

Article

Examining the Moderating Effect of Mindfulness on the Relationship between Soldiers' Perceived Stress and Hopelessness

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Abstract: Mindfulness is a type of meditation in which one consciously pays attention to being fully present in the moment. Research has shown that mindfulness can lower anxiety, stress, and hopelessness. This fact may also apply to people in special circumstances, such as those in the military. Therefore, we examined the relationship between perceived stress, mindfulness, and hopelessness among military soldiers. Specifically, we verified the moderating effect of mindfulness on the relationship between perceived stress and mindfulness. We surveyed 309 Korean military soldiers and a total of 257 data were analyzed through descriptive statistical analysis, correlation analysis, and regression analysis. Our results showed that perceived stress, mindfulness, and hopelessness are interrelated, and that mindfulness moderated the influence of perceived stress on hopelessness. In other words, the lower the level of mindfulness, the greater the hopelessness when the perceived stress increased. This study suggests that conducting mindfulness training for soldiers can benefit soldiers' adaptation to military life.

Keywords: mindfulness; perceived stress; hopelessness; soldiers



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1. Introduction

Military life stress is known to be one of the most influential variables on soldiers' adaptation to military life [1–5]. Issues with stress have been reported in the South Korean military, where every male citizen aged 18 to 28 must perform mandatory military service, and in the United States, where an all-volunteer armed forces policy is applied [6,7]. The number of conscripts in the Republic of Korea is a little over 100,000 every year. According to the Military Service Statistical Yearbook [8], 107,269 conscripts enlisted in 2019 and 109,371 conscripts in 2020.

Among the various problems caused by stress, some individuals are highly likely to experience hopelessness. Hopelessness refers to a negative belief that lacks positivity about the future and oneself [9]. Pessimistic schemas of hopelessness can lead to beliefs that there is nothing one can do to change unhappy states or suffering and that nothing good will happen [10]. Recently, a growing number of soldiers have experienced military life's stress, hopelessness, and uncertainty about their future [1,11,12], which draws attention to examining the variables that affect soldiers' hopelessness and finding ways to reduce it [4].

Feelings of hopelessness are closely related to stress [13]. Seo and Kim [11] found that the greater the soldiers perceived their stress to be, the greater the sense of hopelessness. In a previous study of college students, interpersonal stress increased their distress and despair [14,15]. Another study of older women living alone found that stress causes increased hopelessness and depression [16]. All these results show the relationship between perceived stress and hopelessness. Although reducing soldiers' stress can take the form of a direct intervention to reduce hopelessness, the content and scope of soldiers' stress might

be too broad to intervene effectively. For example, Park [17] classified soldiers' stressors by dividing them into internal and external factors: internal stressors include military job factors, role factors, and inter-member relationship factors, while external stressors include family factors, interpersonal problems with relatives, friends, and lovers, financial factors, and spiritual factors. Various types of stress cause difficulties in soldiers' military adaptation. As would be expected, most researchers agree on the effect of perceived stress on soldiers' adaptation and well-being [2,4,18,19], but they cannot easily answer how stress can be reduced. Meanwhile, it has been reported that stress or depression can be reduced through mindfulness, a positive psychological practice, rather than directly intervening in the psychological distress experienced by individuals [20].

Mindfulness is defined as a type of meditation in which one consciously pays attention to being fully present in the moment [21]. It means accepting the present experience without judgment or interpretation and being aware of one's feelings and senses [22,23]. Researchers have described how mindfulness can mitigate stress [24–26], anxiety [27], depression [28,29], and even suicidal thoughts and impulsivity [30,31].

Mindfulness is described and conceptualized as a *state* attained through meditation practices [32,33] or a *trait* and predisposition [34–36]. In the latter viewpoint, mindfulness is a disposition that appears naturally, regardless of practices, and there are originally individual differences between people [22,32]. Therefore, the frequency and intensity of mindfulness varies from person to person on average. Previous studies have tested trait effects of mindfulness through examination of the correlates of variables [37,38]. In contrast, researchers studied the state effects of mindfulness through verifying effectiveness of mindfulness practices such as Mindfulness-Based Stress Reduction (MBSR) and Acceptance and Commitment Therapy (ACT). MBSR, for example, is an eight-week evidence-based program developed to alleviate the stress response by promoting mindfulness [39]. MBSR consists of formal practice including sitting meditation, body scan, yoga, and walking meditation, and mindfulness meditation is a core intervention component. MBSR also emphasizes an informal approach by asking participants to focus on attention and awareness when performing daily routines such as brushing teeth or driving. Studies with MBSR showed that it is an effective program to relieve stress responses, treat mental health problems, and promote well-being in a diverse population [40–42]. As mindfulness has ingredients of decentering, desensitization, deautomatization, disidentification, and self-regulation, it could alleviate psychological problems [35].

In this study, we aimed to investigate the relationships between perceived stress, hopelessness, and mindfulness for soldiers, rather than examining the effectiveness of a specific mindfulness program. Previous studies examining the direct relationship between mindfulness and hopelessness have been conducted on breast cancer patients, yet few have targeted soldiers. Thus, the aim of this study was to examine factors affecting soldiers' hopelessness and suggest preventive interventions for them.

We set the following research questions: (1) What is the relationship between soldiers' perceived stress, mindfulness, and hopelessness? (2) Does mindfulness have a moderating effect on the relationship between perceived stress and hopelessness?

2. Methods

2.1. Participants

The participants were 309 military soldiers in Korea. After excluding incomplete response data, we used 257 questionnaires for the analysis. The Korean military has a conscription system only for males and most conscript soldiers are in their early 20s. This study's participants were all male and their age distribution was: younger than 20 years old (7.0%), 20 to 22 years old (71.2%), 22 to 24 years old (17.1%), and older than 24 years old (4.7%). The service period in conscripted army is 18 months and the participants' service period distribution was: less than 5 months (15.7%), 5 to 10 months (30.6%), 10 to 15 months (25.0%), and more than 15 months (28.7%).

2.2. Procedures and Ethical Considerations

We conducted the survey after receiving research approval from the Hanyang University Institutional Review Board (IRB No.: HYI-18-229-1). We explained the study purpose and procedure, including voluntary participation and anonymity of data, to the unit commanders and soldiers. Soldiers who agreed to participate in the study signed a consent form and responded to the questionnaire.

2.3. Measures

2.3.1. The Perceived Stress Scale

We used the Perceived Stress Scale (PSS) developed by Hyun and Lee [43] to measure soldiers' perceived stress levels. This scale has five subscales including role and relationship stress, environmental stress, work stress, leisure-time stress, and outside-of-corps stress. The PSS has a total of 26 items (e.g., "I get stressed when I have to do something contrary to my beliefs", "I get stressed because I don't have as much privacy as needed", and "I get stressed because vacations or overnight stays are unreasonably carried out"). Responses are rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), and the lower the final score, the lower the perceived stress. Hyun and Lee found a Cronbach's α of 0.97 for the PSS and we found 0.94.

2.3.2. The Mindfulness Scale

Park [44] developed the Mindfulness Scale, composed of 20 items. Specific examples of the statements in the scale include, "I often worry about the future or get preoccupied with the past" and "I'm not very good at noticing changes in my mood from moment to moment". The scale utilizes a five-point Likert scale (1 = strongly disagree, 5 = strongly agree); the higher the score, the higher the mindfulness. Park reported a Cronbach's α of 0.85 and we found 0.95 in this study.

2.3.3. The Beck Hopelessness Scale

We employed the Beck Hopelessness Scale (BHS) to assess hopelessness in the participants. The inventory was originally developed by Beck et al. [9] and then translated into Korean and validated by Shin et al. [45]. It is composed of 20 dichotomous items (yes/no) and the higher the score, the stronger the hopelessness (e.g., "I might as well give up because there's nothing I can do to make things better for me"). Oh [46] reported Cronbach's α to be 0.78 and we found 0.86 in this study.

3. Results

3.1. Descriptive Statistics and Correlation

We conducted descriptive statistics and correlations analysis between each variable and present the results in Table 1. Perceived stress had a significant negative correlation with mindfulness and a significant positive correlation with hopelessness. In addition, mindfulness had a significant negative correlation with hopelessness.

Table 1. Correlation between observed variables and descriptive statistics ($N = 257$).

Variable	Perceived Stress	Mindfulness	Hopelessness
Perceived Stress	1		
Mindfulness	−0.61 **	1	
Hopelessness	0.45 **	−0.56 **	1
Mean	2.07	4.07	0.15
Standard Deviation	0.76	0.76	0.18
Skewness	0.60	−0.73	1.78
Kurtosis	0.16	0.20	2.98

** $p < 0.01$.

3.2. Examining the Moderating Effect of Mindfulness on the Relationship between Perceived Stress and Hopelessness

We first standardized the predictor and moderator to reduce multicollinearity [47,48] and created the interaction term of Perceived Stress \times Mindfulness. To examine whether perceived stress interacts with mindfulness and affects the sense of hopelessness, we conducted a hierarchical multiple regression for the variables predicting hopelessness. We entered perceived stress, mindfulness, and the interaction term in Steps 1, 2, and 3, respectively. In Step 1, perceived stress accounted for 19.9% of the variance in hopelessness; $R^2 = 0.199$, $p < 0.001$. In Step 2, mindfulness accounted for an additional 13.0% of the variance in hopelessness; $R^2 = 0.130$, $p < 0.001$. In Step 3, the interaction term of perceived stress and mindfulness produced significant increments to R^2 , accounting for an additional 2.2% of the variance; $\Delta R^2 = 0.022$, $p < 0.001$ (see Table 2). In other words, mindfulness moderates the effect of perceived stress on hopelessness.

Table 2. Moderating effect of mindfulness on the relationship between perceived stress and hopelessness.

Step	Variable	B	SE B	β	ΔR^2
1	Perceived Stress	0.081	0.010	0.446 ***	0.199 ***
2	Perceived Stress	0.031	0.012	0.169 **	0.130 ***
	Mindfulness	−0.082	0.012	−0.455 ***	
3	Perceived Stress	0.027	0.012	0.151 *	0.022 **
	Mindfulness	−0.075	0.012	−0.419 ***	
	Perceived Stress \times Mindfulness	−0.025	0.009	−0.155 **	

Note. SE: standard error, β : standardized coefficients. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Aiken and West [47] recommended presenting the interaction effect of specific values of the moderating variable (mean value and mean ± 1 standard deviation) when the moderating variable is continuous. Thus, to depict the nature of the interaction, we conducted a simple slope regression analysis at low, moderate, and high levels of mindfulness and plotted the simple regression slopes of the interaction with predicted values of perceived stress on hopelessness (see Figure 1). Results indicate that the simple slope was significant for the groups with a low level ($b = 0.046$, $t = 3.575$, $p < 0.001$) and moderate level of mindfulness ($b = 0.027$, $t = 2.298$, $p < 0.001$). However, in the group with a high level of mindfulness, the simple regression slope was not significant ($b = 0.007$, $t = 0.567$, *n.s.*). That is, when the level of mindfulness was high, the amount of hopelessness did not significantly increase with increases in perceived stress levels. However, in medium and low mindfulness levels, the larger the perceived stress, the greater the amount of hopelessness.

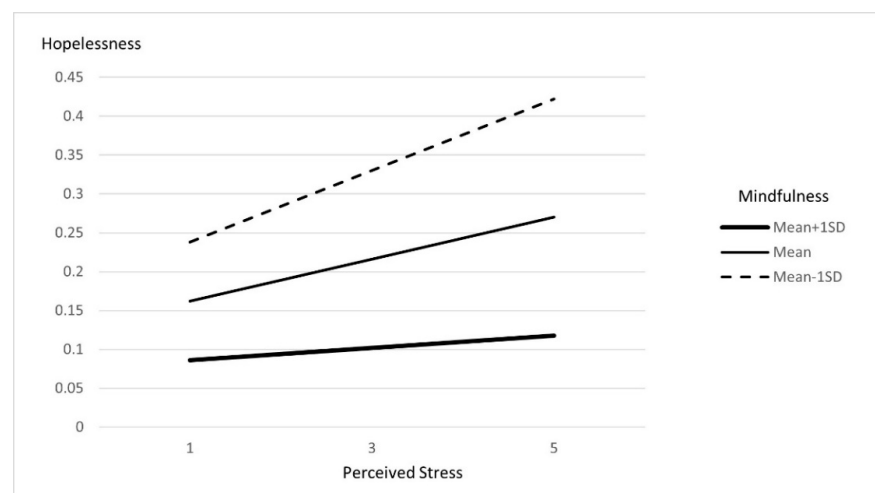


Figure 1. Moderating effect of mindfulness under three conditions.

4. Discussion

This study examined the relationship between perceived stress, hopelessness, and mindfulness in military soldiers, and we explored the moderating effects of mindfulness in the process. Our results and their implications are as follows.

First, soldiers' perceived stress, mindfulness, and hopelessness showed significant positive and negative correlations with one another. The more soldiers perceived stress in the military, the greater their sense of hopelessness, which supported previous findings on the relationship between stress and hopelessness. Researchers have found that stress increases hopelessness, a result obtained in research on soldiers [11], college students [14,15], and the elderly living alone [16]. We also found that perceived stress is negatively associated with mindfulness, which is in line with findings from previous studies [49,50]. Previous researchers obtained their results from studies of nurses and college students, and we added findings for military soldiers.

Second, we observed the significant moderating effects of mindfulness in the relationship between soldiers' perceived stress and hopelessness. The lower the level of soldiers' mindfulness, the greater the inclination toward hopelessness caused by military life stress. The relationship between mindfulness and hopelessness was reported through studies on the effectiveness of mindfulness-based cognitive therapy [51,52]. Shapiro et al. [20] reported that people with high stress levels could change their mental status by increasing their compassion and quality of life through mindfulness. Gu et al. [24] found that a lower level of mindfulness has negative effects on college students' mental health. Similarly, Park [53] found that a higher level of mindfulness can buffer college students' experience of depression. Recently, Saricali et al. [38] presented the mediating effect of mindfulness in the relationship between fear of COVID-19 and hopelessness. Taken together, these findings supported the importance of mindfulness in promoting one's mental health.

According to the stress and coping theory of Lazarus and Folkman [54], stress results from an imbalance between perceived stressors and one's resources. In people exposed to similar stressors, their assessment of external demands and personal resources vary and, consequently, individual differences appear in coping with stress. Internal variables such as personality, coping capacities, and resources influence cognitive appraisal in stress coping [55,56]. Moreover, we could classify mindfulness in this study as an internal variable where individual differences exist. In a sense, mindfulness can be a way of cognitive coping because it is the process of intentionally observing the body and mind and accepting the momentary experiences as they are [39]. Mindfulness focuses on regulating cognitive processes rather than correcting cognitive content, which is vital in cognitive therapy. In other words, rather than focusing on the irrationality of one's thoughts and beliefs, mindfulness underlines dealing with internal experiences that come to mind. This new way of dealing with inner experiences becomes an important skill for overcoming psychological distress, and it can reduce anxiety and stress and improve mental health and well-being [20,57].

Mindfulness is also an essential protective factor in promoting mental health and reducing adverse effects by improving self-regulation [58,59]. Researchers define self-regulation as human efforts to change their responses, and the ability to control automatic and unconscious reactions with willpower is necessary for self-regulation [60]. Considering that previous empirical studies also found negative correlations between perceived stress and self-regulation [40,61,62], mindfulness plays a critical role in regulating responses to stress events as mindfulness enables paying attention to and being aware of one's physical and mental states. In addition, it is effective in alleviating suicidal thoughts and impulsivity [31]. Therefore, if soldiers learn and practice mindfulness within their barracks, their hopelessness can be significantly lowered even if they struggle with military life stress.

The practical implications of this study are as follows. First, we suggest that medical experts assess maladapted soldiers' stress levels. Soldiers' hopelessness can affect the increase in their suicide rate [5], making it vital to identify and intervene in the factors influencing hopelessness. If soldiers' stress is specifically identified and reduced, their

hopelessness can be reduced accordingly, which can positively affect soldiers' mental health and adaptation to their units. There are three ways to cope with a stressful situation: change the situation actively, change one's perspective on the situation, or accept the situation [62]. Considering that most of the stress from the military is related to the strict hierarchy and the top-down milieu, the first option of changing the situation itself is not likely to be realized [63]. Rather, it would be better to consider the second and third options; that is, a cognitive-behavioral approach to reevaluate the event from various perspectives or find the next best solution after accepting the situation [64,65].

Second, we suggest that conducting mindfulness training for soldiers could benefit their adaptation to military life. Soldiers spend most of their time in the barracks and are under the control of their superiors so they are vulnerable to stress, whereas methods for relieving it are limited [63]. Education or training can fully develop mindfulness. Previous studies reported that MBSR programs helped veterans and active-duty military personnel alleviate serious psychological distress, including PTSD symptoms, substance use, insomnia, anxiety, and depressive symptoms [66,67]. MBSR was also effective in developing the self-regulation and resilience of soldiers [68]. Although it is not yet common to implement MBSR in military settings, the possibility of using mindfulness is increasing as research shows its positive effects. Another promising prospect is that it can be implemented in various forms, from individual training to group education, depending on the circumstances of military units [41,69], which makes mindfulness practice in the military a viable option. As mentioned earlier, soldiers' mindfulness might alleviate stress and hopelessness. Therefore, we propose to implement a mindfulness program as a military education program.

5. Conclusions

We conducted this study to determine whether mindfulness can mitigate the relationship of military stress and soldiers' hopelessness. Our findings indicate that perceived stress, mindfulness, and hopelessness are interrelated, and that mindfulness moderated the influence of perceived stress on hopelessness. The lower the level of mindfulness, the greater the hopelessness when the perceived stress increased. This study suggests that conducting mindfulness training for soldiers can benefit soldiers' adaptation to military life.

This study's limitations and the suggestions for future studies are as follows. First, we surveyed conscript soldiers in Korea, thus our results have limitations in generalizing the results to all military soldiers. Second, the survey was a self-report questionnaire which can possibly cause social desirability bias in the soldiers' responses. Future studies may benefit from including in-depth interviews and/or observers' assessments. Lastly, there might be differences in the level of stress and mindfulness of soldiers according to their status, rank, and service period in the military. Future studies might benefit from conducting multi-faceted analyses considering those variables.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to their containing information that could compromise the privacy of research participants.

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