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Investigation of the relationship between healthy lifestyle behaviours and health literacy in university students

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Abstract

The investigation of healthy lifestyle behaviours and health literacy, a topic of increasing interest in public health, is of particular importance in the context of young people, a crucial phase of human life. These behaviours have the capacity to influence the course of subsequent periods of life. The present study aimed to determine the relationship between healthy lifestyle behaviors and health literacy among university students. The design of the study was descriptive and cross-sectional. The population of the study consisted of 1210 students enrolled in 2 different faculties randomly selected in a university in eastern Türkiye. The research was completed with 495 participants. The study utilized the 'personal information form,' 'healthy lifestyle behaviors scale' (HLBS), and 'health literacy scale' (HLS) to collect its data. The participant students' mean scores for the 'HLBS', and 'HLS' were 133.28 ± 22.86 and 32.05 ± 8.38 , respectively. The study also identified a positive and moderate relationship between the HLBS and HLS mean scores ($r=0.453$, $p<0.001$). As a result, the study findings revealed that a high level of health literacy may significantly improve university students' quality of life by supporting healthy lifestyle behaviors. Public health professionals, sports science professionals and most importantly policy makers should develop policies and organise training programs to improve healthy lifestyle behaviours by increasing the health literacy levels of individuals.

Keywords: Public health, health behavior, health literacy, student health services, sociodemographic factors

Introduction

The concept of health literacy was initially coined in 1974 to describe the capacity of individuals to comprehend, assess, and apply health-related information. This concept encompasses the capacity to formulate well-founded judgments about accessing health services, disease prevention, treatment options, and maintaining a healthy lifestyle [1,2]. Health literacy is crucial for enhancing public health and raising individuals' health awareness.

As defined by the World Health Organization, health literacy encompasses the mental and social skills that shape individuals' readiness and capability to acquire, comprehend, and utilize information in a manner that enhances and maintains optimal

health [2-4]. Persons possessing advanced health literacy are more inclined to grasp health-related information and preventive measures. The World Health Organization underscores that health literacy levels are generally low in both industrialized and developing nations [3]. Factors such as ageing, low levels of education, disadvantaged socioeconomic conditions, and poor reading skills contribute to low health literacy [2,3,5].

Studies have revealed that increasing individuals' health literacy enables them to gain more control over their health, enhance their quality of life, alter lifestyle factors that may lead to diseases, and adopt healthy lifestyle behaviors as a result [6,7]. Equipping individuals with the proper knowledge, skills, and productive attitudes and behaviors is necessary to maximize

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their health levels and create behavioral changes. This goal can only be achieved by acquiring proper health behaviors from early in life [7].

Studies indicate the necessity of regulating biopsychosocial components to ensure the sustainability of health behaviors and enhance their significance. It is imperative to make the utmost effort to overcome unhealthiness rather than accepting it as fate [8]. Environmental conditions are full of many health-threatening factors and stimuli. While these conditions affect newborns, children, and adolescents, improving the quality of life requires addressing the issue of maintaining a regular life [8,6].

Studies also emphasize that displaying healthy lifestyle behaviors is possible with health literacy. The extensive adoption of the internet by the youth has increased the sedentary lifestyle and has emerged as a critical public health problem [7,6]. The health sector is a highly complex system, characterized by frequent development and change. However, all individuals require and utilize health services. Consequently, it is essential that individuals possess knowledge about health. Extensive internet use by youth has led to a more sedentary lifestyle and has become an urgent public health concern to address [6,9].

There are studies examining the awareness of health literacy and the practice of healthy lifestyle habits in the literature. However, the number of studies focusing on health literacy and the adoption of health-promoting practices among young people and their sociodemographic effects is limited. It is believed that our research will contribute to the literature, pioneer future studies, encourage research in different groups, and guide policymakers.

This study focused on identifying the correlation between healthy lifestyle habits and health literacy, aimed at raising awareness and contributing to the current literature in this context.

Investigation Questions:

1. To what extent do participants exhibit healthy lifestyle behaviors and possess health literacy?
2. How do healthy lifestyle behaviors correlate with health literacy among university students?
3. How do the participants' sociodemographic characteristics and Body Mass Index (BMI) affect healthy lifestyle behaviours and health literacy?

Material and Methods

Research Locale, Period, and Sample Recruitment

Population and Sample Description

The fieldwork and the empirical data for the study were gathered between 15 January 2024 and 15 June 2024 at a university in eastern Türkiye.

This study employed a descriptive research design. The study population comprised 1210 students enrolled in 2 different faculties randomly selected in a university in eastern Türkiye. The minimum sample size required for inclusion in the study was determined using the formula for calculating the population sample size. Considering the power analysis and 95% confidence interval, the sample of the study consists of 292 participants. The research was completed with 495 participants. Upon conclusion of the study, a post hoc power analysis conducted based on the participants' results indicated that the study's power was 99%, with a 95% confidence level and a medium effect size [10]. Additionally, the study used the STROBE guide while reporting this research article [11].

Research Inclusion Criteria

The following two aspects were considered inclusion criteria in the study: voluntariness and being an active and regular student in two faculties of the selected university.

Research Exclusion Criteria

The study excluded students who provided forms posing communication or evaluation barriers, incomplete forms, or forms with questionable reliability.

Instruments

Descriptive Features Form: After reviewing the literature, the researchers developed and utilized the 'personal information form' 'healthy lifestyle behaviors scale' (HLBS) and 'health literacy scale (HLS)-short form' as instruments for gathering data.

Personal Information Form

The researchers' developed personal information form comprised nine questions (including age, gender, height, weight, classroom, assessing health, faculty, smoking, BMI).

HLBS

Originally formulated by Walker et al. (1987) and named the 'healthy lifestyle behaviors scale,' this instrument was updated in 1996 and subsequently renamed the HLBS [12]. The Turkish validation and reliability evaluation was performed by Bahar et al. in 2008 [13]. The scale encompasses 52 items categorized into six domains: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. It utilizes a 4-point Likert scale ranging from Never (1) to Always (4). "The overall scale scores span from a minimum of 52 to a maximum of 208. The Cronbach's alpha coefficient for the Healthy Lifestyle Behaviors Scale-II was reported as .92, while the present study found it to be .93.

HLS

Duong and his colleagues originally developed and named this instrument the 'Short-Form Health Literacy Instrument,' consisting of 12 items rated on a four-point Likert scale [14]. The scale's evaluation formula is given by $(\text{Index} = (\text{Average} - 1))$

x 50/3), where the scale average is computed by dividing the total score by the number of items. Higher scores signify greater health literacy. The index value derived from the formula ranges from 0 to 50. Karahan and his team performed a Turkish validity and reliability assessment [15]. As a result, the Cronbach's alpha reliability coefficient for the 12-item scale was determined to be .85., while the current study computed it to be .87.

Data Collection

The study used 495 university students as participants and utilized an online survey form to collect study data. The study also collected participants' data based on data confidentiality principles and received their informed consent. Before beginning the study, researchers asked the participants whether they approved the consent form. Before starting to fill in the questionnaire, the question 'Do you agree to participate in this study?' Those who answered no could not proceed with the rest of the form. Those who answered yes were able to complete the rest of the questionnaire forms. Afterward, researchers allowed the participants to fill in the 'personal information form,' 'HLBS,' and 'HLS-short form' to collect the study data.

Data Analysis

The research employed SPSS 22.0 for statistical analysis and represented data related to personal characteristics using frequencies and percentages. Descriptive statistics such as mean, standard deviation, minimum, and maximum values were applied to numerical variables. Percentages and distributions were calculated during data analysis. The study compared variables using both parametric and non-parametric statistical methods, including correlation analysis, one-way ANOVA, Kruskal-Wallis, and independent sample t-tests, depending on the nature of the data. To assess the reliability of the measurement tools, Cronbach's alpha coefficient was computed. Results were deemed statistically significant at $p < 0.05$. For normality testing of numerical variables, skewness and kurtosis coefficients were analyzed and, since these values were encompassed within the ± 1.5 range, parametric methods were utilized.

Ethical Dimension

The relevant university's Scientific Research and Publication Ethics Committee approved the research (Date and Number: 08.11.2023-116365). The university also granted the required institutional permissions (Date and Number: 16.05.2024-141746). Researchers initially informed the participants about the research objectives, methodology, and time commitment, ensuring that no research-related topic would cause any harm, and that participation was on the principle of voluntariness. Subsequently, they received informed consent from the participants. Researchers adhered to the Helsinki Declaration of Human Rights to protect individual rights throughout the study.

Informed Consent

Researchers enrolled participants in the study after thoroughly informing them about the research and obtaining their informed consent.

Limitations and Generalizability

This study, aimed at elucidating the correlation between healthy lifestyle behaviors and health literacy among university students, is subject to certain limitations. Initially, it was impossible to determine causality due to the cross-sectional study design. Secondly, relying on data collected from participants belonging to two distinct faculties within a single university may constrain the study's applicability to the broader population. Finally, the study utilized a personal information form, HLS, and HLBS. Therefore, the study might have overlooked additional factors affecting health literacy and healthy lifestyle behaviors. As a result, other studies should consider these limitations while assessing the study results. The results of this study are generalisable to the population in which the study was conducted, less generalisable to students studying in other departments, but much less generalisable to other segments of the society.

Results

Table 1 lists the personal information of the university students who participated in the study. Accordingly, the study found the following statistics about the students: The average age was 21.93, 52.1% were male, the average BMI was 22.29, 34.7% were first-year students at the university, 79% perceived their family income level as average, 48.7% evaluated their health as good, and 65.7% were non-smokers. Additionally, 51.5% of the participants were students at the Faculty of Sports Sciences, and 48.5% at the Faculty of Health Sciences.

Table 2 presents the average score distribution of the HLBS, its sub-dimensions, and the HLS. Participants' scores on the HLBS ranged from a minimum of 52 to a maximum of 208, with a mean score of 133.28 ± 22.86 . For the HLS, participants' scores ranged from 1.39 to 50, with an average mean score of 32.05 ± 8.38 .

Table 3 presents the comparative analysis of the mean scores of students' personal information with the HLBS, its subscales, and the HLS. The study observed a weak and negative association between age and the HLBS as well as its subscales, which include physical activity, nutrition, spiritual development, interpersonal relations, and stress management. However, a statistically significant difference was found between the HLBS mean score and students' academic grades, perceived family income levels, and perceived health statuses ($p < 0.05$). Additionally, significant differences were identified between the following variables and subscales: 1) gender and the stress management subscale; 2) academic grades and the subscales of nutrition, spiritual development, interpersonal relations, and stress management; 3) perceived income levels and the subscales of health responsibility, physical activity, nutrition, and stress management; 4) perceived health status and faculty affiliation

with all HLBS subscales; and 5) smoking status and the average scores of the health responsibility and nutrition subscales. No statistically significant association was identified between BMI and the HLBS or its subscale average scores ($p>0.05$).

The analysis also revealed a positive yet weak relationship between age and the mean HLS scores ($r=0.187$, $p<0.001$). Furthermore, there was a statistically significant difference in the mean HLS scores based on students' academic grades, perceived income levels, and perceived health statuses ($p<0.05$), whereas no significant differences were observed with respect to gender, faculty affiliation, and smoking status ($p>0.05$). Finally, the study found no significant relationship between students' BMI

and their mean HLS scores ($p>0.05$).

Table 4 demonstrates the relationships between HLBS, its subscales, and HLS. Accordingly, analyses revealed a positive and moderate relationship between the students' HLBS and HLS mean scores ($r=0.453$, $p<0.001$). The study also found a slightly positive relationship between the mean scores of the HLS and HLBS subscales, including health responsibility, physical activity, and stress management ($r<0.30$, $p<0.001$). Moreover, a positive and moderate correlation was observed between the mean scores of the HLS and the HLBS subscales, which include nutrition, spiritual development, and interpersonal relationships ($r=0.40-0.60$, $p<0.001$).

Table 1. Personal information of university students (N=495)

Features		N	%
Gender	Female	237	47.9
	Male	258	52.1
Classroom	1st grade	172	34.7
	2nd grade	61	12.3
	3rd grade	167	33.7
	4th grade	95	19.2
Income level	Low	88	17.8
	Moderate	391	79.0
	High	16	3.2
Assessing health	Bad	16	3.2
	Medium	238	48.1
	Good	241	48.7
Faculty	Health sciences	240	48.5
	Sports sciences	255	51.5
Smoking	Yes	146	29.5
	No	325	65.7
	I quit	24	4.8
	Minimum	Maximum	Mean±SD
Age	18	44	21.93±3.05
BMI	14.98	33.95	22.29±3.06

Mean: arithmetic mean, SD: standard deviation, BMI: body mass index

Table 2. Mean score distribution of HLBS, its subscales, and HLS

Scales	Min	Max	Mean±SD
HLBS	52.00	208.00	133.28±22.86
Health responsibility	9.00	36.00	20.96±4.19
Physical activity	8.00	32.00	18.52±4.74
Nutrition	9.00	36.00	24.60±4.56
Spiritual development	9.00	36.00	23.17±4.66
Interpersonal relationships	9.00	36.00	26.77±4.85
Stress management	8.00	32.00	19.24±4.78
HLS	1.39	50.00	32.05±8.38

Maximum mean: arithmetic mean; SD: standard deviation; Min: minimum; Max: maximum

Table 3. Mean scores comparison of the students' personal information with HLBS, its subscales, and HLS

	N (%)	HLBS Mean±SD	Health responsibility Mean±SD	Physical activity Mean±SD	Nutrition Mean±SD	Spiritual development Mean±SD	Interpersonal relationships Mean±SD	Stress manage+ Mean±SD	HLS Mean±SD
Gender									
Female	237 (47.9)	131.31±21.30	20.78±3.94	18.18±4.59	24.55±4.28	22.86±4.59	26.89±4.50	18.02±4.62	32.53±7.69
Male	258 (52.1)	135.10±24.11	21.12±4.41	18.82±4.86	24.64±4.82	23.45±4.73	26.67±5.15	20.36±4.67	31.62±8.96
Test		t=-1.848	t=-.908	t=-1.509	t=-.220	t=-1.401	t=.488	t=-5.591	t=-1.213
p		p=.065	p=.364	p=.132	p=.826	p=.162	p=.626	p=.000	p=.226
Classroom									
1st grade	172 (34.7)	131.12±21.40	20.60±4.01	18.27±4.36	24.05±4.46	23.14±4.70	25.90±4.99	19.13±4.42	30.57±8.63
2nd grade	61 (12.3)	135.52±25.49	21.47±4.60	19.29±5.07	24.67±4.88	23.60±4.96	27.31±5.21	19.16±4.98	31.39±7.62
3rd grade	167 (33.7)	130.49±22.57	20.65±4.13	18.18±4.67	24.39±4.58	22.41±4.42	26.43±4.68	18.39±4.80	31.821±8.02
4th grade	95 (19.2)	140.68±22.77	21.82±4.29	19.06±5.26	25.89±4.33	24.28±4.64	28.62±4.12	21.00±4.88	35.57±8.11
Test		F=4.969	F=2.353	F=1.391	F=3.518	F=3.473	F=7.200	F=6.230	F=7.840
p		p=.002	p=.071	p=.245	p=.015	p=.016	p=.000	p=.000	p=.000
Income									
Low	88 (17.8)	126.34±21.96	19.52±3.45	17.53±4.37	23.14±4.96	22.35±4.57	25.79±5.14	17.98±4.48	30.52±8.88
Moderate	391 (79.0)	134.28±22.46	21.18±4.20	18.60±4.68	24.84±4.40	23.27±4.64	26.94±4.74	19.43±4.73	32.16±8.14
High	16 (3.2)	147.12±28.04	23.37±5.66	22.00±6.38	26.68±4.74	25.37±5.09	28.06±5.39	21.62±6.17	37.76±9.22
Test		KW=11.917	KW=16.073	KW=9.260	KW=10.703	KW=5.446	KW=4.931	KW=9.839	KW=9.384
p		p=.003	p=.000	p=.010	p=.005	p=.066	p=.085	p=.007	p=.009
Assessing health									
Bad	16 (3.2)	114.25±18.44	18.37±3.32	15.81±4.13	21.68±4.90	19.75±4.72	22.50±5.48	16.12±4.08	22.65±7.55
Medium	238 (48.1)	129.15±22.88	20.59±4.11	18.09±4.77	23.89±4.59	22.28±4.56	25.73±4.53	18.54±4.85	31.39±8.46
Good	241 (48.7)	138.63±21.63	21.49±4.24	19.12±4.67	25.49±4.33	24.27±4.48	28.09±4.71	20.14±4.57	33.33±7.90
Test		KW=34.426	K±W=12.568	KW=10.159	KW=19.784	KW=30.751	KW=43.098	KW=21.816	KW=24.858
p		p=.000	p=.002	p=.006	p=.000	p=.000	p=.000	p=.000	p=.000
Faculty									
Health sciences	240 (48.5)	127.83±20.90	20.17±3.74	17.76±4.46	24.00±4.43	22.25±4.52	26.05±4.67	17.58±4.32	31.81±7.94
Sports sciences	255 (51.5)	138.42±23.47	21.70±4.46	19.23±4.90	25.16±4.630	24.04±4.64	27.46±4.92	20.81±4.68	32.28±8.78
Test		t=-5.288	t=-4.140	t=-3.468	t=-2.834	t=-4.357	t=-3.260	t=-7.965	t=-.616
p		p=.000	p=.000	p=.001	p=.005	p=.000	p=.001	p=.000	p=.538
Smoking									
Yes	146 (29.5)	132.45±23.27	20.50±4.39	18.36±4.95	24.76±4.72	22.74±4.52	26.42±5.20	19.65±4.77	32.34±8.21
No	325 (65.7)	134.25±22.94	21.27±4.15	18.68±4.73	24.68±4.53	23.40±4.78	27.07±4.64	19.13±4.83	31.99±8.44
I quit	24 (4.8)	125.20±17.63	19.50±3.10	17.33±3.34	22.45±3.58	22.62±3.83	24.91±5.00	18.37±4.15	31.19±8.88
Test		KW=3.291	KW=6.105	KW=1.248	KW=6.152	KW=2.478	KW=4.570	KW=1.674	KW=.552
p		p=.193	p=.047	p=.536	p=.046	p=.290	p=.102	p=.433	p=.759
Age	21.93±3.05	r=.143*	r=.072	r=.135**	r=.131**	r=.098*	r=.168**	r=.097*	r=.187**
		p=.001	p=.107	p=.003	p=.003	p=.030	p=.000	p=.032	p=.000
BMI	22.29±3.06	r=-.032	r=-.029	r=-.010	r=.005	r=-.071	r=.034	r=-.019	r=-.069
		p=.476	p=.525	p=.821	p=.911	p=.114	p=.455	p=.668	p=.124

t: Independent samples t-test, F: One-way Anova test; KW: Kruskal Wallis test; r: Spearman Correlation

Table 4. Relationship between students' HLBS Subscales and HLS

Scales	Significance	HLBS	Health responsibility	Physical activity	Nutrition	Spiritual development	Interpersonal relationships	Stress management
HLS	r	.453**	.268**	.276**	.479**	.417**	.515**	.270**
	p	.000	.000	.000	.000	.000	.000	.000

r: Pearson Correlation

Discussion

The results of this study, which sought to investigate the correlation between healthy lifestyle behaviors and health literacy among university students, were discussed in light of the literature. The HLBS has a minimum score of 52 and a maximum score of 208, with higher scores indicating more favorable healthy lifestyle behaviors. The score on the HLS ranges from 0 to 50, with a higher score indicating better health literacy. It was found that participants exhibited moderate healthy lifestyle behaviors and high levels of health literacy.

This study identified a positive and statistically significant correlation between the HLS and HLBS scores (Table 3). The literature review revealed studies supporting our research. Literature studies examining the relationship between HLS and healthy lifestyle behaviors align with the findings of the present research [16-20].

The fact that the faculties where the research was conducted are related to health and sports may have influenced the findings. Lower levels of health literacy and healthy lifestyle behaviors may be observed in departments not related to health.

This study revealed that the stress management sub-dimension scores of the HLBS were statistically significantly higher for male participants compared to females, based on the gender variable. Additionally, the scores for health responsibility, physical activity, nutrition, and stress management sub-dimensions showed statistically significant differences according to the income level variable. The scores for the health responsibility and nutrition sub-dimensions exhibited statistically significant differences based on the smoking variable ($p < 0.05$; Table 3). Additionally, it was found that the scores of the health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management sub-dimensions were statistically significantly different according to both the perceived health and the faculty attended variables ($p < 0.05$; Table 3).

In the study by Özkan, Çekiç, and Çepikkurt (2021), it was found that the health responsibility and interpersonal relations sub-dimension scores of the HLBS were statistically significantly higher for female participants compared to males, based on the gender variable [21]. In the study conducted by Ezer and Üstün (2021), it was found that the scores of the physical activity sub-dimension were statistically significantly different in favor of male participants [22]. In the study conducted by Öge et al. (2021), it was found that the scores of the health responsibility, physical activity, nutrition, and stress management sub-

dimensions were statistically significantly different in favor of male participants [23]. In the study conducted by Baydar Arıcan (2021), it was found that the scores of the health responsibility, nutrition, interpersonal relations, and stress management sub-dimensions were statistically significantly different in favor of male participants [24]. In the study conducted by Bülbül et al. (2020), it was found that the scores of the health responsibility and interpersonal relations sub-dimensions were statistically significantly different in favor of female participants, and the scores of the physical activity and stress management sub-dimensions were statistically significantly different according to the income level variable. The scores of the physical activity sub-dimension were statistically significantly different according to the smoking variable [25]. In the study conducted by Gömleksiz et al. (2020), it was found that the scores of the physical activity sub-dimension were statistically significantly different in favor of male participants according to the gender variable, and the scores of the interpersonal relations sub-dimension were statistically significantly different in favor of female participants. The scores of the health responsibility, physical activity, nutrition, and spiritual growth sub-dimensions were statistically significantly different according to the income level variable. The scores of the physical activity sub-dimension were statistically significantly different according to the smoking variable, and the scores of all sub-dimensions were statistically significantly different according to the perceived health variable [26]. In the study by Özsoy and Şentürk (2020), it was found that the scores of the HLBS were statistically significantly different in favor of male participants according to the gender variable, and the scores of the physical activity, nutrition, spiritual growth, interpersonal relations, and stress management sub-dimensions were statistically significantly different according to the perceived health variable. The scores of the nutrition sub-dimension were statistically significantly different according to the smoking variable [27]. Additionally, in the study by Kazak et al. (2021), it was found that the scores of the HLBS were statistically significantly different in favor of female participants according to the gender variable, and the scores were statistically significantly different according to the faculty attended, income level, and perceived health variables [19].

Socio-demographic characteristics such as financial status, gender, and smoking were found to affect individuals' healthy lifestyle behaviors, and this may be influenced by the cultural characteristics of the region where the research was conducted. In this study, it was found that the scores of the HLS were statistically significantly different according to the income level

and perceived health variables, but not statistically significantly different according to the gender, faculty attended, and smoking variables (Table 3). In the study by Çelik et al. (2021), it was found that the scores of the HLS were statistically significantly different according to the gender, faculty attended, and income level variables [28]. In the study by Şirin et al. (2021), it was found that the scores of the HLS were statistically significantly different in favor of female participants according to the gender variable, and statistically significantly different according to the income level, smoking, and perceived health variables, but not statistically significantly different according to the faculty attended variable [29]. In the study by Soysal and Obuz (2020), it was found that the scores of the HLS were not statistically significantly different according to the gender and income level variables [30]. However, in the study by Buran and Yüksel Kaçan (2023), it was found that the scores of the HLS were statistically significantly different according to the gender and income level variables [31]. In the study by Okur et al. (2021), it was found that the scores of the HLS were not statistically significantly different according to the gender and income level variables [32].

In this study, a positive and very low-level statistically significant relationship was found between the scores of the physical activity, nutrition, spiritual growth, interpersonal relations, and stress management sub-dimensions of the HLS and the HLBS and the age variable (Table 3). In a study it was determined similar results [33]. Additionally, it was found that there was no statistically significant relationship between the scores of all sub-dimensions of the HLS and the HLBS and the BMI variable (Table 3). The fact that this study was conducted on a young population may have contributed to the lack of a relationship between BMI and health literacy and healthy lifestyle behaviors. This result may vary in studies conducted on different age groups.

Conclusion

Healthy lifestyle behaviours and health literacy are among the most important issues of public health in a rapidly changing world. Because it is one of the behaviours that should be developed first of all in order to protect the individual from diseases and to get a positive response to treatments.

In the present study, sociodemographic characteristics of the participants had an effect on health literacy and healthy lifestyle behaviours. A moderate positive correlation was found between the participants' healthy lifestyle behaviours and health literacy levels. In addition, as the level of health literacy increased, significant improvements were observed in healthy lifestyle behaviours. In line with these results, the authors recommend that research on healthy lifestyle behaviours and health literacy should be conducted in different populations such as the elderly, adolescents and adults.

Public health professionals, sports science professionals and most importantly policy makers should develop policies and organise training programmes to improve healthy lifestyle behaviours by increasing the health literacy levels of individuals.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

The relevant university's Scientific Research and Publication Ethics Committee approved the research (Date and Number: 08.11.2023-116365).

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