

Healthy life-style behaviors and related factors among Turkish primary health care professionals

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ABSTRACT

Objective: The role of health professionals working in primary care in providing services to all segments of society and in protecting and improving the health of all individuals is extremely important. The aim of this study is to determine the healthy lifestyle behaviors of primary health care workers in Karabük city center and to examine some factors that may affect the choice of a healthy lifestyle.

Materials and Methods: This cross-sectional study was conducted between October-December 2019 with the participation of 334 healthcare professionals in Karabük. The questionnaire with 27 questions and the Healthy Lifestyle Behaviors Scale II (HLBS-II) were administered.

Results: The median age of the health care workers participating in the study was 38.2 ± 10.6 . Of the participants 53.8% were women and approximately three-quarters of the participants (70.8%) were married. In terms of occupational groups, 10.9% of the participants were physicians, 25.0% were nurses and midwives, 16.7% were health officers/technicians and 47.4% were composed of other employees. The HLBS-II total score was found to be 126.8 ± 21.3 . The HLBS-II total score were higher in women, those who defined their health status as good, university graduates those who did not smoke, had good nutrition, exercised, and were satisfied with their body appearance.

Conclusion: In our study, it was found that the healthy life behavior scores of health workers were at a good level. Especially men, smokers, high school graduates, obese, those who do not pay attention to their nutrition and physical activity should be informed and be supported by healthy living behavior programs.

Keywords: Primary health care, Health care professionals, Healthy life behaviors

1. INTRODUCTION

As in the definition of the World Health Organization (WHO), health; is “not only the absence of illness or disability but a state of complete physical, social and mental well-being” [1]. In the light of this comprehensive definition of health, health is a phenomenon that has social characteristics as well as individual. Healthy life behaviors, which are a model for health promotion, have been developed as a multidimensional concept that includes self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management [2]. In this concept, a healthy lifestyle is possible by reinforcing positive behaviors in order to protect the health, and by having individuals control their own life in avoiding negative behaviors [3].

According to WHO 2022, approximately 74% of all deaths each year are due to non-communicable diseases such as

cardiovascular diseases, cancers, chronic obstructive pulmonary disease (COPD) and diabetes mellitus (DM), which are responsible for the majority of these deaths, and it has been stated that these deaths are also associated with an unhealthy lifestyle [4]. In the ‘Global Burden of Disease Study 2017’ a study reported that, high blood pressure and blood sugar, high body mass index, and smoking and alcohol use were among the causes of early deaths and disabilities [5]. In the burden of disease studies (Disability-adjusted life years – DALY), physical inactivity and obesity have been shown to play an active role in addition to high blood pressure, blood sugar, blood cholesterol levels, smoking, and alcohol use [6]. It means that when healthy behaviors are adopted and harmful behaviors are abandoned,

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deaths, disabilities and diseases can be prevented, health costs can be reduced and healthier societies can be reached.

Primary healthcare services are an important step in the management of chronic diseases and the protection of health. When people get sick, their first application is especially to primary health care institutions. In these institutions, in addition to special services such as immunization, maternal and child health, healthy nutrition, prevention of obesity, tobacco control and cancer screening, which play the biggest role in preventive health services, diagnosis and treatment of diseases are also provided. In this context, it can be said that primary health care workers are primarily in contact with all segments of the society. Although, it is a very easy field for community-based studies and interventions, the population it can affect is quite large.

It is noteworthy that healthcare professionals are role models as well as informative roles for society. In a study conducted in Australia, the importance of primary care workers in terms of their protective and preventive roles in patient behavior change is emphasized, and in another study, it was stated that physicians are role models for their patients and should adopt healthy behaviors [7,8]. In an example based on nurses in Iran, it was found that there are dimensions that should be supported in terms of healthy behavior such as stress management and physical activity, in another study involving nurses in Saudi Arabia, it was shown that nurses adopt healthy behaviors at a moderate level and they should be supported in this regard [3,9]. All of these studies pointed that it is important to determine the healthy behaviors of primary health care professionals who play an active role in the protection and improvement of public health.

In this study, we aim to determine the healthy lifestyle behaviors (eg. physical activity, nutrition, stress management, health responsibility) of primary health care professionals consisting of physicians, nurses, midwives, officers/technicians and other workers.

2. MATERIALS and METHODS

This cross-sectional study was conducted in the city center of Karabük to examine some variables that may be associated with the healthy lifestyle behaviors of healthcare professionals providing primary health care services. It was aimed to reach all 334 healthcare workers employed in the city center of Karabük and no sample was selected. Our research, in which data were collected in October-December 2019, was completed with 312 individuals (93% participation rate was achieved) whose consent was obtained. The study was approved by the Karabük University, Non-interventional Clinical Research Ethics Committee (approval number: 77192459-050.99-E.41206 with decision number: 6/28). The study was conducted according to the principles of Declaration of Helsinki.

Research data collected with the help of the questionnaire form consisting of 27 questions, five of which are open-ended, and which questions the socio-demographic characteristics of the participants such as age, marital status, educational status, profession, economic status, family structure, and

Healthy Lifestyle Behaviors Scale-II (HLBS-II) was used. The questionnaire form was administered by a single researcher using a face-to-face interview method and it took approximately 15 minutes for each participant. Participants were specifically asked not to provide any identifying information and it was stated that the data would not be used outside the research and they could withdraw from the study at any time.

Healthy Lifestyle Behaviors Scale was modeled after Pender's health promotion model, and in 1987 Walker et al. It was developed first as a 48-question scale [2]. The scale was revised and reworked by Walker, Sechrist, and Pender in 1996 and the second scale consisting of 52 questions was named HLBS-II [2,10]. In our country, the first version's validity and reliability of the scale were made by Esin in 1999, and the second version by Bahar in 2008 [11,12]. HLBS-II is a quartered likert type as 'never, sometimes, often, regularly' and the scores range from 52 to 208. The scale has six sub-dimensions as self-actualization of scale (range of points: 9-36), health responsibility (range of points: 9-36), exercise (range of points: 8-32), nutrition (range of points: 9-36), interpersonal support (range of points: 9-36) and stress management (range of points: 8-32). The higher scores on the scale indicate that the individual applies the specified health behaviors at a good level. In our study, the smoking status was regulated according to the WHO's Tobacco Use Monitoring and Control Directive, and individuals were classified as "smoking" and "not smoking" according to their smoking status. Those who smoked regularly and occasionally were included in the group of smoking, and those who quit and those who never smoke were included in the not-smoking group [13]. Body Mass Index (BMI) ($\text{weight (kg) / height (m}^2\text{)}$) was calculated using the height and weight values stated by the participants according to their own expressions [14].

Statistical Analysis

At the end of the research, the data obtained through the questionnaire form were entered into the statistics package program (SPSS 21). Controls and analysis of the data were done in the same program. Frequency and percentage, mean value, standard deviation, highest and lowest values were used for descriptive statistics in statistical analysis. Shapiro Wilk test was used to check the compatibility of the data to normal distribution. Chi-square test was used for statistical analysis of categorical data, Unpaired t-test and One-Way ANOVA test (post hoc Tukey test) were used for statistical analysis of quantitative data. Statistical significance of the difference was accepted as $p < 0.05$.

The study was deemed ethically appropriate by the Karabük University Clinical Research Ethics Committee (Date and Number: 07.10.2019 - E.41206), and all participants participating in the study were informed about the study before the study and their verbal consent was obtained.

3. RESULTS

The mean age of 312 participants participating in the study was 38.2±10.6 (min-max: 18-62) years and 53.8% of them were women. 56.7% of the participants were 40 years or younger and 70.8% were married. According to their education, 25% of the participants were a high school, 63.8% pre-license, and undergraduate, 11.2% of them were graduate. In terms of occupational groups, 10.9% of the participants were physicians, 25.0% were nurses and midwives, 16.7% were health officers/technicians and 47.4% are composed of other employees (driver, cleaning worker, auxiliary staff, etc.). Some sociodemographic characteristics of the participants are given in Table I.

Table I. Sociodemographic Characteristics of the Participants

Characteristic		Number	%*
Gender	Female	168	53.8
	Male	144	46.2
Age groups	40 and below	177	56.7
	41 and above	135	43.3
Marital status	Single	91	29.2
	Married	221	70.8
Education status	High school and equivalent	78	25.0
	Pre-license and undergraduate	199	63.8
	Graduate	35	11.2
Occupation	Physician	34	10.9
	Nurses/Midwife	78	25.0
	Health Officers/Technicians	52	16.7
	Others	148	47.4
	Province	238	76.3
Longest living place to date	District	66	21.2
	Village/town	8	2.5
	Good	144	46.2
Economical status	Moderate	153	49.0
	Bad	15	4.8
	Nuclear	270	86.5
Family type	Large	30	9.6
	Broken	12	3.8
	Total	312	100.0

* Column percentage

The healthcare professionals participating in our study according to their own statements, 68.6% of them were in good health, 20.2% of them had at least one chronic disease, 23.7% of them regularly used drugs. 21.5% of them stated that they received psychological support at any time until the research date and 17.6% of them had sleep problems (Table II). 37.2% of the participants stated that they smoke (32.7% of the women, 42.4% of the men smoke, there is no difference between the groups $p > 0.05$, $\chi^2 = 3.074$), 10.3% were exercising and 55.1% had nutrition regularly. The BMI mean of the participants is 25.4±4.3, this value is 24.3±4.3 for women and 26.7±4.1 for men (Table II). Participants' BMI groups and weight perceptions and their satisfaction with their body view are given in Table II.

Table II. Findings of the participants regarding their health according to total and gender

Some variables		Total participants		Gender		p
		Number	Percentage	Female%*	Male %*	
Health status according to their own statements	Good	214	68.6	69.0	68.1	p>0.05
	Moderate	92	29.5	28.6	30.6	
	Bad	6	1.9	2.4	1.4	
Existance of chronic illness	Yes	63	20.2	25.0	14.6	p=0.015
	No	249	79.8	75.0	85.4	
Using regular drug	Yes	74	23.7	29.2	17.4	p=0.010
	No	238	76.3	70.8	82.6	
Taking psychological support	Yes	67	21.5	26.8	15.3	p=0.009
	No	245	78.5	73.2	84.7	
Having trouble with sleeping	Yes	55	17.6	21.4	13.2	p=0.039
	No	257	82.4	78.6	86.8	
Smoking status	Yes	116	37.2	32.7	42.4	p=0.051
	No	196	62.8	67.3	57.6	
Exercise regularly	Yes	32	10.3	9.5	11.1	p=0.391
	No	280	89.7	90.5	88.9	
Regular nutrition	Yes	172	55.1	58.3	51.4	p=0.132
	No	140	44.9	41.7	48.6	
BMI groups	Underweight	5	1.6	1.6	1.4	p<0.001
	Normal	148	47.4	47.4	29.2	
	Overweight	117	37.5	37.5	52.1	
	Obese	42	13.5	10.1	17.4	
Perception of weight	Underweight	27	8.7	11.9	4.9	p=0.068
	Normal	160	51.3	51.8	50.7	
	Overweight	92	29.6	25.0	34.7	
	Obese	33	10.6	11.3	9.7	
Satisfaction with body appearance	Satisfied	208	66.7	66.1	67.4	p=0.452
	Not Satisfied	104	33.3	33.9	32.6	

* Column percentage, Chi-square test, ($p < 0.05$ significant), BMI: Body Mass Index

Healthy Lifestyle Behaviors Scale-II total score of the participants in the study was found as 126.8±21.3, and it is given in Table III with its sub-dimensions (Table III). Total scale score, health responsibility, and nutrition dimensions were found to be significantly higher in women. There is no difference between the groups in terms of scale scores for age groups, marital status, and family type. According to the education level, the total scale score, self-realization, health responsibility, and nutrition dimensions were found to be significantly lower in high school and equivalent graduates. While, there was no difference in scale scores between physicians, nurses, and technicians in terms of occupational groups, health responsibility, nutrition, stress management, and total scale scores were found to be significantly lower in other professions. Scale scores were generally low in those who lived in villages/towns most of their lives and significantly higher in groups who defined their economic status as good (Table IV).

Table III. HLBS-II scores of healthcare workers and range of points

HLBS	Mean	Median (min-max)	Range of points
Total score	126.8±21.3	125 (57-187)	52-208
Self realization	25.7±5.1	26 (9-36)	9-36
Health responsibility	21.2±4.8	21 (9-36)	9-36
Exercise	15.5±5.2	15 (8-31)	8-32
Nutrition	22.0±4.6	22 (9-35)	9-36
Interpersonal support	24.3±4.3	24 (9-35)	9-36
Stress management	18.1±3.9	18 (8-29)	8-32

HLBS: Healthy Lifestyle Behaviors Scale

Table IV. HLBS-II scores according to the sociodemographic characteristics of healthcare professionals

HLBS Variables		Self realization	Health responsibility	Exercise	Nutrition	Interpersonal support	Stress management	Total scale score
Gender	Female	26.1±5.2	22.0±4.7	15.6±5.2	22.8±4.6	24.7±4.5	18.5±3.8	129.7±21.1
	Male	25.2±4.9	20.3±4.8	15.4±5.3	21.0±4.3	23.9±4.1	17.7±3.9	123.4±21.1
	p*	0.107	0.002	0.693	< 0.001	0.099	0.062	0.009
Education status	High school and equivalent	24.7±5.8 ^a	20.5±5.0 ^a	14.9±4.8	20.7±4.3 ^a	23.7±4.6	17.6±3.9	122.0±22.8 ^a
	Pre-license, and undergraduate	25.9±4.8 ^{ab}	21.0±4.7 ^a	15.8±5.5	22.2±4.5 ^b	24.5±4.2	18.2±3.9	127.7±20.8 ^b
	Graduate	27.1±4.9 ^b	23.8±3.9 ^b	14.8±5.2	23.6±4.9 ^b	24.6±4.5	18.9±3.6	132.9±19.3 ^b
	p**	0.046	0.002	0.296	0.004	0.334	0.225	0.029
Occupation	Physician	26.6±5.5	23.3±4.0 ^a	15.7±5.2	23.2±5.0 ^a	24.1±5.2	18.9±4.5 ^{ab}	131.9±22.5 ^a
	Nurse / midwife	26.2±4.9	22.0±4.6 ^a	15.8±5.8	23.2±4.8 ^a	24.6±4.0	18.5±4.0 ^{ab}	130.3±20.7 ^a
	Health officer / technician	26.2±5.1	22.1±5.4 ^a	16.8±6.0	22.5±4.6 ^a	25.1±4.3	19.3±4.0 ^b	132.2±20.3 ^a
	Other	25.2±5.1	20.3±4.6 ^b	14.5±5.2	21.1±1.6 ^b	24.0±4.4	17.5±3.7 ^a	122.8±20.3 ^b
	p**	0.301	0.006	0.090	0.002	0.393	0.010	0.007
Longest living place to date	Province	25.9±4.9 ^a	21.4±4.8 ^a	15.5±5.4	22.2±4.4 ^a	24.5±4.3 ^a	18.3±3.8 ^a	127.6±20.9 ^a
	District	26.0±5.2 ^a	21.5±4.7 ^a	15.7±4.8	21.8±4.9 ^a	24.4±3.9 ^a	17.7±4.1 ^a	127.2±20.8 ^a
	Village / town	18.5±6.1 ^b	16.8±3.8 ^b	13.4±3.0	18.4±5.6 ^b	18.5±5.0 ^b	14.8±3.5 ^b	100.3±24.9 ^b
	p**	< 0.001	0.026	0.503	0.064	< 0.001	0.031	0.002
Economical status	Good	26.8±5.1 ^a	22.0±4.8 ^a	16.1±5.8	23.0±4.9 ^a	25.2±4.4 ^a	18.7±4.1 ^a	131.7±22.5 ^a
	Moderate	25.0±4.9 ^b	20.8±4.6 ^b	15.1±4.6	21.3±4.2 ^b	23.5±4.1 ^b	17.8±3.6 ^{ab}	123.5±19.3 ^b
	Bad	22.3±3.7 ^b	17.9±4.8 ^c	13.5±5.1	19.6±3.6 ^b	24.6±4.4 ^{ab}	16.3±4.3 ^b	114.2±18.4 ^b
	p**	< 0.001	0.002	0.073	0.001	0.003	0.030	< 0.001
Family Type	Nuclear	25.9±5.2	21.5±4.9	15.6±5.3	22.1±4.6	24.4±4.3	18.3±3.9	127.8±21.6
	Large	24.5±4.5	19.4±3.7	15.0±4.1	21.1±4.2	23.5±4.4	16.7±3.3	120.2±17.8
	Broken	24.8±5.4	19.3±4.0	14.6±6.0	20.6±4.9	25.3±5.4	17.8±4.4	122.4±21.0
	p**	0.334	0.075	0.723	0.273	0.406	0.097	0.142

* Unpaired t-test, ** One Way ANOVA (post hoc Tukey), a,b,c: The difference between groups that do not have the same letter in each column is significant. (p<0.05 significant), HLBS: Healthy Lifestyle Behaviors Scale

According to the participants' own statements, in the group that defined the health status as good, the total scale score and self-realization, interpersonal support, and stress management sub-dimensions were found to be significantly higher (Table V). The health responsibility and nutritional dimensions of the participants with a chronic disease and regularly using a drug were found to be significantly higher, and the health responsibility was found to be significantly higher in individuals who received psychological support (p<0.05). On the other hand, the total score and the sub-dimensions of self-actualization and stress management were found to be significantly lower in participants with sleep problems (p<0.05). All scores were found to be significantly lower in the participants who stated that they did not exercise regularly and did not have regularly

nutrition, except for the inter-personal support dimension. According to BMI groups, the total score and the dimension of interpersonal support were found to be significantly lower in obese participants. Although, there is no statistically significant difference, exercise and nutrition dimensions scores are also low in underweight individuals. According to the perception of weight, the self-actualization dimension was found to be high in participants who perceived their weight as underweight, the exercise dimension was higher in those who perceived their weight as normal, and stress management was found to be low in those who perceived their weight as overweight and obese. In those who were satisfied with their body appearance, all scores were found to be significantly higher except for the interpersonal support dimension (Table V).

Table V. HLBS-II scores of healthcare professionals according to some health status

HLBS Variables		Self realization	Health responsibility	Exercise	Nutrition	Interpersonal support	Stress management	Total scale score
Health status according to their own statements	Good	26.4±5.1 ^a	21.3±4.9	15.7±5.4	22.2±4.7	24.8±4.4 ^a	18.5±4.0 ^a	129.1±21.8 ^a
	Moderate	24.1±4.8 ^{a,b}	20.8±4.5	15.0±4.9	21.4±4.2	23.5±4.1 ^b	17.3±3.6 ^{a,b}	122.5±19.8 ^b
	Bad	19.7±3.7 ^b	21.3±5.4	14.0±4.7	21.3±5.0	20.2±2.4 ^b	16.0±3.5 ^b	112.5±12.4 ^c
	p*	<0.001	0.699	0.421	0.357	0.003	0.015	0.011
Chronic illness	Yes	25.9±5.3	22.3±4.8	14.7±4.8	23.0±4.6	24.0±4.3	18.0±3.6	127.9±20.4
	No	25.7±5.1	20.9±4.7	15.7±5.3	21.7±4.5	24.4±4.3	18.2±4.0	126.6±21.6
	p**	0.741	0.031	0.159	0.045	0.520	0.737	0.652
Using regular drug	Yes	25.8±5.0	22.3±4.5	15.0±4.8	23.0±4.4	24.2±4.2	18.1±3.4	128.4±19.1
	No	25.7±5.1	20.8±4.8	15.6±5.4	21.7±4.6	24.4±4.4	18.2±4.0	126.4±22.0
	p**	0,850	0.021	0.408	0.025	0.768	0.845	0.458
Taking psychological support	Yes	25.8±5.3	22.9±4.9	15.2±5.5	22.8±4.6	24.5±4.4	18.1±4.0	129.4±21.8
	No	25.7±5.0	20.7±4.6	15.5±5.2	21.8±4.5	24.3±4.3	18.1±3.9	126.1±21.2
	p**	0.868	0.001	0.670	0.086	0.731	0.994	0.261
Having trouble with sleeping	Yes	24.2±4.6	20.5±4.5	15.0±5.5	21.5±4.4	23.6±4.3	16.3±3.8	120.9±19.4
	No	26.0±5.1	21.3±4.8	15.6±5.2	22.1±4.6	24.5±4.3	18.5±3.8	128.1±21.5
	p**	0,014	0.231	0.420	0.341	0.140	<0.001	0.023
Smoking status	Yes	24.7±5.0	19.6±4.7	14.3±4.8	20.6±4.2	23.9±4.2	17.5±3.8	120.7±18.5
	No	26.3±5.1	22.1±4.6	16.2±5.4	22.8±4.6	24.6±4.4	18.5±3.9	130.5±22.1
	p**	0.007	<0.001	0.002	<0.001	0.167	0.040	<0.001
Exercise regularly	Yes	28.3±5.0	22.9±4.6	24.5±5.2	24.4±5.3	25.1±4.4	21.6±4.3	146.8±23.5
	No	25.4±5.0	21.0±4.8	14.4±4.1	21.7±4.4	24.3±4.3	17.7±3.6	124.6±19.9
	p**	0.002	0.035	<0.001	0.001	0.324	<0.001	<0.001
Regular nutrition	Yes	26.7±5.1	22.4±4.3	16.5±5.4	23.5±4.3	24.7±4.3	19.3±3.8	133.2±20.3
	No	24.5±4.9	19.7±4.9	14.2±4.7	20.1±4.1	23.9±4.3	16.7±3.4	119.1±19.9
	p**	<0.001	<0.001	<0.001	<0.001	0.138	<0.001	<0.001
BMI	Underweight	27.2±5.5	19.6±3.4	11.8±3.4	19.0±2.2	26.8±4.8 ^a	17.8±5.4	122.2±13.7 ^{a,b}
	Normal	26.3±5.1	21.2±4.6	16.0±5.5	22.6±4.5	24.8±4.1 ^a	18.6±3.7	130.1±20.2 ^a
	Overweight	25.4±5.0	20.8±5.2	15.5±5.3	21.7±4.8	24.3±4.2 ^a	18.0±3.9	125.6±22.4 ^{a,b}
	Obese	24.3±5.3	20.4±4.1	14.1±3.7	21.0±4.0	22.5±5.0 ^b	16.9±4.2	119.3±20.9 ^b
	p*	0.096	0.204	0.091	0.071	0.011	0.084	0.024
Perception of weight	Underweight	28.4±5.6 ^a	23.2±5.7	14.1±5.3 ^a	22.1±3.4	25.2±4.5	18.5±4.5 ^a	131.6±21.6
	Normal	25.9±5.1 ^{a,b}	21.2±4.7	16.5±5.6 ^b	22.4±4.9	24.4±3.9	18.7±3.8 ^a	129.0±21.6
	Overweight	24.8±5.1 ^b	20.7±5.0	14.5±4.5 ^a	21.5±4.6	24.4±5.2	17.4±4.0 ^b	123.3±21.9
	Obese	25.2±3.7 ^{a,b}	21.0±3.2	14.5±4.3 ^a	21.1±4.6	23.2±3.4	17.3±2.9 ^b	122.2±15.2
	p*	0.011	0.132	0.006	0.313	0.300	0.035	0.068
Satisfaction with body appearance	Satisfied	26.1±5.5	21.6±5.1	16.1±5.5	22.6±4.7	24.4±4.4	18.6±4.1	129.4±22.9
	Not Satisfied	24.9±4.2	20.4±4.1	14.2±4.3	20.8±4.1	24.2±4.2	17.2±3.2	121.6±16.7
	p**	0.039	0.042	0.002	0.001	0.580	0.002	0.002

* One Way ANOVA (post hoc Tukey), a,b,c: The difference between groups that do not have the same letter in each column is significant ** Unpaired t-test, (p<0.05 significant), HLBS: Healthy Lifestyle Behaviors Scale, BMI: Body Mass Index

4. DISCUSSION

Primary health care services are usually the first place that individuals go when they get sick. These health facilities also carry out preventive health services and play a key role in gaining behaviors that protect and improve the health of the society. For this reason, it is thought that the impact of these institutions that provide health services can be reflected to the whole society. In the literature, it was observed that healthcare workers showed

higher healthy lifestyle behaviors in studies compared with non-healthcare workers [15,16]. For this reason, it is very useful to determine whether primary health care workers adopt healthy lifestyle behaviors because they have educational and guiding counselor roles.

Healthy Lifestyle Behaviors Scale-II total score of the participants in the study is 126.8±21.3, which can be considered at a good level. HLBS-II score was found 121.9±18.1 in healthcare workers by Yalçinkaya et al., it was found 127.9±18.2 in medical

students in a multicenter study by Nacar et al., Oral and Çetinkaya found this score as 125.4 ± 19.5 in university students and it was also found 130.7 ± 21.9 in factory workers by Kolaç et al. and 86.7 ± 7.3 in traveling seasonal agricultural workers by Göçer et al. and 122.4 ± 44.2 in nurses by Abadi and Rezaei [3,17-21]. The existence of such different values in the literature can be attributed to the fact that those included in the study were selected from different fields and that their educational level, living conditions, and socio-economic differences affected healthy living behaviors.

In the present study, the total score, health responsibility, and nutrition dimensions were found to be high in women. Similarly, Yalçınkaya et al. found the responsibility of health and nutrition scores higher in women, Chen et al., found the scale scores higher in women but in family health center employees Koruk et al., in Taiwan in healthcare workers Tsai and Liu found no difference between genders [17,22-24]. Bhuyan et al., in medical students, and Oral and Çetinkaya in university students found exercise dimension higher in males [21,25]. The location of this study is in the north-central region of Turkey. Due to the traditional structure of Turkish society and gender roles, women are mothers at the same time, they have responsibilities such as child, elderly and patient care, and food preparation at home. These reasons may explain the higher health responsibility, nutrition, and total scale scores in women in our study.

The total scale score, self-realization, health responsibility, and nutrition dimensions of participants in the study were found to be low in high school and equivalent graduates. Similarly, Chen et al., showed increasing healthy lifestyle behaviors with increasing education level [22]. Increasing the education level is expected to positively affect healthy living behaviors. While there was no significant difference between the scale scores of physicians, nurses, and technicians, health responsibility, nutrition, stress management, and total scale scores were lower in the other occupational groups (driver, cleaner, assistant staff). Tsai and Liu's study found that physicians' self-realization, exercise, nutrition, and stress management were lower than nurses, technicians, and administrative staff [24]. Other healthcare professionals often do not communicate directly with patients. Due to its role in informing patients about health issues, physicians, nurses, and health officer/technician may have adopted healthy living behaviors. For this reason, such differences between occupational groups may have emerged in our study.

Psychological stress and anxiety caused by economic problems may have distracted individuals from healthy lifestyle behaviors. In the study, scale scores were higher in those with good economic status. Similarly, Nacar et al., found HLBS-II score low in those who defined their economic situation as bad. Oral and Çetinkaya, on the other hand, found high healthy lifestyle behaviors in students with good economic status. Abadi and Rezaei, showed that monthly income is positively correlated with healthy lifestyle behaviors [3,18,21].

The high health responsibility of individuals who have received psychological support indicates that self-awareness and health awareness are also high. However, poor sleep quality and sleep

problems can cause individuals to feel tired during the day, and may also reveal situations such as attention deficit, headache, and anxiety [8]. This may lead them away from healthy lifestyle behaviors and cause them to be inadequate in the fight against stress. In the study, the total scale score, self-realization, interpersonal support and stress management were found to be significantly higher in those who defined their health as good according to their own statements. Besides, health responsibility and nutrition dimensions were significantly higher in patients with chronic disease and regular drug use, and health responsibility was significantly higher in those who received psychological support. However, those with sleep problems had low total scale scores, self-realization, and stress management. In Taiwan Huang et al., showed the effect of high health perceptions of workers on healthy living behaviors and also Yilmazel et al., found the scale scores high who defined their own health as good in nursing students, on the other hand, Oral and Çetinkaya found the scale scores high in students who defined their own health as good in their studies at four different universities [21,26,27]. People who define their health as good can be expected to have a high perception of health. In the presence of chronic disease and the obligation to use medication regularly, individuals may have responsibilities such as taking an active role in the management of the disease. Both these studies and the results of the present study support idea that people who define their health as good can be expected to have a high perception of health.

All scores were found to be significantly lower in smokers except for the interpersonal support dimension. Similarly, Guler et al., found significantly lower scale scores in smokers among university staff, and similar results were obtained in some studies with different student groups [28-30]. Smoking can also mean that the individual does not care about his/her own health and cannot take responsibility for his/her health. The fact that smokers create a social environment together during smoking breaks may explain why the interpersonal support score is high in this group.

According to BMI groups, the total score and the dimension of interpersonal support were significantly lower in the overweight/obese participants. Similarly, Alzahrani et al. found a negative relationship between BMI values and interpersonal support scores in Medical Faculty students [31]. According to weight perception the self-realization dimension was found to be higher in participants who perceived their weight as underweight, exercise dimension was found to be high in those who perceived their weight as normal, and stress management was found to be high in those who perceived their weight as underweight and normal. In those who were satisfied with their body appearance, all scores were found to be significantly higher except for the interpersonal support dimension. The fact that individuals who perceive themselves as underweight were at peace with themselves, their higher self-confidence may mean that they were more successful in stress management. The low level of healthy lifestyle behaviors in those who were not satisfied with their body appearance indicates this.

Limitations

The main limitation of the study is that it cannot be generalized to the whole country since the study was conducted in a single province and its only about primary health care workers and does not include other healthcare workers in secondary or tertiary institutions.

Conclusion

In conclusion, Primary Healthcare professionals serve everyone in the community and keep their communication alive throughout the year. Although, healthcare workers' scores on healthy lifestyle behaviors were found to be at a good level, some points needed to be improved. So that, the exercise dimension had the lowest score, all employees should be supported with awareness raising activities on physical activities. In addition, the findings of the study showed that it is necessary to raise awareness about healthy behaviors among other health workers (driver, cleaning staff, auxiliary personnel), high school and equivalent graduates, males, smokers, obesities and those who did not pay attention to their nutrition and physical activities. It is necessary to support healthy lifestyle behaviors with different work activities, both by preparing posters and brochures and by in-service training. Social activities related to the importance of physical activity, the benefits of regular and balanced nutrition, weight control, and the importance of sleep quality might raise awareness. It may be beneficial to make tobacco control programs widespread. Providing free counseling services in obtaining healthy living behaviors can be highly motivating, especially for employees who experience economic difficulties. Thus, the awareness of gaining healthy behaviors can help improve the health of the society.

Compliance with Ethical Standards

Ethical Approval: The study was approved by the Karabük University, Non-interventional Clinical Research Ethics Committee (approval number: 77192459-050.99-E.41206 with decision number: 6/28). The study was conducted according to the principles of Declaration of Helsinki.

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Authors' contributions: BO: Study design, NS and BK: Data collection, BO and NS: Data analysis, BO, NS and BK: Manuscript writing. All authors approved the final manuscript.

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