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Examination of suicidal thoughts in healthcare workers: Sample of a research and practice hospital

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Abstract

Working in a hospital is a very stressful and sometimes risky process for all healthcare professionals who have experienced this difficult process for years. This situation may increase the suicidal tendency of healthcare workers as a result of not only physical but also psychological exhaustion. The purpose of this study was to determine the examination of suicidal ideation and related factors among healthcare professionals working in a research and practice hospital. The data of this descriptive and cross-sectional study were collected prospectively by clinicians in a research and practice hospital. The sample of the research consisted of n=600 healthcare workers. The average age of healthcare workers was 32.46 ± 7.79 years; 48% were women and 47.7% were married. 4% of healthcare workers had a past suicide attempt, and 18% had various levels of suicidal ideation. Women were more likely to attempt suicide. There was a positive, strong, and statistically significant correlation between depression, anxiety severity and suicidal ideation. Suicidal thoughts of healthcare professionals are affected by gender, depression and anxiety. The mental health of healthcare professionals should be evaluated periodically, and psychological support should be provided to healthcare professionals at risk of suicide.

Keywords: Anxiety, depression, suicide, suicidal ideation, healthcare workers

Introduction

Suicide, which means killing oneself, is a fatal act that expresses a person's desire to die. The World Health Organization (WHO) defines suicide as "injuring oneself with varying degrees of lethal intent, with awareness of the purpose" [1,2]. Suicide attempt is potential self-harming behavior with action associated with a certain degree of intent to die. An actual injury doesn't need to occur due to the action, and the intention to die can be seen explicitly or implicitly inferred from the situation or behavior. Suicidal thoughts are passive thoughts about wanting to die that are not accompanied by preparatory behavior for suicide or active thoughts that involve making plans or taking action to kill oneself [3].

Suicide is a complex process and must be taken with a holistic approach. Determinants of suicidal behavior can be examined in two groups: personal and environmental determinants.

Personal determinants are biological and psychological factors. Environmental factors include social conditions and negative life events. Factors directly affecting the suicide process are predisposing, risk, protective, and triggering factors. Predisposing factors consist of genetic, biological, personality, and cognitive factors. Psychiatric diseases, hopelessness, loneliness, and substance use are considered risk factors in the suicide process. Protective factors include social support, religious beliefs, self-confidence, coping and problem-solving skills, and treatment of psychiatric problems. Personal and social protective factors help cope with the challenges encountered. Relationship problems, loneliness, negative life events, and loss of self-confidence trigger suicidal behavior. However, it should be remembered that triggering factors are not the real cause of suicidal behavior [4].

Suicide is a serious public health problem. The frequency of suicide in the general population is around 10-20 per hundred

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thousand annually. These rates vary between 10 and 40 per hundred thousand in different countries. According to WHO data, one person dies from suicide every 40 seconds, and 800 thousand people die from suicide every year. Twenty times this number are suicide attempts that do not result in death. Suicide accounts for 1.3% of all deaths worldwide and is the 17th cause of death, according to 2019 data [5]. When we look at the period between 2001 and 2018, it is seen that the suicide prevalence in Türkiye varies between 3.61 per hundred thousand and 4.37 per hundred thousand [6]. Suicide risk was increased in certain occupational groups, especially in medical-related professions [7]. Physicians and other healthcare workers, such as nurses, were considered high-risk groups for suicide in different countries [8-10].

A systematic review and meta-analysis that examined suicidal ideation in healthcare professionals before the COVID-19 pandemic reported that female physicians were at high risk. Additionally, it has been stated that there is a lack of data regarding suicidal ideation among allied health professionals [11]. The quality and effectiveness of healthcare are affected by the skills of healthcare workers [12]. In this context, identifying situations that impair the mental well-being of healthcare workers is a critical step in ensuring employee safety. Accordingly, it is essential to constantly follow up, identify deficiencies, and provide support to healthcare professionals with impaired psychological resilience. This study aimed to examine suicidal ideation and related factors among healthcare professionals working in a research and practice hospital.

Material and Methods

In this study, we aimed to investigate suicidal ideation and related factors in healthcare professionals.

Design and participants

We conducted this cross-sectional and descriptive study with the participation of healthcare professionals in a research and practice hospital in Türkiye. G*Power-3.1.9.2 software was published in the data of the sample volume. After power analysis, at least $n=212$ healthcare workers with manual dexterity with a 95% confidence interval and a margin of error 0.05 had to be included. We included all healthcare professionals who agreed to participate in the study voluntarily and managed to access 600 healthcare professionals.

Inclusion and exclusion criteria

Inclusion criteria for this study (i) Having been actively working in the hospital where the research is conducted for at least 6 months, (ii) Volunteering to participate in the research, (iii) Absence of any language or communication barrier, (iv) Absence of a diagnosis of psychiatric disease before COVID-19 pandemic. The exact opposite of the inclusion criteria was determined as the exclusion criterion.

Data collection

The data for this study was collected by the researchers using the

survey method. Sociodemographic data form, Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), and Beck Scale for Suicide Ideation (BSS) were presented to each healthcare worker. The data were collected by the authors from 10 December 2022 to 31 January 2023. Each healthcare worker was taken one by one to a private interview room in the Psychiatry department, and after the purpose of the study was explained, questionnaires were given to healthcare workers whose informed consent was obtained. They were given 30 minutes to fill out the data collection forms. Information regarding the data collection forms is provided below.

Data collection instruments

Sociodemographic data form

It was prepared for the study to evaluate the sociodemographic characteristics of the patients. This form includes the participants' age, gender, marital status, education and employment status, psychiatric history, and suicide attempt.

Beck Depression Inventory

It is a self-report scale developed by Beck (1961) [13] to determine the risk of depression in the subject and to measure the level and severity change of depressive symptoms. It contains twenty-one sentences and provides a four-point Likert-type measurement. Each item is scored between 0-3. A minimum of 0 and a maximum of 63 points can be obtained from BDI. Turkish validity and reliability study was conducted by Hisli [14] in 1989. BDI consists of 21 questions in total. The 9th question of the BDI is the suicide item. The total score and suicide item score of the scale were evaluated (Suicide item: 0; "I don't have any thoughts of killing myself.", 1; "I have thoughts of killing myself, but I would not carry them out.", 2; "I would like to kill myself.", and 3; "I would kill myself if I had the chance"). Hisli et al. found that the Cronbach Alpha coefficient was 0.74. It was determined to be 0.81 In this study.

Beck Anxiety Inventory

Developed by Beck et al. in 1988 [15]. The scale aims to determine the frequency and severity of anxiety symptoms experienced by individuals. The highest score obtained from the scale consisting of 21 items is 63. The validity and reliability of the scale in Türkiye was determined by Ulusoy et al. (1998) [16]. Ulusoy et al. found the Cronbach Alpha internal consistency score of the scale to be 0.93.

Beck Scale for Suicide Ideation

It consists of three parts aimed at assessing the severity of suicide [17]. The scale was created in the United States and adapted to Mexican and Brazilian populations. The Brazilian Portuguese version consists of 21 items, each offering three options rated from 0 to 2 in intensity. The total score can range from 0 to 38, with a higher score indicating higher suicidal ideation. Turkish validity and reliability study was conducted by Özçelik et al. [18]. Özçelik et al. found Cronbach's alpha coefficient to be 0.84,

in this study it was found to be 0.87.

Ethics committee permission

Before starting the research, Academic Review Board (IRB) permission was obtained from Dicle University Medical Faculty Psychiatry Department, and approval was obtained from the Non-Interventional Clinical Research Ethics Committee of the same hospital (Date: 03.12.2021/Permission Number: 467). This study was conducted in accordance with the principles of the Declaration of Helsinki, and informed consent was obtained from each healthcare professional.

Statistical methods

Statistical Package for Social Sciences (SPSS) 26.0 program was used to analyze the data. Frequencies, means, and standard deviations were calculated for descriptive statistics. The Kolmogorov-Smirnov test was used to determine whether the data were normally distributed. It was determined that the data did not show a normal distribution, and the Mann-Whitney U test was used to compare the two groups. Spearman correlation analysis was used to examine the relationship between scale scores. p-value of <0.05 was taken for statistical significance.

Results

Table 1 includes the sociodemographic and suicide attempt data of healthcare workers. The average age of the participants was 32.46±7.79 years and their average education duration was 14.15±3.97 years. 48% (N=288) of the participants were women, and

47.7% (N=286) were married. 24 participants (4%) had previously attempted suicide.

Table 1. Sociodemographic of healthcare workers (N=600)

Features	Mean±SD
Age	32.46±7.79
Education duration (Years)	14.15±3.97
	Category
Gender	Female
	Male
Marital status	Married
	Single
	Divorced
Living	With family
	Alone
	Other
History of suicide attempt	Yes
	No
Participants who attempted suicide in the past	Female
	Male

Sd: standard deviation, N: number

Table 2 shows the average BDI, BAI, and BSS scores of healthcare professionals by gender variable. Scale scores were BDI 11.17±10.48, BAI 31.54±10.72, BSS 3.02±5.3. While no gender differences were detected for BDI and BSS, BAI was significantly higher in women.

Table 2. Mean BDI, BAI, and BSS scores of healthcare workers by gender variable

	Gender		Total (N=600)	Test and sig.	
	Female (N=288)	Male (N=312)		U	p
BDI	11.82±10.43	10.57±10.51	11.17±10.48	40.810	0.52
BAI	33.38±11.86	29.84 ±9.25	31.54±10.72	3.814	<0.001*
BSS	3.08±5.12	2.97±5.54	3.02±5.34	4.363	0.188

*p<0.01, U=Mann Whitney U, Sd: standard deviation, N: number

Table 3 shows the mean BDI, BAI, and BSS scores of healthcare workers according to their history of suicide attempts. All three scales

were found to be significantly higher in those who had attempted suicide before compared to those who had not attempted suicide.

Table 3. Mean BDI, BAI, and BSS scores of healthcare workers by suicide attempt history

	Suicide attempt history		Test and sig.	
	Yes (N=24)	No (N=576)	U	p
BDI	30.29±13.47	10.37±9.56	1385.500	<0.001**
BAI	49.04±13.25	30.81±9.97	1874.000	<0.001**
BSS	15.37±8.46	2.51±4.49	1156.500	<0.001**
BDI suicide item score	1.17±0.87	0.18±0.47	2321.000	<0.001**

*p<0.01, U=Mann Whitney U, Sd: Standard deviation, N: Number

Table 4 For participants with a history of suicide attempt, 58.3% (N=14) were female, and 41.7% (N=10) were male. 18% of the

participants had suicidal ideation, with a score between 1 and 3 on the BDI suicide item.

Table 4. Sociodemographic and suicide attempt data of healthcare workers (N=600)

BDI Suicide Item Score	N	%
0. I don't have any thoughts of killing myself	492	82
1. I have thoughts of killing myself, but I would not carry them out	88	14.7
2. I would like to kill myself	14	2.3
3. I would kill myself if I had the chance	6	1

Sd: standard deviation, N: number

Table 5 includes the correlation analysis between BDI, BAI, and BSS scores. There was a positive, moderate, and statistically significant relationship between depression and anxiety scores in healthcare professionals ($p < 0.01$). The suicidal ideation scale score had a positive, strong, and statistically significant correlation with depression and anxiety scale scores in healthcare professionals ($p < 0.01$).

Table 6. Regression analysis between BDI, BAI, and BSS scores

Model		Coefficients ^a						
		Unstandardized coefficients		Standardized coefficients		95% confidence interval for B		
		B	Std. error	Beta	t	Sig.	Lower bound	Upper bound
1	(Constant)	0.326	0.281		1.161	0.000	-0.225	0.877
	BDI	0.241	0.018	0.474	1.364	0.000**	0.205	0.277
	BAI	0.207	0.019	0.416	1.182	0.000**	0.171	0.243

^aDependent variable: BSS, ** $p < 0.01$

Table 7. Predictors of BSS according to regression analysis

Model	Predictors	Model summary ^b				
		R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
1	BDI	0.474	0.225	0.223	0.703462	1.206
	BAI	0.416	0.173	0.172	0.85785	1.146

^bDependent variable: BSS

Discussion

According to our results, 4% (n=24) of the healthcare professionals working in our hospital had attempted suicide at least once before, and 18% (n=108) had suicidal thoughts at various levels. In a multicenter, cross-country study conducted with a total of 84,850 adults from 17 countries (Africa (Nigeria, South Africa); the Americas (Colombia, Mexico, USA); Asia and the Pacific (Japan, New Zealand, Beijing and Shanghai in the People's Republic of China); Europe (Belgium, France, Germany, Italy, The Netherlands, Spain, Ukraine); and the Middle East (Israel, Lebanon), suicidal behaviors were evaluated, and the cross-country lifetime prevalences of suicidal thoughts, plans, and attempts were found to be 9.2%, 3.1%, and 2.7%, respectively [2]. Compared to the suicidal ideation in the general population, the rate of suicidal ideation in our study is quite high.

In a review of 25 studies, the risk of suicide in healthcare workers was found to be higher than in the general population [11]. It

Table 5. Correlation analysis between BDI, BAI, and BSS scores

	BDI	BAI
Spearman correlation	0.394	0.372
BSS Sig. (2-tailed)	0.000	0.000**
N	600	600
Spearman correlation	-	0.641
BDI Sig. (2-tailed)	-	0.000**
N	-	600

**Correlation is significant at the 0.01 level (2-tailed). N: number

Table 6 shows the regression analysis between BSS with BDI and BAI. Accordingly, it was determined that as the level of depression and anxiety increased, suicidal ideation increased ($p < 0.01$).

Table 7 lists the predictors of BSS according to regression analysis. Accordingly, depression and anxiety predict the idea of suicide by 22.5% and 17.3%, respectively.

Healthcare workers' personality traits, which include paying attention to details, having a high sense of responsibility, trying to please everyone, and having inadequate help-seeking behaviors for their own problems, may also contribute to increased rates of suicidal thoughts and attempts by causing anxiety and depressive symptoms [25,26].

In a multi-center study that included 452 healthcare professionals actively working during the pandemic period (May-June 2020) in Türkiye, the question "Have you attempted suicide before the pandemic?" The answer to the question was yes at a rate of 2.87% (n=13). "Have you attempted suicide during the pandemic period?" The answer to the question was yes at a rate of 1.77% (n=8), even though the pandemic started in March 2020 [27].

Depression, anxiety, suicidal ideation scale, and BDI suicide item scores of participants who had previously attempted suicide were significantly higher than those who had not attempted suicide before. Our results are consistent with the literature. In many studies, the most important risk factor for suicide has been found to be a person's previous suicide attempt [28,29]. In a study conducted in Türkiye between June 2008 and January 2010 with 193 people referred to the psychiatry outpatient clinic for suicide attempts, it was found that 25% had attempted suicide before, and 21% of the patients stated that they might attempt again after the attempt. In follow-up studies over a 12-month period, the recurrence rate of suicide attempts was found to be between 20-25% [28].

In our study, 58.3% (n=14) of the healthcare workers who attempted suicide were female and 41.7% (n=10) were male. In the literature, suicide attempts are higher in women than men. In another study where suicide cases admitted to the emergency department in Türkiye were investigated sociodemographically, similar to our study, when the gender of those who attempted suicide was examined, it was seen that 54% were women and 46% were men [30]. These results can be interpreted as the fact that in most countries, women still have more domestic responsibilities than men (child education, patient care, home care, etc.), they have difficulty in juggling a full-time job as a healthcare worker and housework, and the gender discrimination they are exposed to in business life [11,31]. There are studies in the literature on suicidal thoughts of nurses [32-34] and physicians [35-39]. In these studies, it was mentioned that nurses had suicidal thoughts. However, it has been noted that physicians have attempted suicide before and physician deaths due to suicide occur in almost every department (Internal medicine, general surgeon, anesthesiologists, psychiatrists etc.). It can be said that the reason why physicians have a higher suicidal tendency than nurses is due to the fact that few studies have been conducted on allied health workers. Studies conducted during the COVID-19 pandemic period show that burnout, depression, anxiety and post-traumatic stress disorder increase suicidal thoughts [40].

Conclusion

Our results show that healthcare workers have a significant risk

of suicide compared to the general population. In this sense, healthcare professionals should be considered a risky group. Informative training on mental illnesses and suicide should be provided regularly to all healthcare professionals. Healthcare professionals should be routinely screened and evaluated for mental illness and suicidal ideation. Stigma of help seekers should be prevented, and people should be encouraged to seek help. Institutions should establish psychosocial support units within themselves that provide psychiatric support and consultancy for healthcare personnel. In addition, preventing violence against healthcare workers and improving the economic, social, etc. conditions of healthcare workers should also be important state policies.

Limitations

In our study, participants were not divided according to their professions (medical doctor, nurse, etc.) and departments. Studies with more samples from each profession and branch can be planned. The fact that only our hospital personnel were included is an important limitation of our study, and multicenter studies should be planned. In this study, working conditions, individual problems, and occupational stressors which increase anxiety and depression in healthcare workers were not examined. Similarly, positive activities that strengthen mental health have not been investigated. For cultural and religious reasons, some participants may not have shared the idea of suicide. It cannot be generalized to the universe due to the small number of samples. The total year of job for participants and difference of young/old participants were not examined. These missing aspects can be considered limitations of our study.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

Before starting the research, Academic Review Board (IRB) permission was obtained from Dicle University Medical Faculty Psychiatry Department, and approval was obtained from the Non-Interventional Clinical Research Ethics Committee of the same hospital (Date: 3.12.2021/Permission Number: 467). This study was conducted in accordance with the principles of the Declaration of Helsinki, and informed consent was obtained from each healthcare professional.

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