Original Article

Healthy Lifestyle Beliefs of Adolescents in a Public High School in Turkey: A Descriptive and Correlational Study

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Abstract

Background: In the process of protecting and improving health, it is important to develop one's healthy lifestyle beliefs. It is stated that providing adolescents with healthy lifestyle behaviors will effectively develop healthy lifestyle beliefs.

Objective: The study aimed to determine the beliefs of adolescents regarding healthy lifestyles and to examine the relationship between their beliefs and some socio-demographic variables.

Methodology: For the descriptive-correlational study, 740 students in a public high school in Ankara were included. Data were collected in the classroom using a questionnaire form created by the researchers and the Healthy Lifestyle Belief Scale for Adolescents. The data were evaluated using an Independent sample t-test, one-way analysis of variance (ANOVA), and Welch statistics. Tamhane and Bonferroni tests were used as multiple comparison tests.

Results: The mean age of the students was 15.76±1.17 years; 53.5% were girls, and 60.5% had a medium economic status. The mean score of the Healthy Lifestyle Believer Scale for adolescents was 56.47±11.93.

Conclusions: This study found that adolescents' beliefs about healthy lifestyles were slightly above the middle level. While gender and physical activity status variables positively affect the scale score, economic status, frequency of physical activity, duration of physical activity per week, number of meals consumed per day, skipping meals, daily diet, frequency of fast food consumed per week, daily sleep duration and sleep problems variables negatively affect the scale score.

Keywords: healthy lifestyle, belief, adolescents, school nursing

Introduction

Adolescence is "the stage of life between childhood and adulthood between the ages of 10-19" (WHO Adolescent Health, 2022). Adolescents constitute approximately 16% (1.3 million) of the world population (UNICEF Adolescents, 2022). Due to the high number of adolescents in the population and the fact that healthy lifestyle behaviors in adulthood begin to be established in this period, adolescents are among the priority groups in health protection and promotion (Bay & Ergun, 2019; Kelly et al., 2011).

A healthy lifestyle is a situation where a person chooses the behaviors that are appropriate for him/her among the ones that may positively or negatively affect his/her daily life and health (Kirca et al., 2022). As healthy lifestyle behaviors, "adequate and balanced nutrition, efficient sleep, regular physical activity, and being able to manage one's health" can be given as examples (Bakouei et al., 2019; Cetiner & Kahraman,

2023; Karaaslan & Celebioglu, 2018). These behaviors are acquired during adolescence and affect the individual's current and future health positively or negatively (Karaaslan & Celebioglu, 2018). Therefore, it is important to focus on interventions aimed at changing healthy lifestyles during adolescence before the negative choices made by the individual become a lifestyle to achieve more effective results (Rawal et al., 2022).

In the process of protecting and improving health, it is important to develop one's healthy lifestyle beliefs (Kudubes et al., 2022). Healthy lifestyle beliefs are a concept that refers to "people's beliefs that they can lead a healthy lifestyle." Individuals with negative beliefs are more likely to exhibit negative behaviors (Melnyk, Kelly & Tan, 2021). It is stated that providing adolescents with healthy lifestyle behaviors will effectively develop healthy lifestyle beliefs. It is known that school environments and friends are also effective in adolescents' choice of healthy lifestyle behaviors (Kudubes & Bektas, 2020). In this regard, the school environment is an important area for adolescents to acquire healthy lifestyle behaviors (Sahinoz et al., 2017). Having adolescents together in the school environment is a great opportunity to develop healthy lifestyle behaviors. Also, an effective school health program needs to be established and implemented to eliminate negative health behaviors and to ensure that students gain positive attitudes and behaviors on any health-related issue (Bebis et al., 2015). In this context, school health nurses are responsible for providing adolescents with healthy lifestyle behaviors and preventing risky behaviors (Gonen Senturk & Aykanat Girgin, 2015; Tayhan, 2017).

There are various studies on the healthy lifestyles of adolescents (Coskun & Karagoz, 2021; Marques et al., 2020; McGovern et al., 2018; Tamanal & Kim, 2020). However, the number of studies aimed at understanding and determining healthy lifestyle beliefs is limited (Durak & Karayagiz Muslu, 2023; Gokcay et al., 2024; Ozendi & Tural Buyuk, 2022). Improving healthy lifestyles of individuals in adolescence is one of the priority issues for school health nurses, and nurses need to have

information about students' beliefs on this issue in planning their initiatives to protect and improve their health. Based on this situation, our research aim is to determine adolescents' beliefs regarding healthy lifestyles and examine the relationship of their beliefs with some socio-demographic variables.

The research questions were as follows:

1. What are adolescents' beliefs about healthy lifestyles?
2. Which socio-demographic characteristics affect adolescents' beliefs about healthy lifestyles?

Materials and methods

Study design: The research design is descriptive-correlational.

Participants: The research population consisted of students at a state high school in Ankara. In the 2022-2023 academic year, there are a total of 1,190 students studying at this school. The Sample Size Calculator program, which is based on the formula of the sampling method with a known population, was used for the sample calculation of the study. A 99% confidence interval and a 3% margin of error were used as a reference when calculating the sample. As a result of the calculation, it was found that at least 724 students should be included in the sample. 760 students who met the criteria for participation in the study were included. However, 20 forms were not included in the analysis due to incomplete answers. The study was conducted with 740 students.

Criteria for the Study: Inclusion criteria were: a) the student's acceptance to participate in the study, b) parental consent for the student to participate, and c) the student being at school on the days when the data collection tools were administered. Exclusion criteria were: a) having any psychiatric illness.

Data Collection Tools: A questionnaire form and the Healthy Lifestyle Belief Scale for Adolescents were used to collect data.

Questionnaire form: A questionnaire form consists of 21 questions about age, gender, grade, physical activity, eating habits, and sleep patterns. The data collection form was prepared in line with the literature (Kudubes

& Bektas, 2020; Ozendi & Tural Buyuk, 2022).

Healthy Lifestyle Belief Scale for Adolescents: It is a measurement tool designed by Kelly, Melynk & Tan (2011) to determine the healthy lifestyle beliefs of adolescents. Kudubes et al., (2020) made the Turkish validity and reliability of the scale. The scale has a total of 16 items. The scale has 3 sub-dimensions: Health Beliefs, Physical Activity and Nutrition. Scale is a 5-point Likert type. The possible scores from the scale are between 16-80. As the total score obtained from the scale increases, adolescents' beliefs in healthy lifestyles also increase. The internal consistency coefficient of Cronbach's α value was 0.89 (Kudubes & Bektas, 2020). The Cronbach's α value in this study was 0.91.

Data Collection: Data were collected in the 2022-2023 academic year between April 2023 and May 2023. Data collection forms were applied during free classes and students' non-class time (such as breaks). Data collection forms were distributed to students who met the research criteria in the classroom, and they were asked to fill them out under the researcher's supervision. It was observed that filling out the form took 15 minutes.

Data Analysis: SPSS for Windows 22 program was used to analyze all data. Kolmogorov-Smirnov, Skewness, and Kurtosis evaluated normality analysis. When evaluating Skewness-Kurtosis, ± 2 was taken as a reference. Data were evaluated in two groups using independent t-tests and one-way analysis of variance. In addition, Welch statistic was used when variances were not homogeneous. Tamhane and Bonferroni tests were used as multiple comparison tests. A statistical significance value of $p < 0.05$ was accepted.

Ethical Consideration: Before starting the study, from the Gazi University, Faculty of Nursing, Ankara, Turkey, Ethics Commission approved the (Research code no: 2022-1179) and thus an approval of the research was obtained. In addition, necessary permissions were obtained from the Provincial and District Directorates of National Education. School administration and teachers were interviewed before the implementation of the study. Necessary information about the research was given to the students and written consent was obtained from their parents about whether the students would participate in the study or not. In addition, students were informed about the data collection form and the research before the data collection forms were applied. Permission was obtained via e-mail to use the scale in the current study.

Results

The mean age of the students was 15.76±1.17 years. 53.5% were female, 29.6% were in the 11th grade and 60.5% had an average economic status. It was determined that 83.4% of the students do a physical activity regularly, 45.8% of them do a physical activity once or twice a week, and 38.9% spare time for a physical activity for at least 1-2 hours a week. 55.1% of the students walk as a physical activity. Students also stated that they are interested in sports such as football, basketball, volleyball, fitness, yoga, pilates, taekwondo, boxing, archery, and bodybuilding.

The nutritional status of the students was analyzed. It was found that 62.2% ate 3 meals a day, 52.4% sometimes skipped meals, the most frequently skipped meal was breakfast (45.9%) and 34.3% skipped meals because of lack of appetite. It was determined that 65.7% of the students consumed a food during snacks and the most preferred food type was biscuits and crackers (71.1%). 51.9% of the students eat at home-cooked meals. Additionally, 61.8% stated that they consume fast food once a week or never. A 71.2% of the students slept for 6-8 hours, 32.4% had sleep problems, and the most common sleep problem was not being able to wake up in the morning (39.7%) (Table 1).

The mean scale score of the students was 56.47±11.93. The mean scores for the sub-dimensions are given, respectively. Health Belief 24,12± 5,87; Physical Activity 19,04± 4,45 and Nutrition 13,29± 3,58 (Table 2).

Students' socio-demographic characteristics and scale score averages are given below (Table 3).

It was concluded that the mean scores of healthy lifestyle beliefs were significantly higher in male students, those who did regular physical activity, those who did more than 4 hours of physical activity per week, those who did physical activity every day, those who did not skip meals, those whose daily diet was home-cooked food, those whose daily sleep time was 6-8 hours and those who did not have sleep problems. It was concluded that the mean scores of the healthy lifestyle beliefs of the students did not show a significant difference according to economic status, grade level, number of daily meals and snacks (p> 0.05). The findings related to the sub-dimensions are given in detail in Table 3.

Table 1. Sociodemographic characteristics of students (n=740)

Sociodemographic characteristics	n	%
Gender		
Girl	**396**	**53.5**
Boy	344	46.5
Class		
Preparatory class	57	7.7
9th-grade	214	28.9
10th-grade	217	29.3
11th-grade	**219**	**29.6**
12th-grade	33	4.5
Perceived economic situation		
Bad	28	3.8
Middle	**448**	**60.5**
Good	264	35.7
Doing a physical activity regularly		
Yes	**617**	**83.4**
No	123	16.6
Frequency of a physical activity		
Every day	151	20.4
2-3 times a week	**339**	**45.8**
Once a week	127	17.2
Physical activity periods		
1-2 hours per week	**288**	**38.9**
3-4 hours per week	167	22.6
More than 4 hours per week	162	21.9
Type of physical activity*		
Walking	**408**	**55.1**
Running	140	18.9
Aerobic	21	2.8
Swimming	61	8.2
Cycling	69	9.3
Number of meals		
Two meals	151	20.4
Three meals	**460**	**62.2**
Four meals	100	13.5
Five meals	29	3.9
Skipping meals		
Yes	205	27.7
No	147	19.9

Sometimes	**388**	**52.4**
Which meals do you skip? *		
Morning	**340**	**45.9**
Afternoon	234	31.6
Evening	104	14.1
Reasons for skipping meals*		
Anorexia	**254**	**34.3**
Lack of time	244	33.0
Having a snack before the meal	113	15.3
Lack of habit	77	10.4
Desire to lose weight	40	5.4
Food consumption during snacks		
Yes	**486**	**65.7**
No	26	3.5
Sometimes	228	30.8
Types of food consumed during snacks*		
Fruit	496	67.0
Milk and milk products	264	35.7
Nuts	390	52.7
Biscuits, crackers	**526**	**71.1**
Fruit juice	173	23.4
Tea, herbal tea, coffee	401	54.2
Chocolate, candy	499	67.4
Daily nutrition patterns		
Fast food	13	1.8
Home cooked	**384**	**51.9**
Both fast food and home cooked	343	46.4
Number of fast-food consumed per week		
Once or more a day	42	5.7
Once a week or never	**457**	**61.8**
2-6 times a week	209	28.2
Every day	32	4.3
Daily sleep time		
4-5 hours	184	24.9
6-8 hours	**527**	**71.2**
9-10 hours	29	3.9
Sleep problem situation		
Yes	240	32.4
No	232	31.4
Sometimes	**268**	**36.2**
Type of the sleep problem experienced*		
Difficulty falling asleep	245	33.1
Waking up frequently	93	12.6
Inability to wake up in the morning	**294**	**39.7**
Other	12	1.6

*Multiple answers provided.

Table 2. Mean scores of the Healthy Lifestyle Belief Scale for Adolescents and its subscales (n=740)

Scale and Sub-Dimensions	X̄ ±SS	Min-Max
Healthy Lifestyle Belief Scale Total	56.47±11.93	16-80
Health Belief	24.12± 5.87	7-35
Physical Activity	19.04± 4.45	5-25
Nutrition	13.29± 3.58	4-20

Table 3. Comparison of the mean scores of the adolescent healthy lifestyle belief scale and its sub-dimensions according to the sociodemographic characteristics of the students (n = 740)

Features	n	Health Belief Sub-Dimension Average Score	Physical Activity Sub-Dimension Average Score	Nutrition Sub-Dimension Average Score	Healthy Lifestyle Belief Scale Total Score Average
Gender					
Girl	396	23.49±5.65	18.75±4.31	12.80±3.48	55.04±11.16
Boy	344	24.87±6.05	19.40±4.59	13.87±3.62	58.13±12.58
Test, p		**t: - 3.20; p=0.01**	t: -1.93; p=0.06	**t: - 4.07; p=0.01**	**t: - 3.54; p=0.01**
Class					
Preparatory class	57	23.92±7.42	19.08±4.67	13.04±4.52	56.04±14.66
9th-grade	214	23.75±5.95	18.38±4.36	12.93±3.28	55.07±11.48
10th-grade	217	24.19±5.56	19.06±4.27	13.38±3.54	56.62±11.36
11th-grade	219	24.35±5.83	19.51±4.55	13.59±3.59	57.45±12.15
12th-grade	33	25.06±4.81	20.21±4.81	13.67±3.85	58.93±11.47
Test, p		F: 0.61; p=0.66	F: 2.37; p=0.06	F: 1.10; p=0.36	F: 1.49; p=0.20
Perceived economic situation					
Bad [1]	28	20.49±7.46	18.39±5.14	12.39±4.66	51.27±14.71
Medium [2]	448	24.37±5.69	19.12±4.48	13.36±3.60	56.85±11.91
Good [3]	264	24.11±5.89	19.00±4.35	13.28±3.44	56.39±11.56
Test, p		**F: 5.80; p=0.01** **1<2.3**	F: 0.39; p=0.68	F: 0.97; p=0.38	F: 2.90; p=0.06
Regular physical activity status					
Yes	617	24.32±5.86	19.31±4.38	13.47±3.52	57.11±11.77
No	123	23.17±5.92	17.73±4.60	12.41±3.80	53.30±12.26
Test, p		t: 2.00; p=0.04	**t: 3.64; p=0.01**	**t: 3.02; p=0.01**	**t: 3.25; p=0.01**
Frequency of a physical activity					
Not doing physical activity [1]	123	23.17±5.92	17.73±4.60	12.41±3.80	53.30±12.26

Everyday [2]	151	24.86±7.03	19.52±5.49	13.83±4.30	58.21±14.96
2-3 times a week [3]	339	24.43±5.21	19.65±3.57	13.65±3.10	57.73±9.70
One time per week [4]	127	23.38±5.88	18.18±4.69	12.57±3.41	54.13±12.14
Test, p		F: 2.69; p=0.05	**F: 8.12; p=0.01 1<2.3**	**F: 6.37; p=0.01 1<2.3/4<2**	**F: 6.80; p=0.01 1<2.3/4<3**
Duration of physical activity per week					
Not doing physical activity [1]	123	23.17±5.92	17.73±4.60	12.41±3.80	53.30±12.26
1-2 hours per week [2]	288	23.52±6.02	18.57±4.79	12.96±3.61	55.05±12.61
3-4 hours per week [3]	167	24.91±5.25	19.48±3.32	13.53±3.18	57.92±9.68
Hours per week [4]	162	25.15±6.00	20.45±4.34	14.32±3.55	59.92±11.59
Test, p		**F:4.80; p=0.01 1.2<4**	**F:10.67; p=0.01 1<3.4/2<4**	**F:8.24; p=0.01 1<3.4/2<4**	**F:9.92; p=0.01 1<3.4/2<4**
Number of meals					
Two meals [1]	151	23.85±6.18	18.91±4.59	13.10±3.81	55.86±12.81
Three meals [2]	460	24.28±5.59	19.05±4.43	13.50±3.36	56.83±11.47
Four meals [3]	100	24.55±5.75	19.59±3.82	13.43±3.85	57.57±10.72
Out of five meals [4]	29	21.68±8.35	17.92±5.86	10.66±4.04	50.26±16.33
Test, p		F: 2.07; p=0.10	F: 1.02 p=0.38	**F:4.76; P=0.01 4<1,2,3**	F: 3.21; p=0.02
Meal skipping situation					
Yes [1]	205	23.56±6.21	18.46±4.83	12.63±3.62	54.65±12.36
No [2]	147	25.06±6.23	19.00±4.54	13.76±3.82	57.81±12.84
Sometimes [3]	388	24.08±5.52	19.38±4.18	13.47±3.44	56.93±11.25
Test, p		F:2.82; p=0.06	F:2.89; p=0.06	**F:5.28; p=0.01 1<2.3**	**F:3.62; p=0.03 1<2**
Making snacks					
Yes	486	24.09±6.12	19.08±4.55	13.19±3.76	56.36±12.39
No	26	22.81±5.91	17.73±5.16	12.77±3.95	53.31±12.91
Sometimes	228	24.36±5.32	19.12±4.15	13.59±3.14	57.07±10.75
Test, p		F:0.84; p=0.43	F:1.19; p=0.31	F:1.24; p=0.29	F:1.22; p=0.30
Daily diet					
Fast-food [1]	13	187.08	107.81	117.73	105.73
Home cooked [2]	384	401.69	395.73	413.92	410.55
Both fast food and home cooked [3]	343	342.53	352.21	331.47	335.70
Test, p		*X^2:23.70; p=0.01 1<2.3/3<2*	*X^2:27.68; p=0.01 1<2.3/3<2*	*X^2: 45.89; p=0.01 1<2.3/3<2*	*X^2: 42.56; p=0.01 1<2.3/3<2*
Frequency of fast food consumed per week					
Once a day or more [1]	42	21.83±6.30	18.02±4.66	12.26±3.45	52.12±12.89
Once a week or never [2]	416	24.40±5.51	19.49±4.09	13.64±3.53	57.54±11.03
2-6 times a week [3]	209	23.92±6.11	18.42±4.77	12.79±3.29	55.13±12.28
Everyday [4]	32	22.72±7.33	17.11±5.92	11.91±4.80	51.75±16.20

		F:3.12; p=0.03 1<2	F:4.58; p=0.01 3<2	F:4.96; p=0.01 3<2	F: 4.56; p=0.06
Test, p					
Daily sleep time					
4-5 hours [1]	184	23.02±6.21	18.86±4.82	12.82±3.72	54.70±12.65
6-8 hours [2]	527	24.73±5.54	19.27±4.14	13.62±3.37	57.62±11.11
9-10 hours [3]	29	20.34±7.30	16.13±6.36	10.45±4.90	46.92±15.98
Test, p		F:12.39; p=0.01 1.3<2	F:3.79; p=0.01 3<2	F:8.51; p=0.01 1.3<2	F:9.42; p=0.01 1.3<2
Sleep problem					
Yes [1]	240	22.68±6.34	18.59±4.76	12.63±3.80	53.90±12.70
No [2]	232	25.60±5.75	19.33±4.40	13.87±3.74	58.80±11.99
Sometimes [3]	268	24.15±5.22	19.22±4.19	13.40±3.13	56.77±10.70
Test, p		F:13.78; p=0.01 1<2.3/3<2	F:1.94; p=0.14	F:6.55; p=0.01 1<2.3	F:10.32; p=0.01 1<2.3

t: Independent sample t-test, F: One-way analysis of variance, X^2: Kruskal Wallis-H test. Kruskal Wallis-H test was applied since the amount of data in the groups was small.

Discussion

In order to protect and improve the health of adolescents, it is extremely important to encourage healthy lifestyle behaviors from childhood, especially during adolescence (Marques et al., 2020). Health awareness and health beliefs are essential concepts in protecting and improving the health of adolescents (Kudubes et al., 2022). At this point, the current situation must first be evaluated to improve health awareness and beliefs.

Our research aim is to determine adolescents' beliefs regarding healthy lifestyles and examine the relationship of their beliefs with some socio-demographic variables. In the present study, the mean total scale score was 56.47±11.93. This score indicates that adolescents' healthy lifestyle beliefs are above the medium level. Gokcay et al. (2024) examined healthy lifestyle beliefs and social media addiction, and the mean total score was 55.23±16.80. It is similar to the mean score obtained in the current study. However, in the study of Ozendi and Tural Buyuk (2022), it was found that adolescents' beliefs in a healthy lifestyle were higher (61.79 ±11.42) than in the current study (Ozendi & Tural Buyuk, 2022). Likewise, in the study of Melnyk et al. (2021), adolescents' belief in a healthy lifestyle is higher (63.5 ±9.0). There are also study results in the literature in which

adolescents' healthy lifestyle belief score averages are low (Kudubes et al., 2022). Increasing the students' positive healthy lifestyle beliefs above the average in line with the scores they receive from the scale is essential for them to adopt healthy lifestyle behaviors. It is thought that the difference in the study results may be due to the participants' different settlements and cultural characteristics.

The mean scores of the Health Belief, Physical Activity and Nutrition subscales were 24.12± 5.87, 19.04± 4.45 and 13.29±3.58, respectively. Durak and Karayagiz Muslu (2023) conducted a study to determine adolescents' healthy lifestyle beliefs and awareness of sustainable living, and the mean scores of the scale sub-dimensions were similar to the current study. In addition, similar results were found in Ozendi and Tural Buyuk's study (2022). However, the sub-dimension mean scores were slightly higher than in this study. In this study, a significant difference was found between the gender of the students and the scale total score, Health Belief and Nutrition sub-dimensions scores (p<0.05). Boys have higher scores in the Health, Belief, and Nutrition sub-scales than girls. Gokcay et al. (2024) found a significant difference between gender and the scale and its sub-dimensions (p<0.05). According to this result, it is

thought that male students do more physical activity and pay more attention to healthy nutrition, while female students may be related to their desire to look thin and their tendency to diet. In the present study, it was reported that there was a statistically significant difference between the economic status of adolescents and the Health Belief sub-dimension (p<0.05). Ozendi and Tural Buyuk (2022) also obtained similar results to our study (Ozendi & Tural Buyuk, 2022). Since the limited resources of students who perceive their economic status as poor may negatively affect their access to healthy lifestyle behaviors, it is thought that their health beliefs may also be negatively affected. Similar studies in the literature comparing adolescents' healthy lifestyle beliefs scores and socio-demographic data in detail are currently sparse (Ciftci & Sarman, 2024; Durak & Karayagiz Muslu, 2023; Gokcay et al., 2024; Ozendi & Tural Buyuk, 2022). In addition, in this study, the relationship between the Healthy Lifestyle Belief Scale and variables such as physical activity status, frequency, duration, meal skipping status, daily diet and daily sleep duration was tried to be determined in detail.

Strengths and Limitations: The strengths of this research are that it includes a large sample group and data collected on a valid and reliable scale. At the same time, evaluating its relationship with many different variables can be considered among its strengths. However, the study also has some limitations. The results are limited to the sample in which the research was conducted. Another limitation is that we could not reach students who were absent for any reason during the data collection period and who did not agree to participate in the research. Additionally, the responses of students who failed to complete the survey forms were not included in the study analysis. In this study, the lost data belongs to only 20 students.

Conclusion: As a result, it was determined in this study that the healthy lifestyle beliefs of adolescents were slightly above the average level. It was determined that factors such as gender, economic status, physical activity status, frequency and duration of physical

activity per week, daily diet, frequency of fast food consumed per week, sleep duration, and having sleep problems affected adolescents' healthy lifestyle belief levels. School health nurses have important roles, duties, and responsibilities to encourage adolescents to a healthy lifestyle and to increase their beliefs about it.

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