Research Article

Analysis of Work-related Stress of Soldiers and Its Influencing Factors under Special Military Environment

Lei Shi[1], Ke Li[1*], Xiaotong Lou[1], Yuzhong Duan[1], Feng Du[1], Xin Guan[1], Yuan Wang[1], Wenmin Shi[2], Fei Ren[1]

[1]Department of Medical Research, The Strategic Support Force Military Center, Beijing, 100101, China

[2]Department of Public Health, Community Health Service Center in Jianguo Road of Changji City, Xinjiang 831100, China

ABSTRACT

Background: As a special kind of profession, the work-related stress of military personnel always is a concern of experts and scholars from all walks of life, but the work-related stress of soldiers under special environment is always ignored.

Aim: This study investigated the relationships between work-related stress, burnout, sleep quality, anxiety, depression, and attention in the special military environment.

Methods: A total of 1085 soldiers from three different brigades in the plateau, desert areas, high radiation areas, respectively, were investigated with Occupational Stress Scale (OSS), Pittsburgh sleep quality index (PSQI), Maslach Burnout Inventory-General Survey (MBI-GS), Self-Rating Anxiety Scale (SAS), Self-rating depression scale (SDS), and Mindful Attention Awareness Scale (MAAS).

Results: The results showed that work-related stress was positively correlated with burnout, sleep quality, anxiety and depression, while negatively correlated with mindful attention. Burnout, sleep quality, anxiety, depression and mindful attention could significantly predict work-related stress levels (63.6% of the total variance). Burnout partially mediated the association of sleep quality, depression and mindful attention.

Conclusion: In conclusion, it can reduce soldiers' work stress level through burnout, anxiety, depression, sleep quality and mindful attention, proving that burnout has a controlling effect on depression, sleep quality and mindful attention to work-related stress.

Keywords: Work-related stress; Burnout; Anxiety; Depression; Sleep quality

INTRODUCTION

Due to national defense and other special reasons, plenty of soldiers have to be stationed in the plateau, island, high radiation, and other special environment areas. Soldiers in these areas tend to show more psychological problems [1,2]. Some studies have shown that soldiers transferred from the plain to the special environments also displayed mental disorders [3]. Previous researches have confirmed that soldiers in special environments have higher levels of insomnia, anxiety, depression, stress, and other mental and physical diseases [4,5]. Therefore, soldiers in these special environments need special attention to prevent possible adverse events and reduce the impact of non-protective factors, including high altitude, high radiation, hypoxia, and loneliness, which are also considered risk factors for mental health [6,7]. Jepsen [8] and Oldenburg [9] found that loneliness, physical needs, lack of entertainment, noise in the workplace, ship movement, vibration, and high temperature would enhance the individual social needs. These factors have caused various stressors and may bring potential psychological problems to soldiers.

Work-related stress could be induced by stressors, including burnout, accomplishment, emotion, physical and mental health [10]. Soldiers live in a special environment, isolated from their close friends for a long time, and cannot get effective social support [11]. This prevents them from using family support factors to cope with the pressure of life and work. Only a few soldiers are willing to help those in need of attention [12]. In recent studies, work-related stress occurs in the work environment (workplace) or the work itself (task) and may result from ambiguity, overwork, role conflict, and work pressure [13]. Work stress is related to psychological problems and mental illness [14], affecting job satisfaction, interpersonal relationships, work efficiency, and burnout [15]. Due to the working environment and the tasks, soldiers need to keep in a state of high concentration, working and thinking efficiently for a long time. These factors make

soldiers feel more pressure than usual, causing psychological problems without proper vent [16].Burnout is usually described as a result of prolonged exposure to a stressful working environment, which involves physical and emotional exhaustion [17]. The contradiction between high-intensity work pressure and high-standard requirements is one of the main reasons for burnout [18]. Maslach and Jackson [19] integrated Freudenberger and Richelson [20] theories on burnout and proposed a composition model that includes emotional exhaustion, dehumanization, and reduced personal accomplishment. Individuals with emotional exhaustion showed a low level of enthusiasm for work and were described as feeling nothing to do. The second structure involves the state of interpersonal communication, which manifests itself as a kind of self-enclosure and maintains a ruthless appearance. Moreover, a reduction in personal accomplishment is often described as a feeling of incompetent, inefficient, inability to complete tasks and lack of work control or job satisfaction [9]. Soldiers who have been working in military facilities for a long time have higher burnout levels than other professionals. Research results indicate that soldiers working in military facilities may be more prone to burnout [21]. Maslach Burnout Model [22] postulated that long-term exposure to environmental and situational stressors would lead to work-related stress. Studies have shown the relationship between job burnout and job stress among the U.S. medical personnel stationed in Afghanistan. Individuals with a high level of burnout have higher work-related stress levels, and some of them even show symptoms of Posttraumatic Stress Disorder (PTSD) [23].

As a primary activity, sleep can restore one's energy and physical strength, and it can help one recover quickly from the fatigue suffered during wakefulness [24]. Sleep quality has been shown to predict the onset of mental illness and psychosis from a longitudinal perspective [25]. Some reports [26] have suggested that insomnia patients have higher levels of PTSD. In a study of 15,000 participants, Gehrman [27] found that sleep quality is a predictor of psychological problems, which means that having better sleep can effectively reduce the occurrence of psychological problems. The associations between sleep and stress have also been well established, as sleep disorders have become a source of stress when they begin to have adverse effects [28]. In a cross-sectional study on sleep quality and stress in the German army [29], it was found that the incidence of sleep problems among soldiers was higher than the general population, and a similar incidence could be found in the U.S. Army in Afghanistan [30]. Taylor [31] found that soldiers with insomnia have more stress, physical and mental problems than those without insomnia.

Mindfulness refers to focusing on the present experience with an attitude of acceptance [32], which is a naturally occurring quality that changes with human development and fluctuates throughout the day [33]. Mindful attention is used to assess individual differences in mindful attention frequency over time [34]. It is often used in self-reports derived from a promising theory of mindfulness. According to Brown and Ryan, mindful attention means conscious attention and awareness of what is happening. Increasing evidence suggests that high levels of mindful attention are associated with mental disorders, stress symptoms, self-awareness, self-regulating behavior, and emotional states [35-37]. Johnson provides mindfulness training to healthy American soldiers [38], after a short training period, the soldiers' stress level was broken down, and their resilience developed. Marines trained in mindfulness who took an eight-week training course showed lower mental fluctuations and low neuropeptide Y levels, which are commonly associated with levels of depression and anxiety [39,40].

In summary, our study will identify some factors that reduce work-related stress. Second, we will describe the relationship between work-related stress, burnout, sleep quality, mindful attention, anxiety and depression. Third, the possible mediating role of burnout in the effects of sleep quality, mindful attention, anxiety and depression on work-related stress will be explored. Based on empirical and theoretical evidence, we hypothesized that: (1) The work-related stress of soldiers under the special environment was positively correlated with burnout, sleep quality, anxiety and depression, while negatively correlated with mindful attention. (2) The burnout, sleep quality, anxiety, depression and mindful attention can predict work-related stress levels. (3) Burnout will regulate the effects of sleep quality, mindful attention and depression on work-related stress.

METHODS

Participants

A cross-sectional investigation was conducted in a cluster sample of 1092 soldiers who came from plateau areas (n=346), high radiation areas (n=330), and desert areas (n=416). In 2020, a total of 1085 participants (56 Women and 1029 men) completed the entire questionnaire. The rate is 99.4%. Participants are active soldiers with an average age of 23 years (SD=3.738).

Measures

This study used self-reporting tools, including Occupational Stress Scale (OSS), Pittsburgh sleep quality index (PSQI), Maslach Burnout Inventory-General Survey (MBI-GS), Self-Rating Anxiety Scale (SAS), Self-rating depression scale (SDS) and Mindful Attention Awareness Scale(MAAS), as well as background investigations such as age, gender, unit, and smoking.

Work-related stress: Occupational Stress Scale (OSS) compiled by House and Rizzo (1972) [41] always measures work-related stress, and it was translated into Chinese by Ma and Liang [42]. The scale contains a total of 11 items, reflecting the stress of employees at work. The total score ranges from 11 to 66 points: the higher score, the greater level of stress experienced by a person at work. For the scale in the study, the internal consistency coefficient was 0.93.

Sleep quality: Pittsburgh Sleep Quality Index (PSQI) was compiled in 1989 by Buysse [43], a psychiatrist at the University of Pittsburgh. The scale is suitable for evaluating the sleep quality of patients with sleep disorders and mental disorders and ordinary people. The scale consists of 18 volumes and seven components, with each component is scored on a scale of 0-3. The cumulative components are the total score. The total score ranges from 0 to 21 points. The worse sleep quality means the higher score, and the internal consistency coefficient was 0.82.

Burnout: Maslach Burnout Inventory-General Survey (MBI-GS) was compiled by Schanfeli and Maslach [44] and revised by Li Chaoping and Shi Kan of the Chinese Academy of Sciences [45]. This scale is a universal scale widely used by researchers, whereby the burnout scale includes three aspects: emotional exhaustion, dehumanization, and reduced personal accomplishment. The scale uses Likert's 7 points to measure fatigue and the level of burnout. The internal consistency coefficient of this scale is 0.78.

Anxiety: Self-Rating Anxiety Scale (SAS) was compiled by Zung [46] to assess the severity of personal anxiety in the past week. The scale consists of 20 items with 4 points, 1 point means "no or very little time", 4 points means "very big, part or all of the time", the scores of each part are accumulated, and SAS ≥ 50 points are considered to have anxiety symptoms. The internal consistency coefficient of the scale in this study is 0.80.

Depression: Self-Rating Depression Scale (SDS) assessed the subjective experience of an individual's depression in the past week. The scale consists of 20 items with 4 points: 1 point means "no or very little time", 4 points means "most or all time". With a higher score, the person experiences more depression. The Cronbach alpha coefficient of the scale is 0.84 [47].

Mindful attention: Mindful Attention Awareness Scale (MAAS) is 15-items self-report on mindfulness. The Likert rating for each item ranges from 1 (always) to 6 (never). The higher the average score means a higher level of mindfulness. MAAS has good psychometric characteristics, including test-retest reliability [34]. In the current study, internal consistency is right for the MAAS used in the baseline (α=0.93).

Procedure

The participants provided verbal and written informed consent to participate in the present study. The subjects completed a separate response booklet with structured, anonymous, and self-reported questionnaires. The questionnaires included occupational stress scale, Pittsburgh sleep quality index, Maslach burnout inventory-general survey, self-rating anxiety scale, self-rating depression scale and mindful attention awareness scale.

Statistical analysis

All data were analyzed using SPSS 25.0 software, and path analyses were estimated in AMOS 24.0. It was conducted to describe the study variables' associations by Pearson correlation analysis. Evaluate the differences in the main results presented in this study. Regression analysis was performed to examine the contributions of burnout, sleep quality, anxiety, depression, and mindful attention to work-related stress. Effects with p<.05 were considered statistically significant.

RESULTS

Correlations among the work-related stress, burnout, sleep quality, anxiety, depression and mindful attention

The change was calculated by Pearson's correlation, which is the soldiers' work-related stress in relationships between the level of work-related stress in the special environment and other factors, such as burnout, sleep quality, anxiety, depression and mindful attention. There were four factors positively associated with work-related stress and one factor negatively associated with work-related stress. They were burnout (r=0.620, P<0.01), sleep quality (r=0.605, P<0.01), anxiety (r=0.468, P<0.01), depression (r=0.146, P<0.01), mindful attention (r=-0.605, P<0.01).

The regression analysis of burnout, sleep quality, anxiety, depression and mindful attention to work-related stress
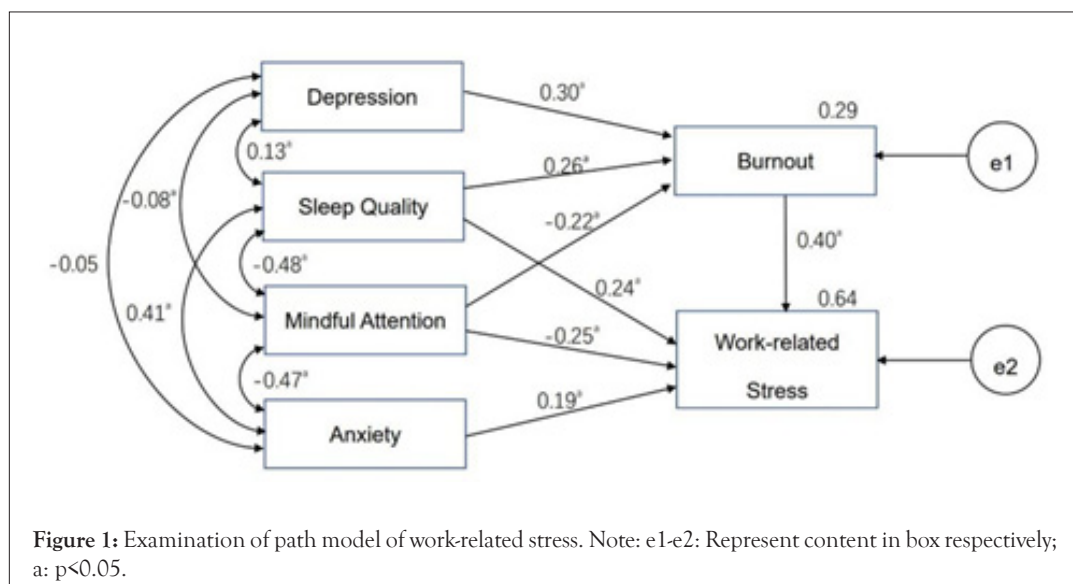
As several variables were associated with work-related stress, a regression analysis was conducted to determine the best predictors. In the regression analysis for work-related stress, burnout, sleep quality, anxiety, depression and mindful attention were entered. The significant predictors were burnout, sleep quality, anxiety, depression, and mindful attention for work-related stress. It is the same as correlation analysis, as shown in Table 1.

Table 1: Regression analysis in work-related stress (n=1085).

| N | Occupational stress scale (Work-related stress) | | | | |
	B	S.E. (B)	β	T	P
Constant	9.404	2.522		3.730	0.000
Burnout	6.017	0.320	0.411	18.791	0.000
Sleep quality	0.807	0.074	0.246	10.902	0.000
Anxiety	0.199	0.024	0.182	8.433	0.000
Depression	-0.052	0.025	-0.041	-2.060	0.040
Mindful attention	-0.192	0.018	-0.252	-10.965	0.000

Path analysis: Examining the role of work-related stress between burnout, sleep quality, anxiety, depression and mindful attention

We examine the research model, investigating the relationships between work-related stress and burnout, sleep quality, anxiety, depression and mindful attention. The exogenous variables were sleep quality, anxiety, depression and mindful attention. The mediating variable was burnout. The path of work-related stress had four direct paths(sleep quality–work-related stress, anxiety–work-related stress, mindful attention–work-related stress, burnout–work-related stress), as shown in Figure 1. This analysis yielded well-adjusted goodness of fit: χ^2/df=3.478. When it is not more than five, the model is accepted. Furthermore, the RMSEA=0.048, other fit indices are more significant than 0.90 by a comprehensive examination. The index data domain model fits well (p<0.01), as shown in Table 2.

Table 2: Fit Indices of work-related stress structural equation model.

Model	Residual root mean square	Goodness of fit index	Adjusted goodness of fit index	Goodness of fit index of simple effect	Standard fit index	Incremental fit index	Comparative fit index
Default model	0.869	0.998	0.978	0.095	0.997	0.998	0.998
Saturated model	0.000	1.000			1.000	1.000	1.000
Independent model	31.256	0.550	0.370	0.393	0.000	0.000	0.000

Figure 1: Examination of path model of work-related stress. Note: e1-e2: Represent content in box respectively; a: p<0.05.

DISCUSSION

This study clearly explains the influences of work-related stress for soldiers living in a special environment and provides several adequate scientific evidence to decrease work-related stress levels. Moreover, it covers the shortage of past research regarding the soldiers' relationships between work-related stress and sleep quality with special environmental experience, let alone the relationship among work-related stress, mindful attention, depression, anxiety and burnout in the field of the special military environment.

The correlations of the work-related stress and its influencing factors were explored. Work-related stresses of the soldiers had significant positive correlations with burnout, sleep quality, anxiety and depression, were negatively correlated with mindful attention awareness. Previous research also proposed the relationships between work-related stress, sleep quality, burnout, depression, anxiety, and mindful attention. However, all of the researchers took different crowds as the investigation object. They just studied the relationships between two or three factors among the above factors or a group of people with special occupational experience—work-related stress, depression and sleep quality [48]. Work-related stress, depression, anxiety in nurses [49]. Work-related stress and burnout [50]. In this study, we have proved the relationships among those factors for soldiers with special environmental experiences are believable, and they would be useful to decrease the level of work-related stress through these factors.

Burnout, sleep quality, anxiety, depression and mindful attention could predict soldiers' level of work-related stress (explaining rate 63.6%). The previous study has similarly indicated that burnout is the predictive variable of work-related stress [51]. Depression, anxiety and mindful attention were separately confirmed to predict stress in different persons [52-54], but few reports on the relationship between mindful attention and work-related stress and similar studies on soldiers have not to mention. From this study, the results just made up for this shortcoming.

A few studies have found that burnout significantly predicts work-related stress and significantly predicts physical and mental health symptoms. This means that burnout plays an intervening role in the relationship between work-related stress and overall health, and this type of health problem is defined explicitly as symptoms related to anxiety, depression, physical symptoms and social dysfunction [55,56].

Path analysis of this study indicated that burnout partially mediated the effects of mindful attention, sleep quality on work-related stress, burnout also totally mediated the relationship of depression and work-related stress, and anxiety directly affects work-related stress. Based on this study's findings, burnout is a critical regulating factor in the mechanism of work-related stress, which is consistent with the conclusion of Natasha [57]. Although it is known that compared with other special occupation groups, the level of burnout of military personnel is higher [22], and the work-related stress and burnout are caused by exposure to stressful environments, resulting in poor health of military personnel [58]. Studies have confirmed that stressors such as military missions, conflicts with peers, high workload and work demand, and inadequate supervision and lack of support are all related to poor physical and mental health [59,60].

Soldiers working in special environments have specific social characteristics. Unlike most soldiers, they usually work in exceptional workplaces with high radiation, plateaus, and enclosed places. The complexity of work tasks and exposure to special environmental influences cause them to produce more stress. In this case, due to the lack of necessary social support such as family encouragement and relatives' company, they usually do not have the appropriate time and opportunity to deal with these pressures, and psychological problems occur [61]. Unhealthy psychological problems, such as anxiety and depression, often accompany insomnia and decrease mindful attention [47]. Similarly, after the emergence of psychological problems, these special soldiers also lack effective ways to alleviate the problems, and they will increasingly feel bored with work and interpersonal communication, and become burnout and eventually lead to accumulation of stress.

However, some limitations of this study should be considered. First, the current research sample is relatively single. Secondly, all participants come from the army of three special environments, not all special environment types are included, and the gender ratio is asymmetric. Third, the current study did not include the psychological factors of ordinary soldiers as a controlled trial, and the results were not sufficiently convincing. By the way, in future studies, longitudinal studies will be conducted to study the function of stress and the relationship between anxiety, depression, sleep quality, mindfulness and work-related stress.

CONCLUSION

This study explored some of the factors that reduce work-related stress, including burnout, sleep quality, anxiety, depression, and mindful attention. Besides, burnout also plays a mediating role in depression, sleep quality, and mindfulness. These findings fill part of the knowledge gap and provide some convincing scientific evidence to reduce the level of work-related stress such by providing family companions and social support for soldiers. At the same time, psychologists can establish more suitable psychological counseling channels for soldiers with special environmental experiences based on reducing soldiers' psychological problems and provide some useful methods of decompression like Mindfulness-Based Stress Reduction (MBSR). Future research should focus on the basic biological research of work-related stress and burnout, such as genetic mutations or the neurological factors that consolidate walking-related stress.

AVAILABILITY OF DATA AND INFORMATION

The data supporting the results of the study can be obtained from the Strategic Support Force Specialized Medical Center (SSFSMC), but the availability of these data is limited. These data have been used with the permission of this study and therefore cannot be publicly obtained. However, the author can provide data under reasonable request and with the permission of SSFSMC.

CONTRIBUTION

LS prepared and revised the first draft. XL and YD proposed hypotheses and prepared a data set. FD refined the analysis and provided critical support for the manuscript. XG, WS, FR and YW went to various units for data collection and theoretical support. KL supervised the entire study, including proposing hypotheses, designing a data analysis plan, supervising data analysis, verifying the results and developing the manuscript based on the first draft. All authors helped review and complete the manuscript. The final manuscript read and approved by all authors.

FUNDING

REFERENCES

1. Tan Y, Li YM, Wu J. Mental health of Automobile transportation Troop personnel stationed in the Western Sichuan Plateau of China. Medicine.2018;97(12):e0218.

2. Zhao MX, Feng ZZ, Yang GY. Improvement of mental health among Chinese plateau military personnel, 1993-2017: A cross-temporal meta-analysis of the Symptom Checklist-90. Neuropsychiatr Dis Treat. 2019;15(10):2971-2980.

3. Zhang XZ, Ma Y, He FW. Evaluation of the mental state in high altitude adaptation training. Chin Ment Health J. 1996;10(5):225.

4. Guo Y, Yang GY, Feng ZZ. A study on mental health and related factors of automobile soldier in high altitude. Chin J Behav Med Sci. 2006;15(7):624–626.

5. Englert JA, Macias AA, Amador MD. Isoflurane ameliorates acute lung injury by preserving epithelial tight junction integrity. Anesthesiol. 2015;123(2):377–388.

6. Virues OJ, Buela CG, Garrido E. Neuropsychological functioning associated with high-altitude exposure. Neuropsychol Rev. 2004;14(2):197–224.

7. Yang GY, Feng ZZ, Wang T. Impact of plateau hypoxia on the mental function and its protection. Chin J Behav Med Sci. 2003;12(4):471–473.

8. Jepsen JR, Zhao Z, Leeuwen WM. Seafarer fatigue: a review of risk factors, consequences for seafarers' health and safety and options for mitigation. Int Marit Health. 2015; 66(2):106–117.

9. Oldenburg M, Hogan B, Jensen HJ. Systematic review of maritime field studies about stress and strain in seafaring. Int Arch Occup. 2013;86(1):1–15.

10. Piko BF. Burnout, role conflict, job satisfaction and psychosocial health among Hungarian health care staff: A questionnaire survey. Int J Nurs Stud. 2006;43(3):311–318.

11. Carotenuto A, Molino I, Fasanaro AM. Psychological stress in seafarers: A review. Int Marit Health. 2012;63(4):188–194.

12. Xie YR, Yu YJ, Peng L. Posttraumatic growth and related factors in new recruits after first training. Journal of Third Military Medical University. 2013;35(16):2088-2091.

13. An J, Liu Y, Sun YJ. Impact of work-family conflict, job stress and job satisfaction on seafarer performance. Int J Environ Res Public Health. 2020;17(7):21-91.

14. Kim JH, Jang S. The relationship between job stress, job satisfaction, and the symptom Checklist-90-revision (SCL-90-R) in marine officers on board. J Prev Med Public Heal. 2016;49(6):376-385.

15. Chung YS, Lee PT, Lee JK. Burnout in seafarers: Its antecedents and effects on incidents at sea. Marit Policy Manag. 2017;44(7):916–931.

16. Tian YQ, Chen XX, Cai Y. Relationship of military fatigue with psychological stress, stress perception and self-efficacy in soldiers from 2nd Artillery Corps during plateau encamping. Journal of Third Military Medical University. 2015;37(21):2156-2159.

17. Cooper CL, Dewe PJ, O'Driscoll MP. Organizational stress: A review and critique of theory, research, and applications. Sage: Thousand Oaks. 2001.

18. Brian EL, Johanna LC. Physician burnout: The hidden health care crisis. Clin Gastroenterol Hepatol. 2018;16(3):311-317.

19. Maslach C, Jackson S. Maslach Burnout Inventory Manual 2nd ed. Consulting Psychological Press. 1986.

20. Freudenberger H, Richelson G. Burn out: the high cost of high achievement, what it is and how to survive it. Bantam Books. 1980;32(5):353-354.

21. Maslach C, Jackson SE, Leiter MP. Maslach Burnout Inventory Manual 3rd ed. Consulting Psychologists Press. 1996.

22. Shaun S, Kotaro S, Charles C B. Burnout among U.S. military behavioral health providers. J Nerv Ment Dis. 2018;206(6):398-409.

23. Adler AB, Adrian AL, Hemphill M. Professional stress and burnout in U.S. military medical personnel deployed to Afghanistan. Mil Med. 2017;182(3):e1669-e1676.

24. Zhang LY, Jiang KH, Song WD. A Study on Relationship of Chinese Military Personnel's Sleep Characterisitc and Social Support Status and Its Related Factors. J Sleep Med. 2015;4(8):206-211.

25. Rusch HL, Guardado P, Baxter T. Improved sleep quality is associated with reductions in depression and PTSD arousal symptoms and increases in IGF-1 concentrations. J Clin Sleep Med. 2015;11(6):615-623.

26. Franzen PL, Buysse DJ. Sleep disturbances and depression: risk relationships for subsequent depression and therapeutic implications. Clin Neurosci. 2008;10(4):473–481.

27. Gehrman P, Seelig AD, Jacobson IG. Predeployment sleep duration and insomnia symptoms as risk factors for new-onset mental health disorders following military deployment. Sleep. 2013;36(7):1009–1018.

28. Kim EJ, Dimsdale JE. The effect of psychosocial stress on sleep: a review of polysomnographic evidence. Behav Sleep Med. 2007;5(4):256–278.

29. Heinrich A, Knappe S, Trautmann S. Sleeping problems in German soldiers and the role of deployment-related traumatic events. Psychol Psychother. 2015;44(2):121–130.

30. McLay RN, Klam WP, Volkert SL. Insomnia is the most commonly reported symptom and predicts other symptoms of post-traumatic stress disorder in U.S. service members returning from military deployments. Mil Med. 2010;175(10):759–762.

31. Taylor DJ, Pruiksma KE, Hale WJ. Prevalence, correlates, and predictors of insomnia in the U.S. army prior to deployment. Sleep. 2016;39(10):1795–1806.

32. Kabat ZJ. Wherever you go, there you are: Mindfulness meditation in everyday life. New York: Hyperion. 1994.

33. Desbordes G, Gard T, Hoge EA. Moving beyond mindfulness: Defining equanimity as an outcome measure in meditation and contemplative research. Mindfulness. 2015;6(2):356–372.

34. Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. J Pers Social Psychol. 2003;84(4):822–848.

35. Carlson LE, Brown KW. Validation of the mindful attention awareness scale in a cancer population. J Psychosom Res. 2005;58(1):29–33.

36. Gonzalez A, Zvolensky MJ, Grover KW. The role of anxiety sensitivity and mindful attention in anxiety and worry about bodily sensations among adults living with HIV/AIDS. Behav Ther. 2012;43(4):768–778.

37. Westbrook C, Creswell JD, Tabibnia G. Mindful attention reduces neural and self-reported cue-induced craving in smokers. Soc Cogn Affect Neurosci. 2013;8(1):73–84.

38. Johnson DC, Thom NJ, Stanley EA. Modifying resilience mechanisms in at-risk individuals: a controlled study of mindfulness training in marines preparing for deployment. Am J Psychiatry. 2014;171(8):844–853.

39. Judson B. Mindfulness in the Military. Am J Psychiatry. 2014;171(8):803-806.

40. Renu S, Nosakhare NE, Lena JW. Cerebrospinal fluid neuropeptide Y in combat veterans with and without posttraumatic stress disorder. Psycho Neuro Endocrinlol. 2014;40(2):277-283.

41. House RJ, Rizzo JR. Role Conflict and Ambiguity as Critical Variables in a Model of Organizational Behavior. Organizational Behavior and Human Performance. 1972;7(3): 467-505.

42. Ma JH, Liang Y. Structural Components of Job Stress and Its Relationship with Management Positions and Education Levels. Chin J Applied Psychol. 1997;3(2):21-26.

43. Buysse DJ, Reynolds CF, Monk TH. The Pittsburgh sleep quality index: A new instrument for psychiatric practice and research. Psychiatry Res.1989;28(2):193-213.

44. Schaufeli W, Leiter MP, Maslach C. MBI-General Survey. Palo Alto, CA: Consulting Psychologists Press. 1996.

45. Li CP, Shi K. The Influence of Distributive Justice and Procedural Justice on Job Burnout. Acta Psychologica Sinica. 2003;35(5):677-684.

46. Zung WW. A rating instrument for anxiety disorders. Psychosomatics. 1971;12(6):371-379.

47. Xiao C, Mou C, Zhou X. Effect of mindfulness meditation training on anxiety, depression and sleep quality in perimenopausal women. Nan Fang Yi Ke Da Xue Xue Bao. 2019;39(8):998-1002.

48. Adrian JB, Michelle Lk, Cindy MS. Work stressors, depressive symptoms and sleep quality among US Navy members: a parallel process latent growth modelling approach across deployment. J Sleep Res. 2018;27(3):e12624.

49. Maharaj S, Lees T, Lal S. Prevalence and Risk Factors of Depression, Anxiety, and Stress in a Cohort of Australian Nurses. Int J Environ Res Public Health. 2018;16(1):61.

50. Michie S. Causes and management of stress at work. Occup Environ Med. 2002;59(1):67-72.

51. Natasha K, Brian O, Karl P. Work Related Stress, Burnout, Job Satisfaction and General Health of Nurses. Int J Environ Res Public Health. 2015;12(1):652-666.

52. Ducar DM, Penberthy JK, Schorling JB. Mindfulness for healthcare providers fosters professional quality of life and mindful attention among emergency medical technicians. Explore (NY). 2020;16(1):61-68.

53. Moustafa AA, Tindle R, Frydecka D. Impulsivity and its relationship with anxiety, depression and stress. Compr Psychiatry. 2017;74:173-179.

54. Viseu J, Leal R, De Jesus SN. Relationship between economic stress factors and stress, anxiety, and depression: Moderating role of social support. Psychiatry Res. 2018;268:102-107.

55. Hillhouse JJ, Adler C. Evaluating a simple model of work, stress, burnout, affective and physical symptoms in nurses. Psychol Health Med. 1996;1(3):297–306.

56. Goldberg DP, Hillier VF. A scaled version of the General Health Questionnaire. Psychol Med. 1979;9(1):139-145.

57. Natasha K, Karl P, Brian O. Burnout in relation to specific contributing factors and health outcomes among nurses: a systematic review. Int J Environ Res Public Health. 2013;10(6):2214-2240.

58. Jamal M, Baba VV. Job stress and burnout among Canadian managers and nurses: an empirical examination. Can J Public Health. 2000;91(6):454-458.

59. Walters TA, Matthews EP, Dailey JI. Burnout in Army health care providers. Mil Med. 2014;179(9):1006-1012.

60. Malinauskiene V, Leisyte P, Malinauskas R. Psychosocial job characteristics, social support, and sense of coherence as determinants of mental health among nurses. Medicina. 2009;45(11):910-917.

61. Shi L, Liu B T, Li M. The Relations among Mental Health and Adaptation, Parental Rearing Patterns, Resilience and Coping styled in Recruits during Military Training. China J Health Psychol. 2014;22(10):1524-1526.