Original Article

Investigation of Health Literacy Levels of Nursing Students and Affecting Factors

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Abstract

Background: The complex health system expects high health literacy skills from individuals. Nurses play an important role in increasing individuals' health literacy, providing reliable information to them, helping individuals with low health literacy levels and communicating effectively with them. Therefore nurses and nursing students should have adequate health literacy levels.
Objective: The aim of this study was to investigate the health literacy levels and affecting factors of the students in the nursing faculty.
Methodology: This is a descriptive and cross-sectional study. The study was conducted between January-July 2018, with 808 nursing students. Turkish Health Literacy Scale-32 (THL-32) was used to collect data. Independent samples t, One way ANOVA and post-hoc Tukey tests, Mann-Whitney U test and Pearson's correlation analysis were used in analysis of data.
Results: The mean general health literacy score of the students was 34.61 ± 7.57. It was determined that 8.8% of the students had an inadequate health literacy; 42.0% of them had a problematic health literacy; 31.2% of the students had adequate health literacy; 18.0% of them had excellent health literacy. It was found that health literacy was affected by gender, age and year in education.
Conclusions: Approximately half of the participant nursing students had adequate HL levels, but this percentage is considered as very low. The HL levels of nurses play an important role in the quality of the care provided. It is thought that students' HL levels can be increased to the desired levels by using an opportunity such as formal health education better. For this reason, it is suggested to add content about HL concept to university curricula, to give more emphasis to this concept and to conduct interventional researches on this subject.

Keywords: Health Literacy, Nursing Students, Nursing Faculty, Nursing, College Students.

Introduction

Health literacy is cognitive and social skills which are required to access, understand and use the knowledge to prevent and improve health (Nutbeam, 2000). Health literacy improves health information access and using health information effectively (WHO, 1998). Some examples of the skills required by high-level health literacy are the skills of reading prescription, interpreting prospectuses, and implementing directives prior to a medical procedure (Chen et al., 2011). Low levels of health literacy are associated with lower levels of knowledge, self-efficacy, self-care performance, and quality of life (Macabasco et al., 2011). This is because, patients can not read and understand instructions due to their difficulties in communicating with healthcare staff, their inability to understand health-related words, their limited knowledge about health, their inability to connect given information and present situation (Parker, 2000). Despite the negative consequences of low health literacy, various studies have shown that health literacy is not adequate worldwide (Kutner et al., 2006; Sorensen et al., 2015; Yamashita, Bailer & Noe, 2013). In our country, 64.6% of the population was found to have "inadequate" (24.5%) or "problematic" (40.1%) health literacy (Durusu Tanrıover et al., 2014).

The complex health system expects high health literacy skills from individuals. Nurses and other health professionals play an important role in increasing individuals' health literacy, providing reliable information to them, helping individuals with low health literacy levels and communicating effectively with them. Therefore nurses and nursing students should have adequate health literacy levels. It was found that approximately one third of the students who applied to the Medicine and Nursing Faculties of Dokuz Eylul University, had inadequate health literacy levels (Kendir et al., 2017). Another Turkish study found that 25.9% of the health college students were inadequate and 34% of them had problematic health literacy (Ergun, 2017). According to the findings of Mullan et al. (2017), the health literacy levels of the nursing students were lower than those of the medical faculty students; they also found that junior nursing students had lower health literacy levels compared to senior nursing students.

It was determined that there were studies examining the nursing students' knowledge, attitude, perception about health literacy and their approach towards the individuals with low health literacy levels (Mosley & Taylor, 2017; Shieh, Belcher & Habermann, 2012; Torres & Nichols, 2014; Weekes and Phillips, 2015; Williams & Chopak-Foss, 2015). According to a literature review there are several studies that investigating the health literacy levels of the nursing students while there is no study investigating the influencing factors. Health literacy levels of nursing students are important for their career and the individuals to whom they care. Therefore, determining the levels of health literacy of nursing students and affecting factors is important for the studies aimed at increasing the level of health literacy. The aim of this study was to investigate the health literacy levels and affecting factors of the students in the nursing faculty.

Research Questions

1. What is the health literacy level of nursing students?

2. What are the factors that influence the health literacy level of nursing students?

Methodology

Study Design and Sample

This is a descriptive and cross-sectional study. The study was conducted between January-July 2018, with 808 students voluntarily participating in the study and studying at the Faculty of Nursing in the spring semester of 2017-2018 education year. A simple random sampling method was used for the selection of samples.

Research Variables

Dependent variables: level of health literacy.

Independent variables: Age, gender, income status, living place, year in education and having a chronic illness.

Data Collection Tools

Sociodemographic Characteristics Form and Turkish Health Literacy Scale-32 (THL-32) were used to collect data.

Sociodemographic Characteristics Form

It is a form to determine the socio-demographic characteristics of individuals prepared by the

researcher regarding the subject in accordance with the literature. This form consists of questions that describe the characteristics of individuals such as age, gender, marital status, income, education (years completed), and the status of having a chronic disease.

Turkish Health Literacy Scale-32 (THL-32)

The Turkish Health Literacy Scale-32 (THL-32) was developed in 2016 by Okyay et al. TSOY-32 is a five-point Likert type scale measuring health literacy level, consists of 32 questions.

The question content of the scale involves two main indexes as healthcare, disease prevention / health promotion and four main processes: accessing the information, understanding the information, assessing the information and using the information (total 8 subindexes). 16 of the questions in the scale are in the healthcare and 16 of them are in the disease prevention / health promotion indexes.

The score of each main and general index is standardized by the following formula, for being in the range of 0 - 50.

Formula: Index= (mean-1) x (50/3)

Index: Calculated personal index

Mean: The mean of each answered item for each individual

1: Minimal possible value of the mean (leads to a minimum value of the index of 0)

3: Range of mean

50: Chosen maximum value of the new metric. The scores between 0-25 indicate an inadequate HL; the scores between 25-33 indicate a problematic HL; the scores between 33-42 adequate HL; the scores between 42-50 indicate excellent HL (Okyay, Abacıgil & Harlak, 2016).

The Cronbach's alpha value of the scale was found to be 0.927 while the Cronbach's alpha values of the Healthcare and Disease prevention / Health promotion subscales were found as 0.880 and 0.863, respectively (Okyay, Abacıgil & Harlak, 2016).

In our study, Cronbach's alpha value have been found as 0.948 while the Cronbach's alpha values of the Healthcare and Disease prevention / Health promotion subscales have been found as 0.907and 0.915, respectively.

Analysis of the Data

The data were analyzed by the researcher using the SPSS 15.0 program. Number, percentage, mean and standard deviation (mean ± Sd) were given for descriptive characteristics and health literacy levels. Independent samples t test was used to determine the changes in HL scores according to descriptive characteristics. One way ANOVA and post-hoc Tukey tests were used in the comparison of the mean HL scores of more than two groups. Mann-Whitney U test was used to compare the mean HL scores of non-parametric groups. Pearson's correlation analysis was used to analyze the correlation between age and HL levels.

Ethical Statement

The Ethical Consideration Number: 2018/10-18 was obtained from a University and the Non-interventional Clinical Research Ethics Committee; the institutional permission was obtained from the Nursing Faculty. In addition, written and verbal approvals were obtained from the participant students.

Results

Descriptive Characteristics

The mean age of the participants was 20.89 ± 1.75; 75.6% of them were female; 98.5% of them were single. 25.7% of the participants were 1st year students; 26.0% of them were 2nd year students; 26.1% of them were 3rd year students; 22.2% of them were 4th year students. 66.2% of the participants lived/grown in a city; 63.6% of them were middle income. It was also determined that 93.1% of participants did not have chronic disease (Table 1).

Results Related with the HL Levels

The mean general health literacy score of the students was 34.61 ± 7.57. The mean Healthcare literacy score and the mean Disease prevention / Health promotion score were found to be equal and 34.30 ± 8.16. It was determined that the mean score of the students for the accessing information subindex was 34 ± 8.07; the mean score for the understanding information subindex was 36.12 ± 8.15; the mean score for the assessing information subindex was 32.19 ± 8.60; the mean score for the using the information subindex was 34.13 ± 8.36. (Table 2)

Table 1. Characteristics of sample (n= 808)

Characteristics		
	$\bar{X}$	**SD**
Age (year) (min-max: 17-30)	20.89	1.75
	n	**%**
Gender		
Male	197	24.4
Female	611	75.6
Marital status		
Married	11	1.4
Single	796	98.5
Missing	1	0.1
Year in education		
1. grade	208	25.7
2. grade	210	26.0
3. grade	211	26.1
4. grade	179	22.2
Living place		
Village	105	13.0
Town	166	20.5
City	535	66.2
Missing	2	0.3
Income status		
Not enough to make ends meet	84	10.4
Enough to make ends meet	514	63.6
More than enough to make ends meet	207	25.6
Missing	3	0.4
Presence of chronic disease		
Yes	58	6.9
No	750	93.1
Total	808	100.0

Table 2. THL-32 mean scores

THL-32	**Min score**	**Max score**	**$\bar{X}$ ± SD**
General HL	0	50	34.61 ± 7.57
Healthcare HL	0	50	34.30 ± 8.16
Disease prevention/Health promotion HL	0	50	34.30 ± 8.16
Accessing information HL	0	50	36.01 ± 8.07
Understanding information HL	0	50	36.12 ± 8.15
Assessing information HL	0	50	32.19 ± 8.60
Aplying information HL	0	50	34.13 ± 8.36

Table 3. Percentages of THL-32

THL-32	Inadequate HL		Problematic HL		Adequate HL		Excellent HL	
	n	%	n	%	n	%	n	%
General HL	71	8.8	339	42.0	252	31.2	146	18.0
Healthcare HL	97	12.0	354	43.8	198	24.5	159	19.7
Disease prevention/Health promotion HL	97	12.0	354	43.8	198	24.5	159	19.7
Accessing information HL	80	9.9	304	37.6	224	27.7	200	24.8
Understanding information HL	78	9.7	315	39.0	222	27.5	193	23.8
Assessing information HL	189	23.4	334	41.3	179	22.2	106	13.1
Aplying information HL	122	15.0	327	40.5	226	28.0	133	16.5

It was determined that 8.8% of the students had an inadequate health literacy; 42.0% of them had a problematic health literacy; 31.2% of the students had adequate health literacy; 18.0% of them had excellent health literacy. It was determined that 12.0% of the students were inadequate, 43.8% were in problem, 24.5% were inadequate, and 19.7 were excellent in the Healthcare and Disease prevention / Health promotion subscales of the THL-32. 9.9% of the students were inadequate, 37.6% of them were problematic, 27.7% of them were inadequate and 24.8% were excellent in the accessing the information index of the THL-32. According to the understanding the information index of the THL-32, it was determined that 9.7% of the students were inadequate, 39.0% were problematic, 27.5% were adequate and 23.8% of them were excellent. According to the assessing the information index of the THL-32, 23.4% of the students were inadequate, 41.3% of them were, 22.2% of them were adequate and 13.1% of them were excellent health. 15.0% of the students were inadequate, 40.5% of them were in trouble, 28.0% of them were inadequate and 16.5% of them were excellent in the using the information index of the THL-32 (Table 3).

Comparison of the Students' HL Levels According to Their Descriptive Characteristics

The health literacy (HL) levels of the participant students according to the descriptive characteristics of them are shown in Table 4. There was no significant difference between general health literacy levels of the students according to their marital status, living place, income status and status of having a chronic illness. In addition, there was a positive, low-level correlation between age and HL (p= .000, r= .19) (Hayran & Hayran, 2011). It was also determined that there was a significant difference between their HL levels according to gender (p= .000). The female participants were found to have higher scores on the overall THL-32 than male participants. According to the years of education of the students, there was a significant difference between their HL levels.

When the results were analyzed according to health literacy indices, a significant difference was found only in the accessing information index between the middle income and low income participants (p= .020). All of the HL indices showed a significant positive correlation with age (p= .000; r= .17, r= .17, r= .17, r= .23, r= .14, r= .16). It was found that there were significant differences between the mean scores of female and male participants on the THL-32 indices as healthcare (p=.000), Disease prevention / Health promotion (p=.000), accessing information (p=.000), understanding

information (p=.000), assessing information (p=.005) and applying information (p=.011). There was a significant differences between the scores of the students on the subindexes of the THL-32 according to the year of education.

Discussion

In this study, the mean scores of the nursing students on the THL-32 scale was 34.61 ± 7.57. 50.8% of the students were inadequate and problematic while 49.4% of them were adequate and excellent in terms of health literacy. In a study conducted with the individuals who were 15 years old and above by using the THL-32, the mean health literacy score of the individuals was found as 29.5 and 69.4% of the individuals had inadequate and problematic health literacy (Okyay, Abacıgil & Harlak, 2016). In another study conducted with the participants who were 15-year-old and over in Turkey, the mean health literacy score of them was 30.4 and 64.6% of the individuals had inadequate and problematic health literacy (Durusu Tanrıover et al., 2014). They get education about health therefore their HL levels were higher than the individuals in Turkish society Even if the students' HL scores were higher than the individuals in Turkish society, the mean score of the nursing students was at the lower limit of adequate health literacy in our study.

According to the results of two studies, although the health sciences faculty's students have higher HL levels compared to the students in other faculties, neither group had adequate HL levels (Joseph et al., 2016, Lestari & Handani, 2017). In some studies, nearly all of the university students had adequate HL levels (Ickes & Cottrell, 2010; Malik et al., 2017). It is a promising finding that formal education in health sciences faculties has a positive effect on the HL levels of the students. It is thought that students' HL levels can be increased to the desired levels by using this opportunity better.

There was a significant positive correlation between their HL levels and ages according to the our results. According to the study of Ergun (2017), there was a significant difference between the HL levels according to age groups. One of the factors that affect health literacy is age. But reason of the difference is that the education level increases with age in our study.

In our study, it was found that the female students' mean HL level was significantly higher than male students. Various studies with university students support our findings (Kendir et al., 2017; Ergun, 2017; Malik et al., 2017). In a study examining the HL levels of the academicians, it was found that female academics had higher HL levels than male academicians (Demir Barutcu & Ogut Duzen, 2018). It is thought that women have higher HL levels compared to men because of the fact that women are mostly responsible for the care of family and take health related responsibilities in Turkey and in the World.

In our study, it was found that there was significant differences between the students' HL levels according to the their years of education. The results of other studies support our findings (Dincer & Kursun, 2017, Ergun, 2017, Rong et al., 2017, Tubaishat & Habiballah, 2016). Kendir et al. (2017) found that approximately half of the students who applied to the nursing and medical faculties, had adequate HL levels. In our study, approximately 60% of the third year and fourth year students had adequate and excellent health literacy levels. An increase in the HL level is expected, especially for the students studying in health sciences faculties. It has known that the knowledge and skills of nursing students increase in their advancing years in education. In addition to the theoretical knowledge which learned by students, it is thought that meeting with patients and health professionals during the practice in clinics also causes an increase in their HL levels. Therefore, it is expected that students in the third and fourth grades have better health literacy at a larger scale. Although they were senior nursing students, the HL levels were not desired level. It suggests circullum should be revised to increase HL levels of students.

In our study, the HL level was found not to be influenced by income status. While some studies support our findings (Ergun, 2017; Lestari & Handani, 2017), some studies showed that HL level was affected by income status (Rong et al., 2017, Vozikis, Drivas & Milioris, 2014). Today, the use of the Internet has become widespread because the internet access is not affected by income status. The Internet is one of the factors affecting access to health information and HL level. In the university, the education was supported by the online education materials; it

made easier to access the information by the students. In addition, formal education given to the students was not affected by their income status. For these reasons, it is considered that the HL levels of the participant students was not influenced by their income status.

Conclusion

Approximately half of the participant nursing students had adequate HL levels, but this percentage is considered as very low. According to the expectations, the percentage of the nursing students with adequate HL levels should be higher compared to our findings because they are young adults, are able to access knowledge easily and take formal education on health. The HL levels of nurses play an important role in the quality of the care provided. For this reason, it is suggested to add content about HL concept to university curricula, to give more emphasis to this concept and to conduct interventional researches on this subject.

Study Limitations

The sample was limited to only one region of the country, and therefore the findings may not be generalizable to other parts of Turkey.

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Place where the work was carried: Dokuz Eylul University, Faculty of Nursing. Inciralti, Izmir, Turkey

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Table 4. Health Literacy Levels According to Characteristics of Students

Characteristics	General HL	Healthcare HL	Disease prevention/Health promotion HL	Accessing information HL	Understanding information HL	Assessing information HL	Aplying information HL
Age							
p	**.000***	**.000***	**.000***	**.000***	**.000***	**.000***	**.000***
r	**.19**	**.17**	**.17**	**.17**	**.23**	**.14**	**.16**
Gender							
Male	32.70±7.69	32.46±8.19	32.46±8.19	33.96±7.95	33.30±8.36	30.71±8.80	32.82±8.76
Female	35.23±7.44	34.90±8.07	34.90±8.07	36.67±8.00	37.02±7.88	32.67±8.48	34.55±8.18
p	**.000[§]**	**.000[§]**	**.000[§]**	**.000[§]**	**.000[§]**	**.005[§]**	**.011[§]**
Marital status							
Evli	32.57±9.47	33.99±9.64	33.99±9.64	33.71±9.44	32.57±11.30	31.25±10.94	32.76±8.38
Bekâr	34.63±7.54	34.28±8.13	34.28±8.13	36.03±8.04	36.15±8.09	32.18±8.55	34.14±8.36
p	.397[†]	.993[†]	.993[†]	.351[†]	.295[†]	.704[†]	.456[†]
Year in education							
1. Grade[a]	32.04±7.28	31.58±8.13	31.58±8.13	33.63±7.88	32.54±7.73	30.13±8.27	31.87±8.32
2. Grade[b]	33.68±7.08	33.69±7.32	33.69±7.32	35.10±7.40	35.24±7.70	31.32±8.14	33.06±8.10
3. Grade[c]	35.72±7.27	35.32±7.91	35.32±7.91	36.83±8.28	37.69±7.59	32.85±8.51	35.50±7.88
4. Grade[d]	37.39±7.69	36.99±8.40	36.99±8.40	38.88±7.83	39.44±8.01	34.83±8.88	36.40±8.43
p[‡]	**.000[b>a]** **.000[d>a]** **.023[c>b]** **.000[d>b]**	**.034[b>a]** **.000[c>a]** **.000[d>a]** **.000[d>b]**	**.034[b>a]** **.000[c>a]** **.000[d>a]** **.000[d>b]**	**.000[c>a]** **.000[d>a]** **.000[d>b]**	**.002[b>a]** **.000[c>a]** **.000[d>a]** **.007[c>b]** **.000[d>b]**	**.006[c>a]** **.000[d>a]** **.000[d>b]**	**.000[c>a]** **.000[d>a]** **.012[c>b]** **.000[d>b]**
Living place							
Village	34.29±7.05	34.17±8.07	34.17±8.07	35.27±7.47	35.75±7.70	31.80±8.08	34.34±8.28
Town	33.58±6.56	33.34±7.12	33.34±7.12	35.24±7.04	34.92±7.18	30.92±7.31	33.23±7.66
City	34.97±7.93	34.60±8.45	34.60±8.45	36.38±8.46	36.54±8.48	32.64±9.01	34.34±8.56
p	.104[‡]	.221[‡]	.221[‡]	.171[‡]	.074[‡]	.070[‡]	.311[‡]

Income status							
Low	33.83±8.31	33.95±8.91	33.95±8.91	35.01±8.99	34.47±9.05	32.06±8.88	33.77±9.08
Balanced	35.03±7.25	34.70±7.92	34.70±7.92	36.61±7.63	36.55±7.79	32.58±8.35	34.38±8.09
High	33.79±7.94	33.32±8.30	33.32±8.30	34.83±8.57	35.61±8.55	31.13±8.94	33.57±8.70
p	.113‡	.100‡	.823‡	**.020‡**	.344‡	.101‡	.465‡
Presence of chronic disease							
Yes	34.14±10.46	33.25±10.76	33.25±10.76	36.01±9.96	35.37±11.23	32.21±11.47	32.96±11.26
No	34.63±7.31	34.36±7.93	34.36±7.93	36.00±7.92	36.15±7.88	32.17±8.34	34.20±8.09
p	.641§	.330§	.330§	.992§	.493§	.972§	.285§

*Pearson correlation §Independent t test †Mann Whitney U ‡One way Anova