DOI: 10.4274/forbes.galenos.2023.83702
Forbes J Med 2023;4(2):211-7

Original Article / Orijinal Araştırma

Suicide Risk Burnout and Risky Alcohol Use Among Physicians

Hekimlerde İntihar Riski Tükenmişlik ve Riskli Alkol Kullanımı

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Cite as: Kılıç OHT, Aksoy İ, Anıl M, Varol U, Varol Y, Kırcı Dallıoğlu Ç, Çetin AS, Mumcu E, Üstün N, Kocur Ç, Bayram ZN, Munis ND. Suicide Risk Burnout and Risky Alcohol Use Among Physicians. Forbes J Med 2023;4(2):211-7

ABSTRACT

Objective: The aim of this study was to examine the relationship between risky alcohol use, burnout, and suicide in physicians.

Methods: An online questionnaire (SurveyMonkey®) including the Sociodemographic Data Form, Maslach Burnout Inventory, Addiction Profile Index Risk Screening (APIRS), and Suicide Probability Scale (SPS) was created.

Results: Two hundred eighty-five physicians took the survey. It was determined that 49 of the physicians (17.2%) were high-risk alcohol users. SPS scores of residents (p=0.014), physicians without children (p=0.019), physicians with a history of suicide attempt (p=0.034) and psychiatric treatment (p=0.001) were found to be significantly higher. Suicide probability scores were weakly correlated with APIRS-alcohol scores (rho: 0.138, p=0.02) and highly correlated with burnout scores (r=0.718, p=0.001).

Conclusion: Structural and organizational measures should be taken to decrease burnout in physicians, and preventive public health services should be increased to reduce alcohol use in physicians.

Keywords: Suicide, burnout, risky alcohol use

ÖZ

Amaç: Bu çalışmanın amacı hekimlerde riskli alkol kullanımı, tükenmişlik ve intihar arasındaki ilişkiyi incelemektir.

Yöntem: Sosyodemografik Veri Formu, Maslach Tükenmişlik Envanteri, Bağımlılık Profili İndeksi Risk Taraması (APIRS) ve İntihar Olasılığı Ölçeği (İOÖ) içeren çevrimiçi anket (SurveyMonkey®) oluşturuldu.

Bulgular: Ankete 285 hekim katıldı. Hekimlerin 49'unun (%17,2) yüksek riskli alkol kullanıcısı olduğu belirlendi. Asistan hekimlerin (p=0,014), çocuğu olmayan (p=0,019) hekimlerin, intihar girişimi öyküsü (p=0,034) ve psikiyatrik tedavi öyküsü (p=0,001) olan hekimlerin İOÖ puanları istatistiksel olarak anlamlı derecede yüksek saptandı. İntihar olasılığı puanları, APIRS-alkol puanları ile zayıf (rho: 0,138, p=0,02), tükenmişlik puanları ile yüksek düzeyde korele saptandı (r=0,718, p=0,001).

Sonuç: Hekimlerde tükenmişliği azaltacak yapısal ve örgütsel önlemler alınmalı, hekimlerde alkol kullanımını azaltacak koruyucu halk sağlığı hizmetleri artırılmalıdır.

Anahtar Kelimeler: İntihar, tükenmişlik, riskli alkol kullanımı

Received/Geliş: 08.03.2023
Accepted/Kabul: 01.06.2023

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Presented in: This research was presented as an oral presentation at the 3rd International Medical Congress of İzmir Democracy University (10-12 December 2021).

INTRODUCTION

Physicians have lower general and most cause-specific death rates than the general population.[1] However, suicide-related deaths are higher.[2] It has been reported that more than one physician dies by suicide per day in the USA.[3] One of the most significant factors contributing to the increased risk of suicide in physicians is access to lethal instruments and the expertize necessary to use them successfully.[4] Other factors that increase suicide rates in physicians have been attributed to low help-seeking behavior due to concerns about stigmatization and privacy and some specialties that may cause higher distress.[5]

Burnout is a growing health problem that affects physicians globally.[6,7] Although it was described more than 30 years ago, it started to be classified in diagnostic systems in 2019 with the World Health Organization's International Disease Classification-11.[8] This phenomenon is described as primarily a social or organizational problem involving emotional exhaustion (EE), depersonalization (D), and decreased personal accomplishment (PA).[6]

Burnout and each subdimension (EE, D, low levels of PA) were shown to be associated with risky alcohol consumption.[9] In high-income countries, 5% to 20% of physicians consume alcohol problematically.[10] In a previous study, risky alcohol use was reported to be 6.5% among physicians in Turkey.[11] However, there are no recent studies on the frequency of problematic alcohol use among physicians in our country. Alcohol misuse is observed in up to 40% of people who die by suicide in the general population, and risky alcohol use has a critical mediating role in suicidal behavior.[12]

Considering this background, this study examines the mediating role of burnout and risky alcohol use for suicide among physicians.

METHODS

A survey including the Sociodemographic Data Form in addition to Maslach Burnout Inventory (MBI), Addiction Profile Index Risk Screening (APIRS)-alcohol, and Suicide Probability Scale (SPS) was created using an online survey collection tool (SurveyMonkey®). The link was sent to the medical doctors via WhatsApp®. No name was written on the questionnaire, and response rates could not be quantifiable.

Data Collection Tools

Sociodemographic Data Form: This form is created by the authors and includes 18 questions about demographic data (age, sex, marriage status, having a child, having faith), occupational characteristics (department, academic status, institution, year of practice, average working hours), and psychiatric history (previous suicide attempts, suicides in family, psychiatric diagnoses, alcohol use) of the physicians.

SPS: This scale was developed by Cull and Gill.[13] A Turkish version was prepared with validity and reliability studies have been done.[14] The scale has been slightly modified by Batıgün and Şahin.[15] The sum of all scores gives the overall suicidal probability score. According to the rating scale from 1 to 4, the total score taken from the scale is between 36 and 144. High scores on the scale indicate high probability of suicide.

MBI: This Inventory was designed by Maslach et al.[16] Inventory approaches burnout through three subdimensions: emotional burnout, D, and PA. A high score in emotional burnout and D dimensions and a low score in PA dimensions indicate burnout. A Turkish validity study of the MBI has been performed.[17] The original Inventory is a 7-point Likert scale. However, it was observed that the answer options composed of seven steps needed to be revised for Turkish culture. Thus, the answer options were arranged in five steps.

APIRS-alcohol: This scale was developed by Ögel et al.[18] As a risk screening questionnaire for determining the level of alcohol use. Cronbach's alpha coefficient of the scale was 0.88. The scale consists of six items for the risk assessment of alcohol use. If the total score obtained from the APIRS-alcohol scale is three or above, the individual is considered a "high risk". The test reliability value for this study was 0.85.

Statistical Analysis

Survey results were analyzed with IBM Statistical Package for the Social Sciences 20.0 Statistics (IBM Corporation, New York, USA) package program. Categorical data are indicated by number (n) and percentage (%). The numerical data are shown with arithmetic mean±standard deviation. For parametric variables, comparisons were made with independent samples t-test and one-way ANOVA. Their nonparametric equivalents, Mann-Whitney U and Kruskal-Wallis test with posthoc analysis were used where applicable. The Wilcoxon test was used to compare two dependent variables. The relationship between the two groups was examined with Spearman's correlation analysis. $P<0.05$ value was considered statistically significant.

RESULTS

Demographic and Occupational Characteristics

Two hundred eighty-five physicians took the survey. The mean age of physicians (155 female, 130 male) was 45.57±7.84 years. Out of a total, 230 (80.7%) were married, 29 (10.2%) were not married, 22 (7.7%) were divorced, and 4 (1.4%) were widowed. Most participants (n=229, 80.4%) stated that they have children.

The mean year of the practice of all participants was 18.35±8.27 years. The majority of physicians were working in internal medicine (77.5%; n=221), 50 (17.5%) were working in

surgical medicine, and 14 (4.9%) were working in preclinical sciences. Of the physicians, 166 (58.2%) were specialists, 43 (15.1%) were general practitioners, 29 (10.2%) were associate professors, 19 (6.7%) were research assistants, 15 (5.3%) were assistant professors, and 13 (4.6%) were professors.

Eighty six (30.2%) physicians had past or current psychiatric treatment histories, and 10 (3.5%) had attempted suicide. In their family, 9 (3.2%) of the physicians had at least one relative (three mothers, five siblings, and one more than one relative) who had died by suicide. Two hundred-eleven (74.0%) of the physicians stated that they consumed alcohol at least once. Among users, the mean age of first alcohol use was 19.76±4.34 years. Two hundred-twenty four physicians (78.6%) answered yes and 61 physicians (21.4%) answered no to the question "Do you have faith?".

The mean value of the SPS scores of all participants was 67.39±13.87. The mean value of the MBI total score of all participants was 56.56±15.32. According to the APIRS scores, high-risk alcohol use was detected in 49 (17.2%) of the physicians. SPS, MBI and APIRS scores are given in Table 1.

Among the sociodemographic and clinical variables, having no children (p=0.019), being a research assistant (p=0.014), having a history of psychiatric treatment (p=0.001), and past suicide attempt (p=0.034) variables had statistically significantly higher levels of SPS scores. Age, gender, the year of medical practice, and the mean age of the first alcohol use were not correlated with SPS total scores. Characteristics of the participants and their comparison according to SPS scores are given in Table 2.

According to the BAPI-alcohol scores, among the 211 physicians who stated that they had used alcohol at least once in their life, 49 (17.2%) were found to be at high risk for alcohol dependency. There was no statistically significant difference between high- and low-risk alcohol users regarding SPS scores or Maslach burnout scale scores and its subscales (Table 3).

Correlation analyses revealed that SPS scores were strongly correlated with MBI total scores (r=0.718, p=0.001) and moderately correlated with EE (r=0.653, p=0.001), D (r=0.552, p=0.001) and personal achievement subscales (r=-0.551, p=0.001). SPS total scores were weakly correlated with APIRS-alcohol scores (rho: 0.138, p=0.02). The results of all correlation analyzes are given in Table 4.

MBI total and subscale scores were compared according to medical specialty, occupation degree, and daily work hours. There was no difference between internal medicine, surgical medicine, and preclinical sciences in terms of MBI total and subscale scores. According to multiple comparisons of occupation degree and post hoc analysis, research assistants were found to have significantly higher MBI total scores (p=0.016). MBI total, personal achievement, and D scores were not significantly different according to daily work hours (>8 hours vs. <8 hours) but the MBI EE subscale score of participants with more than 8 daily work hours (29.16±8.39) were significantly higher than <8 daily work hours (26.78±8.40) (p=0.024).

DISCUSSION

This is the first study investigating the relationship between suicidality, burnout, and risky alcohol use among physicians in Turkey. We found that being a research assistant, having a past/current psychiatric disorder, having a past suicide attempt, and not having children increased suicide risk. We did not find any difference between high- and low-risk alcohol users in terms of suicide probability and burnout levels. However, suicide probability scores were weakly correlated with APIRS-Alcohol scores and highly correlated with burnout scores.

Previous studies investigating the relationship between suicidality and demographic factors have revealed that female physicians have a higher suicide rate than women in the general population.[19] Although we found no relationship between suicide probability and gender, these results must be analyzed carefully because the rates of suicide are 2-3 times higher in males.[12] This narrowed gap between genders among physicians could be explained by higher work-home conflict, burnout, and enhanced risky alcohol use in female physicians[9]. Work-home conflict is defined as a form of inter-role conflict in which the role pressures from work and family are mutually incompatible

Table 1. SPS, APIRS-alcohol, MBI and MBI subscale scores

	Mean±SD	Min-max
SPS	67.39±13.87	45-122
MBI	67.39±13.87	36-98
Emotional burnout	28.33±8.45	11-45
Depersonalization	11.74±4.47	5-25
Personal achievement	31.51±5.46	12-40
APIRS-alcohol	1.16±1.96	0-9

SPS: Suicide Probability Scale, MBI: Maslach Burnout Inventory, APIRS: Addiction Profile Index, Min-max: Minimum-maximum, SD: Standard deviation

Table 2. SPS scores according to characteristics of the participants				
	n (%)	**SPS (mean±SD)**	**Statistical values**	**p**
Age	285 (100%)	45.57±7.84		
Gender				
Male	130 (45.6%)	66.93±13.19	0.510†	0.611
Female	155 (54.4%)	67.78±14.45		
Marital status				
Not married	29 (10.2%)	73.24±20.52	3.893§	0.273
Divorced	22 (7.7%)	69.27±11.80		
Widowed	4 (1.4%)	63.75±16.19		
Married	230 (80.7%)	66.54±12.85		
Children				
Yes	229 (80.4%)	66.85±12.90	-1.332†	**0.019**
No	56 (19.6%)	69.60±17.23		
Living alone				
Yes	38 (13.3%)	71.07±15.42	1.764†	0.079
No	247 (86.7%)	66.83±13.56		
Medical specialty				
Internal medicine	221 (77.5%)	67.09±13.73	-0.664‡	0.516
Surgical medicine	50 (17.5%)	69.30±14.73		
Preclinical sciences	14 (4.9%)	65.42±13.18		
Degree				
Practitioner MD	43 (15.1%)	67.09±14.70	14.196ǀ	**0.014**
Research Assistant MD	19 (6.7%)	78.31±14.23		
Specialist MD	166 (58.2%)	66.88±13.43		
Assist. Prof. Dr.	15 (5.3%)	67.20±16.51		
Assoc. Prof. Dr.	29 (10.2%)	64.20±9.81		
Prof. Dr.	13 (4.6%)	67.89±13.87		
Year of practice	285 (100%)	18.35±8.27		
Daily work hour				
>8 hours	186 (65.9%)	68.11±13.89	-1.196†	0.233
<8 hours	89 (34.1%)	66.05±13.80		
History of psychiatric treatment				
Yes	86 (30.2%)	72.94±14.40	4.590†	**0.001**
No	199 (69.8%)	65.00±12.95		
Past suicide attempt				
Yes	10 (3.5%)	79.70±20.55	832.5ǀ	**0.034**
No	275 (96.5%)	66.94±13.41		
Do you have faith?				
Yes	224 (78.6%)	66.71±13.91	-1.584†	0.114
No	61 (21.4%)	69.88±13.55		

†Independent samples t-test, ‡One-way ANOVA, §Kruskal-Wallis test, ǀMann-Whitney U test
SPS: Suicide Probability Scale, Min-max: Minimum-maximum, SD: Standard deviation

Table 3. Comparison of SPS, MBI and MBI subscale scores according to APIRS-alcohol levels				
	APIRS-high risk	**Mean±SD**	**t value**	**p**
SPS	Yes	69.85±14.86	-1.726	0.086
	No	66.25±12.01		
MBI total	Yes	59.27±14.99	-1.582	0.115
	No	55.55±14.10		
MBI emotional exhaustion	Yes	29.66±8.55	-1.500	0.135
	No	27.73±7.61		
MBI depersonalization	Yes	12.60±4.47	-1.427	0.155
	No	11.55±4.45		
MBI personal achievement	Yes	31.00±5.55	0.852	0.395
	No	31.74±5.23		
SPS: Suicide Probability Scale, MBI: Maslach Burnout Inventory, APIRS: Addiction Profile Index, SD: Standard deviation				

Table 4. Correlations between SPS total scores, MBI total and subscales and BAPI levels					
	1	**2**	**3**	**4**	**5**
1) SPS total	-				
2) MBI total	0.718 (0.001)*	-			
3) MBI emotional Burnout	0.653 (0.001)*	0.908 (0.001)*	-		
4) MBI depersonalization	0.552 (0.001)*	0.794 (0.001)*	0.630 (0.001)*	-	
5) MBI personal achievement	-0.551 (0.001)*	-0.750 (0.001)*	-0.484 (0.001)*	-0.433 (0.001)*	-
6) APIRS-alcohol	0.138 (0.02)†	0.136 (0.02)†	0.141 (0.017)†	0.192 (0.001)†	-0.034 (0.572)†
*Pearson correlation, †Spearman's correlation. SPS: Suicide Probability Scale, MBI: Maslach Burnout Inventory, BAPI: Addiction Profile Index, APIRS: Addiction Profile Index					

in some respect, which is significantly linked to burnout and EE in physicians.[20-22] Previous studies have revealed that female physicians experience more burnout than male physicians.[23] Furthermore, a previous study from Turkey during the Coronavirus disease-2019 pandemic found higher burnout levels in female physicians, and the authors suggested that increased work-home conflict during the Pandemic among female physicians may explain their results.[6]

We found higher suicidality risk among residents compared with more experienced physicians, consistent with previous studies that showed higher depressive symptoms and suicidal ideation among them.[24,25] It was suggested that examination stress, financial difficulties, and insecurity about their job could explain the higher suicide risk among physicians in training.[10] Further small single studies from low- and middle-income countries have shown that residents have higher anxiety, depression, and burnout levels that may increase suicidality.[26-28] As expected, we found higher suicide probability in physicians with past or current psychiatric treatment and past suicide attempts. Mood disorders and alcohol-substance use disorders are the most risky conditions for suicide.[12] However, psychiatric conditions other than alcohol use and burnout were not examined in this study. Besides risk factors, good family ties, faith and not living alone are protective factors for suicide.[29,30] We found that having children reduced the risk of suicide, but we did not find any link between suicide risk and living alone or having faith. These results may be due to the small sample size.

As discussed above, mood disorders and alcohol/substance abuse are the most prevalent diagnoses in those who completed suicide. However, suicide is not inevitable in these disorders. Disorder-specific issues are also important. Impulsivity is critical in the relationship between substance/alcohol use and suicidal behavior.[31] We did not find any significant difference between high- and low-risk alcohol users regarding suicide risk. However, consistent with previous studies, we found that alcohol consumption severity and suicide probability are correlated.

Debate on the relationship between burnout and depression continues. Despite the symptomatic and epidemiological overlap, workplace issues are the primary cause of burnout, whereas depression has no particular cause. Workplace risk factors include excessive or conflicting job demands, long working hours and interpersonal conflicts.[32,33] We found higher EE scores

among physicians who worked more than 8 h. Consistent with our findings, previous studies have revealed that physicians who work more than 8 h and examine more than 40 patients per day have higher EE and DP scores. According to data from cross-sectional research, the risk of burnout increases by 3% for every extra hour worked per week.[34] We found higher burnout levels in resident physicians consistent with previous studies that suggest higher intense work demands, limited control, and work-home interference in resident physicians.[35] Previous studies have shown that burnout increases depression rates, and both these conditions can increase suicide risk.[36] We found that burnout levels are strongly correlated with suicide probability scores. Our findings are consistent with previous studies that show burnout is an independent risk factor for suicide among physicians.[37]

Study Limitations

First, our results cannot be generalized because the sample was not representative of the Turkish physician population. Second, we conducted a cross-sectional study. Consequently, our findings do not support the cause-effect relationship. Longitudinal follow-up research is required.

CONCLUSION

The increase in physician suicides and burnout levels in our country has recently attracted attention. The high-risk alcohol use rates found in our study are also striking. Our findings revealed that burnout levels and alcohol use severity increase suicide risk. These findings indicate that structural and organizational measures should be taken to decrease burnout levels and preventive public health services should be increased to reduce alcohol use to reduce suicide risk in physicians.

Ethics

Ethics Committee Approval: The ethics committee approval required for the survey study was obtained from the Non-interventional Clinical Research Ethics Committee of İzmir Democracy University (decision no: 2020/08-3, date: 20.03.2020).

Informed Consent: Informed consent was obtained from all individual participants included in the study.

Peer-review: Externally and internally peer reviewed.

Authorship Contributions

Concept: O.H.T.K., İ.A., M.A., U.V., Y.V., Ç.K.D., Design: O.H.T.K., İ.A., M.A., U.V., Y.V., Ç.K.D., Data Collection or Processing: A.S.Ç., E.M., N.Ü., Ç.K., Z.N.B., N.D.M., Analysis or Interpretation: O.H.T.K., İ.A., M.A., U.V., Y.V., Ç.K.D., Literature Search: O.H.T.K., İ.A., A.S.Ç., E.M., N.Ü., Ç.K., Z.N.B., N.D.M., Writing: O.H.T.K., İ.A.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declare that this study received no financial support.

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