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Evaluating the Impact of the Covid-19 Outbreak on Healthcare Professionals: A Cross-Sectional Study Consisting of Health-Care Staff Working in Emergency Ambulance Service of Bolu

COVID-19 Salgınının Sağlık Çalışanları Üzerindeki Etkisinin Değerlendirilmesi: Bolu Acil Ambulans Hizmetlerinde Görev Yapan Sağlık Çalışanlarından Oluşan Kesitsel Bir Çalışma

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ABSTRACT

Aim: Covid-19, which emerged in China in the last days of 2019 has spread to the whole world primarily affecting health-care professionals who fight on the forefront against the outbreak. In this study, we aimed to determine depression prevalence among health-care professionals who represent the riskiest group for Covid-19 and its secondary problems.

Material and Methods: The study is a cross-sectional study consisting of health-care staff working in emergency ambulance service of Bolu. A total of 226 subjects was included in the study.

Results: The mean age of the subjects in the study was 31.50±7.19, the youngest participant was 20 and the oldest was 58 years old. 54.4% of the participants were male, 45.6% were female. Among the participants 11.9% had mild depression and 13.7% moderate depression. The rate of those who suffered from severe depression was found to be only 1.8%. Female gender and co-existing chronic diseases seemed to be risk factors for occurrence of depression.

Conclusion: During the on-going Covid-19 outbreak, health-care workers seem to be one of the risk groups for depression as well as for infection.

Keywords: Covid-19, Emergency health personnel, Depression

ÖZ

Amaç: 2019 yılının son günlerinde Çin'de ortaya çıkan Covid-19, öncelikle salgınla mücadelede ön cephede savaşan sağlık çalışanlarını etkilemek suretiyle bütün dünyaya yayılmıştır. Bu çalışmada, Covid-19 ve buna sekonder problemler açısından en riskli grubu teşkil eden sağlık çalışanları arasında depresyonun görülme sıklığını tespit etmeyi amaçladık.

Gereç ve Yöntemler: Bolu ambulans ve acil servisleri biriminde çalışan sağlık personelleri ile yapılmış kesitsel bir çalışmadır. Toplamda 226 kişi çalışmaya dahil edilmiştir.

Bulgular: Çalışmada yer alan kişilerin yaş ortalaması 31,50±7,19 olup en genç katılımcı 20 ve en yaşlısı 58 yaşında idi. Katılımcıların 54,4%'ü erkek ve 45,6%'sı kadındı. Katılımcıların %11,9'unda hafif ve 13,7%'sinde orta düzeyde depresyon vardı. Şiddetli düzeyde depresyona maruz kalanların oranı yalnızca 1,8% olarak tespit edildi. Kadın cinsiyet ve eşlik eden kronik hastalıklar, depresyon oluşumunda risk faktörü olarak görünmektedir.

Sonuç: Devam etmekte olan Covid-19 küresel salgını süresince, sağlık çalışanları, enfeksiyon için olduğu gibi depresyon için de risk gruplarından biri gibi görünmektedir.

Anahtar Sözcükler: Covid-19, Acil sağlık çalışanları, Depresyon

INTRODUCTION

Following the investigations for a cluster of pneumonia cases detected in Wuhan, China in the last days of 2019, the common etiological agent was found to be a novel coronavirus (1). This new member of the beta coronavirus family was named SARS-CoV-2 by the World Health Organization and the disease caused by the virus was termed Covid-19 (2,3). Although most individuals infected with SARS-CoV-2 have been shown to have mild symptoms, several fatal complications that could eventually lead to death, such as respiratory failure, thromboembolic disease, and multi-organ dysfunction, have been widely reported (4,5). During this pandemic, health-care workers are at the forefront of fighting against the coronavirus (6). Health-care workers have been affected by the disease immediately after the first Covid-19 cases were diagnosed in China. Within a few weeks from the beginning of the outbreak, the infection started to be widely seen among the health-care workers (7). It has been reported that the prevalence of covid-19 infection in healthcare workers is higher than the general population with a greater risk in those working in more hazardous facilities (8). Also, during the Covid-19 pandemic, health-care workers are known to be faced with psychological problems arising out of factors such as long working hours, fatigue, risk of infection, inadequate protection, stigmatization, loneliness and lacking family support (9). 112 employees, who provide prehospital emergency care, are regarded to be under higher risk in all respects compared to the other medical staff groups considering their workplace environment is composed of backbreaking events such as accidents, critical cases and deaths (10). 112 emergency service staff who have a stressful business life are oversensitive for encountering problems such as depression and anxiety by reason of working conditions (11,12). During the devastating Covid-19 pandemic, it is highly likely for 112 emergency service workers to be demotivated, anxious and depressive. For this reason, conducting this study, we aimed to evaluate the depression levels of 112 employees working for ambulance services of Bolu, Turkey.

MATERIALS and METHODS

This study is a cross-sectional study conducted with 226 health-care professionals working in emergency ambulance service of Bolu. Informed consent was obtained from all the participants. Ethical approval of the study was obtained from Bolu Abant Izzet Baysal University Clinical Research Ethics Committee (Date:29.05.2020 Number:172). The data collection process was conducted in accordance with the rules of the most recent version of the Helsinki Declaration. All of the 112 emergency healthcare professionals working actively at the time of the study were reached and so no sample selection was made. As a result of the power analysis performed in G-Power 3.1.9.4, the power of the study was found 0.61.

Two data collection tools were used for the research: general information form and Beck Depression Inventory (BDI) (13). The data was collected by face-to-face survey method through a questionnaire form. Beck depression inventory is a depression rating scale consisting of 21 questions, each of which defines 4 different emotional states, with a score between 0 and 3. In this scale, severity of depression according to the total score is measured as follows; minimal (0-9), mild (10-16),moderate (17-29) and severe (30-63). Validity and reliability for the test has been ensured (8-9). The analysis of the data was performed by using SPSS 20 statistical package program. Descriptive statistical methods (frequency, arithmetic mean, standard deviation, median, cross tables) were utilized. Conformity to normal distribution was examined with skewness and kurtosis coefficients (±2) in addition to the Kolmogorov-Smirnov test. The medians of groups which did not show normal distribution were compared, and in the comparison of two independent groups, the Mann-Whitney test was used, and in the comparison of three or more independent groups, the Kruskal-Wallis test was used. When the difference between groups was significant, Bonferroni correction was used to determine the difference. Chi-Square test was used in the analysis of categorical data. The correlation between Beck Depression Inventory and independent variables was analyzed with Spearman correlation coefficient. A value of $p \leq 0.05$ was taken statistically significant.

RESULTS

A total of 226 health-care workers were included in the study. The mean age of the subjects participating in the study was 31.50±7.19, the youngest participant was 20 and the oldest was 58 years old. 54.4% of the participants were male, 45.6% were female and 65.5% were married. As for the distribution of educational status; 23.0% were high school graduate, 36.7% had two-year degree, 33.2% had

Table 1: Distribution of demographic features

Demographic Features	$\bar{X}$ ±SD		min-max
Mean age	31,50± 7,19		20-58
		n	**%**
Sex	Female	103	45.6
	Male	123	54.4
Marital Status	Married	148	65.5
	Single	78	34.5
Education status	High school	52	23.0
	Two-year degree	83	36.7
	Undergraduate	75	33.2
	Postgraduate	16	7.1
Occupation	Physician	9	4.0
	Paramedic	70	31.0
	EM technician	100	44.2
	Other	47	20.8
Smoking	Smoker	76	33.6
	Non-smoker	150	66.4
Alcohol consumption	User	21	9.3
	Non-user	205	90.7
Tea-coffee consumption	Low	60	26.5
	Medium	105	46.5
	High	61	27.0
Co-existing chronic disease	Yes	15	6.6
	No	211	93.4

undergraduate academic degree and 7.1% had postgraduate education. 4% of the participants in the study were physicians, 31.0% were paramedics, 44.2% were emergency medical technicians and 20.8% were the other. 33.6% of the participants were smoker and 9.3% were alcohol user. It was found that 6.6% of our participants had co-existing chronic diseases (Table 1).

72.6% of the participants in our study, assumed to be almost normal, had minimal symptoms for depression according to Beck Depression Inventory. 11.9% were found to be in mild depression and 13.7% in moderate depression. It was revealed that 1.8% of the participants suffered from severe depression (Table 2).

Beck Depression Inventory scores didn't differ significantly for marital status, smoking, alcohol use, tea-coffee consumption and educational status ($p>0.05$); however, significant difference was found for gender, chronic disease and occupation ($p<0.05$). The severity of depression was significantly higher in women compared to men; in those with co-existing chronic diseases compared to those without; and in emergency medicine technicians compared to the other occupational groups (Table 3). There is a positive linear relationship between Beck Depression Inventory

Table 2: Severity of depression measured by Beck Depression Inventory

		n	**%**
Severity of Depression	Minimal (0-9)	164	72.6
	Mild (10-16)	27	11.9
	Moderate (17-29)	31	13.7
	Severe (30-63)	4	1.8

Table 3: Comparison of Beck depression scale results by demographic characteristics

Comparison of Beck Depression Inventory results according to demographic features					
	Median (Min-Max) **				***p*-value**
Sex**	**Female**		**Male**		**0.011***
	7 (0-38)		4 (0-43)		
Marital status**	**Married**		**Single**		0.524
	5 (0-38)		5 (0-43)		
	Yes		**No**		
Smoking**	5 (0-37)		5 (0-43)		0.917
Alcohol consumption**	6 (0-19)		5 (0-43)		0.742
Presence of co-existing chronic diseases**	7 (0-38)		5 (0-43)		**0.038***
Tea-coffee consumption***		**Low**	**Medium**	**High**	0.130
		5.50 (0-43)	4 (0-30)	7 (0-37)	
Educational status***	**High school**	**Two-year degree**	**Under graduate**	**Post graduate**	0.068
	2 (0-37)	6 (0-43)	6 (0-38)	7 (0-29)	
Occupation***	**Physician**	**Paramedic**	**EM technician**	**Other**	**0.005***
	5 (0-19)	5.5 (0-43)	7 (0-38)	2 (0-37)	

*A p value less than 0,05 was taken significant ** Mann-Whitney U test ***Kruskal-Wallis H. **EM:** emergency medicine

Table 4: Correlation analysis between variables

	Gender	Marital status	Educationstatus	Occupation	Age	Smoking	Alcohol cons.	Tea-coffee cons.	Chronic disease
BDI	.149*	-.024	.116	-.080	-.059	-.046	.040	.051	.161*
Sig. (2-tailed)	**.025**	.722	.083	.230	.374	.493	.546	.449	**.015**

*. Correlation is significant at the 0.05 level (2-tailed). BDI: Beck Depression Inventory

and the chronic disease (reference group: presence) and gender (reference group: female) ($p<0.05$). The presence of chronic disease and female gender are risk factors for BDI (Table 4).

DISCUSSION

The high contagiousness and fatal complications of the novel coronavirus, which spread to the whole world after initially being detected in China, caused despair in all the people, particularly in health-care workers. Health-care providers, who constitute the riskiest group for Covid-19 infection by reason of fighting against the disease on the front line, face a great stress unsurprisingly. As previously reported, health-care professionals working in departments such as chest diseases, infectious diseases, intensive care units and emergency health services have the highest risk for both Covid-19 infection and psychological problems (14). In this study, we aimed to determine to what extent the emergency healthcare professionals working in Bolu were affected by Covid-19 pandemic psychologically.

In our study, which was conducted with 226 health-care workers in 112 emergency health services, depression symptoms were detected in 27.4% of the subjects with variable levels. The rate of moderate and severe depression symptoms was recorded as 15.5 % in total. In some prior studies concerning this issue, moderate or severe mental health problems were found to have higher rates compared to our study (15,16,17). In our study, we anticipated that moderate or severe depression symptom rates would be lower than previous studies, because healthcare workers get used to current hazardous conditions and find methods of coping skills for problems such as anxiety and depression in progress of time. In addition, in many countries governments implemented various precautionary measures one of which was curfew and that made most of people keep away from outside apart from certain occupational groups like health-care workers, police officers and other security forces (18). Therefore, it should be taken into consideration that health-care workers may have felt lonely under compelling work conditions that may contribute anxiety and depression symptoms. Moreover, we suggest that the normalization process in pandemic may have had a positive effect on the health-care workers and decreased their stress and depressive symptoms. The fact that the results of some recent studies are similar to ours supports this consideration (19,20).

In one of the studies investigating the psychological effects of Covid-19 pandemic on healthcare personnel, stress, anxiety and depressive symptoms were detected in more than half of the subjects. Among the subjects, the rate of those with moderate or severe depression symptoms has been found to be 16.5%. Moreover, the study has shown that women had higher levels of depression, anxiety, and stress (21). Similarly, in our study, the symptoms of depression in women were found to be significantly higher than men.

In a study conducted by Zhang et al., it has been suggested that the rate of depression is higher in healthcare professionals with co-existing diseases. It has been concluded that the presence of co-existing chronic diseases is an important risk factor in occurrence of psychiatric problems and sleep disorders for both health-care professionals and non-healthcare professionals. Moreover, it has been determined that these problems were seen in healthcare professionals much more than the other individuals. Furthermore, in the study, it was revealed that women are at higher risk (22). In our study, in accordance with this, the presence of chronic disease has been shown to increase the prevalence of depression.

Although excessive alcohol use has been reported to increase both sleep disorders and psychiatric problems (23), we have concluded that alcohol consumption does not make a significant difference in terms of depression symptoms among our subjects. However, the low alcohol consumption rates and the absence of excessive use of alcohol in our subjects may be the reason for the difference. In addition, consumption of stimulant beverages such as tea and coffee didn't make any difference on depression prevalence among our subjects.

From the beginning of the pandemic, Covid-19 has caused people to encounter stress, anxiety and depression in all over the world due to its frightening impact arising from the severe clinical features of the disease. To date, the healthcare professionals who fight on the front line against novel coronavirus pandemic appeared to be the most vulnerable group for both Covid-19 infection and its secondary problems such as stress, anxiety and depression. Although a certain reduction in these problems can be achieved in time, it is still very likely for healthcare personnel to be under risk of psychiatric problems such as depression.

The stress sources specific to the work unit of 112 emergency health personnel, not knowning whether the participants have a psychiatric disorder in the past and because of the being instant measurement ignoring the factors that affect anxiety outside of work are considered as limitations of the study.

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None.

Author Contrubitons

All authors contributed equally in designing the study, reviewing the literature, being prepared for the ethics committee, collecting-analyzing data and discussing the results.

Conflicts of Interest

No conflict of interest was declared by the authors.

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Ethical Approval

Ethical approval of the study was obtained from Bolu Abant Izzet Baysal University Clinical Research Ethics Committee (Date:29.05.2020 Number:172).

Review Process

Extremely peer reviewed.

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