

The Effect of the Smoking and Health Behavior on Wellness of Students Who Study at the University of Health Sciences

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Abstract—Objective: The aim of the paper is to evaluate healthcare students' wellness and to determine the relationship between wellness and other lifestyle-related behaviors including diet, exercise, sleep, stress, and tobacco and alcohol consumption. Material and Method: This descriptive cross-sectional study surveyed 984 students at the University of Health Sciences in Ankara, Turkey. Data were collected using a questionnaire that included questions on sociodemographic characteristics and a Turkish version of an established health and wellness measure. Results: The data revealed that 17.8% of the students smoke. There was no statistically significant difference between the participants' wellness scores and their smoking status. However, the student's wellness was significantly associated with physical activity ($p < 0.001$), which, overall, was deemed as insufficient in this population. Statistically significant associations were also identified between participants' wellness and their ability to cope with stress and regular sleep ($p < 0.001$). Conclusion: Healthcare students do not engage in sufficient physical activity and this affects their overall wellness. Therefore, academic institutions should provide more opportunities for students to exert themselves physically through a diversity of inclusive activities. Such efforts, in addition to promoting healthy sleep and stress-coping practices, will greatly benefit students' short- and long-term health and wellness.

Keywords—Healthcare students, lifestyle-related behavior, physical activity, smoking, wellness.

I. INTRODUCTION

Most people with large chronic diseases share many lifestyle behaviors such as smoking, poor nutrition, physical inactivity, and obesity. The chronic diseases, such as ischemic heart disease, stroke and chronic obstructive pulmonary disease were the three highest causes of death in the world [1]. The main risk factors for all three morbidities have been associated with the use of tobacco and tobacco products. World Health Organization's (WHO) most recent 2018 report indicated that smoking-related mortality includes 7.2 million people per year worldwide [1]-[3]. Smoking has been estimated to play a role in 23% of the deaths in Turkey, approximately 100,000 people annually [4]-[6]. Research has shown that over 80% of cigarette smokers worldwide started smoking before the age of 18 and then grew dependent on the habit, especially during their university years [7], [8].

Wellness refers to a holistic state of well-being of the body, mind, and spirit and is facilitated by healthy lifestyle-related

behaviors including physical activity, balanced diet, effective stress management, spiritual development, responsible decision-making, and nurturing interpersonal relationships [9], [10]. Youth is characterized by rapid physical, spiritual, and social developments. During this period, it is particularly important to address high-level wellness issues, which can, in turn, improve health status for the remainder of an individual's lifetime. However, many university students smoke to cope with education-related stresses and to relax [11]. Furthermore, it has been reported that smoking is surprisingly common among healthcare professionals, including doctors and nurses with anti-smoking attitudes and beliefs, which represents occupational groups not expected to engage in smoking behavior [12]. As such, it is of great importance to encourage healthy behaviors in impressionable student populations, as these will become the role models for and leaders of future generations. Therefore, the purpose of this study was to determine the effects of smoking and other lifestyle-related behaviors on the wellness of healthcare students attending the Health Sciences University in Ankara, Turkey.

II. METHODS

The cross-sectional study described here was conducted with approval (Pro 2018 -18/66) from the Institutional Ethics Committee of the Health Sciences University in Ankara, Turkey. All procedures were conducted in accordance with the principles set forth in the Declaration of Helsinki. All subject provided written informed consent prior to their participation in this study.

Data for this study were generated using a survey conducted at the Ankara Health Sciences University during the 2018-2019 academic year. The study group included 36.36% of the total student body enrolled at the university at that time. A stratified sampling method was used for which faculty and class served as the strata. Academic faculty members were classified into three groups according to field and education level: Medical Faculty, Nursing Faculty (four years of education), and junior technical health college (two years of education). Two researchers administered the questionnaire to each faculty group. To maximize the number of student participants, their surveys were administered directly before or after class periods.

Study information, including a description of the

questionnaire, was delivered by a research assistant who was instructed to emphasize that participation in the study was neither expected nor required. The questionnaire employed in this study was designed to both collect sociodemographic data and to assess the wellness of the participants using a Turkish version of the Wellness Evaluation of Lifestyle (WEL) measure. Myers et al. first developed the WEL scale and Dogan

et al. adapted it for use among the Turkish population [13], [14]. In total, the adapted questionnaire included 83 items, which the participants rated using a four-point Likert-type scale (4 = always, 1 = never), and required approximately 20 minutes to complete. A higher score was indicative of greater overall wellness.

TABLE I
CRONBACH'S ALPHA COEFFICIENTS AND BASIC COMPONENT ANALYSIS RESULTS

	Substance analysis	Basic component analysis	Cronbach's alpha coefficient (0.954)
Total correlation coefficients < 0.30	4, 8, 15, 18, 19, 21, 26, 28, 75, 82	-	0.959
Factor load < 0.40	-	38, 39, 43, 47, 52, 73	0.956
Items included in the adapted scale's total score	1, 2, 3, 5, 6, 7, 9, 10, 11, 12, 13, 14, 16, 17, 20, 22, 23, 24, 25, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 40, 41, 42, 44, 45, 46, 48, 49, 50, 51, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 76, 77, 78, 79, 80, 81, 83		

Upon its development, the original scale's high reliability was reflected by its Cronbach's alpha score of 0.92. The adapted scale's internal consistency and construct validity were confirmed to be valid and reliable for the purpose of this study, as well. The scale items corresponding to the data structure obtained from the sample were determined again. Using scales as a measurement tool requires that they are developed, tested, and their suitability is questioned in light of the cultural context and the area of use. To assess and ensure a high level of accuracy, the psychometric properties of the adapted scale were initially evaluated by its Cronbach's alpha coefficient and, next, using basic component analysis (BCA). The item total (whole) was minimized and the items that reduced the reliability of less than 0.30 were excluded from the item analysis (Table I). Cronbach's alpha coefficient was recalculated to confirm acceptable levels of internal reliability were achieved. Finally, a BCA was used to establish the scale's structural validity. This study used the total wellness score as its metric and sub-dimensions were not considered. First, factor loading was examined and items equal to or less than 0.40 loaded with more than one factor were excluded from further analysis. The Cronbach's alpha coefficients and factor loading scores from the BCA describing the remaining scale items are presented in Table I. Data from these analyses support the validity and reliability of the adapted survey tool employed in this study.

Continuous data were represented as means with their standard deviations and categorical data as frequencies and percentages; both were evaluated using descriptive statistics. The distribution normality of the data was confirmed with the Kolmogorov-Smirnov test. The scale sum distribution in the two group variables that did not meet the parametric assumptions were compared with Mann-Whitney U test and the scale-sum distribution in the more than two-group variables were compared using the Kruskal-Wallis test. The Bonferroni-corrected Mann-Whitney U test was used for post-hoc evaluation. All statistical analyses were performed using IBM SPSS v21 (IBM SPSS Inc., Chicago, IL, USA) with a statistical significance level of $p < 0.05$.

TABLE II
PARTICIPANTS' SOCIODEMOGRAPHIC CHARACTERISTICS AND LIFESTYLE-ASSOCIATED BEHAVIORS

Total (n = 984)

Age range: 17 - 29 years old		
Mean ± SD = 19.62 ± 1.67 years old		
	N	%
Sex		
Male	272	27.6
Female	712	72.4
Education status		
Medical faculty	245	24.9
Nursing faculty	477	48.5
Junior technical health college faculty	262	26.6
Class		
Year 1	562	57.1
Year 2	205	20.8
Year 3	137	13.9
Years 4	80	8.1
Place of residence		
Dormitory	559	56.8
Family home	355	36.1
Friends	70	7.1
Smoking status		
Smoker	175	17.8
Non-smoker	809	82.2
Alcohol use		
Yes	133	13.5
No	851	86.5
Balanced diet		
Yes	504	51.2
No	480	48.8
Physical activity		
Yes	337	34.2
No	647	65.8
Regular sleep patterns		
Yes	415	42.2
No	569	57.8
Effective stress management		
Yes	493	50.1
No	491	49.9

III. RESULTS

In total, 984 students participated in the present study. The mean age of the students was 72.6% (n = 712) and their mean age was 19.62 ± 1.67 years old (range: 17 - 29 years old).

Of the participants, 72.4% (n = 712) were female, 48.5% (n = 477) were nursing students, and 57.1% (n = 562) were in their

first year of study. Slightly over half of the respondents lived in university dormitories (56.8%, n = 559). In terms of lifestyle-associated behaviors, 82.2% (n = 809) of the students were non-smokers and 86.5% (n = 851) did not consume alcohol. Half of

the students reported consuming diets that failed to meet the nutritional recommendations (51.2%; n = 504) and 65.8% (n = 647) did not engage in regular physical activity (Table II).

TABLE III
ASSOCIATIONS BETWEEN LIFESTYLE-ASSOCIATED BEHAVIORS AND WELLNESS ACCORDING TO PARTICIPANTS' DEMOGRAPHIC CHARACTERISTICS

(N = 984)	n	Mean ± SD	Descriptive statistic		
			z	p	χ ²
Sex					
Women	712	131.12 ± 24.50	0.98*	0.324	
Men	272	136.42 ± 36.90			
Education status					
Medicine Faculty	245	136.57 ± 28.72		0.103	4.548**
Nursing Faculty	477	130.26 ± 25.25			
MYO	262	133.08 ± 33.33			
Class					
1	562	130.70 ± 27.65		0.011*** (1-3 grade p = 0.006 3-4 grade p = 0.003****)	11.159
2	205	136.03 ± 30.38			
3	137	138.64 ± 31.08			
4	80	126.60 ± 22.63			
Place of residence					
Dormitory	559	134.05 ± 29.77		0.205	3.172
Family home	355	130.13 ± 24.91			
Friends	70	133.35 ± 34.86			
Smoking					
Yes	175	131.06 ± 27.28	1.12	0.261	
No	809	132.92 ± 28.82			
Alcohol					
Yes	133	137.45 ± 29.92	1.74	0.082	
No	851	131.82 ± 28.27			
Balanced diet					
Yes	504	128.15 ± 27.84	5.11	p < 0.001***	
No	480	137.4 ± 28.58			
Physical activity					
Yes	337	137.03 ± 26.95	8.10	p < 0.001***	
No	647	124.05 ± 29.62			
Regular sleep					
Yes	415	136.45 ± 26.80	6.25	p < 0.001***	
No	569	127.28 ± 30.02			
Coping with stress					
Yes	493	139.83 ± 24.54	9.86	p < 0.001***	
No	491	125.36 ± 30.40			

* Mann-Whitney U test; ** Kruskal-Wallis test; *** p < 0.05; **** Mann-Whitney U test with Bonferroni post-hoc correction.

The data presented in Table III describe the relationship between the students' demographic characteristics and lifestyle-associated behaviors and their wellness scores. Further analysis revealed that the mean total scores between the class years were significantly different ($\chi^2 = 11.159$, $p = 0.011$). When the relationship between total wellness score and smoking status was analyzed, no statistically significant difference was found ($z = 1.12$, $p = 0.261$). The associations between total wellness scores and overall physical activity were found to be statistically significant ($z = 8.10$, $p < 0.001$). There were also statistically significant associations between the mean wellness scores of the entire participant population and healthy sleeping habits ($z = 6.25$, $p < 0.001$). Finally, statistical analysis confirmed that the relationship between average total wellness

and effective stress-management was also significant ($z = 9.86$, $p < 0.001$).

IV. DISCUSSION

Most university students are between the ages of 18 and 21, which is a developmental period characterized by dramatic changes involved in the transition to adulthood. Due to the high-stress levels experienced during this period, young people are not aware of the effects of their unhealthy behaviors and are less likely to participate in behaviors that contribute to a healthy lifestyle. The high rate of smoking among university students has prompted extensive research on the effects of smoking cigarettes on health-related outcomes worldwide [15], [16]. Students attending Ankara University of Health Sciences were

expected to exhibit healthy lifestyle-related behaviors both as youths and as adult healthcare providers. According to the present study, the smoking rate among healthcare students in Ankara, Turkey is 17.8%. This finding is in line with the results from multiple other, independent studies [3], [7], [17]; however, this rate has been reported to be as low as 4.4% in a study conducted on male healthcare students in Iran [18]. Organizing programs aimed to facilitate smoking cessation should effectively reduce smoking rates.

The present investigation also revealed that 13.5% of the students surveyed consume alcohol. A published study of the medical faculty generated similar results [19]. The rate of alcohol consumption among the students in our study is relatively low compared to other reports, some of which were as high as 50% [20]. This may be due to the cultural differences between two studies. Our study takes place in Turkey in which Islamic rules forbid drinking alcohol. Stressful and intensive working conditions may likely increase the use of alcohol by healthcare students. Therefore, we suggest that academic institutions actively educate their student populations on the damage caused by alcohol consumption and encourage them to adopt healthy lifestyle behaviors.

Wellness has been described as "to live in the body for the individual's social and natural environment and fully functional, mind and soul at the confluence of optimal health-oriented lifestyle and a state of being good" [13]. In addition, balanced nutrition, regular physical activity, and effective stress management are important contributors to a healthy lifestyle. Interestingly, these are also protective against metabolic diseases and can contribute to reduced morbidity and mortality rates. Students are required primarily to determine the variables that affect wellness. Wellness contributes to the prevention of chronic diseases and wellness programs should be developed in order to promote and facilitate healthy behavior practices. The present investigation found no evidence of an association between sex and overall wellness, which is in support of previous findings described in the literature [21], [22]. In contrast, Myers and Bechtel found that male students had higher total wellness scores than their female counterparts [23]; interestingly, this difference was detected between students in the second and third grade. This finding might be explained by the students becoming accustomed to the rigor and stresses of the university environment as their education progresses. In a study conducted by Kasapoglu (2014) on university-aged students, the Grade 4 students were higher than Grade 1 students; this research supports the results of our study [21]. Although the wellness scores of the students who reported to engage in physical activity was higher than those who did not, the former, nonetheless, only reflect a small subset of the student population. This is likely explained by the fact that healthcare students are too busy to dedicate time to "extracurricular" activities such as physical activity due to their rigorous and time-consuming course load. Additionally, the data collected in this study revealed that effectively dealing with stress contributes to higher wellness scores. Other studies examining wellness among university students have found that increased wellness scores were indicative of adolescents'

increased cognitive-emotional abilities and vital target dimensions, which can positively impact their overall health both short- and long-term [24], [25].

V. CONCLUSIONS

The findings described here revealed that the students in the health sciences do not engage in sufficient physical activity. Being involved in activities aimed at developing healthy lifestyle behaviors within the university is insufficient for students with intensive educational curricula. Therefore, it is necessary to organize programs that encourage and facilitate healthy behaviors and to increase the number of physical activity programs available to all students.

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