

Original Article

## Investigation of Health Literacy Levels and Health Perceptions of Nursing Students: A Cross-sectional study

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### Abstract

**Objective:** This study aimed to evaluation the health perceptions and health literacy levels of nursing students.

**Materials and Methods:** This cross-sectional study conducted with 409 Undergraduate nursing students in a university in Turkey. Data were collected from both groups by using a personal information form, the Turkey Health Literacy Scale and the Perception of Health Scale.

**Results:** The mean age of was  $20.81 \pm 2.1$ , 62.3% of the students were female, and 32.3% were 1st graders. When the characteristics of the students had compared with Turkey Health Literacy Scale Points Indexes, a statistically significant difference was found to be between the students 'grades, income status, employment status of the parents and health literacy levels ( $p < 0.05$ ).

**Conclusions:** It was found that health literacy of nursing students was insufficient. Before beginning their professional life, it is imperative for students to gain health literacy skills to understand the vital health status of patients.

**Keywords:** Health literacy, health perception, nursing education, quality care, nursing student.

### Introduction

Health literacy (HL) includes the ability to receive health care services, to understand the received health services, and to use it in health-related situations. HL which is considered to be a key factor for improving health, well-being and reducing health inequalities, is essential in terms of learning new information on health-related issues, decision-making processes, and critical thinking skills in integrating this knowledge into their conditions (Duong et al., 2017; Matsumoto, & Nakayama, 2017). Besides, it is crucial for the patient or healthy individuals to express their

health complaints, to be able to understand the health-related statements, to be able to receive proper and quality care, treatment, and health service (WHO, 2009; Kinding, Panzer, & Nielsen-Bohlman, 2004; Sorensen et al., 2012). The World Health Organization reported that according to the European HL Survey, 12% of the respondents had insufficient general HL levels (WHO, 2013). In the United States, 36% of the 90 million adults have a low HL level. The general health literacy index of Turkey was found to be 30.4% (Durusu Tanrıover, Yıldırım, Demiray Ready, Çakır, & Akalın, 2014). The level of health literacy and health perceptions of

nursing students who will be future professionals is vital in developing the health literacy level of society (Kendir, Akkaya, Arslantas, & Kartal, 2017). Thus, this research was conducted to evaluate the health perceptions and health literacy levels of nursing students.

## Methods

### *Research design and study context*

This research was based on cross sectional design. The study sample was drawn from a population of 460 nursing students living in a university in Hatay in Turkey. The research was carried out between March and May 2018, and the aim of the study was explained to the students in their extracurricular time. Application of the survey form and the scale took 15-20 minutes on average.

### *Sample size and inclusion criteria*

The sample of the present study was the nursing students of a university (N=460). The sample was not selected; 409 students voluntarily participated in the study. The inclusion criteria for the selection for this study were students in health faculty.

### *Data collection tools*

The data were collected by a self-administered questionnaire, Turkey Health Literacy Scale (THLS-32), and the Perception of Health Scale (PHS).

**Questionnaire:** The questionnaire, developed by the researchers, consists of 23 questions. 8 of these questions includes socio-demographic characteristics of the students, 6 of them are the questions used to determine the behaviors that are harmful to health and to determine the health status of the students. The remaining questions are related to the choice preference of the nursing department and information about the applications in case of illness.

**Turkish Health Literacy Scale (THLS-32):** THLS-32 developed by the Consortium of European Health Literacy Research (Consortium, 2012) and adapted to Turkish by Okay and Abacıgil (2016) (Okay, & Abacıgil, 2016). The THLS-TR scale is a self-report scale developed to evaluate HL in literate people over the age of 15. The scale includes health-related three dimensions (treatment, prophylactic, and health

promotion) and four processes of obtaining information related to health-related decision-making/practices (access, understanding, decision making, and application). The total score that can be obtained from the scale ranges between 47 and 188. In terms of ease of calculation, the total score is standardized with the help of formula (Formula = Index = (arithmetic mean-1) x [50/3]) to obtain a value between 0 and 50. The level of health literacy is evaluated under four categories according to the score obtained. The categorization is determined as follows: (0-25): insufficient HL; (> 25-33): problematic - limited HL; (> 33-42): sufficient HL;(> 42-50): excellent HL.

**Perception of Health Scale (PHS):** PHS was developed by Diamond et al. in 2007 (Diamond, Becker, Arenson, Chambers, & Rosenthal, 2007). The scale is a five-point Likert-type scale consisting of fifteen items and four sub-factors. 1, 5, 9, 10, 11 and 14 are positive attitudes statements, 2, 3, 4, 6, 7, 8, 12, 13 and 15 are negative attitudes statements. Positive statements were rated as "Strongly Agree = 5," "Agree = 4", "Undecided = 3", "Disagree = 2", "Strongly disagree = 1". Negative statements are reverse scored. The minimum score is 15, and the maximum score is 75. Cronbach Alpha Values, according to the sub-groups of the scale are 0.90 for the center of control; 0.91 for self-awareness; 0.91 for Certainly; 0.82 for the importance of health. The validity and reliability of the scale in Turkish was performed by Kadioglu and Yıldız in 2012 (Kadioglu, & Yıldız, 2012). The scale was found to have above average reliability.

### *Ethical considerations*

Ethical approval for this study was obtained from the University Ethical Review Committee. Permission for the study was also obtained from the directors of nursing schools. The students were informed of the purpose of the study before data were collected.

### *Data analysis*

Statistical Package for Social Sciences (SPSS) 20.0 package program was used for statistical analyses. In the study, participant characteristics about disease and health-related behaviors were analyzed using descriptive statistics. The associations between students characteristics and THLS-32 score index were examined using the

$\chi^2$  test. Whitney-U Test was used to comparing between the characteristics of students' health-related behaviors and their health perception mean scores.

## Results

The mean age of the students was  $20.81 \pm 2.1$ . It was determined that the 255 students (62.3%) were females, 132 (32.3%) were first-year students, 305 (74.6%) had a nuclear family, 249 (60.9%) had an unemployed father, and 330 (80.7%) had unemployed mothers. Considering the characteristics of students; it was suggested that 200 (48.9%) of them live in dormitories, 344 (84.1%) were not on medication, 357 (87.3%) did not have a chronic disease, 313 (76.5%) did not smoke, 74 (18.1%) drank alcohol and they drink for pleasure (10.5%). Two hundred forty-seven students (60.4%) chose the nursing department voluntarily, and the majority of them (78.5%) would perform the profession of nursing after graduation. The students reported that generally "when they felt that their body was ill, the first thought was usually going to the doctor (41.3%) and usually public hospital (50.9%) due to acute situations (55.0%). It was found that students generally used the Internet as a source (60.4%) in order to reach information such as health-related diet, exercise, prevention of diseases and some specific health issues. It was found that 258 students (63.1%) read about health-related newspapers, magazines, books, 79.0% of paying attention to health-related information on TV, radio, etc., 51.8% were fasting/dieting to maintain their health, 69.4% of them avoided using additive in their meals and 71.6% of them shop from markets that sell organic agricultural products, 64.1% pay attention having adequate and balanced nutrition, 62.8% did not exercise regularly, and 52.1% did not consume foods and drinks products that do not suit their taste. Majority of them (81.4%) tried to obtain information about the prescribed medications, including the side effects, and 273 (66.7%) pay attention to their weight to stay healthy. The mean score of the students in the THLS-32 scale was  $17.8 \pm 9.9$ . The treatment and service sub-dimension score of the scale was  $17.78 \pm 9.8$ , and the sub-dimension of the prophylaxis and health promotion score was 18.0

$\pm 10.0$ . In both sub-dimensions, information sub-indexes constitute the highest index values;  $9.0 \pm 2.8$  and  $8.7 \pm 3.1$ . The PHS overall score is  $48.5 \pm 6.3$ . The center of control sub-dimension of the scale was  $16.7 \pm 4.7$ , the precision sub-dimension was  $11.5-3.1$ , the sub-dimension of the importance of health was  $11.2 \pm 2.2$ , and self-awareness sub-dimension was  $5.9 \pm 2.2$ . (Table 1). According to the evaluation of the THLS-32 score index of the students, 77.8% were insufficient, 16.9% were limited, and 4.6% had sufficient health literacy. When the characteristics of the students and the THLS-32 score indexes were compared, no statistically significant difference was found between the variables of sex, the presence of chronic disease and health literacy levels of students (THLS-32 Score Indexes) ( $p > 0.05$ ). A statistically significant difference was found between the class levels of students, income, working status of parents, and health literacy levels ( $p < 0.05$ ) (Table 2). Values according to the sub-groups of the scale are 0,90 for the center of control; 0,91 for self-awareness; 0,91 for Certainly; 0,82 for the importance of health. The scale was found to have above average reliability. When the distribution of the characteristics of health-related behaviors of students according to their health perception mean scores are examined, it was found that there is a significant difference between health perception scale and paying attention to health-related information on TV, radio, etc.; consuming products to protect their health, whether they suit their taste or not; trying to obtain information about the prescribed medications, including the side effects  $p < 0.05$ . The PHS total score means of the participants who answered these variables as 'yes' was significantly higher than those who said 'no.' Although there was no significant difference between the total score of the PHS scale and reading health-related newspapers, magazines, fasting/dieting to maintain health, avoidance of using products containing additives and preservatives in their meals, paying attention to adequate and balanced nutrition; there was a statistical significance between them and the importance of health sub-dimensions of the scale, certainly and self-awareness ( $p < 0.05$ ) (Table 3).

**Table 1. Means and Min-Max values for THLS-32 and PHS**

<b>THLS-32</b>	<b><math>\bar{X} \pm SD</math></b>	<b>Min-Max</b>
	17.8±9.9	0-46
<b>Treatment and service</b>	17.78±9.8	0-52
Access	7.6±2.4	4-15
Understanding	8.1±2.5	4-16
Assessment	9.0±2.8	4-18
Use and apply	8.0±2.9	4-19
<b>The prophylaxis and health promotion</b>	18.0±10.0	0-44
Access	8.1±2.8	4-17
Understanding	8.0±2.7	4-16
Assessment	8.7±3.1	4-17
Decision making and use	8.5±3.3	4-18
Access health-related information	15.7±4.6	8-27
Understanding health-related information	16.1±4.8	8-29
Assessment health-related information	17.8±5.5	8-33
Use and apply health-related information	16.5±5.8	8-36
<b>PHS</b>	<b><math>\bar{X} \pm SD</math></b>	<b>Min-Max</b>
<b>Total score means of the participants</b>	48.5±6.3	27-70
The center of the control	16.7±4.7	5-25
The self-awareness	5.9±2.2	3-14
The center of control	11.5-3.1	4-20
the importance of health	11.2±2.2	3-15

**Table 2. Comparison of student characteristics and THLS-32 score index**

<b>Students Characteristics</b>	(0-25 score)	(26-33 score)	(34-42 score)	(43-50 score)	$\chi^2$ , p value
<b>Gender</b>					
Women	201 76.0	4517.6	93.5	00.0	7.126
Men	117 76.0	2415.6	106.5	31.9	0.068
<b>Grade</b>					
First year	12090.9	129.1	00.0	00.0	
Second year	8289.1	99.8	11.1	00.0	<b>102.125</b>
Third year	7485.1	1112.6	22.3	00.0	<b>0.001</b>
Fourth year	4242.9	3737.8	1616.3	30.7	
<b>Income status</b>					
Less income	9389.4	32.9	54.8	32.9	
income equal to expense	2057.9	5520.4	10 3.7	00.0	<b>35.051</b>
More income	2057.1	1131.4	411.4	00.0	<b>0.001</b>
<b>Having any chronic disease</b>					
Yes	4076.9	815.4	47.7	00.0	1.711
No	27877.9	6117.1	154.2	30.8	0.635
<b>Mother's working status</b>					
Yes	5265.8	1721.5	78.9	33.8	<b>19.323</b>
No	26680.6	5215.8	123.6	00.0	<b>0.001</b>
<b>Father's working status</b>					
Yes	18373.5	5321.3	104.0	31.2	<b>11.307</b>
No	13584.4	1610.0	95.6	00.0	<b>0.010</b>
<b>Family type</b>					
Nuclear family	23777.7	5016.4	185.9	00.0	<b>16.295</b>
Extended family	7376.0	1919.8	11.0	33.1	<b>0.012</b>
Fragmented family	8100.0	00.0	00.0	00.0	

**Table 3. Distribution of the characteristics of Students' Health-Related Behavior according to PHS mean scores**

	The mean score of PHS	The importance of health	The certainly	The self-awareness	The center of control
<b>The status of reading health-related newspapers, magazines</b>					
Yes	258	258	258	258	258
No	151	151	151	151	151
u :	18740.5	<b>16812.0</b>	<b>16387.5</b>	u : 18665.0	<b>16863.5</b>
p :	0.521	<b>0.020</b>	<b>0.007</b>	p : 0.474	<b>0.023</b>
<b>The status of paying attention to health-related information in the ads on TV, radio, etc.</b>					
Yes	223	223	223	223	223
No	86	86	86	86	86
u :	<b>11921.0</b>	11747.5	<b>11948.0</b>	<b>10477.5</b>	13574.0
p :	<b>0.043</b>	0.026	<b>0.045</b>	<b>0.001</b>	0.746
<b>The status of being on a diet to keep healthy</b>					
Yes	211	211	211	211	211
No	197	197	197	197	197
u :	19152.0	<b>17403.5</b>	<b>16486.0</b>	19710.5	19313.0
p :	0.170	<b>0.004</b>	<b>0.001</b>	0.361	0.215
<b>The status of avoiding the use of products containing additives and preservatives in their meals</b>					
Yes	284	284	284	284	284
No	125	125	125	125	125
u :	15803.5	<b>14398.5</b>	<b>15057.5</b>	<b>14984.0</b>	17564.5
p :	0.077	<b>0.002</b>	<b>0.014</b>	<b>0.011</b>	0.866
<b>The status of shopping from markets selling organic agricultural products</b>					
Yes	293	293	293	293	293
No	116	116	116	116	116
u :	14986.0	15015.5	15528.5	16552.0	16412.5
p :	0.062	0.064	0.172	0.678	0.588
<b>The status of paying attention to having adequate and balanced nutrition</b>					
Yes	262	262	262	262	262
No	147	147	147	147	147
u :	18178.0	<b>15678.5</b>	19108.0	<b>16700.5</b>	<b>16963.0</b>
p :	0.346	<b>0.002</b>	0.896	<b>0.024</b>	<b>0.045</b>
<b>The status of doing exercise regularly to be healthy</b>					
Yes	152	152	152	152	152
No	257	257	257	257	257
u :	18436.5	<b>14923.5</b>	18574.5	18537.0	18076.0
p :	0.342	<b>0.001</b>	0.405	0.383	0.206

**The status of consuming products to be healthy, even though they do not suit her/his taste and visual pleasure**

Yes	196	196	196	196	196
No	213	213	213	213	213
u :	<b>17817.5</b>	18382.5	20086.5	20294.0	<b>16703.5</b>
p :	<b>0.010</b>	0.035	0.507	0.622	<b>0.001</b>

**The status of trying to obtain information about the prescribed medications, including the side effects**

Yes	333	333	333	333	333
No	76	76	76	76	76
u :	<b>10180.0</b>	12525.0	11074.5	<b>10048.0</b>	<b>10092.0</b>
p :	<b>0.008</b>	0.889	0.088	<b>0.004</b>	<b>0.006</b>

**The status of paying attention to her/his weight to stay healthy**

Yes	273	273	273	273	273
No	136	136	136	136	136
u :	16756.5	<b>10519.5</b>	17178.5	17178.5	<b>16135.5</b>
p :	0.108	<b>0.001</b>	0.212	0.212	<b>0.031</b>

**Discussion**

It is essential for prospective nurses to have the health perspective and health literacy in order to have information about the health or disease status of the patient, to understand the vital health information of patients and help them in this regard, to establish effective communication with the patient, and to manage their health (Sand-Jecklin, Murray, Summers, & Watson, 2010; Yilmaz Guven, Bulut, & Ozturk, 2018; Zhang et al., 2016).

This study aimed to determine the health perceptions and health literacy levels of nursing students. It is concluded that students have insufficient health literacy skills. In a previous study, it was determined that students in the healthcare field do not have the expected health-literacy level (Yilmaz Guven et al., 2018). In this study, it was observed that the THLS-32 scale score, used for the determination of health literacy of the students, was lower than the other studies. In these studies, the overall scale scores ranged between 26.48 and 66.19 (Ertan, 2017; Erual, Ozkaya, Mert & Kucukguclu, 2018).

In contrast to the other studies (Yilmaz Guven et al., 2018; Ergun, 2017), the majority of the students (77.8%) in the present study were found

to have inadequate health literacy. Although the reason is not fully known, it can be stated that it is an expected outcome since the health literacy of the nursing students, who have sufficient or excellent health literacy level in the domestic and international literature, is not determined as high.

As a matter of fact, in a study conducted in Nepal, the health literacy level of students was determined as the medium, and only a few students were at high health literacy level (Budhathoki et al., 2019).

Also, it was determined that the sub-dimension of prophylactic and health promotion of students had a higher score than the treatment and service sub-dimension (Yilmaz Guven et al., 2018). The present study differs from another study which concluded that the treatment and service sub-dimension is higher than the prophylactic and health promotion.

There may be various demographic and socio-economic factors affecting health literacy of students. In previous studies, it was determined that being a woman, class level, socio-economic status, having a chronic disease, and regular medication affect the level of health literacy (Yilmaz Guven et al., 2018; Ergun, 2017; Zou et al., 2018). In these studies, it was found that 4th-

grade female students have a higher health literacy score (Yılmaz Guven et al., 2018; Ergun, 2017).

In the present study, it was observed that being a woman and having a chronic disease does not affect the level of health literacy, similar to a study conducted by Sahinoz et al. (Sahinoz, Sahinoz, & Kivanc, 2018) However, it has been determined that health literacy levels of the 4th-grade students who have a nuclear family, a good economic level, whose parents are working, are higher than the other students. This may be due to, the high level of health literacy of 4th-grade students since they know how to reach health-related information and how to interpret the information as their health literacy level increases.

The employment status of parents and economic conditions suggest that the students can reach more technological resources (TV, tablet, smartphone). Parents who are working in permanent jobs suggests that they do not have time to apply to a health institution for one to one health care. Therefore, they can consult various sources regarding health problems. Therefore, this result may suggest that the students take their parents as a role model and this situation may improve the students' health literacy.

In this study, it was found that students mostly prefer the internet for health-related information. In similar studies, it was stated that the internet is the most frequently used information source (Yılmaz Guven et al., 2018; Sahinoz et al., 2018).

It is a pleasing finding that students have digital literacy. According to a study conducted by Woo and Miyong, nursing students with high health literacy were found to have higher self-care status than others (Park, & Kim, 2017). This may affect the students' health and also affect their nursing care positively. Thus, students with digital health literacy can access current evidence and practice in patient care more easily and quickly (Zou et al., 2018; Terry, Davies, Williams, Tait, & Condon, 2018).

The basis of functional health literacy is how people perceive health. Because health beliefs also affect health behaviors (Cao, Stone, Petrini, & Turale, 2018). In this study, the mean score of perception of health scale was  $48.5 \pm 6.3$ . In the literature, it is found that nursing students get

similar scores (Efteli & Khorshid, 2016; Ozdelikara, Agaçdiken Alkan, & Mumcu, 2018).

In studies, it was determined that the students got the highest score in the 'center of control' dimension (Efteli et al., 2016; Ozdelikara et al., 2018). The scale scores demonstrate that the health perceptions of the students are close to medium/ good. Therefore, these students are expected to have beneficial health behaviors. As it was anticipated in this study, health perception of students is also reflected in health behaviors (Aciksoz, Uzun, & Arslan, 2013).

It was found that there was a statistical difference between the Health Perception scale and paying attention to health-related information on the media, consumer products to protect their health, whether they suit their taste or not, trying to obtain information about the prescribed medications. It suggests that as the health perception of students increases, they try to protect their health more.

In the study conducted by Aciksoz et al., it was determined that students have a high belief in controlling their health in the future (Aciksoz et al., 2013). Similarly, in the study, the reasons for students to read various health-related sources, to diet to maintain their health, to avoid using the additive in their meals, to have adequate and balanced nutrition and to exercise regularly can be due to the students' desire to control their health. In these variables, the importance of health and the significance of the center of control sub-dimensions can be interpreted as an indication of this. At the same time, this finding shows that the students take responsibility for their health, similar to the study conducted by Chow et al. (2018) (Chow et al., 2018).

Although it is a positive situation for students to take responsibility for their health, they are not at the desired level yet. The fact that academicians support students in this subject and that they are role models in acquiring positive health behaviors may have a positive impact on the health perception and health literacy of students. Research findings can only be generalized to the extent of students of the university where the research is conducted and is limited to the data of students who agree to participate in the research.

Nursing is a devoted profession that requires communication with both healthy and sick individuals, providing preventive and therapeutic

health care. This study is crucial that the nurses should perceive, protect, and improve their health first in order to provide excellent health care and to provide practical and healthy information to the patient. A good health literacy skill has become an essential factor for health protection and development, compliance to treatment, and rapid recovery.

However, health literacy of nursing students is insufficient. For this purpose, it is critical for the students to gain the health literacy skills before they are put into professional life, to understand the vital health information of the patients and to help the patients in this regard, and to provide effective communication with the patient.

In order to improve the health literacy of the students, it is recommended to include this subject in the nursing curriculum and to provide training on health literacy through elective courses.

Furthermore, further studies conducted with several research methods on this subject may have positive consequences for the health literacy of students.

**Acknowledgements:** We would like to thank all participants for participating in this study.

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