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Original article

Investigation of Education Faculty Students' Health Perception Levels and Healthy Lifestyles in the Covid-19 Process

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Abstract. *Objective:* With the increase of the Covid-19 epidemic, societies around the world have been exposed to different restrictions. Turkey has also implemented some restrictions in daily life to reduce the rate of coronavirus spread. This research was conducted to provide a better understanding of changes in health perception and healthy lifestyle habits of university students due to the Covid-19 restrictions. *Methods:* The research group consisted of 1032 (480 Female, 552 Male) volunteer students from the education faculties of Fırat and Mustafa Kemal University. As data collection tool, an online questionnaire form, in which participants' demographic information, healthy lifestyles and health perception levels were questioned, was used. The data were analyzed using the SPSS package program. *Results:* Most of the research group did not do physical activity regularly and consumed two main meals a day and the most skipped meal was lunch with the rate of 55.2%. Students reported consuming foods such as cakes/cookies/biscuits most for their snacks, 28.5% of them consumed 1.5 liters of liquid daily. The students' perception of health scale total score average was 48.15 ± 4.06, the scale sub-dimensions mean score control center mean score was 14.55 ± 1.70, the certainty point average was 15.29 ± 2.85, the average score of importance of health was 9.70±1.62, and the average score of self-awareness was 8.59 ± 1.14. According to the gender variable, male students' perception of health scale and all sub-dimensions mean scores were higher than female students. It was observed that students who received nutrition education had higher mean scores than students who did not receive nutrition education. It was determined that students without a chronic illness had higher mean scores than students with a chronic illness except for the certainty and self-awareness sub-dimensions. *Conclusion:* The health perceptions of the students were at a moderate level, and their healthy lifestyle and physical activity levels were negatively affected. In line with these results, it is thought that the implementation of projects supporting a healthy lifestyle, as well as studies to increase the perception of health of individuals, will be beneficial in protecting and improving public health

Key words: Covid-19, Physical Activity, Perception of Health, Healthy Living

Introduction

Teachers are the ones who teach and learn at the same time. They are role models for society with what they do or do not do in the classroom or social life. Especially students take the behaviors of their teachers as role models and exhibit these behaviors. Because the students have not completed their personality yet and the students who still have not formed their personality are open to observation, imitation and taking models (1). In this personality formation process, the student chooses the people who will be role models

around him and observe the people he/she takes as role models. These role models can be a living person, a person on a television program, a scientist, a hero, a cartoon character (2). But especially at the primary school level, these role models are mostly teachers.

Teachers who try to perform education as a role model for their students should also be an example in all forms of behavior and life. One type of behavior that teachers should be role models in school is a healthy lifestyle. Teachers, whose perception of health is at a sufficient level and who take care of a healthy life, will not only protect their health but also teach their students about healthy lifestyles. Students observe every single behavior of their teachers and their feelings of inconsistency in their behavior lead to their trust in their teachers being damaged (3). Considering all these issues, teachers' perception of healthy life and health perceptions should be sufficient and demonstrate this in their behavior. Especially the pandemic process experienced shows that teachers who have a high perception of healthy life also increase their students' perception of healthy life.

This deadly virus which emerged in Wuhan, China, has affected 223 countries and regions worldwide with 153,954,491 positive cases and 3,221,052 deaths as of May 2021 (4,5). The main symptoms of this deadly virus cause a range of human respiratory infections, ranging from fever, headache, fatigue, mild cold to severe respiratory distress syndrome. The current new CoV disease, also called severe acute respiratory syndrome (SARS) -CoV-2 and coronavirus disease 2019 (Covid-19), is a global health problem (6). In response to the rapid spread of the disease, governments around the world have had to take strict measures such as complete or partial closure, quarantine, and social distancing (7).

The restrictions applied together with some measures to prevent the spread of the Covid-19 epidemic and to control it has caused changes in the daily lives of individuals. While these restrictions helped reduce the rate of infection, they brought restrictions on individuals' access to daily physical activities and many exercises (eg indoor gyms, meetings, increased social distance). Such restrictions potentially lead to adverse effects on health behavior and physical fitness (8).

These negative changes that occur in the daily life of societies, of course, negatively affect the health of the person. To eliminate these negative effects or to reduce them to minimum levels, it is extremely important to do physical activity regularly, adequate and balanced nutrition in terms of preserving a healthy lifestyle. Taking these factors into consideration (physical activity, nutrition, healthy lifestyle, etc.), encouraging individuals to protect their health will be the most effective treatment method to protect the health of individuals and communities, especially in the period of restrictions (9). This research was conducted to provide a better understanding of the changes in the health perception and healthy lifestyle habits of university students due to the restrictions caused by Covid-19.

Methods

Research Group

The universe of the study was constituted by students of Fırat University and Mustafa Kemal University. The sample group consisted of 1032 (480 Female, 552 Male) volunteer students studying in Education Faculties. All participants were first informed about the study and the consent of all participants for the study was obtained.

Data Collection

The data in the study were collected by applying an online questionnaire with "Personal Information Form" and "Perception of Health Scale" prepared by the researchers.

Data Collection Tools

Personal Information Form: It consists of descriptive questions about students' gender, age, income, nutrition and physical activity.

Perception of Health Scale

The scale was developed by Diamond et al. (2007) and its Turkish validity and reliability study was conducted by Kadioglu and Yildiz (2012), and the Cronbach alpha value was found to be 0.77 (10,11) The scale consists of four sub-dimensions as "Control Center,

Self-Awareness, Certainty, and Importance of Health" and 15 items. The sum of the scores obtained from the sub-dimensions constitutes the "Perception of Health" score. Positive statements were scored normally and negative statements were scored in reverse on the scale. The lowest score that could be obtained from the scale was 15, the highest score was 75. The scale consists of Control Center (min = 5, max = 25), Self Awareness (min = 3, max = 15), Certainty (min = 4, max = 20), Importance of Health (min = 3, max = 15) subgroups. The Cronbach alpha coefficient of the scale was found to be 0.77. The Cronbach alpha coefficient of the subscales ranged from 0.60 to 0.76.

Statistical Analysis

The data were analyzed using the SPSS statistical package program. The demographic information, healthy lifestyle behaviors and health perception levels of the research group were summarized with the help of "arithmetic mean, percentage, frequency" statistics. For the normality analysis of the data, the "Kolmogorov-Smirnov" test was used. Independent Samples t and One-Way ANOVA test was applied to the data determined to show normal distribution for in-group comparisons. The level of significance was accepted as $p < 0.05$.

Results

According to Table 1, it was determined that 53.5% of the study group were men, 46.5% were women, 57.6% were between the ages of 18-21, 34.3% were 22-25, 8.1% were 26 years and over; 36.6% of the study group were 171-180 cm, 27.3% were 161-170 cm, 19.8% were 181-190 cm, 16.3% were 150-160 cm;

Table 1. Demographic Characteristic of Students

		Frequency	Percent (%)
Gender	Female	480	46,5
	Male	552	53,5
Age	18-21 years old	594	57,6
	22-25 years old	354	34,3
	26 years and older	84	8,1
Height	150-160 cm	168	16,3
	161-170 cm	282	27,3
	171-180 cm	378	36,6
	181-190 cm	204	19,8
Weight	40-50 kg	132	12,8
	51-60 kg	312	30,2
	61-70 kg	240	23,3
	71-80 kg	246	23,8
	81-90 kg	102	9,9
Income Status	2000-3000 TL	516	50
	3001-4000 TL	198	19,2
	4001-5000 TL	186	18
	5001-6000 TL	60	5,8
	6001 TL and over	72	7
Have you been trained in nutrition?	Yes	276	26,7
	No	756	73,3
Do you have a chronic illness?	Yes	84	8,1
	No	948	91,9

30.2% of the study group were 51-60 kg, 23.8% were 71-80 kg, 23.3% were 61-70 kg, 12.8% were 40-50 kg and 9.9% were 81-90 kg. In addition, it was determined that 73.3% of the participants did not receive nutrition training, 91.9% did not have a chronic disease and 50% of the participants had an income level of 2000-3000 TL.

According to Table 2 it was determined that 40.1% of the participants partially did physical activity, 36% did not exercise. 53.4% of the participants consumed two main meals a day and the most skipped main meal was lunch with the rate 55.2%. They consumed foods such as cake/cookies/biscuits most for snack and 28.5% of the participants consumed 1.5 liters of liquid per day.

By looking at Table 3, the total score average of the students' perception of health scale was determined as 48.15 ± 4.06, control center score average point of the scale sub-dimensions was 14.55 ± 1.70, the certainty point average was 15.29 ± 2.85, the importance of health points was 9.70 ± 1.62 and the self-awareness point average was 8.59 ± 1.14.

According to results of Tables 4 and 5, the demographic information of the research group and the health scale and its sub-dimensions were compared. It

Table 2. Healthy Lifestyle Behaviors of Students

		Frequency	Percent(%)
Do you regularly do physical activity?	Yes	312	30,2
	No	306	29,7
	Partially	414	40,1
How often do you exercise in a week?	I do not do any physical activity	96	9,3
	1 day	282	27,3
	2 days	264	25,6
	3 days	234	22,7
	4 days and more	156	15,1
How many hours do you exercise in a week?	I do not do any physical activity	372	36
	1-2 hours	174	16,9
	3-4 hours	156	15,1
	5-6 hours	216	20,9
	7 hours and more	114	11
Number of main meals per day	1 meal	48	4,7
	2 meals	551	53,4
	3 meals	433	42
Which meal do you skip during the day?	I do not skip any meals	138	13,4
	Breakfast	234	22,7
	Lunch	570	55,2
	Dinner	90	8,7
Most commonly consumed food/beverages between meals	Carbonated / Acid drinks	126	12,2
	Juice etc.	48	4,7
	Cake / Cookie / Biscuit	270	26,2
	Candy / Chocolate etc.	126	12,2
	Fruit / Dried fruit etc.	246	23,8
	Chips / Nuts etc.	102	9,9
	Other	114	11

Water consumption per day	1 liter and less	276	26,7
	1,5 liters	294	28,5
	2 liters	168	16,3
	2,5 liters	186	18
	3 liters and more	108	10,5

Table 3. Students' Perception of Health Scale Mean Scores

Scale Dimensions	**Mean ± SD**	**Min-max**
Control Center	14,55±1,70	9-19
Certainty	15,29±2,85	8-20
Importance of Health	9,70±1,62	4-15
Self-Awareness	8,59±1,14	6-11
Perception of Health Scale Total Score	48,15±4,06	36-59

Table 4. Students' t-Test Analyzes on Perception of Health-Related to Demographic Information

Variables	**Health Perception Scale Average Point avg±sd**	**Control Center avg±sd**	**Certainty avg±sd**	**Importance of Health avg±sd**	**Self-Awareness avg±sd**
Gender					
Female	47,45±4,08	14,47±1,61	14,92±3,01	9,57±1,53	8,47±1,11
Male	48,77±3,95	14,61±1,78	15,61±2,67	9,82±1,68	8,70±1,14
Statistics	t= -5,276	t= -1,358	t= -3,926	t= -2,488	t= -3,269
	p= 0,00	**p= 0,17**	**p=0,00**	**p=0,01**	**p=0,01**
Nutrition education					
Yes	49,78±3,59	14,95±1,60	16,28±2,20	10,13±1,36	8,41±1,07
No	47,56±4,06	14,40±1,72	14,93±2,97	9,55±1,67	8,66±1,15
Statistics	t= 7,994	t= 4,642	t= 6,854	t= 5,104	t= -3,177
	p= 0,00	**p= 0,00**	**p=0,00**	**p=0,00**	**p=0,00**
Chronic illness					
Yes	47,85±4,38	13,92±1,88	15,64±2,10	9,35±2,03	8,92±1,39
No	48,18±4,03	14,60±1,68	15,26±2,91	9,74±1,57	8,56±1,11
Statistics	t= -,705	t= -3,514	t= 1,161	t= -2,081	t= 2,775
	p= 0,48	**p= 0,00**	**p=0,24**	**p=0,03**	**p=0,00**

Table 5. Students' Health Perception Analysis of Variance Regarding Demographic Information

Variables	Health Perception Scale Average Point avg±sd	Control Center avg±sd	Certainty avg±sd	Importance of Health avg±sd	Self-Awareness avg±sd
Age					
18-21 years old	48,11±3,95	14,60±1,58	15,17±2,93	9,64±1,67	8,68±1,20
22-25 years old	47,72±4,22	14,25±1,78	15,25±2,85	9,77±1,56	8,44±,99
26-29 years old	50,28±3,51	14,55±1,70	16,35±1,88	9,85±1,46	8,64±1,17
Statistics	F= 13,850	F= 17,294	F= 6,474	F= 1,130	F= 5,284
	Sig= 0,00	**Sig= 0,00**	**Sig=0,00**	**Sig=0,32**	**Sig=0,00**
Height					
150-160 cm	48,00±3,83	14,75±1,50	15,03±2,46	9,85±1,64	8,35±1,17
161-170 cm	48,19±4,58	14,74±1,58	15,34±3,66	9,65±1,50	8,44±1,20
171-180 cm	47,95±3,67	14,20±1,85	15,33±2,43	9,66±1,60	8,74±1,05
181-190 cm	48,61±4,16	14,76±1,65	15,38±2,59	9,73±1,77	8,73±1,12
Statistics	F= 1,283	F= 8,351	F= ,572	F= ,658	F= 7,399
	Sig= 0,27	**Sig= 0,00**	**Sig=0,63**	**Sig=0,57**	**Sig=0,00**
Weight					
40-50 kg	47,72±3,72	14,63±1,85	15,45±2,29	9,27±1,63	8,36±1,07
51-60 kg	47,65±3,56	14,44±1,57	14,80±2,67	9,73±1,25	8,67±1,15
61-70 kg	48,52±4,21	14,42±1,73	15,92±2,94	9,77±1,60	8,40±1,22
71-80 kg	48,78±4,61	14,73±1,75	15,51±3,12	9,80±2,07	8,73±1,10
81-90 kg	47,88±3,94	14,64±1,68	14,58±2,78	9,82±1,25	8,82±,92
Statistics	F= 3,654	F= 1,499	F= 7,399	F= ,658	F= 5,480
	Sig= 0,00	**Sig= 0,20**	**Sig=0,00**	**Sig=0,02**	**Sig=0,00**
Income Status					
2000-3000TL	48,20±4,24	14,60±1,87	15,29±2,97	9,77±1,51	8,53±1,18
3001-4000 TL	49,27±4,07	14,72±1,19	15,81±3,29	10,27±1,85	8,45±1,23
4001-5000 TL	47,93±3,26	14,38±1,47	15,06±2,23	9,70±1,22	8,77±,70
5001-6000 TL	47,00±4,27	14,10±2,36	15,60±2,17	8,80±1,41	8,50±1,12
6001 TL and more	46,25±3,41	14,50±1,51	14,25±2,18	8,41±1,76	9,08±1,26
Statistics	F= 9,354	F= 2,157	F= 4,614	F= 24,422	F= 5,768
	Sig= 0,00	**Sig= 0,07**	**Sig=0,00**	**Sig=0,00**	**Sig=0,00**

was determined that there was a statistically significant difference between the total mean score of the health scale according to the variables of gender, nutrition education, age, weight and income status of the students ($p<0.05$), on the other hand there was no statistically significant difference according to the variable of chronic disease and height ($p> 0.05$). According to the gender variable of the participants; it was determined that there was a statistically significant difference between certainty, importance of health and self-awareness sub-dimensions ($p<0.05$), but no significant difference was found in the control center sub-dimension ($p>0.05$). A statistical difference was found in all sub-dimensions according to the nutritional education

status (p <0.05). It was determined that there was a statistical difference in the control center, importance of health and self-awareness sub-dimensions according to the chronic disease status (p <0.05), while there was no statistical difference in the certainty sub-dimension (p> 0.05). According to the age variable of the participants, it was determined that there was a difference in the control center, certainty and self-awareness sub-dimensions (p <0.05), while no difference was found in the importance of health sub-dimension (p> 0.05). According to the height variations of the students, it was determined that there was a difference in the control center and self-awareness sub-dimensions (p<0.05), and there was no difference in the certainty and importance of health sub-dimensions. According to the students' body weight and income variables, it was determined that there was no statistically significant difference in the control center sub-dimension (p> 0.05), while a statistically significant difference was found in the certainty, importance of health and self-awareness sub-dimensions (p <0.05).

Discussion and Conclusions

It is known that the pandemic causes significant changes in people's lives, especially in individuals' health perceptions, health behaviors, and healthy lifestyles. In this context, the research was conducted to reveal the changes in the health perception and healthy lifestyles of university students during the Covid-19 pandemic period. When the healthy lifestyle behaviors of the students were evaluated within the scope of the research, it was seen that the majority of them did not do physical activity regularly, 36% did not exercise at all, 53.4% consumed two main meals a day, and the most skipped main meal was lunch with the rate of 55.2%. It was determined that they consumed foods such as cake/cookies/biscuits the most in snacks and 28.5% of them consumed 1.5 liters of liquid daily. Erdogan (2021), in his study evaluating the nutrition and physical activity levels of physical education and sports school students during the pandemic period, found that the physical activity levels of the students were low and their eating habits were irregular (12). Ramos-Padilla et al. (2021) stated in their study that the Covid-19 pandemic caused changes in the eating habits and sleep quality of the people of Ecuador (13). In their study, Unlu et al., (2020) determined that there was a significant decrease in the physical activity levels of individuals during the Covid-19 process (14). Ercan and Keklicek (2020) stated in the study in which the changes in the physical activity levels of university students during the pandemic period were determined, the rate of physical activity decreased and the rate of physical inactivity increased at an alarming level (15). Castañeda-Babarro et al., (2020) in their study that determined the physical activity levels of the Spanish people during the Covid-19 restrictions, found that the physical activity levels of the participants decreased and the duration of inactivity increased (16). Erdogan Yuce and Muz (2021) in their study examining the effect of the Covid-19 pandemic on the diet, physical activity and stress levels of adults determined that along with the pandemic most of the participants were inactive, the level of perceived stress was above average and changes in their diet with increasing tendency to unhealthy dietary behaviors (17). Zhang et al., (2021), in their study, found that children and adolescents had very low physical activity levels and poor mood due to the Covid-19 epidemic and social isolation. They also stated that women were psychologically affected more than men and their negative moods were higher (18). In their study, Korkmaz et al. (2020) determined that the majority of the participants had a decrease in their physical activity levels during the pandemic period (19). Meiring et al., (2021), in their study, stated that following the Covid-19 restrictions in New Zealand, the physical activity of the participants decreased (20). Rutkowska et al. (2021) found that the isolation applied due to Covid-19 significantly reduced the physical activity levels of students. They also stated that there was an increase in the general physical activity levels of the students with the reduction of restrictions for sports and recreation areas (21). In a different study, Romero-Blanco et al. (2020) determined that Covid-19 restrictions increased the physical inactivity levels and inactivity time of university students. These studies show that Covid-19 restrictions caused changes in students' physical activity and eating habits (22). These changes are thought to be caused by restrictions and prolonged stay at home.

It was determined that the total score average of the research group's perception of health scale was 48.15 ± 4.06, the scale sub-dimensions mean score, the control center point average was 14.55 ± 1.70, the certainty point average was 15.29 ± 2.85, the importance of health point average was 9.70±1.62, and the mean score of self-awareness was 8.59±1.14. When the lowest and highest scores to be obtained from the scale were considered, it was understood that the students' perception of health total score average and the average score of the sub-dimensions were moderate. The demographic information of the students was evaluated in terms of the health perception scale and its sub-dimensions. According to the gender variable, it was determined that male students had higher mean scores on health perception scale and all sub-dimensions than female students. It was observed that the average score of the students who received nutrition education was higher than the students who did not receive nutrition education. It was determined that students without a chronic disease had a higher average score than students with a chronic disease, except for certainty and self-awareness. It was seen that the participants with an income of 3001-4000 TL according to the income status of the students had a higher average score, except for the sub-dimension of self-awareness. In the study group, it was observed that students with a height range of 181-190 cm had higher mean scores, except for the importance of health and self-awareness sub-dimensions. In addition, it was determined that students between the ages of 26-29 had higher average scores except for the control center and self-awareness sub-dimensions. In their study, Alkan et al., (2017) determined that nursing students' perceptions of health were at a moderate level and that female student had higher sub-dimension mean scores than male students (23). Sorour et al., (2014) stated in their study that the participants did not include health-promoting behaviors, especially health responsibility, stress management and exercise in their lives (24). Ulukan (2021) stated in his study that the health perception levels of the students of the faculty of sports sciences were above the medium level and that the mean health perception score of male students was higher than that of female students (25). In their study, Asfaw et al., (2018) stated that the majority of the participants had a low level of health-seeking behavior and that men had a lower level of health-seeking behavior than women (26). De-Mateo-Silleras et al. (2019) stated in their study that university students' health perception levels remained low according to their lifestyles and that there was a significant relationship between physical activity intensity and health perception (27). Kolac et al., (2018) found in their study that the health perceptions of the participants were moderate and there was no significant difference between gender, having a child, marital status and chronic disease status, and the health perception scale and its sub-dimensions (28). In his study, Dalcali (2020) determined that university students' health perceptions were moderate and there was no significant difference in terms of gender (29). Andrés-Villas et al., (2020) stated in their study that university students' perception of health was related to competitive sports activities and that participation in such activities in their spare time would improve the level of health perception (30). Yilmaz (2019) found in his study that students' health perception levels were good, their physical activity levels were insufficient, and there was no significant difference according to class, age, gender, marital status, body mass index (BMI), smoking-alcohol use, and having a chronic disease (31). In a different study, Cilingir and Aydin (2017) stated that although the majority of the students in the study had high perceived health levels, their health perception scores were low (32). In another study, Ozdemir and Arpacioglu (2020) determined that individuals who gave importance to health-seeking behaviors had a higher fear of coronavirus, while individuals with a high health perception experienced less fear of coronavirus (33). As a result of the research outcomes, it was seen that the health perception levels of the students were at a moderate level. It was thought that the level of health perception was at a moderate level as a result of the restrictions applied during the pandemic period.

As a result, the restrictions and extraordinary measures implemented due to the global Covid-19 epidemic affected the lifestyles and health perception levels of university students. As a result of the research, it was determined that the health perceptions of the students were at a moderate level. It was observed that the healthy lifestyles and physical activity levels of the participants were negatively affected. In line with these

results, it is thought that the implementation of projects that support healthy lifestyles, as well as studies that increase the health perception of individuals, will be beneficial in protecting and improving public health.

Conflicts of Interest: The authors declare that there is no conflict of interest.

Author Contributions: Eyup Bozkurt, Ramazan Erdogan, Mikail Tel, İsa Aydemir and Baha Engin Celikel contributed to the design and interpretation of the current study, as well as the writing and revision of the article. All authors read and approved the final version of the article.

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