

Depression and Hopelessness Levels among Emergency Service Personnel Working in Shifts

Seyda Tuba Savrun¹, Ismail Erkan Aydin², Omer Karaman³, Ali Aygun⁴, Cagri Akalin⁵, Yeliz Kasko Arici⁶, Erdal Demirtas⁷

^{1,2,4} Department of Emergency Medicine, Ordu University Faculty of Medicine, Ordu, Turkey

³ Department of Guidance and Psychological Counseling, Ordu University Faculty of Education, Ordu, Turkey

⁵ Department of General Surgery, Ordu University Faculty of Medicine, Ordu, Turkey

⁶ Department of Biostatistics and Medical Informatics, Ordu University Faculty of Medicine, Ordu, Turkey

⁷ Department of Emergency Medicine, Cumhuriyet University Faculty of Medicine, Sivas, Turkey

ORCID; 0000-0002-6512-2987, 0000-0003-3552-5459, 0000-0003-1363-7548, 0000-0002-5190-1445, 0000-0003-3370-9879, 0000-0001-6820-0381, 0000-0003-0853-0623

Abstract: The levels of depression and hopelessness among emergency service workers increase, if the necessary measures are not taken in emergency departments that have high levels of workload and stress. In this study, we aimed to investigate the levels of depression and hopelessness among emergency service workers and the factors affecting these levels. This study included a total of 80 volunteer healthcare employees working in the emergency service of our hospital. Beck depression and Beck hopelessness levels of the participants were measured both before and after their shifts. Additionally, participants were classified according to the economic level and the correlation between economic level, depression and hopelessness scales was investigated. Though Beck depression points were lowest before shift, nurses-health officers were the group with highest increase in depression after shift ($p=0.004$). Physicians were the group with highest Beck hopelessness levels before and after shift. In the group with highest economic level, there was a 30% increase in the severity levels of hopelessness both before and after shift. Physicians were the group with highest hopelessness levels among emergency service health personnel. Additionally, the group of emergency service employees with highest economic level were had higher levels of depression and hopelessness compared to the other groups.

INTRODUCTION

Healthcare personnel work in a noisy and crowded environment under stressful conditions. In addition, patients presenting to emergency department are also under stress and seek immediate solution for their problems, causing an additional stress on emergency service workers. Working environment in emergency services is an important stressor that affect quality of life, and several factors such as heavy workload, insufficient salary, social discrimination, high expectations, high level of responsibility about patients and physical atmosphere contribute to this stress¹.

Hope is defined as “an emoting giving feeling on being worthy and motivating individuals to take a positive action”². The most important future of hope is the expectation and belief that will be a solution with positive developments and the goals will be achieved. Hopeless is resulted from absence of hope. One of the most important psychiatric disorders involving hopelessness is depression. As the complaints of people with depression increase, clinical studies have shown that hopelessness increases³. In the studies by Beck, it was underlined that hopeless concept should be always taken into account when evaluating depression, namely emotions caused by hopeless are associated with depression⁴.

Depression is a feeling of being unhappy, dejected, sad, pessimistic and unmotivated. Depression influences quality of life and productivity in work place. In this situation, previously easily completed tasks become difficult and the clinical picture advances to negative anxiety about inability to do these tasks⁵. Emergency service workers interact with patients in most times and this situation make them prone to depression.

Ensuring appropriate conditions in the workplace and resolving stress factors that negatively affect employees will increase the productivity and quality of life. Among health workers in hospitals, emergency service staff is the group exposed to the highest level of stress^{6,7}.

In this study we aimed to investigate the levels of depression and hopelessness among emergency service workers and to determine the effective factors to increase productivity in the emergency service.

Received :08.01.2021
Received in revised form :15.02.2021
Accepted :12.03.2021
Available online :03.05.2021

Keywords:

Emergency service
Depression
Hopelessness
Monthly income level

Corresponding Author:
Ismail Erkan Aydin
E-mail; erkanaydinmd@gmail.com
<http://dx.doi.org/10.29228/jamp.49902>

Int J Acad Med Pharm,
2021; 3 (2); 174-177



MATERIALS and METHODS

Ethics Consideration

Before the beginning, ethical approval was received from Ordu University Ethics Committee with 2018/33 numbered decision. All participants were informed about the study objectives and gave written informed consent. The study was conducted in accordance with the Declaration of Helsinki.

Study design

The study included health personnel actively working in the emergency service in our hospital and who voluntarily signed the consent form. Health personnel working outside the emergency service, not actively working in the emergency service (position in emergency but temporary duty elsewhere, on leave, etc.) and those who did not accepted to participate were excluded from the study. Care was taken to ensure that participation was on a voluntary basis and personal information was protected.

This study included a total of 80 health employees working in the emergency service of our hospital who voluntarily participated, including 8 physicians, 21 nurses-health officers, 19 security guards and 32 other personnel (medical secretaries, patient referral, workers in the emergency service laboratory unit and workers in the emergency service radiology unit). Participants had depression and hopelessness levels identified using the Beck Depression Inventory and the Beck Hopelessness Scale, and the survey forms prepared with Likert format. The survey forms were completed at 2 different times before shift and after shift and the correlation with emergency service shift was examined.

The Beck Depression Inventory (BDI) consists of 21 items and is a Likert-type scale with four self-report statements and points between 0-3. Based on points obtained from the BDI, depression levels of patients are classified as minimal 0-13 points, mild 14-19 points, moderate 20-28 points, and severe 29 points or more⁸.

The Beck Hopelessness Scale (BHS) is a 20-item self-report scale with high validity and reliability commonly found in the literature. Questions are answered as correct-incorrect and reflect negative expectations. Each answer in accordance with the key (correct) is given 1 point, while non-compliant answers (no) receive no points. The total points obtained are accepted as "hopelessness" points. The scale has a range between 0-20 points. According to points obtained on the BHS, participants have hopelessness levels classified as minimal 0-3 points, mild 4-8 points, moderate 9-14 points (should be frequently monitored) and severe 15-20 points (reflect suicidal intentions). The questions on the scale encompass emotional, motivational and cognitive dimensions⁹.

Statistical analysis

Statistical analysis of data was performed using SPSS version 20.0 (Statistical Package for Social Sciences, IBM Inc, Chicago, IL, USA) software. Normality of the data was evaluated with Kolmogorov-Smirnov test. Continuous variables are expressed as mean \pm standard deviation and categorical variables with number and percentage. Continuous variables were compared between the groups with Mann-Whitney U test, and categorical variables with Chi-square and Fisher Exact tests. $p < 0.05$ values were considered statistically significant.

RESULTS

The study included at total of 80 emergency service employees, with 43.8% being female (n=35) and 56.3% male (n=45). The participants aged between 18 - 51 years, with a mean of 36.0 ± 7.2

years. Additionally, 51.3% of the participants (n=41) aged 35 years or younger, while 48.7% aged between 36-51 years (n=39) (Table 1). Of participants, 70% were married (n=56), 26.3% were single (n=21) and 3.8% were widowed.

Of those included in the study, 26.3% were nurses-health officers (n=21; Group 1), 23.8% were security personnel (n=19; Group 2), 10% were physicians (n=8; Group 3) and 41.3% were other personnel (medical secretaries, patient referral, workers in the emergency service laboratory unit and workers in the emergency service radiology unit) (n=32; Group 4) (Table 1).

In terms of professional working duration, 62.5% (n=50) had been working for 10 years or less and 37% (n=22) had been working for more than 10 years. Of the emergency service employees, 48.8% (n=39) worked in shifts (16-hour rotation), 27.5% (n=22) worked in office hours and 23.8% (n=19) worked in 24-hour shifts. Of participants, 43.8% (n=35) were not using alcohol or cigarettes, 42.5% (n=34) were smokers and 12.5% (n=10) were using both alcohol and cigarettes.

The mean scores of the participants received from the Beck Depression Inventory and Beck Hopelessness Scale before (BS) and after (AS) shifts are shown in Table 2. There was a difference in depression levels before and after shift among the professional groups; however, it was not statistically significant ($p > 0.05$). Among emergency service workers, security personnel were the group with the highest Beck depression points both before shift (13.0 ± 7.4) and after shift (15.0 ± 13.5) ($p > 0.05$).

Though Beck depression points were lowest before shift (6.0 ± 6.7), the group with highest increase after shift (14.0 ± 8.5) was nurses-health officers and this increase was statistically significantly high ($p = 0.004$).

When hopelessness levels were examined among the participants, physicians were the group with the highest Beck hopelessness levels before (8.0 ± 6.4) and after (9.0 ± 5.2) ($p > 0.05$).

The lowest hopelessness levels before shift were found in the nurse-health officer group, while security personnel were the group with the highest increase in hopelessness levels ((hopelessness points after shift - hopelessness points before shift) / hopelessness points before shift) $\times 100$ by 28% ($p > 0.05$).

Participants were divided into three groups according to monthly income. Accordingly, 2.5% received 0-349 USD (n=2; Group 1), 63.8% of participants received 350-699 USD (n=51; Group 2), 22.5% received 700-1699 USD (n=18; Group 3), 11.5% received 1700 USD or more (n=9; Group 4). Participants with the highest depression levels before shift were in the group with highest monthly income. According to economic income, participants in Group 2 had significant increases in depression levels after shift ($p = 0.002$). Participants in Group 3 had significant increases in depression levels after shift ($p = 0.016$).

There were no statistically significant correlations between the scores received by participants and gender, type of work, use of drugs, duration of professional work and weekly working hours ($p > 0.005$).

DISCUSSION

Personnel working in emergency departments deliver services for 24 hours and are familiar with the difficulties of working in night shifts. In studies with emergency service workers, night shift has been shown to be a major factor of career dissatisfaction, burnout, work-family conflict and dysphoria¹⁰.

People working in shift works are known to have disrupted sleep-wake cycles and experience some mental problems due to being excluded from normal working and social life¹¹. In a study on the topic higher depression and anxiety disorders were reported in shift workers^{12,13}. Saricaoglu et al. reported that health workers had

Table 1. Sociodemographic features of emergency service employees included in the study.

Sociodemographic features		Nurse		Security		Physician		Other	
		No.	%	No.	%	No.	%	No.	%
Gender	Female	13	61.3	1	5.3	3	37.5	18	56.3
	Male	8	38.1	18	94.7	5	62.5	14	43.8
Age	18-35	7	33.3	15	78.9	2	25.0	15	46.9
	36-51	14	66.7	4	21.1	6	75.0	17	53.1
Marital status	Married	18	85.7	11	57.9	5	62.5	22	68.8
	Single	3	14.3	6	31.6	3	37.5	9	28.1
	Widowed	-	-	2	19.5	-	-	1	3.1

Table 2. Mean total scale points according to professional group.

	Nurse	Doctor	Security	Other groups	p
BS depression scores	6.0±6.7	8.5±11.7	13.0±7.4	8.0±5.9	0.162
AS depression scores	14.0±8.5	12.5±9.0	15.0±13.5	14.5±15.3	0.601
BS hope scores	6.0±5.3	8.0±6.4	7.0±4.5	8.0±4.6	0.575
AS hope scores	7.0±5.7	9.0±5.2	9.0±4.5	9.0±5.5	0.520

significant falls in tests related to cognitive functions after night shift¹⁴. Kubo et al. reported that anxiety levels were higher in the group of night workers in their study¹⁵. In a study of 1195 health workers, depression was reported to be more common among individuals working at night¹⁶. Halbach et al. found significant falls in psychomotor performance of health workers after shifts and they reported that this situation caused depression¹⁷.

Emergency service personnel working in shifts face with many stressors including disruption of circadian cycle, sleep deprivation, malpractice a fear of litigation, exposure to infectious diseases, lack of nutrition and exercise, and facing patient's mortality. In a study by Savrun et al. about health employees working in the emergency service, increased levels of anxiety were reported among health employees after emergency service night shift¹⁸. Disruptions of sleep and circadian cycle increase the risk of depression in emergency service workers. In a systematic review, working in night shift has been shown to increase the risk of depression¹⁹. In the current study, all emergency service workers were found to have increased hopelessness and depression levels compared to before shift values. In a recent review evaluating effect of working in shifts on psychological functioning of nurses, working in shifts was found to be associated with negative psychological outcomes²⁰. Among emergency service workers, especially nurses-health officers were the group with the highest increase in depression levels after shift ($p=0.004$). The levels of anxiety and depression was reported to be significantly higher in nurses working in shifts compared to non-shift situation^{21,22}. This situation was attributed to treatment applications and monitoring of patient vital signs in the emergency service that take time and cause getting tired.

The sociodemographic levels of emergency service employees display differences according to the definition of duties. In the literature, there are different opinions about the correlation between sociodemographic level and depression. In a study it was reported that as socioeconomic level increased, depression levels increased²³. Murphy et al. reported that individuals with high socioeconomic level had higher levels of depression²⁴.

In another study, Almeida-Filho et al. reported that individuals with a low socioeconomic level had higher depression levels

compared to individuals in the middle and upper classes²⁵. In our study, it was identified that people with the highest monthly income had higher levels of depression and hopelessness compared to people at other economic levels. Those with monthly income between 350-699 USD (Group 2) had significantly increased depression levels after shift. Similarly, participants with monthly income between 700-1699 USD (Group 3) had significantly increased depression levels after shift. Additionally, physicians with the highest economic income, had more severe levels of hopelessness compared to other groups and the degree of hopelessness increased after shift.

Study Limitations

This study has some limitations. The study was conducted in a single center with a relatively small number of participants. In addition, the levels of depression and hopelessness could be compared according to several factors including age, gender, marital status, smoking etc. However, given the limited number of studies investigating effects of working in shifts on psychological functioning especially among emergency service workers, we believe that our results will provide a significant contribution to the existing literature on this issue.

Conclusion

When emergency service employees were divided into groups according to their duties, all groups were identified to have increases both in hopelessness and depression levels after shift compared to before shift. However, among these groups, the group with greatest tendency toward depression was the nurse-health officers' group, while physicians were found to have the highest levels of hopelessness both before and after shift. When the effect of economic level on depression and hopelessness levels was examined, those with the highest economic level were found to have higher levels of both depression and hopelessness compared to the other groups. Recreational activities should be planned, and screening should be made for early diagnosis and treatment in emergency work workers who commonly have depression and hopelessness.

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgements

None.

Author contributions

STS, IEA, and OK: study concept and design, drafting the manuscript; AA and ED: acquisition of the data; STS and AA: interpretation of the data, YKA: statistical analysis, IEA, OK, and CA: supervision of the study.

REFERENCES

1. Salehi A, Javanbakht M, Ezzatabadi MR. Stress and its determinants in a sample of Iranian nurses. *Holist Nurs Pract.* 2014;28(5):323-8.
2. Kemer G, Atik K. Comparison of hope levels of high school students living in rural and city centers according to the level of social support perceived from the family. *Marmara University Atatürk Faculty of Education Journal of Educational Sciences.* 2005;21:161-168.
3. Dilbaz N, Seber G. The concept of hopelessness: Importance in depression and suicide. *Journal of Crisis.* 1993;1(3):134-138.
4. Beck AT, Weissman A, Lester D, Trexler L. The assessment of pessimism: The Hopelessness Scale. *J Consult Clin Psychol.* 1974;42(2):861-5.
5. Mete HE. Chronic Illness and Depression. *J Clin Psy.* 2008;11(3):3-18.
6. Erol A, Akarca F, Degerli V. Burnout and job satisfaction among emergency department staff. *J Clin Psy.* 2012;15:103-110.
7. Serinken M, Tomruk O, Erdur B, Soysal S, Cimrin AH. Stress factors of emergency physicians. *JAEM.* 2003;2:48-51.
8. Sagol S. Evaluation of infertile women planned for ovulation Induction and intrauterine insemination treatment with beck depression scale (Thesis), Trakya University, 2015.
9. Beck AT, Kovacs MV, Veissman A. Hopelessness and suicidal behavior. *JAMA.* 1975;234(11):1146-1149.
10. Smith-Coggins R, Broderick KB, Marco CA. Night shifts in emergency medicine: the american board of emergency medicine longitudinal study of emergency physicians. *J Emerg Med.* 2014;47:372-8.
11. Incir G. Shift Work and Chronobiological research. *Journal of Productivity.* 1998;1:59-72.
12. Scott AJ, Monk TH, Brink LL. Shiftwork as a risk factor for depression: a pilot study. *Int J Occup Environ Health.* 1997;3:2-9.
13. Akerstedt T, Wright KP. Sleep loss and fatigue in shift work and shift work disorder. *Sleep Med Clin.* 2009;4:257-271.
14. Saricaoglu F, Akinci SB, Gozacan A, Guner B, Rezaki M, Aypar U. The effect of day and night shift work on the attention and anxiety levels of anesthesia residents. *Turkish Journal of Psychiatry.* 2005;16:106-12.
15. Kubo T, Maruyama T, Shirane K, Otomo H, Matsumoto T, Oyama I. Anxiety about starting three-shift work among female workers: findings from the female shift-workers' health study. *JUOEH.* 2008;1:30:1-10.
16. Ardekani ZZ, Kakooei H, Ayattollahi SM, Choobineh A, Seraji GN. Prevalence of mental disorders among shift work hospital nurses in Shiraz, Iran. *Pak J Biol Sci.* 2008;11:1605-9.
17. Halbach MM, Spann CO, Egan G. Effect of sleep deprivation on medical and student cognitive function: A prospective study. *Am J Obstet Gynecol.* 2003;188:1198-201.
18. Savrun A, Bozkurt S, Okumus M, Savrun ST. Determination of anxiety levels by beck anxiety inventory in emergency medicine residents before and after night duties. *J Clin Anal Med.* 2017;8(2):155-9.
19. Angerer P, Schmook R, Elfantel I, Li J. Night work and the risk of depression. *Dtsch Arztebl Int.* 2017;114:404-11.
20. Tahghighi M, Rees CS, Brown JA, Breen LJ, Hegney D. What is the impact of shift work on the psychological functioning and resilience of nurses? An integrative review. *J Adv Nurs.* 2017;73:2065-83.
21. Muslu C, Baltaci D, Kutanis R, Kara IH. Anxiety, depression and quality of life in primary care and hospital nurses. *Konuralp Med J.* 2012;4(1):17-23.
22. Polat A. Analysis of sociodemographic characteristics and anxiety levels of patients treated at hospital (M.Sc. Thesis), Uskudar University, Institute of Social Sciences, Department of Clinical Psychology, 2016.
23. Bagley C. Occupational class and symptoms of depression. *Soc Sci Med.* 1973;7:327-340.
24. Murphy HBM, Wittkower E, Chance N. Cross Cultural inquiry into the symptomatology of depression: A preliminary report. *Int J Psychiatry.* 1967; 3: 6-15.
25. Almeida-Filho N, Lessa I, Magalhaes L. Socialine quality and depressive disorders in Bahia, Brazil: interactions of gender, ethnicity, and social class. *Soc Sci Med.* 2004;59:1339-1353.