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## Comparing the Effectiveness of Logotherapy and Mindfulness Training on Soldiers' Resilience

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### ABSTRACT

**Objective:** The present study aimed to compare the effectiveness of logotherapy and mindfulness on the resilience of soldiers.

**Methods:** This applied research employed a quasi-experimental design with pre-test, post-test, and follow-up, along with a control group. Participants were randomly assigned into two experimental groups and one control group (15 members in each group). The Connor–Davidson Resilience Scale (2003) was used as the measurement instrument. Based on established protocols, the experimental groups received the necessary training, while no intervention was provided to the control group. Data were analyzed using SPSS version 26.

**Results:** Findings indicated that both logotherapy and mindfulness significantly improved soldiers' resilience ( $p < 0.05$ ). However, there was no significant difference between the effectiveness of the two approaches ( $p > 0.05$ ).

**Conclusions:** Both logotherapy and mindfulness can be considered effective methods for enhancing the resilience of soldiers, with no significant difference between their impacts.

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## Introduction

One of the entry stages into society for most young men in Iran, both before and after entering higher education, is mandatory military service (Moladoust et al., 2022). In Iran, this service typically lasts around two years for the majority of young men. Many of them perceive this period as difficult and challenging, disrupting the course of their lives (Ghasemi & Alipouryani, 2020). However, from the perspective of many adults, this period is considered essential and necessary for the personal development of young men (Vaezi-Nejad & Mousavi-Neqab, 2020). In any case, this mandatory period may provide an appropriate opportunity for self-discipline and self-discovery. In this regard, military service presents both opportunities and challenges, one of the most significant being the concern of commanders and families to prevent harm and to safeguard the physical and psychological health of conscripts (Changi-Ashtiani et al., 2022).

One of the most important psychological factors influencing mental health and functioning in various life situations is resilience (Jalali et al., 2022). Resilience refers to the ability to successfully adapt to threatening circumstances and indicates a positive response to adversity. Individuals with higher resilience actively and constructively engage with their environment (Ems & Caballero, 2024). Although the concept of resilience in the face of hardship has existed for centuries in myths, legends, art, and literature, it gained more systematic attention with the development of developmental psychology in the late 19th and early 20th centuries, particularly in relation to individual adaptation to the environment (Hosseini-Qomi & Salimi-Bajestani, 2012). Resilience plays a fundamental role in reducing anxiety and psychological stress among soldiers. Those with high resilience possess skills such as reliance on internal locus of control, problem-solving strategies, and effective coping mechanisms, enabling them to confront stressful conditions more effectively (Jais et al., 2024). The mechanism of resilience in reducing anxiety operates through its core components—such as self-confidence, personal competence, trust in instincts, positive acceptance of change, sense of control, and spiritual influences—which act as buffers in stressful conditions, preventing the onset of anxiety (Wood, 2019). Identifying the factors that contribute to resilience in soldiers and implementing effective educational interventions can prevent the emergence of maladaptive behaviors in military contexts (Boga, 2024). Moreover, the level of resilience significantly affects the physical and psychological health, as well as the performance of soldiers during service. Those with low resilience are more vulnerable to

maladaptive behaviors, physical illnesses, psychological disorders, and even suicidal tendencies (Stein et al., 2018).

Boga (2024) emphasized in his study on resilience among soldiers and military personnel that resilience is a multidimensional process, which military leaders must acknowledge if they aim to optimize the performance of their forces. Similarly, Simon (2023) found that the nature of military service exposes personnel to considerable physical and psychological risks; however, resilience skills equip them with the capacity to overcome such adversities.

Given the psychological challenges experienced by soldiers in military environments, psychological interventions aimed at promoting well-being and mental health can play a vital role in enhancing resilience and consequently reducing stress-related problems associated with military service (Clack, 2020). Among such interventions, logotherapy is particularly relevant, as it enhances individuals' perspectives toward themselves and the surrounding world (Karmani, 2019). For those experiencing adverse conditions and poor psychological states, logotherapy provides a philosophical approach that facilitates overcoming the past and elevating transient aspects of life (Costello, 2015). This therapeutic approach, rooted in existential psychotherapy, focuses on assisting individuals, especially during critical life stages. It assumes that life has unconditional meaning, which anyone can discover and actualize at any time and place (Heydari & Meshkin-Yazd, 2020). Logotherapy broadens individuals' perspectives to uncover meaning and value within their struggles, enabling them to accept and confront difficulties with courage (Malik et al., 2023). Its ultimate goal is to empower individuals to overcome the "tragic triad" of life—pain, guilt, and suffering—so they may discover their unique meaning (Rahgozar & Jiménez, 2020).

Extensive research has demonstrated that the presence of meaning in life is a key determinant of emotional health, systematically related to multiple psychological dimensions including personality, physical and mental health, coping with stress, religiosity, and spiritual practices. Conversely, meaninglessness and lack of purpose constitute major roots of vulnerability (Lavigne et al., 2013). Through confronting various forms of existential "nothingness," individuals can gain awareness of life's meaning, making logotherapy especially useful for those engaged in difficult tasks, facing despair, or adapting to life's limitations (Marco et al., 2022). In practice, logotherapy creates a microcosm of the real world, wherein participants—sharing existential concerns—engage in a journey of self-discovery. This process enables individuals to achieve authenticity, broaden

their self-awareness and worldview, and clarify what gives meaning to their present and future lives (Wong, 2016).

Another promising approach for promoting soldiers' mental health is mindfulness-based training (Goodarzi et al., 2018). Mindfulness, a form of meditation rooted in Eastern religious traditions, refers to heightened awareness of thoughts, emotions, sensations, and behaviors, and is considered a particular mode of attention (Mousavi et al., 2020). It represents a way of being—responding to life's events and experiences with patience, openness, and compassion, while fostering nonjudgmental and sustained awareness of mental states and processes (Wolf & Serpa, 2015). With components such as acceptance of reality, present-moment awareness, and avoidance of rumination, mindfulness aims to enhance well-being, self-awareness, and mental balance (Schumann, 2020).

Mindfulness serves as a fundamental factor for achieving liberation from psychological pressures, effectively quieting both external and internal stressors. Presence of mind entails redirecting attention from the past and future toward the present moment, thereby enabling individuals to fully perceive reality without distortion by judgments or interpretations. Those with higher levels of mindfulness tend to be more aware of their daily activities, recognize their automatic cognitive tendencies (such as escaping the present or dwelling on past and future concerns), and cultivate moment-to-moment awareness. As a result, they are less susceptible to psychological harm (Shari et al., 2016). In contrast, individuals with wandering minds often lose the capacity for realistic perception, dwell on negative aspects of life, and suffer from unpleasant emotions such as depression and anxiety, which ultimately lead to greater psychological distress (Chesin et al., 2016).

Based on the cumulative body of knowledge in the domains of resilience, logotherapy, and mindfulness, the central question of this study is: Is there a significant difference between the effectiveness of logotherapy and mindfulness in enhancing the resilience of soldiers?

## **Material and Methods**

This study was applied in purpose and experimental in design, utilizing a pretest–posttest–follow-up design with a control group. The statistical population comprised all soldiers stationed in military garrisons in Shiraz during 2023–2024. Since the aim of this study was to examine

therapeutic approaches among soldiers, convenience sampling (non-probability sampling) was employed.

Following coordination with one of the military garrisons in Shiraz and obtaining the necessary permissions, 45 soldiers were recruited based on inclusion criteria. Participants were then randomly assigned to three groups:

1. Mindfulness-Based Intervention (n = 15)
2. Logotherapy-Based Intervention (n = 15)
3. Control Group (n = 15)

In the first session, participants were introduced to the research process. Afterwards, a pretest was administered, including measures of resilience, social adjustment, and suicidal ideation. The experimental groups then attended eight intervention sessions, while the control group received no intervention. At the conclusion of the intervention period, a posttest was administered to all groups. Finally, a two-month follow-up assessment was conducted. Results across pretest, posttest, and follow-up were compared.

#### **Inclusion Criteria**

1. Age between 18 and 28 years.
2. Willingness to participate in the study.
3. Ability to read and write.
4. No concurrent psychiatric treatment in the past six months.

#### **Exclusion Criteria**

1. Absence from more than two sessions.
2. Lack of cooperation or failure to complete assigned tasks.
3. Withdrawal of willingness to continue participation.

## Interventions

**Table 1.** Logotherapy Protocol

| Session | Objective                     | Activities                                                                                 |
|---------|-------------------------------|--------------------------------------------------------------------------------------------|
| 1       | Identifying initial problems  | Introduction, group acquaintance, establishing group rules                                 |
| 2       | Reviewing current problems    | Clarification of patient and therapist expectations/goals                                  |
| 3       | Task review                   | Reflection on participants' experiences, challenges, and obstacles                         |
| 4       | Activity chart review         | Examination of life domains through activity chart                                         |
| 5       | Focus on triggers             | Identifying triggers maintaining maladaptive anxiety cycles                                |
| 6       | Identifying negative thoughts | Recognition of negative thoughts and rumination                                            |
| 7       | Problem solving               | Training in problem-solving strategies and avoidance reduction                             |
| 8       | Secondary issues              | Review of group challenges and successes in recognizing secondary problems                 |
| 9       | Relapse awareness             | Raising awareness of relapse risk and preventive measures                                  |
| 10      | Prevention skills             | Reinforcement of skills for relapse prevention and generalization of behavioral activation |

**Table 2.** Mindfulness-Based Intervention Protocol

| Session | Objective                          | Activities                                                                                                                                                              |
|---------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Automatic pilot awareness          | Group introduction, explanation of mindfulness, session structure, group rules, goal setting, raisin-eating exercise                                                    |
| 2       | Breath awareness                   | Review of previous session/homework, breathing techniques, three-minute breathing space                                                                                 |
| 3       | Overcoming barriers                | Addressing practice challenges, body scan meditation, three-minute breathing space, beginner's mind practice                                                            |
| 4       | Pleasant events                    | Meditation on seeing/hearing, pleasant events log, three-minute breathing space, sitting meditation                                                                     |
| 5       | Unpleasant events                  | Unpleasant events log, walking meditation, sitting meditation                                                                                                           |
| 6       | Negative cognitions                | Walking meditation, introduction to negative thinking patterns                                                                                                          |
| 7       | Acceptance: Thoughts are not facts | Sitting meditation, reflective story of the king and his sons, reading <i>The Guest House</i> poem, depression-release meditation, cinema/train-of-thought metaphors    |
| 8       | Self-care and future planning      | Sitting meditation, three-minute breathing space, identifying warning signs, developing list of enjoyable activities/skills, review of sessions and planning for future |

## Measures

**Connor–Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003):** The dependent variable of the study (resilience) was measured using the Connor–Davidson Resilience Scale (CD-RISC, 2003). This questionnaire consists of 25 items scored on a 5-point Likert scale, ranging from 0 (*not true at all*) to 4 (*true nearly all the time*). Thus, the total score ranges between 0 and 100, with higher scores indicating greater resilience. The CD-RISC assesses five components:

1. Perceived Personal Competence (items 10, 11, 12, 16, 17, 23, 24, 25)
2. Trust in One's Instincts (items 6, 7, 14, 15, 18, 19, 20)

3. Tolerance of Negative Affect (items 1, 2, 4, 5, 8)
4. Secure Relationships (items 13, 21, 22)
5. Spiritual Influences (items 3, 9)

Psychometric studies of this scale have been conducted in six groups, including the general population, primary care patients, psychiatric outpatients, individuals with generalized anxiety disorder, and two groups of patients with post-traumatic stress disorder. Connor and Davidson (2003) reported a Cronbach's alpha of .89 for internal consistency and a test-retest reliability of .87 over a four-week interval.

In Iran, the CD-RISC was first standardized by Mohammadi (2005), who reported a reliability coefficient of .89 using Cronbach's alpha. In a more recent study, Jafari et al. (2023) found a reliability coefficient of .79. In the present research, Cronbach's alpha for the CD-RISC was calculated at .76.

Scoring procedure: To calculate the total score, item scores are summed, yielding a range from 0 to 100. Scores above 50 are indicative of higher resilience, with the degree of resilience increasing as scores rise above this cutoff point.

### **Data Analysis**

Data were analyzed at both descriptive and inferential levels using SPSS version 26:

Descriptive statistics: frequencies, percentages, means, and standard deviations. Inferential statistics: Kolmogorov–Smirnov test to assess normality of variable distribution, Levene's test to check homogeneity of variances, Mixed-design ANOVA to compare the effectiveness of logotherapy and mindfulness interventions on resilience, suicidal ideation, and social adjustment and Bonferroni post-hoc tests for pairwise comparisons.

### **Ethical Considerations**

This study adhered to ethical guidelines as follows:

Topic selection: Ensuring originality and avoidance of duplication.

Review of literature: Observing honesty and academic integrity; citing credible sources and acknowledging prior researchers.

Instrument development: Using validated scales, resolving ambiguities, incorporating expert opinions, and conducting preliminary testing.

Data analysis, reporting, and dissemination: Maintaining honesty in data interpretation, ensuring confidentiality of participants' information, upholding transparency in reporting, and acknowledging the contributions of organizations and individuals involved in the research.

## Results

Table 3 presents the mean and standard deviation of resilience scores for participants in the logotherapy, mindfulness, and control groups across the pre-test, post-test, and follow-up phases.

**Table 3.** Means and Standard Deviations of Resilience Scores Across Groups

| Group              | Pre-test M (SD) | Post-test M (SD) | Follow-up M (SD) |
|--------------------|-----------------|------------------|------------------|
| <b>Logotherapy</b> | 54.47 (7.01)    | 83.87 (5.60)     | 85.20 (5.59)     |
| <b>Mindfulness</b> | 57.00 (6.37)    | 80.93 (9.02)     | 82.27 (9.14)     |
| <b>Control</b>     | 52.27 (7.62)    | 55.33 (7.53)     | 58.47 (7.46)     |

As shown in Table 3, no substantial differences were observed between the experimental and control groups at the pre-test stage. However, after the intervention, noticeable differences emerged in resilience scores between the experimental groups and the control group. At the follow-up stage, descriptive results suggest that mean resilience scores remained relatively stable compared to the post-test phase across all groups. To examine the significance of these findings, an analysis of covariance (ANCOVA) was conducted.

Before testing the research hypotheses, the assumptions underlying ANCOVA were examined.

**Normality:** The Kolmogorov–Smirnov test indicated that the data did not significantly deviate from normality ( $p > .05$ ), confirming the assumption of normal distribution.

**Linearity:** ANCOVA assumes a linear relationship between the covariate and dependent variable. In this study, pre-test resilience was treated as the covariate and post-test resilience as the dependent variable. Results showed a significant association ( $p < .05$ ), supporting the assumption of linearity.

To compare resilience across groups and time points (pre-test, post-test, follow-up), a repeated-measures ANOVA was conducted. Table 4 presents the multivariate test results.

**Table 4.** *Multivariate Tests for Group × Time Interaction*

| Test Statistic     | Value | F     | Hypothesis df | Error df | p    | Effect Size |
|--------------------|-------|-------|---------------|----------|------|-------------|
| Pillai's Trace     | .241  | 4.278 | 2             | 27       | .024 | .241        |
| Wilks' Lambda      | .759  | 4.278 | 2             | 27       | .024 | .241        |
| Hotelling's Trace  | .317  | 4.278 | 2             | 27       | .024 | .241        |
| Roy's Largest Root | .317  | 4.278 | 2             | 27       | .024 | .241        |

The results indicate significant group × time effects ( $F = 4.278$ ,  $p < .05$ ), with approximately 24% of the variance in resilience explained by the interventions. Thus, the null hypothesis of no differences between groups across time was rejected.

Mauchly's test of sphericity was significant ( $\chi^2 = 25.156$ ,  $df = 2$ ,  $p < .001$ ), indicating that the assumption of sphericity was violated. Therefore, Greenhouse–Geisser corrections were applied in subsequent analyses (Table 5).

**Table 5.** Mauchly's Test of Sphericity

| Mauchly's W | $\chi^2$ | df | p    | Greenhouse–Geisser $\epsilon$ |
|-------------|----------|----|------|-------------------------------|
| .394        | 25.156   | 2  | .001 | .623                          |

Table 6 presents the within-subjects effects for resilience.

**Table 6.** Tests of Within-Subjects Effects for Resilience

| Source                            | SS      | df    | MS      | F     | p    |
|-----------------------------------|---------|-------|---------|-------|------|
| Time (sphericity assumed)         | 14968.9 | 2     | 4784.4  | 7.836 | .001 |
| Time (Greenhouse–Geisser)         | 14968.9 | 1.245 | 12020.9 | 7.836 | .001 |
| Time × Group (sphericity assumed) | 149.4   | 2     | 74.7    | 7.8   | .001 |
| Time × Group (Greenhouse–Geisser) | 149.4   | 1.245 | 119.9   | 7.8   | .005 |
| Error (sphericity assumed)        | 533.0   | 56    | 9.5     |       |      |
| Error (Greenhouse–Geisser)        | 34.867  | 1.245 | 15.3    |       |      |

The Greenhouse–Geisser corrected results revealed significant main effects of time ( $F = 7.836$ ,  $p < .001$ ) and significant time × group interaction effects ( $F = 7.8$ ,  $p = .005$ ), suggesting that resilience scores changed differently across groups over time. Bonferroni-adjusted post-hoc tests were performed to locate the exact differences (Table 7).

**Table 7.** Bonferroni Pairwise Comparisons for Resilience

| Group          | Comparison       | Mean Diff. | SE   | p    |
|----------------|------------------|------------|------|------|
| Logotherapy    | Pre – Post       | -29.40     | 1.23 | .001 |
|                | Pre – Follow-up  | -30.73     | 1.09 | .001 |
|                | Post – Follow-up | -1.33      | 0.56 | .094 |
| Mindfulness    | Pre – Post       | -23.93     | 1.39 | .001 |
|                | Pre – Follow-up  | -25.27     | 1.56 | .001 |
|                | Post – Follow-up | -1.33      | 0.50 | .058 |
| Between Groups | Pre-test         | -2.53      | 2.45 | .309 |
|                | Post-test        | 2.93       | 2.74 | .294 |
|                | Follow-up        | 2.93       | 2.77 | .298 |

Results indicate that both logotherapy and mindfulness significantly improved resilience from pre-test to post-test and from pre-test to follow-up ( $p < .001$ ). However, no significant differences were observed between post-test and follow-up, suggesting that the gains were maintained over time. Furthermore, no significant differences emerged between the logotherapy and mindfulness groups at any stage.

## Discussion

The present study examined the effects of logotherapy and mindfulness on soldiers' resilience. The findings demonstrated that both interventions significantly improved resilience compared to the control group, but no significant difference was observed between the two approaches in terms of effectiveness. These results are partially consistent with the findings of Najafi et al. (2024), Parsamehr and Tamanayi-Far (2024), Nikosirjahromi (2023), Zakeri (2022), Simon (2023), and Qiu et al. (2022).

To interpret these findings, it is necessary to draw on theoretical foundations and prior research. Resilience—the ability to positively adapt in the face of adversity—has been extensively studied as a psychological construct in relation to stress and challenging life situations. Resilience is not merely about resisting harm or surviving hazardous conditions; rather, it reflects active and constructive engagement with one's environment. For soldiers, resilience functions as a protective factor against anxiety and psychological distress. Soldiers with higher resilience are more likely to employ internal locus of control, effective problem-solving strategies, and adaptive coping mechanisms when confronting stressful situations (Joss et al., 2024).

Mechanistically, resilience reduces anxiety by activating its core components—such as self-confidence, personal competence, trust in instincts, positive acceptance of change, self-control,

and spiritual influences—which serve as buffers against stress (Wood, 2019). Identifying the determinants of resilience and implementing targeted educational interventions can help prevent maladaptive behaviors in military contexts (Boga, 2024). Moreover, resilience and tolerance for hardship directly influence soldiers' physical and psychological health and their overall performance. Low-resilience soldiers are more vulnerable to maladaptive behaviors, physical illnesses, psychological disorders, and even suicidal behaviors (Stein et al., 2018). Simon (2023) highlighted that successful adaptation to military service requires diverse competencies, with resilience playing a central role. Without resilience, soldiers may face heightened risks of emotional, psychological, and behavioral difficulties.

Mindfulness therapy contributed significantly to enhancing soldiers' resilience. Mindfulness, defined as present-moment awareness without judgment, cultivates a heightened sense of attention to ongoing experiences (Qiu & Wu, 2022). For soldiers, mindfulness fosters adaptive coping and reduces maladaptive rumination. Those with low mindfulness often struggle with emotion regulation, cognitive processing, and adaptive responses to internal and external stressors. Given the stressful and unfamiliar nature of military service, such individuals tend to become trapped in repetitive negative thinking, disconnected from the present moment, and unable to effectively manage bodily, emotional, and cognitive changes.

Through mindfulness training, participants in this study enhanced their attentional control and awareness of emotional, cognitive, and behavioral experiences in real time. This aligns with findings by Abotalebi et al. (2022), who showed that mindfulness interventions improve self-awareness, strengthen resilience, and enhance coping capacities. Mindfulness also reduced the intrusion of negative thoughts and promoted emotional safety. By learning to observe and accept their thoughts and emotions nonjudgmentally, soldiers improved their ability to manage negative cognitive patterns, thereby lowering the risk of psychological distress and strengthening resilience. Similar conclusions were drawn by Goudarzi et al. (2023).

Logotherapy was also effective in strengthening resilience. The primary aim of logotherapy is to enable individuals to discover their unique meaning in life. According to Frankl's framework, people can endure suffering when it is perceived as meaningful (Parsamehr & Tamanayi-Far, 2024). In this study, soldiers were guided to identify personal goals and values aligned with their

military role. By helping participants to find meaning in their service, the intervention facilitated greater acceptance of responsibilities and strengthened their resilience.

Putrina et al. (2024) found that logotherapy allows individuals, including those with medical conditions, to find valuable meaning in suffering, thereby enhancing resilience. A central principle of logotherapy is the emphasis on personal responsibility, which fosters a sense of agency and control. By empowering soldiers to view themselves as capable of shaping their lives, the intervention increased their motivation to cope, endure, and overcome difficulties. Najafi et al. (2024) and Babazadeh (2022) similarly reported that the perception of agency developed through logotherapy significantly contributes to resilience.

Although both interventions—mindfulness and logotherapy—produced meaningful improvements in resilience across pre-test, post-test, and follow-up, the absence of significant differences between them suggests that both are equally effective. Each is grounded in comprehensive philosophical principles that foster adaptive perspectives toward life. Both encourage individuals not only to endure hardship but also to reframe their experiences as opportunities for growth and meaning.

Mindfulness helps soldiers internalize a non-result-oriented perspective, allowing them to appreciate each moment of their journey, learn from experiences, and remain optimistic in the face of challenges. In contrast, logotherapy promotes resilience by assisting soldiers in discovering meaning within their roles, transforming military service from a burdensome duty into a purposeful pursuit. When individuals perceive their lived experiences as meaningful, they are more likely to accept hardships and persevere through them.

These findings align with those of Ghasemi et al. (2024), who demonstrated that both mindfulness and logotherapy improve resilience through fundamental shifts in worldview and life philosophy. Importantly, neither approach demonstrated superiority over the other in this study, underscoring their comparable effectiveness in enhancing resilience among soldiers.

### Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

### Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University.

### Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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### Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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