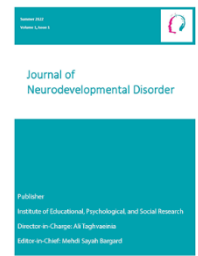




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## The Role of Commanders' Managerial Styles in Predicting Soldiers' Deliberate Physical Self-Injury: The Mediating Role of Alexithymia

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### ABSTRACT

**Purpose:** The present study aimed to examine the role of commanders' managerial styles in predicting soldiers' deliberate physical self-injury, with alexithymia as a mediating variable.

**Methods and Materials:** This study employed a descriptive correlational design using path analysis. The statistical population consisted of soldiers of the Islamic Republic of Iran Army in the northwest region of the country in 2024. A total of 198 soldiers were selected through multistage cluster random sampling. Data were collected using the Self-Harm Inventory (SHI), the Management Systems Questionnaire (LSQ), and the Toronto Alexithymia Scale (TAS). Descriptive statistics and Pearson correlation coefficients were computed, and the hypothesized model was tested using structural equation modeling with SPSS version 25 and AMOS version 24. Assumptions of normality, multicollinearity, and independence of errors were examined prior to model testing. Indirect effects were assessed using bootstrapping procedures.

**Findings:** Results indicated that exploitative–authoritative management had a positive and significant direct effect on alexithymia ( $\beta = 0.37, p < .01$ ) and deliberate physical self-injury ( $\beta = 0.29, p < .01$ ). Benevolent–authoritative management showed significant negative direct effects on alexithymia ( $\beta = -0.27, p < .01$ ) and deliberate physical self-injury ( $\beta = -0.19, p < .05$ ). Alexithymia had a positive and significant direct effect on deliberate physical self-injury ( $\beta = 0.18, p < .05$ ). Bootstrapping results demonstrated that alexithymia significantly mediated the relationships between exploitative–authoritative management ( $\beta = 0.07, p < .05$ ) and benevolent–authoritative management ( $\beta = -0.05, p < .05$ ) with deliberate physical self-injury. Consultative and participative management styles did not show significant direct or indirect effects. The model explained 25% of the variance in deliberate physical self-injury.

**Conclusion:** The findings suggest that commanders' managerial styles play a significant role in shaping soldiers' vulnerability to deliberate physical self-injury, both directly and indirectly through alexithymia. Authoritarian leadership may increase risk by intensifying emotional processing deficits, whereas benevolent leadership appears to exert a protective effect.

**Keywords:** managerial styles, alexithymia, deliberate physical self-injury, military psychology, leadership, emotion regulation

## 1. Introduction

The military is a complex social system in which hierarchical authority, collective mission orientation, and exposure to acute and chronic stressors interact to shape service members' psychological functioning. Contemporary armed forces are increasingly recognized not only as instruments of national defense but also as organizations whose effectiveness depends on the psychological health, resilience, and adaptive capacities of their personnel (Dzhyhora et al., 2024). Within this context, understanding the determinants of soldiers' mental health outcomes—particularly maladaptive coping behaviors such as deliberate self-injury—has become a priority for both military leadership and behavioral health researchers. Empirical evidence indicates that self-harm behaviors occur in military populations at nontrivial rates, warranting systematic investigation of both individual and organizational risk factors (Gromatsky et al., 2023; Shelef et al., 2024).

Non-suicidal self-injury and related deliberate physical self-harm behaviors have been documented among active-duty personnel and recruits, with prevalence estimates varying across samples and methodological approaches (Gromatsky et al., 2023). During military service, factors such as adaptation to rigid hierarchical structures, exposure to operational stress, separation from family, and performance pressures may exacerbate vulnerability to self-harm (Shelef et al., 2024). Prospective research on adaptation in young military recruits underscores the dynamic interplay between stress exposure and resilience mechanisms over time (Polusny et al., 2023). Intensive field-based studies further demonstrate that military training environments can elicit substantial psychological and physiological stress responses, which may tax regulatory capacities when protective factors are insufficient (Pojednic et al., 2024). Consequently, identifying psychological mediators and contextual moderators of self-harm risk in soldiers is essential.

Among individual-level vulnerabilities, alexithymia has received increasing attention as a transdiagnostic construct implicated in emotional dysregulation and maladaptive coping. Conceptually, alexithymia encompasses difficulties in identifying and describing feelings and a tendency toward externally oriented thinking (Preece & Gross, 2023). Higher severity of alexithymia has been associated with impairments in both intrinsic and extrinsic emotion regulation processes, limiting individuals' capacity to modulate affective experiences adaptively (Nowicki, 2025).

Systematic reviews and meta-analyses have consistently demonstrated robust associations between alexithymia and self-harm behaviors across populations (Bordalo & Carvalho, 2022; Norman et al., 2020). In military samples, alexithymia has been linked to suicidal ideation, with perceived stress and depressive symptoms operating as serial mediators (Hong et al., 2024). These findings suggest that deficits in emotional awareness and articulation may intensify stress reactivity and contribute to maladaptive behavioral outlets, including deliberate self-injury.

In addition to individual vulnerabilities, leadership and managerial styles represent critical contextual factors within military organizations. Organizational behavior theory posits that leadership styles shape subordinate attitudes, motivation, and behavioral outcomes through formal authority structures and informal relational dynamics (Griffin et al., 2020). In military settings, leadership has been shown to influence resilience, hardiness, and organizational identification (Boga, 2024; Navas-Jiménez et al., 2024). Differences in leadership level and combat experience have also been associated with variations in psychological hardiness among military personnel (Kokun et al., 2023). Moreover, hardiness and self-efficacy beliefs play mediating roles in leadership selection and adaptation processes (Nordmo et al., 2022). Collectively, these findings underscore that leadership style is not merely an administrative variable but a psychologically consequential determinant of subordinate well-being.

Authoritative and benevolent-authoritative management styles, derived from Likert's leadership systems theory, reflect distinct patterns of control, communication, and support (Afzaldir, 2019). Exploitative-authoritative styles emphasize unilateral decision-making and strict control, potentially suppressing open emotional expression and increasing organizational silence (Jafari Harandi & Najafi, 2017). In contrast, benevolent-authoritative styles combine centralized authority with concern for subordinates' welfare, potentially fostering trust and psychological safety. Research indicates that leadership styles experienced during military service can predict later depressive symptoms and self-efficacy levels among veterans (Durazzo et al., 2024). Similarly, leadership culture and attitudes have been associated with subordinate help-seeking behaviors in relation to suicidal risk (Ross Jr, 2021). Organizational collectivist cultures may also promote specific leadership forms that influence subordinate emotional processes through moderated mediation mechanisms (Liu et al., 2021).

Within high-stress military environments, cognitive resilience and adaptive coping are essential for maintaining operational readiness (Flood & Keegan, 2022). However, when leadership climates restrict emotional disclosure or reinforce rigid performance expectations without adequate support, soldiers with preexisting emotion regulation difficulties may experience amplified distress. Studies in clinical and nonclinical populations demonstrate that emotional dysregulation and negative affect predict self-harming behaviors (Mikaeili et al., 2019). In military contexts, self-compassion has been shown to mediate the relationship between emotional dysregulation and nonsuicidal self-injury in soldiers (Mohammadian et al., 2022). These findings highlight the plausibility of a mediational framework in which leadership styles influence self-harm behaviors indirectly through emotional processing mechanisms such as alexithymia.

Methodologically, structural equation modeling and path analysis provide robust approaches for testing such mediational hypotheses in complex organizational contexts (Kline, 2023). By modeling both direct and indirect pathways, researchers can disentangle whether leadership styles exert independent effects on self-harm or operate through intermediary constructs such as alexithymia. Given the established associations between alexithymia and self-harm (Bordalo & Carvalho, 2022; Norman et al., 2020), and the documented psychological impact of military leadership styles (Boga, 2024; Durazzo et al., 2024), an integrative model examining commanders' managerial styles, alexithymia, and deliberate physical self-injury is theoretically and empirically justified.

Furthermore, the organizational and national implications of military personnel well-being extend beyond individual outcomes. Defense forces contribute to national military potential and stability, and their effectiveness is contingent upon psychologically healthy service members (Dzhyhora et al., 2024). Understanding how leadership climates interact with individual emotional vulnerabilities may therefore inform preventive interventions, leadership training, and mental health programs aimed at reducing self-harm risk among soldiers.

Despite the growing literature on self-harm and leadership in military contexts, limited research has simultaneously examined specific managerial styles and alexithymia as mediating mechanisms in predicting deliberate physical self-injury among active-duty soldiers. Accordingly, the aim of the present study was to examine the role of commanders' managerial styles in predicting

soldiers' deliberate physical self-injury, with alexithymia as a mediating variable.

## 2. Methods and Materials

### 2.1. Study Design and Participants

The present study was descriptive–correlational in terms of objectives and data collection procedures. The statistical population consisted of all soldiers of the Islamic Republic of Iran Army in the northwest region of the country in 2024. Based on Kline's (2023) recommendation for path analysis, a minimum sample size of 200 participants was considered. Given the impracticality of accessing all members of the target population, a multistage cluster random sampling method was employed. Accordingly, from among the Army units located in the northwest region, one province (East Azerbaijan Province) was selected, and from among the units within this province, two units were chosen. All soldiers present in these units who declared their willingness to participate in the study were selected as the sample. In total, 209 individuals were initially assessed; however, 11 participants were excluded due to incomplete questionnaire responses. Therefore, 198 participants constituted the final study sample.

Inclusion criteria comprised active military service in the Islamic Republic of Iran Army, literacy (ability to read and write), absence of medically impairing conditions (based on self-report), and provision of informed consent to participate in the study. Exclusion criteria included lack of cooperation during the research process and incomplete or careless completion of the research questionnaires. Ethical considerations involved providing written information about the study to participants, assuring them of the confidentiality of the obtained data and its exclusive use for research purposes, emphasizing the voluntary nature of participation, and obtaining informed consent from all participants.

Following the necessary administrative coordination, the researcher visited Army units in East Azerbaijan Province. From among the soldiers present in the selected units who expressed willingness to participate, sampling was conducted. After selecting the participants, they were briefed and the objectives of the study were explained. Brief instructions regarding how to respond to the questionnaire items were provided. Subsequently, the questionnaires were distributed to all eligible soldiers, excluding those who were illiterate and those unwilling to complete the questionnaires. Upon completion of the questionnaires, data were extracted and prepared for analysis.

## 2.2. Measures

**Self-Harm Inventory (SHI).** The Self-Harm Inventory was developed by Sansone et al. (1998) and consists of 22 items assessing deliberate physical self-injury. The instrument evaluates both direct self-harm behaviors (e.g., cutting, burning, suicide attempts) that result in immediate tissue damage and indirect self-harm behaviors (e.g., illicit drug misuse, reckless driving, high-risk sexual behaviors). Higher scores indicate greater severity and frequency of self-harming behaviors. The response format is dichotomous (Yes/No). Sansone et al. (1998) reported a Cronbach's alpha coefficient of .84 for internal consistency and a convergent validity coefficient of .70 with the Kernberg Personality Disorder instrument. In Iran, Mikaeili et al. (2019) reported a reliability coefficient of .74, indicating acceptable reliability. In the present study, internal consistency assessed via Cronbach's alpha for the total scale was .78.

**Management Systems Questionnaire (LSQ).** The Management Systems Questionnaire was developed by Likert (1961) to assess managerial styles. The instrument comprises four subscales: exploitative–authoritative management (8 items), benevolent–authoritative management (5 items), consultative management (5 items), and participative management (8 items). Items are rated on a five-point Likert scale ranging from strongly disagree to strongly agree. In the Persian version, Afsardir (2019) reported a Cronbach's alpha coefficient of .85 for the total scale and .78, .76, .72, and .77 for the exploitative–authoritative, benevolent–authoritative, consultative, and participative subscales, respectively. In the present study, Cronbach's alpha coefficients were .84 for the total scale and .75, .70, .71, and .86 for the exploitative–authoritative,

benevolent–authoritative, consultative, and participative subscales, respectively.

**Toronto Alexithymia Scale (TAS).** The Toronto Alexithymia Scale was developed by Bagby et al. (1994) to assess alexithymia and consists of 20 items encompassing three components: difficulty identifying feelings (7 items), difficulty describing feelings (5 items), and externally oriented thinking (8 items). Items are rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), yielding a total score range of 20 to 100. Bagby et al. (1994) reported a Cronbach's alpha coefficient of .81 and a test–retest reliability coefficient of .77. Besharat (2007), in examining the psychometric properties of the Persian version, reported Cronbach's alpha coefficients of .85 for the total scale and .82, .75, and .72 for difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking, respectively. In the present study, Cronbach's alpha for the total scale was .82.

## 2.3. Data Analysis

Data analysis was conducted using path analysis through SPSS version 25 and AMOS version 24.

## 3. Findings and Results

A total of 198 participants constituted the final sample in the present study. Of these, 10 had an education level below a high school diploma, 22 held a high school diploma, 18 had an associate degree, 68 had a bachelor's degree, and the remainder had a master's degree or higher. In addition, 132 participants were single and 66 were married. The mean age of the participants was 27.08 years ( $SD = 5.13$ ). Table 1 presents the means, standard deviations, skewness, and kurtosis of the study variables.

**Table 1**

*Means, Standard Deviations, Skewness, and Kurtosis of the Study Variables*

Study variables	Mean	SD	Skewness	Kurtosis
Exploitative–authoritative management	28.25	2.88	-1.03	0.28
Benevolent–authoritative management	16.12	2.32	0.43	-1.50
Consultative management	13.55	2.02	1.18	0.08
Participative management	23.40	4.23	0.21	-1.82
Alexithymia	53.90	9.25	0.59	-0.80
Deliberate physical self-injury	2.80	2.69	0.90	-0.26

As shown in Table 1, the means and standard deviations were 28.25 ( $SD = 2.88$ ) for exploitative–authoritative management, 16.12 ( $SD = 2.32$ ) for benevolent–authoritative management, 13.55 ( $SD = 2.02$ ) for

consultative management, and 23.40 ( $SD = 4.23$ ) for participative management. The mean alexithymia score was 53.90 ( $SD = 9.25$ ), and the mean deliberate physical self-injury score was 2.80 ( $SD = 2.69$ ). Kline (2023) recommends

that, in modeling causal relations, variable distributions should be approximately normal; accordingly, the absolute values of skewness and kurtosis should not exceed 3 and 10, respectively. Because the skewness and kurtosis values for

all variables were below these thresholds, the distributions were considered acceptable and the use of parametric statistical procedures was deemed appropriate. Table 2 presents the correlation matrix among the study variables.

**Table 2**

*Correlation Matrix Among the Study Variables*

Study variables	1	2	3	4	5	6
1. Exploitative–authoritative management	1					
2. Benevolent–authoritative management	-0.56**	1				
3. Consultative management	-0.31**	0.54**	1			
4. Participative management	-0.24**	0.40**	0.21**	1		
5. Alexithymia	0.46**	-0.38**	-0.12	-0.06	1	
6. Deliberate physical self-injury	0.43**	-0.33**	-0.12	-0.02	0.37**	1

\*\*p < .01.

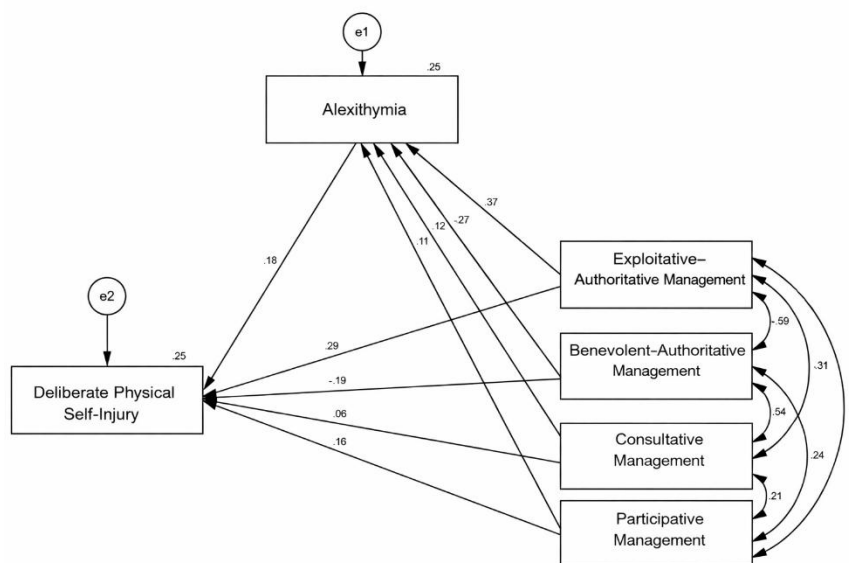
As shown in Table 2, exploitative–authoritative management was positively associated with alexithymia ( $r = .46, p < .01$ ) and with deliberate physical self-injury ( $r = .43, p < .01$ ). Benevolent–authoritative management was negatively associated with alexithymia ( $r = -.38, p < .01$ ) and with deliberate physical self-injury ( $r = -.33, p < .01$ ). Alexithymia also showed a positive and significant association with deliberate physical self-injury among soldiers ( $r = .37, p < .01$ ). However, consultative and participative management styles were not significantly related to alexithymia or to deliberate physical self-injury.

Next, to examine the role of commanders’ managerial styles in predicting soldiers’ deliberate physical self-injury through the mediating role of alexithymia, path analysis was

conducted. The assumptions of the analysis were examined first. Regarding normality, the absolute values of skewness and kurtosis for all variables fell within the range of  $-2$  to  $+2$ ; therefore, the normality assumption was supported. Multicollinearity was evaluated using tolerance and variance inflation factor (VIF) indices, and no deviations from the multicollinearity assumption were observed for any study variable. Finally, independence of errors was assessed using the Durbin–Watson test; because the obtained value (1.59) did not fall outside the critical bounds (1.5 to 2.5), this assumption was also met. Accordingly, the use of path analysis for the study data was appropriate. Figure 1 illustrates the study’s causal model along with standardized coefficients.

**Figure 1**

*The Study’s Causal Model*



As shown in Figure 1, the model assumed that alexithymia mediates the relationship between managerial styles and deliberate physical self-injury among soldiers. The values presented in the figure indicate that the variables

included in the model collectively explained 25% of the variance in deliberate physical self-injury among soldiers. Table 3 reports the results for the direct effects of exogenous variables on the endogenous variables in the model.

**Table 3**

*Estimated Direct Effects of Exogenous Variables on Endogenous Variables*

Exogenous variable	Endogenous variable	$\beta$	B	T (C.R.)	p
Exploitative–authoritative management	Alexithymia	0.37	1.17	4.80	< .001
Benevolent–authoritative management	Alexithymia	-0.27	-1.07	-2.98	.003
Consultative management	Alexithymia	0.12	0.55	1.61	.107
Participative management	Alexithymia	0.11	0.24	1.60	.108
Exploitative–authoritative management	Deliberate physical self-injury	0.29	0.27	3.58	< .001
Benevolent–authoritative management	Deliberate physical self-injury	-0.19	-0.22	-2.09	.037
Consultative management	Deliberate physical self-injury	0.06	0.08	0.86	.391
Participative management	Deliberate physical self-injury	0.16	0.10	1.17	.240
Alexithymia	Deliberate physical self-injury	0.18	0.05	2.52	.012

As shown in Table 3, the direct effect of exploitative–authoritative management on alexithymia ( $\beta = 0.37, p < .01$ ) and on deliberate physical self-injury ( $\beta = 0.29, p < .01$ ) was positive and statistically significant. The direct effect of benevolent–authoritative management on alexithymia ( $\beta = -0.27, p < .01$ ) and on deliberate physical self-injury ( $\beta = -0.19, p < .05$ ) was negative and statistically significant. The direct effect of alexithymia on deliberate physical self-injury ( $\beta = 0.18, p < .05$ ) was also positive and statistically significant. However, the direct effects of consultative

management on alexithymia ( $\beta = 0.12, p > .05$ ) and deliberate physical self-injury ( $\beta = 0.06, p > .05$ ), as well as the direct effects of participative management on alexithymia ( $\beta = 0.11, p > .05$ ) and deliberate physical self-injury ( $\beta = 0.16, p > .05$ ), were not statistically significant.

Next, to test the mediating role of alexithymia in the relationships between commanders’ managerial styles and soldiers’ deliberate physical self-injury, a bootstrap procedure was used. The results are presented in Table 4.

**Table 4**

*Indirect Effects Based on Bootstrapping*

Independent variable	Mediator	Dependent variable	Bootstrap CI (Lower)	Bootstrap CI (Upper)	Effect size	p
Exploitative–authoritative management	Alexithymia	Deliberate physical self-injury	0.011	0.181	0.07	.032
Benevolent–authoritative management	Alexithymia	Deliberate physical self-injury	-0.119	-0.003	-0.05	.047
Consultative management	Alexithymia	Deliberate physical self-injury	-0.001	0.077	0.02	.114
Participative management	Alexithymia	Deliberate physical self-injury	-0.005	0.084	0.02	.229

As indicated in Table 4, the indirect effect of exploitative–authoritative management on deliberate physical self-injury through alexithymia was positive and significant ( $\beta = 0.07, p < .05$ ), whereas the indirect effect of benevolent–authoritative management on deliberate physical self-injury through alexithymia was negative and significant ( $\beta = -0.05, p < .05$ ). In contrast, the indirect effects of consultative and participative management styles on deliberate physical self-injury through alexithymia were not statistically significant ( $p > .05$ ). Thus, alexithymia

significantly mediated the relationships between exploitative–authoritative and benevolent–authoritative management styles and deliberate physical self-injury, but it did not mediate the relationships between consultative or participative management styles and deliberate physical self-injury among soldiers.

**4. Discussion and Conclusion**

The present study examined the role of commanders’ managerial styles in predicting deliberate physical self-

injury among soldiers, with alexithymia as a mediating variable. The findings indicated that exploitative–authoritative management had a positive and significant direct effect on both alexithymia and deliberate physical self-injury, whereas benevolent–authoritative management had negative and significant direct effects on these variables. In addition, alexithymia was positively associated with deliberate physical self-injury and significantly mediated the relationships between exploitative–authoritative and benevolent–authoritative management styles and self-injury. However, consultative and participative management styles did not demonstrate significant direct or indirect effects on deliberate physical self-injury. Collectively, the variables in the model accounted for 25% of the variance in soldiers’ deliberate physical self-injury, underscoring the combined importance of leadership context and emotional processing mechanisms in understanding maladaptive behaviors in military settings.

The positive association between exploitative–authoritative management and deliberate physical self-injury suggests that rigid, control-oriented, and emotionally restrictive leadership climates may exacerbate psychological distress among subordinates. Organizational behavior theory posits that highly centralized and punitive leadership styles tend to suppress open communication and foster organizational silence (Griffin et al., 2020; Jafari Harandi & Najafi, 2017). In military contexts, leadership climates have been linked to subordinate help-seeking attitudes and mental health outcomes (Ross Jr, 2021). When commanders adopt an exploitative–authoritative approach characterized by unilateral decision-making and limited emotional support, soldiers may experience heightened stress, reduced perceived autonomy, and diminished psychological safety. This interpretation is consistent with evidence indicating that leadership styles experienced during military service predict later depressive symptoms and reduced self-efficacy among veterans (Durazzo et al., 2024). Given that self-harm behaviors in military populations are associated with psychosocial stressors and maladaptive coping (Gromatsky et al., 2023; Shelef et al., 2024), it is plausible that authoritarian leadership intensifies vulnerability to such behaviors.

Conversely, the negative association between benevolent–authoritative management and deliberate physical self-injury highlights the protective role of supportive leadership within hierarchical structures. Benevolent–authoritative leaders maintain authority while demonstrating concern for subordinates’ welfare (Afzaldir,

2019). In military training contexts, secure base leadership has been shown to enhance organizational identification and resilience through work engagement (Navas-Jiménez et al., 2024). Similarly, military leadership has been conceptualized as a key determinant of resilience and psychological hardiness (Boga, 2024; Kokun et al., 2023). Leadership processes that foster self-efficacy and adaptive beliefs have also been identified as mediators of successful military adaptation (Nordmo et al., 2022). In line with these findings, the present results suggest that benevolent–authoritative leadership may mitigate self-harm risk by cultivating a relational climate characterized by trust, support, and constructive feedback.

A central contribution of the present study lies in demonstrating the mediating role of alexithymia in the relationship between managerial styles and deliberate physical self-injury. The positive association between alexithymia and self-injury aligns with a substantial body of literature identifying alexithymia as a robust risk factor for self-harm (Bordalo & Carvalho, 2022; Norman et al., 2020). Conceptually, alexithymia reflects difficulties in identifying and describing emotional states and a tendency toward externally oriented thinking (Preece & Gross, 2023). Individuals with elevated alexithymia exhibit impairments in both intrinsic and extrinsic emotion regulation processes (Nowicki, 2025), which may increase reliance on maladaptive behavioral strategies to manage distress. In military personnel, alexithymia has been associated with suicidal ideation through pathways involving perceived stress and depression (Hong et al., 2024). The present findings extend this evidence by situating alexithymia within an organizational framework, demonstrating that leadership climate may shape emotional processing capacities that, in turn, influence self-injurious behavior.

The mediational findings suggest that exploitative–authoritative leadership may contribute to elevated alexithymia by limiting emotional expression and discouraging vulnerability. In high-demand environments such as military training and operations, soldiers are exposed to acute and chronic stressors (Pojednic et al., 2024; Polusny et al., 2023). While cognitive resilience can buffer psychological stress (Flood & Keegan, 2022), leadership climates that devalue emotional discourse may inadvertently reinforce emotional suppression. Over time, such suppression may manifest as difficulties in identifying and articulating emotions, consistent with the conceptualization of alexithymia (Preece & Gross, 2023). In turn, heightened alexithymia increases the likelihood of maladaptive coping

behaviors, including self-harm (Bordalo & Carvalho, 2022; Norman et al., 2020). This chain of associations is further supported by research demonstrating that emotional dysregulation predicts self-harming behaviors in both civilian and military populations (Mikaeili et al., 2019; Mohammadian et al., 2022).

The absence of significant effects for consultative and participative management styles warrants consideration. Although participative leadership is often associated with positive organizational outcomes (Griffin et al., 2020), its influence may depend on contextual compatibility within military hierarchies. Organizational collectivist cultures and leadership norms can shape the effectiveness of participative approaches (Liu et al., 2021). In strictly hierarchical military systems, consultative and participative practices may be constrained by structural demands, potentially limiting their impact on deeply ingrained emotional processes such as alexithymia. Alternatively, it is possible that the psychological mechanisms linking participative leadership to well-being operate through constructs other than alexithymia, such as organizational commitment or morale.

The explanatory power of the model (25% of variance in deliberate physical self-injury) is meaningful within the complexity of military psychological functioning. Military organizations are embedded within broader socio-political systems, and their operational effectiveness depends on both structural and human capital dimensions (Dzhyhora et al., 2024). Self-injury behaviors likely arise from multifactorial influences, including personal history, trauma exposure, mental health conditions, and interpersonal dynamics (Gromatsky et al., 2023; Shelef et al., 2024). Nevertheless, the present findings underscore that leadership style and emotional awareness constitute significant and modifiable factors within this network of influences.

Methodologically, the use of path analysis enabled the simultaneous examination of direct and indirect effects, consistent with recommendations for structural modeling in psychological research (Kline, 2023). By integrating organizational and emotional variables into a unified model, the study advances a multilevel perspective on self-harm risk in soldiers. The findings reinforce the importance of examining both contextual (leadership) and intrapersonal (alexithymia) determinants to inform comprehensive prevention strategies.

Several limitations should be acknowledged. First, the cross-sectional design precludes causal inferences; although the model was theoretically grounded, longitudinal research is necessary to establish temporal precedence. Second,

reliance on self-report measures may introduce response biases, particularly in military contexts where stigma surrounding mental health may influence disclosure. Third, the sample was drawn from a specific geographical region and military branch, potentially limiting generalizability to other forces or cultural contexts. Finally, the model did not incorporate additional relevant variables such as trauma exposure, psychiatric diagnoses, or unit-level climate factors, which may account for additional variance in self-injury behaviors.

Future studies should employ longitudinal and prospective designs to clarify the temporal dynamics among leadership style, alexithymia, and self-injury. Incorporating multi-source assessments of leadership (e.g., peer or superior ratings) could reduce common method variance. Researchers may also explore additional mediators such as perceived stress, depression, self-efficacy, and self-compassion to construct more comprehensive explanatory models. Comparative studies across different military units, service branches, and cultural contexts would enhance external validity. Furthermore, experimental or intervention-based research examining leadership training programs and emotion regulation interventions could provide stronger evidence for causal mechanisms and inform targeted prevention strategies.

From a practical standpoint, the findings highlight the importance of promoting supportive and benevolent leadership styles within military organizations. Leadership development programs should incorporate training on emotional awareness, constructive communication, and psychological safety. Screening and psychoeducational initiatives aimed at enhancing soldiers' emotion regulation skills may help reduce vulnerability associated with alexithymia. Integrating mental health promotion into command structures, rather than treating it as an external service, may foster a culture in which emotional expression is not stigmatized. Finally, coordinated collaboration between commanders, mental health professionals, and organizational policymakers is essential to reduce deliberate physical self-injury and enhance overall force readiness.

### 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.

## 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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