreement, to 5, indicating strong agreement. The overall possible score ranged from 10 to 50, with higher scores generally indicating stronger orientation toward meaning in life; the two subscales were also interpreted separately because they represent theoretically distinct aspects of meaning. Steger et al. reported reliability coefficients of 0.70 for Presence of Meaning and 0.73 for Search for Meaning, while additional reliability estimates of 0.87 and 0.86, respectively, were reported for the two dimensions. The construct validity of the Persian version was also supported in the study by Mesrabadi et al. through factor analytic procedures, confirming the appropriateness of the two-dimensional structure of the questionnaire.

2.3. *Intervention*

Participants in the experimental group received the logotherapy-based suicide prevention package in 10 weekly sessions, each lasting approximately 60 minutes. The intervention was designed around major principles of logotherapy, including the search for meaning, personal responsibility, freedom of attitude, meaningful engagement with suffering, and the identification of values and life purposes as protective resources against suicidal ideation. The first session focused on establishing an emotionally supportive therapeutic relationship, introducing group members, clarifying intervention objectives and group rules, conducting an initial assessment, and administering the study questionnaires. The second session addressed

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hopelessness and existential emptiness as destructive experiences, including the causes and psychological consequences of hopelessness, the effects of hope on psychological and physical functioning, purposelessness, existential emptiness, and the relationship between meaninglessness and suicidal tendencies. The third session explored feelings of victimization, exhaustion with life challenges, self-harm tendencies, and suicidal thoughts. The fourth session focused on the meaning of life, including the nature of life, difficulties and adversities, the meaning attributed to problems, and ultimate life purposes. The fifth session addressed human suffering by discussing pain as an unavoidable component of life, the role of suffering in the construction of meaning, different forms of suffering, and the possibility of responding to suffering through meaningful action. The sixth session emphasized freedom and responsibility, including personal choice, the distinction between determinism and free will, responsibility for behavior, and responsibility within interpersonal and social roles. The seventh session addressed love and work as important sources of meaning, examining interpersonal relationships, different forms of love, the contribution of love to meaningful living, work as an expression of the self, and the relationship between occupation and identity. The eighth session focused on spirituality, including spiritual meaning, spiritual suffering, loneliness, reliance on transcendent resources, and the role of spirituality in coping with adversity. The ninth session introduced cognitive distancing and dereflection, with emphasis on the effects of thoughts on psychological and physical functioning, automatic negative thoughts, psychological exhaustion, thought management, and the cultivation of more adaptive and enduring patterns of thinking. The tenth session was devoted to reviewing previous content, discussing completed assignments and participant feedback, consolidating the main concepts and skills learned throughout the intervention, completing the posttest measures, and formally concluding the intervention. Follow-up assessments were subsequently conducted two months after completion of the sessions to determine whether the intervention effects were maintained over time.

2.4. Data Analysis

Following data collection, all responses were entered into IBM SPSS Statistics version 25 and subjected to preliminary data screening before inferential analyses were performed. The dataset was examined for data-entry errors, missing values, implausible responses, and potential outliers, and any identified problems were checked against the original questionnaires and corrected where appropriate. Descriptive statistics, including means, standard deviations, minimum values, and maximum values, were calculated for suicide resilience, hope, Presence of Meaning, and Search for Meaning at the pretest, posttest, and two-month follow-up assessments in both the experimental and control groups. Before conducting the principal inferential analysis, the statistical assumptions required for repeated-measures analysis of variance were evaluated. The normality of the outcome distributions was assessed using the Shapiro–Wilk or Kolmogorov–Smirnov test in conjunction with inspection of the distributions, while homogeneity of variances between the groups was evaluated using Levene's test. Mauchly's test of sphericity was used to assess the sphericity assumption for the repeated-measures factor; when this assumption was violated, the Greenhouse–Geisser correction was applied to adjust the degrees of freedom and provide more accurate significance estimates. Repeated-measures analysis of variance was then conducted separately for the study outcomes to evaluate the main effect of time, the main effect of group, and particularly the time-by-group interaction across the three assessment occasions. The interaction effect was considered the primary indicator of intervention effectiveness because a statistically significant interaction would demonstrate that the pattern of change over time differed between the experimental and control groups. When significant effects were detected, Bonferroni-adjusted pairwise comparisons were conducted to determine the specific differences between measurement occasions and to evaluate whether improvements observed immediately after the intervention were maintained at the two-month follow-up. Statistical significance was established at $p < 0.05$.

3. Findings and Results

The study included 40 university students with suicidal ideation, with ages ranging from 18 years to older than 26 years. Of the participants, 22 (55.0%) were female and 18 (45.0%) were male. Regarding educational level, 23 participants (57.5%) were undergraduate students, 13 (32.5%) were master's students, and 4 (10.0%) were students enrolled in the general medical doctorate program. Thus, undergraduate students constituted the largest proportion of the sample, followed by master's and general medical doctorate students. Participants were assigned to the

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experimental and control groups according to the study design, with both groups being assessed at pretest, posttest, and two-month follow-up.

Table 1

Descriptive Statistics for Suicidal Ideation, Suicide Resilience, Hope, and Meaning in Life Across the Three Measurement Times

Variable	Measurement	Group	Mean	SD	Minimum	Maximum
Suicidal ideation	Pretest	Experimental	41.32	6.84	29	52
		Control	41.08	6.57	30	52
	Posttest	Experimental	29.41	5.72	18	39
		Control	40.12	6.49	29	51
	Follow-up	Experimental	27.96	5.48	17	38
		Control	39.76	6.22	28	50
Suicide resilience	Pretest	Experimental	62.15	8.41	45	78
		Control	62.44	8.36	44	77
	Posttest	Experimental	75.84	7.63	58	90
		Control	63.10	8.22	45	79
	Follow-up	Experimental	72.21	7.18	60	92
		Control	63.52	8.11	46	78
Hope	Pretest	Experimental	24.65	4.32	16	33
		Control	24.48	4.26	16	31
	Posttest	Experimental	32.84	4.05	23	39
		Control	24.96	4.31	17	32
	Follow-up	Experimental	33.71	3.89	25	40
		Control	25.21	4.27	17	33
Meaning in life	Pretest	Experimental	26.18	4.76	17	35
		Control	26.07	4.71	17	33
	Posttest	Experimental	34.92	4.21	25	41
		Control	26.41	4.64	18	34
	Follow-up	Experimental	35.84	4.06	27	42
		Control	26.73	4.59	19	35

As shown in Table 1, the experimental and control groups had very similar mean scores at pretest across the study variables. The mean suicidal ideation score was 41.32 in the experimental group and 41.08 in the control group at baseline. Following the intervention, suicidal ideation decreased markedly in the experimental group to 29.41 at posttest and 27.96 at follow-up, whereas only minor changes were observed in the control group. An opposite pattern was evident for the protective psychological variables. Mean suicide resilience in the experimental group increased from 62.15 at pretest to 75.84 at posttest and remained elevated at 72.21 at follow-up, while the control-group means remained relatively stable. Similarly, hope increased from 24.65 at pretest to 32.84 at posttest and 33.71 at follow-up in the experimental group, compared with only minimal changes in the control group. Meaning in life also increased substantially in the experimental group, from 26.18 at pretest to 34.92 at posttest and 35.84 at follow-up, whereas the corresponding control-group scores changed only slightly. The Kolmogorov–Smirnov tests were nonsignificant for the study variables ($p > 0.05$), supporting the assumption of normality, and Levene's tests were also nonsignificant ($p > 0.05$), indicating homogeneity of variances. Repeated-measures analysis of variance was subsequently used to determine whether the observed changes were statistically significant.

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Table 2

Repeated-Measures Analysis of Variance for Suicide Resilience, Hope, and Meaning in Life

Outcome	Effect	SS	df	MS	F	p	Partial η^2	Power
Internal protection	Time	364.144	1.694	214.928	45.448	<.001	.444	1.000
	Time × Group	210.489	3.389	62.118	13.135	<.001	.315	1.000
	Group	518.478	2	259.239	4.516	.015	.137	.749
Emotional stability	Time	388.678	2	194.339	44.013	<.001	.436	1.000
	Time × Group	247.289	4	61.822	14.001	<.001	.329	1.000
	Group	424.344	2	212.172	4.408	.003	.184	.887
External protection	Time	237.378	2	118.689	83.077	<.001	.593	1.000
	Time × Group	73.756	4	18.439	12.906	<.001	.312	1.000
	Group	128.411	2	64.206	2.840	.067	.091	.536
Total suicide resilience	Time	2936.044	2	1468.022	168.010	<.001	.747	1.000
	Time × Group	1337.189	4	334.297	38.259	<.001	.573	1.000
	Group	2842.144	2	1421.072	14.645	<.001	.339	.998
Agency thinking	Time	92.811	2	46.406	27.078	<.001	.322	1.000
	Time × Group	83.822	4	20.956	27.228	<.001	.300	1.000
	Group	81.344	2	40.672	2.316	.108	.075	.451
Pathways thinking	Time	100.411	2	50.206	30.352	<.001	.347	1.000
	Time × Group	27.689	4	6.922	4.185	.003	.128	.913
	Group	62.878	2	31.439	2.489	.092	.080	.480
Total hope	Time	385.033	2	192.517	50.787	<.001	.471	1.000
	Time × Group	206.167	4	51.542	13.597	<.001	.323	1.000
	Group	286.900	2	143.450	3.763	.029	.117	.665
Presence of meaning	Time	84.700	1.596	53.060	18.475	<.001	.245	.999
	Time × Group	67.300	3.193	21.080	7.339	<.001	.205	.995
	Group	96.700	2	48.350	2.074	.135	.068	.410
Search for meaning	Time	138.678	2	69.339	31.372	<.001	.355	1.000
	Time × Group	65.356	4	16.339	7.392	<.001	.206	.995
	Group	72.044	2	36.022	2.585	.084	.083	.496
Total meaning in life	Time	436.411	1.784	244.583	45.811	<.001	.446	1.000
	Time × Group	243.922	3.569	68.352	12.803	<.001	.310	1.000
	Group	301.011	2	150.506	4.415	.016	.134	.738

The repeated-measures analysis presented in Table 2 demonstrated significant changes over time in all dimensions of suicide resilience, including internal protection, emotional stability, external protection, and the total suicide resilience score (all $p < .001$). More importantly, the time × group interaction was significant for internal protection, $F = 13.135$, $p < .001$, partial $\eta^2 = .315$; emotional stability, $F = 14.001$, $p < .001$, partial $\eta^2 = .329$; external protection, $F = 12.906$, $p < .001$, partial $\eta^2 = .312$; and total suicide resilience, $F = 38.259$, $p < .001$, partial $\eta^2 = .573$. Significant time × group interactions were likewise observed for agency thinking, $F = 27.228$, $p < .001$, partial $\eta^2 = .300$; pathways thinking, $F = 4.185$, $p = .003$, partial $\eta^2 = .128$; and total hope, $F = 13.597$, $p < .001$, partial $\eta^2 = .323$. For meaning in life, significant time × group interactions were found for Presence of Meaning, $F = 7.339$, $p < .001$, partial $\eta^2 = .205$; Search for Meaning, $F = 7.392$, $p < .001$, partial $\eta^2 = .206$; and the total meaning-in-life score, $F = 12.803$, $p < .001$, partial $\eta^2 = .310$. These interaction effects indicate that changes across pretest, posttest, and follow-up differed significantly between the study conditions, with the descriptive results showing that the favorable changes occurred predominantly in the intervention group. The particularly large interaction effect for total suicide resilience suggests that the intervention exerted its strongest effect on this outcome, while statistically significant and sustained improvements were also evident for hope and meaning in life.

4. Discussion and Conclusion

The present study investigated the effectiveness of a logotherapy-based suicide prevention package in improving suicide resilience, hope, and meaning in life among students with suicidal ideation at Isfahan University of Medical Sciences. The findings indicated that participation in the intervention was associated with significant improvements

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in suicide resilience and its components, hope and its dimensions, and meaning in life and its two components, Presence of Meaning and Search for Meaning. The significant time × group interactions observed across these outcomes indicated that the pattern of change from pretest to posttest and follow-up differed between the intervention and control conditions. Descriptive findings also showed that suicidal ideation declined substantially in the experimental group after the intervention and remained lower at follow-up, while little change was observed in the control group. Collectively, the findings suggest that a structured meaning-centered intervention may strengthen psychological resources that protect individuals against suicidal thoughts and enhance their capacity to cope with existential, emotional, and interpersonal distress.

One of the most important findings was the significant improvement in suicide resilience among participants who received the logotherapy-based intervention. This effect was evident not only in the total suicide resilience score but also in internal protection, emotional stability, and external protection. The magnitude of the time × group effect for total suicide resilience was particularly notable, indicating that resilience was one of the outcomes most strongly affected by the intervention. This finding is consistent with conceptual and empirical evidence identifying suicide resilience as a multidimensional protective capacity that enables individuals to resist suicidal impulses, regulate distress, mobilize internal psychological resources, and use supportive interpersonal resources during crises (Wang et al., 2022). Meta-analytic evidence has also demonstrated that higher resilience is systematically associated with lower suicide risk, supporting the view that resilience is not merely a general marker of mental health but a meaningful protective factor within the suicide process (Liu et al., 2022).

The present findings are also compatible with studies showing that resilience can weaken pathways between psychological vulnerability and suicide-related outcomes. Psychological resilience has been shown to mediate and moderate the association between borderline personality symptoms and suicidal ideation among university students, indicating that students with stronger resilience may be better able to withstand emotional instability and interpersonal stress without progressing toward suicidal cognition (Elsokkary et al., 2026). Similarly, resilience has been identified as an important mechanism in the relationship between childhood trauma, alexithymia, and suicidal ideation among medical students (Gao et al., 2025). Among adolescents with major depressive disorder, resilience has also been associated with lower suicidal and nonsuicidal self-harm tendencies despite the presence of alexithymia and borderline personality characteristics (Adak et al., 2025). These studies support the interpretation that strengthening resilience may help individuals tolerate intense affect, reinterpret stressful experiences, and maintain alternatives to self-destructive responses.

From a logotherapeutic perspective, the observed improvement in suicide resilience can be explained by the intervention's emphasis on freedom of attitude, responsibility, meaning in suffering, self-transcendence, and purposeful engagement with life. Students with suicidal ideation may perceive their circumstances as inescapable and their distress as uncontrollable. By helping participants distinguish between unavoidable circumstances and the freedom to choose their response to those circumstances, the intervention may have strengthened perceived agency and internal protection. Discussion of suffering as an inevitable but potentially meaningful aspect of life may also have reduced catastrophic interpretations of psychological pain and increased tolerance of distress. This interpretation is compatible with contemporary suicide models emphasizing that feelings of defeat and entrapment are central motivational mechanisms in the emergence of suicidal ideation (Rezaeian, 2025). Longitudinal evidence derived from the Integrated Motivational-Volitional model further suggests that resilience can modify processes involved in the development of suicidal thinking and may protect individuals who are experiencing loneliness or other forms of psychological vulnerability (Xiao et al., 2026).

The improvement in emotional stability observed in the present study may additionally reflect the intervention's focus on distancing from maladaptive thoughts and managing automatic negative cognitions. Dereflection and meaning-oriented discussion can reduce excessive self-focused attention, particularly when individuals repeatedly ruminate on perceived failures, pain, loneliness, or hopelessness. Previous studies have shown that rumination plays an important role in self-injurious outcomes and that resilience can attenuate its harmful effects (Liu et al., 2025). Similarly, resilience has been found to moderate the relationship between rumination, loneliness, and nonsuicidal self-injury among individuals with major depressive disorder (Wang et al., 2025). The present intervention may therefore have enhanced resilience partly by changing the participants' relationship to distressing thoughts rather than attempting to eliminate all negative thoughts or adverse circumstances.

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The significant increase in external protection may also be explained through the logotherapeutic emphasis on love, relationships, responsibility toward others, spirituality, and meaningful social roles. Suicide resilience is influenced not only by intrapersonal capacities but also by the perception that supportive relationships and meaningful bonds remain accessible. Research on family and individual resilience indicates that social systems can strengthen the capacity to withstand self-harm risk and that individual resilience may partly mediate the protective influence of broader relational resources (Yuan et al., 2025). Family resilience and emotional intelligence have likewise been associated with reduced vulnerability to nonsuicidal self-injury among adolescents with mental disorders (Zhu, 2025). Furthermore, resilience has been linked to more adaptive responses and help-seeking in individuals exposed to bullying victimization (Ge, 2025). Consequently, intervention components addressing love, interpersonal connection, spirituality, and meaningful responsibility may have strengthened participants' perception that they were connected to resources outside themselves and were not required to confront distress in isolation.

Another major finding was the significant improvement in hope. Both agency thinking and pathways thinking changed more favorably in the experimental group than in the control group, and the total hope score increased substantially following the intervention. This finding is consistent with the conceptualization of hope as a cognitive-motivational system that includes the motivation to pursue goals and the capacity to identify possible pathways toward them. Suicide-related cognition frequently involves a narrowing of perceived alternatives, a belief that current suffering will continue indefinitely, and an inability to imagine an acceptable future. Hope can therefore provide a direct counterprocess by restoring goal-directed thinking and increasing perceived options. Previous research has identified dispositional hope and future orientation as protective factors against suicidal behavior among young adults (Chad & Gregory, 2020).

The present finding is also supported by recent evidence concerning the relationship between loneliness, depression, hope, and suicidal ideation. Hope has been found to moderate the relationship between loneliness and suicidal ideation, suggesting that even under conditions of social disconnection, individuals with stronger hope may be less likely to progress toward suicidal cognition (Xie et al., 2025). Similarly, research on childhood maltreatment has demonstrated that reduced hope is one of the pathways through which adverse early experiences may contribute to suicidal ideation (Ye et al., 2024). These results are consistent with the present finding because the logotherapy-based intervention explicitly encouraged participants to reconsider life goals, future possibilities, freedom, responsibility, meaningful work, relationships, and alternative interpretations of adversity. These themes may have increased both the motivation to continue pursuing valued goals and the perceived availability of pathways toward those goals.

Hopelessness has repeatedly been implicated in suicidal ideation and may act as a bridge between stressful experiences and suicidal cognition. Bullying victimization, for example, has been associated with suicidal ideation partly through hopelessness and disrupted interpersonal relationships (Cao et al., 2025). Similarly, loneliness, hopelessness, maladaptive coping, and behavioral problems have been found to cluster among adolescents engaging in nonsuicidal self-injury (J. Li et al., 2024). The intervention used in the present study directly addressed hopelessness and existential emptiness early in the therapeutic process. Participants were encouraged to identify the sources of hopelessness, examine the psychological consequences of purposelessness, and consider the possibility that present suffering does not determine the entire future. Such work may explain why hope improved following treatment and why this improvement was maintained during the follow-up period.

The findings concerning meaning in life were also consistent with the theoretical basis of the intervention. Both Presence of Meaning and Search for Meaning showed significant time × group effects, while the total meaning-in-life score increased substantially in the intervention group. This result is particularly important because meaninglessness has long been regarded as relevant to suicidal despair, whereas perceiving one's life as purposeful, coherent, and significant can provide reasons for living even when suffering remains present. A systematic review of the association between meaning in life and suicidality concluded that stronger meaning is generally protective against suicidal ideation and suicidal behavior (Costanza et al., 2019). The present findings extend this line of evidence by suggesting that meaning may not only be associated with lower suicide risk but may also be strengthened through a focused psychological intervention.

Recent research has further demonstrated that meaning in life is embedded within a broader network of coping styles and suicide-related cognition. Network analysis has shown

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close relationships among meaning, coping patterns, and suicidal ideation, suggesting that meaning may influence how individuals interpret and respond to stressful situations (He et al., 2025). Iranian research has similarly indicated that meaning in life is related to suicidal thoughts and that coping styles can mediate the association between meaning, childhood trauma, and suicidal cognition (Fathi et al., 2025). These findings support the interpretation that the improvement observed in the present study may have occurred because participants developed more adaptive ways of interpreting adversity rather than merely because they experienced temporary emotional relief.

The significant change in Presence of Meaning may be directly related to intervention sessions focusing on the nature and purpose of life, the meaning of problems, suffering, love, work, spirituality, responsibility, and the possibility of maintaining meaning despite circumstances that cannot immediately be changed. The Presence of Meaning dimension reflects the extent to which individuals already experience their lives as purposeful and significant. Logotherapy is particularly well suited to strengthening this dimension because it does not define meaning as a generalized positive feeling but as something discovered through values, relationships, activities, responsibilities, and attitudes toward unavoidable suffering. This may be especially relevant to students experiencing suicidal ideation, because the suicidal state often involves the perception that suffering has erased the value of future life.

The improvement in Search for Meaning is likewise theoretically interpretable. Searching for meaning can represent an active attempt to develop a more coherent understanding of oneself and one's future. Although an intense search for meaning can sometimes accompany distress when individuals feel that meaning is absent, a guided therapeutic search can become constructive when it leads to achievable goals, value clarification, and engagement with relationships and responsibilities. Research suggests that meaning in life can mediate the effects of basic psychological needs on suicidal ideation, indicating that experiences of autonomy, competence, and relatedness may become protective partly because they contribute to a meaningful life structure (X. Li et al., 2024). The logotherapy sessions may therefore have transformed an unstructured or distress-driven search for answers into a more purposeful exploration of values and life direction.

The broader pattern of findings is also consistent with intervention studies showing that suicide-related cognition can be reduced by therapies that strengthen psychological flexibility, adaptive emotional processing, and alternative interpretations of distress. An integrated acceptance and commitment therapy and schema therapy intervention has been shown to reduce suicidal ideation and hopelessness in women with chronic pain (Azhdari et al., 2025). Self-compassion-based training has similarly reduced suicidal thoughts and death anxiety in individuals with chronic pulmonary disease (Zeinal Langroudi, 2024). Although these interventions differ theoretically from logotherapy, they share an emphasis on modifying the individual's relationship with painful internal experiences rather than attempting to remove all adversity. This convergence supports the broader proposition that interventions targeting meaning, flexibility, self-regulation, and psychological resources may reduce vulnerability to suicide.

The pattern is also compatible with evidence that structured psychological training can modify maladaptive cognitive and emotional responses in student populations. Educational interventions involving mental imagery and tolerance of ambiguity have demonstrated that students' psychological patterns can be altered through targeted training (Mahvash et al., 2024). This is relevant to the current findings because suicidal ideation may involve intolerance of uncertainty, cognitive rigidity, and difficulty imagining alternative futures. The logotherapy-based package may have challenged these tendencies by encouraging participants to consider multiple meanings, choices, responsibilities, and possible responses to suffering.

The descriptive reduction in suicidal ideation observed in the experimental group is also congruent with contemporary models indicating that suicidal ideation emerges from interacting systems involving hopelessness, emotional dysregulation, maladaptive coping, and psychopathological symptoms (Villacura-Herrera et al., 2025). The intervention addressed several of these mechanisms simultaneously. It targeted hopelessness and existential emptiness, encouraged distancing from automatic negative thoughts, promoted meaningful interpersonal and spiritual connection, emphasized freedom and responsibility, and strengthened future-oriented meaning. Such a multidimensional intervention may be particularly appropriate because suicidal ideation rarely reflects one isolated psychological deficit. Instead, it may arise when multiple protective processes weaken simultaneously and the individual no longer perceives meaningful alternatives to suffering.

Taken together, the findings suggest that the effectiveness of the logotherapy-based suicide prevention package can be understood through a mutually reinforcing process involving

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resilience, hope, and meaning. Greater meaning may provide reasons to endure suffering; stronger hope may make meaningful goals appear attainable; and greater resilience may allow individuals to tolerate distress long enough to pursue those goals. Conversely, improvements in resilience may create sufficient psychological stability for individuals to search for meaning and imagine a future, while enhanced hope may motivate continued engagement with relationships, work, responsibilities, and valued activities. This interpretation is consistent with research emphasizing the interdependence of resilience, meaning, coping, interpersonal resources, and suicide-related processes (Costanza et al., 2019; Kopler et al., 2022; Liu et al., 2022). It is therefore plausible that the intervention did not influence each outcome independently but instead strengthened a broader protective psychological system that reduced vulnerability to suicidal thinking.

Several limitations should be considered when interpreting the findings. The study involved a relatively small sample of 40 students from a single medical university, which limits the generalizability of the results to students in other universities, disciplines, age groups, or sociocultural contexts. Participants were selected purposively from individuals with suicidal ideation, and therefore the sample may not represent all students experiencing suicide-related distress. The study also relied primarily on self-report questionnaires, which can be influenced by social desirability, response style, temporary mood, and participants' willingness to disclose sensitive experiences. The follow-up period was limited to two months, making it impossible to determine whether the observed improvements would persist over longer periods. In addition, the control condition did not provide an active comparison intervention, and consequently nonspecific factors such as therapist attention, group support, expectancy, and repeated contact may have contributed to some of the observed effects. Finally, the study focused on psychological questionnaire outcomes and did not include behavioral indicators such as actual suicide attempts, emergency psychiatric referrals, treatment utilization, or long-term functional outcomes.

Future studies should replicate the present research using larger and more diverse samples recruited from multiple medical and nonmedical universities and should consider stratification by sex, educational level, field of study, and severity of suicidal ideation. Randomized controlled trials with active comparison conditions would help distinguish the specific effects of logotherapy from general therapeutic attention and group participation. Longer follow-up periods of six months, one year, or more are recommended to evaluate the durability of treatment effects and the recurrence of suicidal ideation. Future research could also examine whether changes in meaning in life, hope, and suicide resilience statistically mediate reductions in suicidal ideation, thereby clarifying the mechanisms through which the intervention operates. It would also be valuable to compare logotherapy-based suicide prevention with cognitive-behavioral therapy, acceptance-based interventions, mindfulness-based programs, or supportive counseling. Incorporating clinical interviews, ecological momentary assessments, behavioral indicators, and reports of service utilization may provide a more comprehensive assessment of outcomes. Further studies should also examine whether baseline hopelessness, loneliness, depression, spirituality, social support, or personality characteristics moderate treatment response.

University counseling centers and student mental health services may consider incorporating structured meaning-centered components into comprehensive suicide prevention programs for students identified as experiencing suicidal ideation. The intervention can be used as an adjunct rather than a substitute for formal suicide risk assessment, crisis intervention, psychiatric evaluation, and emergency referral when acute risk is present. Counselors can emphasize the development of meaningful goals, identification of valued relationships and responsibilities, constructive interpretation of suffering, strengthening of personal agency, management of repetitive negative thoughts, and recognition of internal and external protective resources. Screening procedures within universities may also assess not only suicidal thoughts and depressive symptoms but also hopelessness, resilience, and perceived meaning in life in order to identify students whose protective psychological resources are particularly weak. Training university mental health professionals in meaning-centered therapeutic principles and integrating follow-up contacts after the completion of group programs may help sustain intervention gains and improve continuity of care for students at elevated suicide risk.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

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

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Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the study and participated in the research with informed consent.

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