

The Relationship Between Army Soldiers' Perceived Stress and Army Life Adjustment: Focusing on the Mediating Effect of Stress Response and the Moderating Effect of Cohesion

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ABSTRACT

Introduction

South Korea maintains a mandatory military duty, and high percentage of conscript soldiers have difficulty adjusting to military life. The purpose of this study is to investigate the mediating effect of the stress response on the relationship between soldiers' perceived stress and military life adjustment and to clarify the moderating effect of cohesion on this relationship.

Materials and Methods

The study's participants were 285 Korean military soldiers who are obliged to serve in the military and they completed the Perceived Stress Scale, the Stress Response Scale, the Military Life Adjustment, and the Group Cohesion Scale. Analysis methods included descriptive statistics, correlation analysis, path analysis, bootstrapping, collinearity statistic, and hierarchical regression analysis. This research obtained the approval of the institutional review board of the university (HUI-18-229-1).

Results

First, a partial mediation effect of the stress response was found in the relationship between soldiers' perceived stress and military life adjustment. That is, a high level of soldiers' perceived stress was related to their military life maladjustment. Moreover, the greater the level of soldiers' perceived stress, the greater the stress response, and, in turn, the greater the military life maladjustment. Second, we found the moderating effect of cohesion in the relationship between stress perception and military life adjustment.

Conclusions

The stress perceived by soldiers not only directly affects their military life adjustment but also indirectly affects their adjustment through the stress responses. In addition, soldiers' levels of adjustment to military life change significantly based on cohesion levels only when they perceive less stress.

INTRODUCTION

South Korea maintains a mandatory military duty through which most Korean male citizens are obliged to serve in the military. A recent survey reported that one out of every five soldiers (22.7%) had difficulty adjusting to military life.¹ Prior research has suggested that soldiers' maladjustment to military life is caused by various stressors, including hierarchical conflicts within military organizations, group dwellings, and restricted privacy.²

"Military life adjustment" refers to a soldier's commitment to assigned roles and duties, positive attitude toward his job and position, and feeling of happiness in military life.² Soldiers' adjustment to military life is important because it can serve as a long-term foundation for maintaining the survival and well-being of the nation.³ Therefore, it is necessary to

examine the factors that positively and negatively influence military life adjustment.

Researchers found that stress, depression, self-esteem, and educational level influence soldiers' military life adjustment.⁴ Similar results were uncovered in a study on the U.S. military, which features a volunteer military system. Many recruits suffered from depression, personality disorders, and excessive anxiety, which made it difficult for them to adapt to military life.⁵

According to the literature concerning military life maladjustment, stress is the most influential factor.⁴ Stress in military life refers to the psychological pressure experienced by soldiers because of various reasons. A discrepancy between individuals and their environment results in serious stress because recently enlisted soldiers have a strong tendency to pursue individualism and individuality, while the military operates through a strong hierarchy with the single goal of national defense.^{2,6}

Although a consensus has emerged regarding the view that soldiers' perceived stress influences their adjustment to military life,^{4,3} few studies have also examined soldiers' stress responses. Stress responses are combined reactions of emotional, behavioral, and physiological disturbances in

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self-regulatory systems when environmental requests exceed individuals' coping resources.⁷ The perception of stress is closely related to these stress responses. Hyun and Lee⁸ found that soldiers' stress response became higher when external stress, role and relationship stress, and job stress were also higher. Furthermore, the stress response has been found to be related to individual adjustment, having negative effects on depression, anxiety,^{9,10} and physical symptoms.^{11,10}

An overview of related studies led us to assume the cohesion factor as a third variable mediating the relationship between soldiers' perceived stress and military life adjustment. "Cohesion" refers to the trust that occurs through fellowship between members, the ability to achieve teamwork,¹² and the ties that emerge throughout the performance of group work.¹³ Cohesion usually focuses on group members' interpersonal relationships,¹⁴ and it has an especially positive impact on performance, combat effectiveness, and psychological well-being in the military.¹⁵ In addition, cohesion has shown significant correlations both with U.S. military organizational satisfaction and job satisfaction.¹⁶

Although cohesion is a factor that influences organization and group efficiency and positively influences ongoing performance,¹⁷ there is little research on the relationship between cohesion and military life adjustment, except for a few related studies. Won¹⁸ reported that the relationship between emotional intelligence and military life adjustment was mediated sequentially by self-efficacy and group cohesion. Kim¹⁹ and Um²⁰ suggested that soldiers' performance and psychological stability through group cohesion can have a positive effect on military adjustment.

Another important reason to examine the cohesion variable arises from the fact that high perceived stress does not necessarily lead to maladjustment. Jeong and Ji²¹ stated that, although soldiers' stress has a direct impact on their military life adjustment, it can be mediated by other factors that can mitigate this impact. The same finding was obtained even when the research subjects were not soldiers. In a study of the relationship between stress and family adjustment in single-parent families,²² children with single-parent families are more likely to adjust positively when they have family support in spite of experiencing stress. In addition, the stress of being in a single-parent family was found to affect the juvenile children, but the higher the family cohesion, the more positively the youth were able to cope.²² Therefore, it can be assumed that both stress and cohesion might affect soldiers' adjustment and, moreover, that military life adjustment might vary according to the level of cohesion.

Based on this theoretical background, the present study examines the mediating effect of the stress response on the relationship between army soldiers' perceived stress and military life and also investigates the potential moderating effect of cohesion on this relationship. The specific research questions are as follows:

Research question 1. Does the stress response mediate the relationship between perceived stress and military life adjustment?

Research question 2. Does cohesion have a moderating effect on the relationship between perceived stress and military life adjustment?

MATERIALS AND METHODS

Participants and Procedure

This study was conducted with the cooperation of four military units after receiving research approval from the Korean Army headquarters. Participation in this research was voluntary and involved informed consent. All methods and measures were reviewed and approved by the institutional review board of the university (HYI-18-229-1).

The survey was completed by 300 army soldiers. We used data from a total of 285 respondents after excluding 15 unfinished questionnaires. As military conscription in South Korea is only mandatory for men, there are no female participants in this study. The mean age was 20.99 years (ranging from 19 to 29 years, SD = 1.36). Participants' average duration of duty at the time of the survey was 11.18 months (ranging from 1 month to 20 months).

Measures

The Perceived Stress Scale

In order to measure soldiers' perceived stress, we used the Perceived Stress Scale, originally developed by Park²³ and reconstructed for military settings by Hyun and Lee.⁸ This scale has five sub-scales including role and relationship stress, environmental stress, work stress, leisure time stress, and outside of corps stress. It is composed of 26 total items that are rated on a five-point Likert scale. The higher the sum score, the higher the perceived stress. The Cronbach's α in Hyun and Lee's study⁸ was 0.90, and we found it to be 0.95.

The Stress Response Scale

Lee²⁴ developed the Stress Response Scale to evaluate perceived amounts of physiological, psychological, behavioral, and cognitive stress responses. The scale has 94 items in 10 domains including peripheral vascular response, cardiopulmonary response, central nervous system response, gastrointestinal response, muscle tension response, habitual behavior response, depressive response, anxiety response, emotional anger response, and cognitive impairment response. In our study, these were rated using a five-point Likert scale. The higher the sum of the scores, the greater the stress response. The reliability coefficient of this scale was 0.97 in Lee's study²⁴ and 0.95 in the present study.

The Military Life Adjustment Scale

To evaluate soldiers' military life adjustment, we used the scale originally developed by Stauffer et al.,²⁵ modified to fit Korean military settings by Shin,²⁶ and later reconstructed by Koo.³ The scale is composed of four sub-scales including stability of mind and body, willingness to perform the assigned mission, job satisfaction, and positive attitude toward the military organization. A total of 26 items are rated on a five-point Likert scale. The higher the final scores, the better the soldiers' adjustment to military life. Koo³ reported the Cronbach's α as 0.93, and the present study found it to be 0.94.

The Group Cohesion Scale

To evaluate soldiers' cohesion, we used the Group Cohesion Scale constructed by Park²⁷ and based on Carless and De Paola's scale.²⁸ The measure consists of three sub-scales: social cohesion, task cohesion, and attachment to group. Each sub-scale has four items, resulting in a total of 12 questions rated on a five-point Likert scale. The larger the score sum, the higher the cohesion of the group. Park²⁷ reported the Cronbach's α as 0.89, and we found it to be 0.88 in this study.

Analysis Method

We used IBM SPSS Statistic 21.0 and AMOS 21.0 to analyze the data. First, descriptive statistics and correlation analyses were performed. We examined the skewness and kurtosis to determine the distribution normality for each measurement variable. To test the hypothetical model, we estimated the measurement model to evaluate whether the measurement variables appropriately represented the latent variables. After estimating the measurement model, we then estimated the structural model. We used χ^2/p to evaluate the model's goodness-of-fit and the Root Mean Square Error of Approximation (RMSEA) to evaluate the absolute fit index. In addition, the nonstandard fit index (TLI) and the compared fit index (CFI) were used to evaluate the proposed model's fit. The fit is considered appropriate when the TLI and CFI indexes are over 0.90.²⁹ In the case of the RMSEA index, the fit is considered to be very good when the value is under 0.01; good when it is under 0.05; and moderate when it is under 0.10.³⁰ We also conducted a bootstrap test to examine the mediating effects of the stress response in the relationship between soldiers' perceived stress and military life adjustment. Finally, we examined the moderating effect of group cohesion in the relationship between perceived stress and military life adjustment. For this, we first investigated the collinearity statistic to identify any problems of multi-collinearity between the independent variables. Based on these results, we conducted a hierarchical regression analysis including interaction variables.

RESULTS

Descriptive Statistics and Correlation

Before examining the structural model, the skewness and the kurtosis of the observed variables were evaluated to verify the data's multivariate normal distribution (see Table I). The results showed that the distribution of each observed variable satisfied the normal distribution assumption.

Table I also presents the results of the correlation analysis. Perceived stress had negative correlations with group cohesion and military life adjustment and significant positive correlation with stress response; group cohesion had a significant negative correlation with stress response and a significant positive correlation with military life adjustment; and stress response had a significant negative correlation with military life adjustment.

HYPOTHESIS MODEL TEST RESULTS

Before verifying the study's hypothesis model, we verified the measurement model to confirm the measurement variable's validity. Confirmatory factor analysis was used to verify the measurement model of latent variables.³¹ We found that χ^2 ($N = 285$, $df = 62$) was 158.46 ($P < 0.001$), CFI was 0.96, TLI was 0.95, and RMSEA was 0.07. Based on these results, the overall fit of the measurement model in this study was moderate, and the research model was selected as a final model. The final model's variables were estimated and the effects of related variables are presented in Figure 1.

The results in Table II reveal that soldiers' perceived stress had a significant direct effect on their stress response (0.51, $P < 0.001$) and military life adjustment (-0.55 , $P < 0.001$). Moreover, the stress response directly affects military life adjustment (-0.19 , $P < 0.01$).

Subsequently, we conducted a bootstrap analysis to verify the mediating effects of the stress response in the relationship between soldiers' perceived stress and military life adjustment. We found unstandardized coefficients was -0.095 ($P < 0.05$), and lower limit was -0.17 while upper limit was -0.03 in 95% confidence intervals. As all the paths did not include 0, thereby indicating statistically significant results.³² These results imply that soldiers' perceived stress influenced their military life adjustment through the mediation of the stress response, such that the higher the perceived stress, the greater their stress response, and the greater their stress response, the more difficulty they had adapting to military life.

Moderating Effect of Cohesion in the Relationship Between Perceived Stress and Military Life Adjustment

We examined how the relationship between perceived stress and military life adjustment varied based on cohesion level. To accomplish this, we performed a hierarchical multiple regression analysis. We entered perceived stress and cohesion

TABLE I. Correlations, Means, Standard Deviations, Skewness and Kurtosis for Observed Variables (*N* = 285)

Variable		1	2	3	4	5	6	7		
Perceived stress	1. Role/relationship	–	0.61***	0.86***	0.59***	0.53***	–0.36***	–0.47***		
	2. Environmental		–	0.67***	0.59***	0.38***	–0.26***	–0.38***		
	3. Work			–	0.67***	0.53***	–0.36***	–0.49***		
	4. Leisure time				–	0.48***	–0.30***	–0.38***		
	5. Outside-of-corps					–	–0.17**	–0.18**		
Group cohesion	6. Task cohesion						–	0.50***		
	7. Attachment							–		
	8. Social cohesion									
Stress response	9. Physiological									
	10. Behavioral									
	11. Psychological									
	12. Cognitive									
Military life adjustment	13. Stability									
	14. Willingness									
	15. Job satisfaction									
	16. Positive attitude									
	Mean	2.31	2.51	2.26	2.28	1.96	3.43	3.89		
	Standard deviation	0.91	0.97	0.85	1.11	0.82	0.77	0.75		
	Skewness	0.30	0.22	0.30	0.64	0.55	–0.37	–0.61		
	Kurtosis	–0.61	–0.67	–0.50	–0.29	–0.40	0.70	0.78		
Variable	8	9	10	11	12	13	14	15	16	
1.	–0.49***	0.44***	0.41***	0.49***	0.41***	–0.46***	–0.27***	–0.48***	–0.46***	
2.	–0.40***	0.25***	0.25***	0.24***	0.21***	–0.27***	–0.34***	–0.42***	–0.50***	
3.	–0.47***	0.39***	0.40***	0.45***	0.37***	–0.45***	–0.34***	–0.54***	–0.50***	
4.	–0.34***	0.29***	0.30***	0.28***	0.23***	–0.32***	–0.22***	–0.35***	–0.43***	
5.	–0.30***	0.25***	0.21***	0.29***	0.23***	–0.31***	–0.09	–0.32***	–0.23***	
6.	0.42***	–0.26***	–0.21***	–0.25***	–0.26***	0.43***	0.22***	0.45***	0.38***	
7.	0.68***	–0.30***	–0.29***	–0.32***	–0.26***	0.50***	0.47***	0.62***	0.63***	
8.	–	–0.27***	–0.29***	–0.37***	–0.25***	0.46***	0.35***	0.56***	0.63***	
9.		–	0.72***	0.72***	0.60***	–0.44***	–0.14*	–0.27***	–0.26***	
10.			–	0.80***	0.69***	–0.43***	–0.20***	–0.34***	–0.31***	
11.				–	0.75***	–0.47***	–0.21***	–0.38***	–0.35***	
12.					–	–0.37***	–0.16**	–0.28***	–0.26***	
13.						–	0.34***	0.56***	0.46***	
14.							–	0.58***	0.57***	
15.								–	0.70***	
16.									–	
	Mean	3.37	1.63	1.73	1.90	1.93	3.53	2.92	3.32	3.01
	Standard deviation	0.98	0.62	0.66	0.82	0.79	0.80	1.20	0.95	0.85
	Skewness	–0.41	1.29	1.13	0.93	0.96	–0.16	0.04	–0.08	0.33
	Kurtosis	–0.18	1.60	1.80	0.25	0.78	–0.10	–0.93	–0.49	0.20

**P* < 0.05.
 ***P* < 0.01.
 ****P* < 0.001.

in the first step and the interaction between perceived stress and cohesion in the second step to evaluate whether the interaction produced a significant incremental change in *R*² above and beyond that explained by the first step. The results showed that the main effects of perceived stress ($\beta = -0.272$, $P < 0.001$) and cohesion ($\beta = -0.676$, $P < 0.001$) were significant, as was the interaction effect of perceived stress and cohesion ($\beta = -0.104$, $P < 0.001$), accounting for a significant amount of additional variance in military life adjustment.

These findings indicate that soldiers who reported higher perceived stress levels experienced increased difficulties in adapting to military life, while those who reported higher levels of cohesion found it easier to adapt to military life. They also indicate that the relationship between stress perceptions and military life adaptation differed depending on cohesion level.

Figure 2 shows that there is a significant negative correlation between perceived stress and military life adjustment

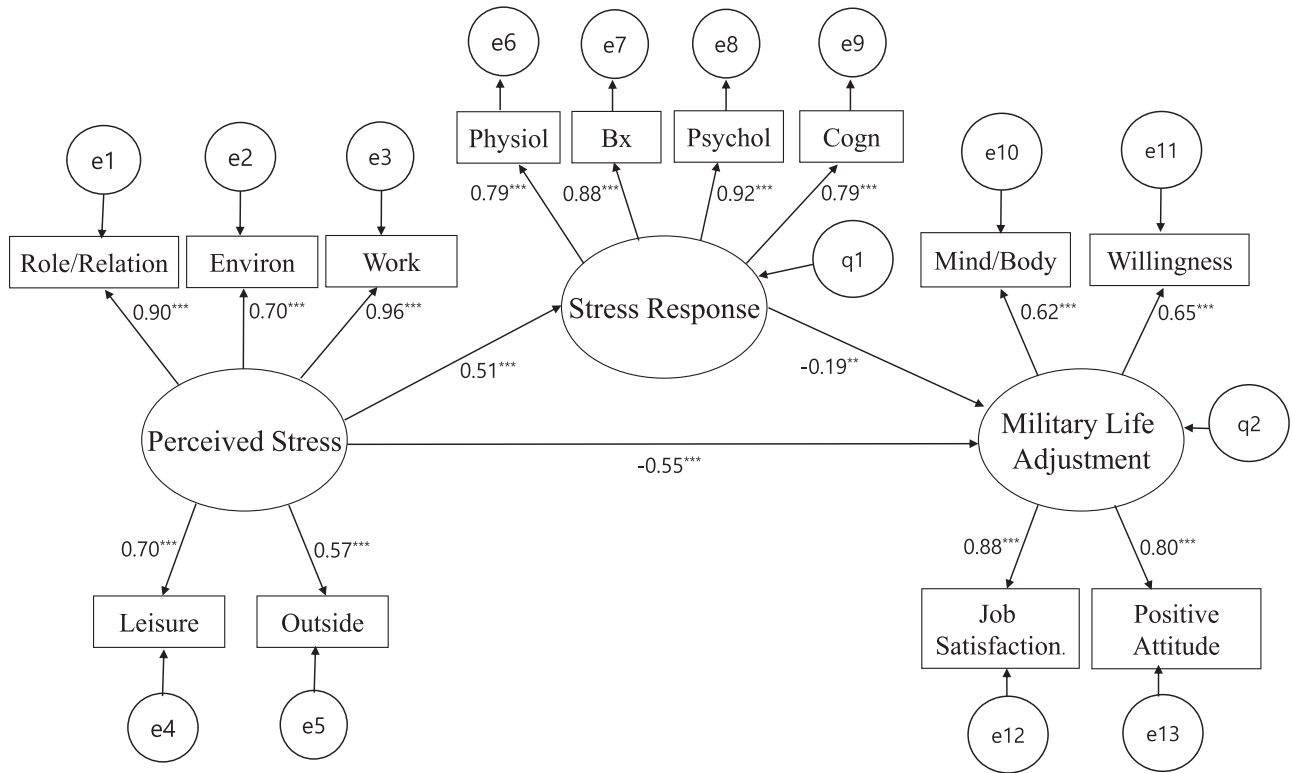


FIGURE 1. The final model's path; all estimates are standardized coefficients. ** $P < 0.01$; *** $P < 0.001$.

TABLE II. The Results of Path Coefficient

Path Coefficient Between Variables	B	β	S.E.	C.R.
Perceived stress → stress response	0.47	0.51***	0.05	8.72
Stress response → military L. A.	-0.21	-0.19**	0.07	-2.93
Perceived stress → military L. A.	-0.56	-0.55***	0.07	-8.32

Note. Military L. A., Military Life Adjustment; B, unstandardized coefficients; β , standardized coefficients; S.E., standard error; C.R., critical ratio. ** $P < 0.01$. *** $P < 0.001$.

according to the level of cohesion: high, middle, and lower levels ($b = -0.35$, $t(285) = -6.91$, $P < 0.01$; $b = -0.27$, $t(285) = -6.09$, $P < 0.01$; $b = -0.20$, $t(285) = -3.95$, $P < 0.01$). Thus, as Figure 2 indicates, the highest levels of military life adjustment occur under conditions of low perceived stress. In addition, this effect is greatest under conditions of high versus low cohesion. In other words, when army soldiers perceived less stress, their level of adjustment to military life changed significantly according to the level of cohesion compared to the scenario where they perceived high degrees of stress. However, when high stress was perceived, army soldiers showed little difference in adjustment to military life based on the level of cohesion.

Additionally, we examined the interrelationships between the sub-variables based on cohesion levels and found that the majority of sub-variables exhibited the same results as the total scale score with one exception; outside-of-corps (the perceived stress sub-variable) did not have a significant direct effect on willingness (the military life adjustment sub-variable) while the interaction between outside-of-corps and cohesion was significant. For this reason, we analyzed the interrelationships between the variables using the total scale scores shown in Figure 2.

CONCLUSIONS

The main findings and their implications are discussed below. First, we confirmed the partial mediating effect of the stress response in the relationship between soldiers' perceived stress and military life adjustment. The soldiers' perceived stress affects their military life adjustment both directly and indirectly. In terms of an indirect effect, the stress response mediated the relationship between the two. These results support previous findings that identified a connection between soldiers' perceived stress and military life adjustment,^{4,3,33} as well as previous research reporting a significant relationship between soldiers' perceived stress and stress response.⁸ Therefore, it is important to pay attention to individual soldiers' range of responses to perceived stress to help improve their adjustment. As Kogan and Betrus⁷

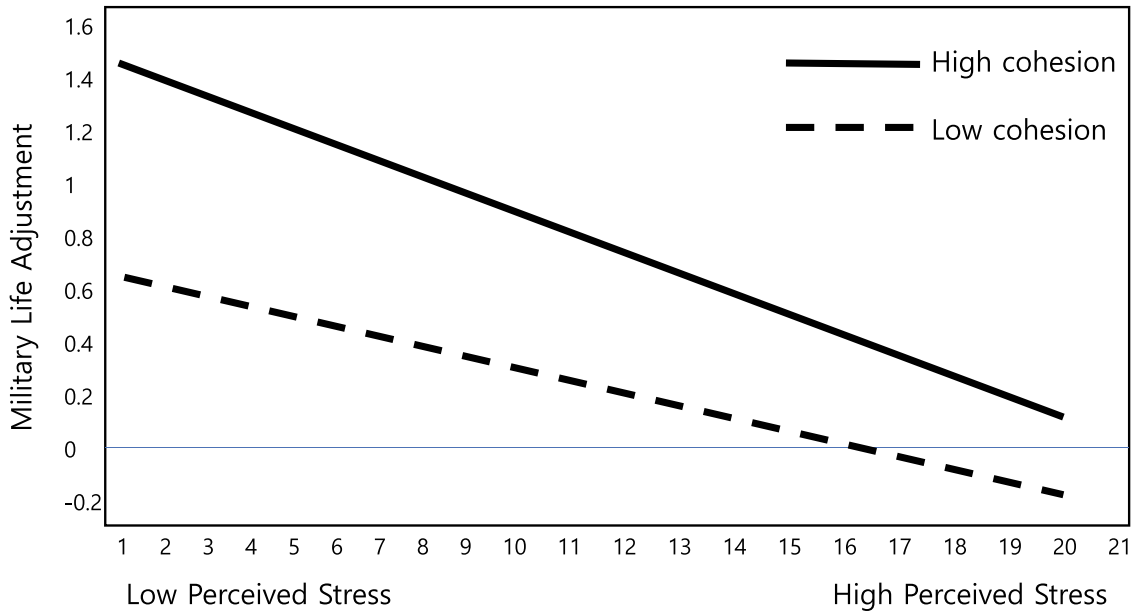


FIGURE 2. The relationship between perceived stress and military life adjustment according to cohesion level.

suggested, helping soldiers manage their emotional and physical responses to control their stress responses may be another way to improve military life adjustment.

Second, this study uncovered the moderating effect of cohesion in the relationship between soldiers' perceived stress and military life adjustment. These findings partially support the notion that cohesion affects military life adjustment. Although cohesion is an important predictor of group members' satisfaction and performance,³⁴ its influence varied based on soldiers' levels of perceived stress. Unlike previous research showing cohesion to be an important factor in military performance and psychological well-being,¹⁵ our analysis showed that the effect of cohesion is insignificant when soldiers' stress levels are high. Jung et al.²¹ warned that cohesion may collapse in the presence of excessive stress. Therefore, perceived stress levels could be more important than cohesion strength in soldiers' adjustment to military life.

This study's implications are as follows. First, we found that perceived stress not only directly affected military adjustment but also indirectly affected it through physical, behavioral, emotional, and cognitive responses to stress. Although the stress itself is important, the results can vary according to individual responses or reactions. It is relatively difficult to change environmental stress, but it may be possible to find ways to help soldiers adjust to their military lives by examining and treating individuals' physical, behavioral, emotional, and cognitive responses. This finding provides practical implications to help these soldiers adjust to military life, especially under the Korean system of mandatory military service.

Second, this study examined cohesion concurrently with perceived stress and demonstrated that it partially affects military life adjustment. This study uncovered a new finding that

the level of cohesion does not significantly alter military life adjustment as perceived stress increases. In other words, the lower the perceived stress of soldiers, the greater the difference based on cohesion level.

The present study's limitations and suggestions for future research are as follows. First, this study was conducted with army soldiers and did not include the navy or the air force. The characteristics of perceived stress and/or of military life adjustment may vary depending on the characteristics of and the roles that exist within the army, navy, and air force. Therefore, it would be useful to consider these differences in future research. Second, additional variables beyond stress and cohesion might exist for improving military adjustment. A wide range of future studies must be conducted in order to examine these potential variables. Third, we used cross-sectional data to evaluate the interrelationships between variables. Future studies could conduct longitudinal surveys to explore the changes in and influences of the variables.

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