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Health literacy levels of sports sciences faculty students in a state university and associated factors

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ABSTRACT

Individuals with insufficient or limited health literacy use preventive health services less and have difficulty managing chronic diseases. Mortality and morbidity rates of these individuals are high. Students studying at the Faculty of Sports Sciences work as Physical Education Teachers, Coaches, and Sports Managers after graduation. Furthermore, many of these students continue their active sports life. Due to their profession, they or their athletes face many health problems such as acute and chronic sports injuries and cardiovascular diseases. In such cases, the level of health literacy comes to the fore. Therefore, this study aimed to determine the health literacy levels of the students of the Faculty of Sports Sciences in a state university and associated factors. The study sample consists of 196 (n=86 female and n=110 male) volunteer students studying at Usak University Faculty of Sports Sciences in the 2023-2024 academic year. Turkey Health Literacy Scale-32 (THLS-32) was employed to determine the health literacy levels of the students. Following the approval of the Usak University Social and Human Sciences Scientific Research and Publication Ethics Committee, the data collection process was carried out in the classroom environment by using the face-to-face interview technique. The obtained data were evaluated using the SPSS 25.0 package software. A statistically significant difference was found in the student's health literacy levels according to the father's education level, family income status, and the place of residence of the family ($p<0.05$). The present study concluded that students' health literacy levels were inadequate and limited and that the father's education level, family income level, and the place of residence of the family were associated with health literacy.

KEYWORDS: Sports Sciences; Student; Health Literacy.

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INTRODUCTION

The expectations of modern health systems from individuals who benefit from health services are increasing. Due to increased self-responsibility in health care, individuals may be asked to take on new roles in taking responsibility for their health, understanding information, and making health decisions for themselves and others. All these demands are based on people's health literacy (HL) skills (Yılmazel & Çetinkaya, 2016).

Due to the interest shown in HL, different definitions have been made about this concept. The American Medical Association (AMA) defines HL as "a constellation of skills that encompasses the ability to perform basic reading and procedural tasks necessary for functioning in the healthcare environment." "HL" is a new concept that brings people together in the fields of health and literacy. It builds insights into health and literacy as critical resources of everyday life. HL is increasingly recognized as essential for health and health outcomes. The definition envisaged to be used for individuals to interact with and respond to health problems is as follows: HL is "the degree to which individuals can acquire, process, and understand basic health information and services necessary to make appropriate health-related decisions. According to the Committee on Health Literacy of the Institute of Medicine of the United States of America, the impact of HL is increasing due to its interaction between the individual and the health context. Therefore, "HL should be considered as a shared function of social and individual factors" (Yılmazel & Çetinkaya, 2016,Duyan et al 2024).

It is stated that the majority of deaths of all ages worldwide are due to chronic diseases. Cardiovascular diseases in particular (mainly heart disease, hypertension, and stroke) are responsible for 30.0% of all deaths (Tokuda et al., 2009). Health-related behaviors of individuals are of great importance in the formation of chronic and degenerative diseases. Failure to comply with the principles of healthy living, which can be summarized as healthy eating, active life and not smoking, poses a risk for the development of various chronic diseases. HL is associated with protection from some risk factors and non-communicable diseases (Yılmazel & Çetinkaya, 2016). Poor HL has been shown to lead to poorer glycemic control and higher levels of retinopathy in diabetic individuals and to affect inhaler use in asthmatic patients (Özdemir et al., 2010). Volandes and Paache-Orlow (2007) stated that poor health outcomes resulting from limited HL are an ethical problem and should be considered a fundamental injustice in the health system. The World Health Organization Commission on Social Determinants of Health stated in its report that literacy has a central role in health inequalities in both developed and developing countries, and recognized the development of HL as an important tool in reducing health inequalities (Davis et al., 2002). HL plays a critical role in the self-management of chronic diseases. Self-management includes all individual tasks that require taking control of one or more chronic diseases for a

better life. These tasks are related to medical management, role management, and emotional management (Yılmazel & Çetinkaya, 2016). Skill gaps in these areas prevent many patients from effective self-management. In general, the elderly, ethnic minorities, and individuals with low incomes and low levels of formal education may have more difficulty in self-managing their illnesses with inadequate literacy levels (Gillis et al., 2004,Gürer et al.2024,Kurt et al 2024). Baker et al. (1998) reported a high correlation between inadequate HL and increased mortality rates. In a prospective study conducted in the United States, an increased mortality risk was reported as 50-80% in people with inadequate HL.

Based on the definition of HL, individuals need to understand health messages correctly to make decisions about their health. It is known that individuals with insufficient and limited HL levels have increased unnecessary hospital costs, longer hospital stays, and higher rates of unnecessary examinations compared to individuals with sufficient HL levels. In addition, unnecessary use of emergency services by these individuals has increased. All these reasons lead to unnecessary labor losses and increased health expenditures (Baker et al., 1998). From another perspective, when the relationship between individuals' HL level and their health management is examined, it is seen that individuals with inadequate or limited HL use preventive health services less and have worse chronic disease management than individuals with adequate HL levels. These individuals also have higher mortality and morbidity rates (Sadeghi et al., 2013). When the relationship between chronic diseases and HL is examined, it is emphasized that barriers are formed due to low HL in individuals monitored for kidney diseases, asthma and COPD, type 2 diabetes, rheumatoid arthritis, and depression, and the need to overcome them (Al Sayah et al., 2015).

Personal preferences and social and physical environments can shape behavior. Individual biology (family history, hereditary status, etc.) and behaviors influence health through the individual's interaction with their social and physical environments. For example, smoking can alter lung cells, causing shortness of breath, while cancer can cause a person to quit smoking. The prevalence of problems such as overweight and physical inactivity worldwide leads to an increase in lifestyle-related diseases. In all regions of the world, modifiable risk factors such as unhealthy diets, excessive energy intake, smoking, and physical inactivity are cited as the main causes of chronic diseases such as heart disease, stroke, and cancer. Individuals with inadequate HL are considered to be more prone to negative health behaviors. Improving HL is essential to change behavioral risk factors such as smoking, unhealthy diet, alcohol consumption, physical inactivity, and being overweight (Cho et al., 2008).

Students studying at the Faculty of Sports Sciences work as Physical Education Teachers, Coaches, and Sports Managers after graduation. In addition, many of these students continue their active sports life. Therefore, they or their students/athletes face many health problems such as acute and chronic sports injuries and cardiovascular disorders. In such cases, the level of HL is important. Determining the HL levels of the students of the Faculty of Sport Sciences may contribute to increasing public health by exhibiting approaches to improve HL awareness. There is no study in the literature to determine the HL levels of athletes, student-athletes, or students of the Faculty of Sport Sciences. Based on all these, it can be stated that this study, which aims to determine HL levels of students studying at the faculty of sports sciences at a state university and related factors, is an original study that will contribute to public health and literature. Therefore, the following questions were answered within the scope of the study:

1. What are the HL levels of the students of the Faculty of Sports Sciences?
2. What are the factors associated with the HL levels of the students of the Faculty of Sports Sciences?

METHODS

2.1. Research Model

The data of the study, which was designed in analytical cross-sectional type from quantitative research models, were collected using the online survey method after the approval of Usak University Social and Human Sciences Scientific Research and Publication Ethics Committee dated 04.07.2024 and numbered 2024-07.

2.2. Study Participants

The study sample consists of 196 (n=86 female and 110 male) volunteer students studying at Usak University Faculty of Sports Sciences in the 2023-2024 academic year.

2.3. Data Collection Tools

2.3.1. Personal Information Form

The Personal Information Form, which was prepared by the researchers by reviewing the literature, consists of 8 questions: gender, the presence of a health worker in the family, the status of a disease being treated, grade level, mother's education status, father's education status, family income level, and the place of residence of the family (Dinçer & Kurşun, 2017; Ergün, 2017; İnkaya ve Tüzer, 2018).

2.3.2. Turkey Health Literacy Scale (THLS-32)

Turkey Health Literacy Scale (THLS-32) is a self-report scale developed by Okyay and Abacıgil (2016) to assess HL in people over the age of fifteen who are literate. The scale is based on the conceptual framework developed by the European Health Literacy Research Consortium (HLS-EU CONSORTIUM, 2012). Each item is rated on a four-point scale where 1 = very easy, 2 = easy, 3 = difficult, and 4 = very difficult. Code 5 is used for the phrase "I have no idea". Before calculating the scores, the codes were recoded as 1-4, 4-1. For ease of calculation, the total score is standardized using the formula below to take a value between 0-50.

Index = (arithmetic mean-1) x [50/3]
Index = Calculated person-specific index
Arithmetic mean = Average of responses to each item

1 = Lowest possible value of the mean (causes the index to be the lowest 0)
3 = Range of the mean
50 = Maximum value selected for the new criterion
A score of 0 on the scale indicates the lowest level of HL, and a score of 50 indicates the highest HL.
The level of HL was evaluated in four categories according to the score obtained.

- (0-25) points: Inadequate HL
- (>25-33) points: Problematic - Limited HL
- (>33-42) points: Adequate HL
- (>42-50) points: Excellent HL

2.4. Statistical Analysis

The data obtained from the questionnaire administration were evaluated in SPSS 25.0 package software at a 95% confidence interval and 0.05 significance level. The distribution normality of the data was tested with the Kolmogorov-Smirnov Test. Since the data were found to be normally distributed and parametric test assumptions were met, parametric tests were used in statistical analyses. The significance of the difference between the mean of the two groups independent of a continuous variable was determined by the Independent Sample T-Test. The significance of the differences between the means of three or more independent groups was tested with One Way ANOVA, one of the Independent K Sample Tests. In the multiple comparisons between groups to determine the difference between three or more independent groups, the Tukey HSD Test, one of the Post-Hoc Tests, was used due to the homogeneous distribution of variances.

RESULTS

Table 1. Frequency distributions of students' health literacy levels

Level of HL	n	%	
Inadequate HL	93	47.4	
Limited HL	46	23.5	
Adequate HL	31	15.8	
Excellent HL	26	13.3	

As can be seen in Table 1, 47.4% (n=93) of the students had inadequate HL, 23.5% (n=46) had limited HL, 15.8% (n=31) had adequate HL, and 13.3% (n=26) had excellent HL.

Table 2. Independent group T-test results on health literacy level

Parameters	Groups	n	$\bar{X}$	Sd±	S_{error}	T-test	
						t	p
Gender	Female	86	29.40	9.49	1 .02	0.772	0.441
	Male	110	28.34	9.63	0.91		
Presence of health workers in the family	Yes	33	29.07	10.12	1.76	0.171	0.864
	No	163	28.75	9.47	0.74		
Presence of a disease being treated	Yes	24	28.94	9.80	0.74	-0.541	0.589
	No	172	27.82	7.72	1.57		

As can be seen in Table 2, no statistically significant difference was found between the students' HL levels in terms of gender, the presence of health workers in the family, and the presence of a disease being treated (p>0.05).

Table 3. One-way analysis of variance results on health literacy level

Parameters		Groups	n	$\bar{X}$	Sd±	F	p	Difference
Grade level	1	First grade	57	29.49	9.81	1.926	0.127	
	2	Second grade	32	25.47	7.76			
	3	Third grade	76	28.84	8.82			
	4	Fourth grade	31	30.91	11.78			
	5	Total	196	28.81	9,56			
Mother's educational background	1	Primary school	103	28.18	9.43	1.009	0.390	
	2	Secondary school	30	27.48	8.52			
	3	High school	36	30.80	9.82			
	4	University	27	45746	10.72			
	5	Total	196	28.81	9.56			
Father's educational background	1	Primary school	60	26.38	8.79	3.926	0.037	4-1
	2	Secondary school	42	28.88	9.55			4-2
	3	High school	59	30.49	9.10			3-1
	4	University	35	30.71	10.51			3-2
	5	Total	196	28.81	9.56			
Family income status	1	Income less than expenses	40	26.32	7.69	3.183	0.046	3-1
	2	Income equal to expenses	128	28.90	9.57			3-2
	3	Income more than expenses	28	31.91	11.15			
	4	Total	196	28.81	9.56			
Place of residence of the family	1	Village / town	47	26.61	9.30	3.537	0.042	3-1
	2	District center	86	28.44	9.47			3-2
	3	Provincial center	63	30.95	9.58			
	4	Total	196	28.81	9.56			

** Significance at the level of 0.05*

As seen in the table, there was no statistically significant difference between the HL levels of the students in terms of grade level and mother's education level ($p>0.05$). However, there was a statistically significant difference between the HL levels of the students according to the father's education level, family income status, and the place of residence of the family ($p<0.05$).

DISCUSSION

The present study, which aimed to determine the HL levels of the students studying at the faculty of sports sciences at a state university and related factors, found that a significant portion of the participants had inadequate (47.4%) and limited (23.5%) HL levels. Factors such as inadequacy of the content of the education received by students in increasing the level of HL, difficulty in accessing health resources, low awareness of students regarding HL, socio-cultural factors, and different priorities of students are considered to be related to the inadequate and limited level of HL. In some studies, as in this study, participants' HL levels were found to be inadequate and limited (Akçilek, 2017; Şahinöz et al., 2018), while in some studies, participants' HL levels were found to be adequate and excellent (Britt et al., 2017; Yang et al., 2017; Biçer & Malatyalı, 2018; Çelik et al., 2021). It is considered that the different demographic characteristics, educational status, socioeconomic status, and residential environment of the participants in these studies lead to different results.

The present study determined that gender does not affect the level of HL, and the HL levels of female and male students were close to each other. In support of this study, there are studies reporting that the HL levels of females and males are similar (Chan et al., 2009; Zhang et al., 2016; Gamsızkan & Sungur, 2020; Uysal et al., 2020; Göçer et al., 2021; Naveed & Shaukat, 2021). The absence of differences in HL levels between males and females may be due to the fact that in some societies access to health information is equal and both sexes have similar levels of education and access to health services. However, there are also studies reporting that gender affects the level of HL and that females have higher HL levels than males (Shieh & Halstead, 2009; Vozikis et al., 2014; İnkaya & Tüzer, 2018; Türkoğlu, 2016; Sukys et al., 2017; Biçer & Malatyalı, 2018; Çelik et al., 2021; Ertaş & Göde, 2021; Kazak et al., 2021). There may be several reasons why females' HL levels are generally higher than males. First of all, females often bear more responsibility for family health, childcare, and individual health. This makes them more interested in health information. In addition, access rates of females to health services may be higher than those of males. Females may be more likely to participate in health-related education and awareness campaigns. Social and cultural factors may also make females more sensitive to health issues.

The present study determined that the presence of health workers in the family did not affect the level of HL. Considering that only 33 of the students participating in this study had health workers in their families, this finding of the present study can be considered normal. Current studies are reporting that the presence of health workers in the family does not affect the level of HL (Dinçer & Kurşun, 2017; Tekin & Tekin, 2024). It can be stated that the presence of a health worker in the family alone is not sufficient for a high level of HL. It is predicted that the presence of a health worker in the family may be more effective on the HL levels of individuals when supported by personal motivation, education level, and environmental factors.

It was determined that being treated for any disease did not have a significant effect on the level of HL. In the study, only 24 students were treated for any disease. Since the number of participants who were treated for a disease in the current study was quite low, it is possible to reach different results about whether being treated for a disease has an effect on the level of HL in studies to be conducted with more participants who were treated for a disease. Similar to this study, Çelik et al. (2021) reported that the HL levels of those with chronic diseases were not different from the HL levels of other participants. Dinçer and Kurşun (2017), on the other hand, stated that HL levels are high in those who are treated for a disease. In addition, Tekin and Tekin (2024) stated that those with chronic diseases have higher HL levels. The reason why HL is higher among individuals receiving treatment is that these individuals need to learn more about their diseases. The treatment process leads people to do more research about their diseases, treatment methods, and drugs, and to communicate with health professionals more often. This process can help individuals understand and use health information to better manage their health. In addition, active participation in the treatment process can contribute to increasing HL.

In this study, it was determined that the HL levels of the students studying at different grade levels were similar. Although the students participating in this study were in different classes and in different undergraduate programs, the fact that their curricula were similar may have caused them to have similar HL levels. In the studies to be carried out in different faculties, there may be differences in terms of HL levels according to the faculty and grade level. In some recent studies, it has been reported that grade level does not affect HL (Gamsızkan & Sungur, 2020; Uysal et al., 2020; Uysal & Yıldız, 2021; Duong et al., 2021). On the other hand, in some studies, it has been stated that HL levels differ according to grade level (Dinçer & Kurşun, 2017; Ergün, 2017; Çelik et al., 2021).

In the study, it was determined that the education level of the mother did not affect the HL levels of the students, while the education level of the father did, and the HL levels of the students whose fathers graduated from high school and university were higher than other students. It is considered that this situation may be due to the fact that the father is generally seen as the leader of the family due to the cultural structure of Turkish society. Some recent studies determined that the level of HL increases as the educational status of the mother increases (Çelik et al., 2021; Şirin et al., 2021). Some studies concluded that an increase in both mothers' and fathers' education levels positively affected the level of HL (Zhang et al., 2016; Khajouei & Salehi, 2017; Biçer & Malatyalı, 2018). As can be seen, different results have been reached in different studies. It is considered that the different personal characteristics of the students and their parents in the sample of the studies are effective in the results obtained.

The present study determined that the level of HL increases as the income level of the families of the students increases. Families with higher income levels can provide better educational opportunities for their children and students may have easier access to

health information. In similar studies, it was found that students with high family income levels had high HL levels (Özdemir et al., 2010; Vozikis et al., 2014; Zhang et al., 2016; Biçer & Malatyalı, 2018; Çelik et al., 2021; Kazak et al., 2021). The present study determined that the HL levels of students whose families live in the provincial center are higher, and the level of HL levels increase as they move from rural areas to larger settlement centers. Urban centers often have more health resources, educational opportunities, and access to health care. It may be easier to access health-related information in these regions. Programs and resources for HL may be more prevalent in these regions. In addition, families living in urban centers often have higher levels of education. This increases their ability to acquire and understand health information. In places such as villages and towns, the level of HL may be lower as access to health services may be limited. In a similar study, Özdemir et al. (2010) reported that geographical location affects the level of HL.

CONCLUSION

In line with the findings obtained from statistical analyses, it was concluded that the HL levels of the students participating in the study were inadequate and limited and that the father's education level, family income status, and the place of resident of the family were factors associated with the level of HL. Based on these results, it is recommended to organize training programs to increase the HL level of the students of the Faculty of Sports Sciences, support projects to strengthen health communication within the family, provide scholarships or supportive services to increase access to health information for low-income students, organize workshops and seminars on HL for students whose families live in villages and towns, and use digital platforms and applications to facilitate students' access to health information. A study to be conducted with students studying at the Faculty of Sports Sciences at private universities can be an interesting study that contributes to the field.

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