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Investigation of health literacy and affecting factors of nursing students

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ABSTRACT

Health literacy (HL) is a concept that concerns individuals, as well as health systems and health professionals. This study was conducted to determine health literacy and affecting factors of nursing students. A descriptive-cross sectional design was used. First and fourth year nursing students were included in the study (n = 303). A questionnaire and the Adult Health Literacy Scale were used for collection of the data. Most (84.8%) of the students were female and 60.4% were studying in their first year. The mean Adult Health Literacy Scale score of the student nurses was 15.9 ± 3.2. The fourth year nursing students who have health insurance, have chronic disease, use drugs regularly, and have difficulties in reading had higher mean Adult Health Literacy Scale scores ($p < 0.05$). Although this study indicates that the HL level of the nursing students was found as adequate, it is thought that the higher HL level acquired in the undergraduate education the more competent nursing workforce. The HL concept should be integrated into the nursing curriculum to improve the HL levels of the nursing students. Nurse educators should emphasize the importance of health literacy and patient empowerment in the curriculum.

1. Background

The health care system is rapidly changing and becoming increasingly complex. Individuals, who are part of this complex system, need to make informed health decisions, take care of acute or chronic health problems, and overcome the complexity of health terminology, devices, and instructions (Sand-Jecklin et al., 2010). Nurses play a key role in providing health care information to individuals in a variety of settings. Therefore, it is crucial that nurses are prepared to face the challenges of working with patients who may have limited literacy skills (Torres and Nichols, 2014).

Health literacy (HL) has become an important issue in the field of health in recent years. HL is defined as an individual's cognitive and social skills related to access, understanding, and use of health information in order to protect and promote health (World Health Organization, 2017). HL requires the ability to read, to listen and comprehend, to think analytically, and to make decisions (Sørensen et al., 2012). It focuses on personal skills of individuals/patients (Lee et al., 2015; Sentell et al., 2014; Sørensen et al., 2012). These skills give individuals the opportunity to reduce their concerns about their health, to make healthcare decisions, and to comprehend health outcome measures (Mosley and Taylor, 2017). Thus, currently, HL has become an important concept with regards to the public health (Sørensen et al., 2012; Zhang et al., 2016).

Worldwide, HL levels have been found to be low and there are differences between countries such as the United States, Spain, Bulgaria, Austria, and Turkey (Durusu-Tanriover et al., 2014; Goodman et al., 2013). The European Health Literacy Survey (2012), a comprehensive survey on HL in the European countries, showed that, 12.4% had inadequate and 35.2% had problematic health literacy. There were also differences between member countries. For example, 26.9% of the sample in the Bulgaria had inadequate health literacy, compared to 18.2% in Austria. It has been stated that the rate of the adults with sufficient HL in the United States was 12%, and this is the same rate as national data given ten years ago (Goodman et al., 2013). According to the Turkey Health Literacy Survey (2014); 64.6% of the general adult population have inadequate or problematic HL levels (Durusu-Tanriover et al., 2014). It is reported that individuals with low HL are less likely to use preventive health services; and also their adherence to medical treatment and self-management of health are negatively influenced (Lee et al., 2015; Sand-Jecklin et al., 2010; Sentell et al., 2014; Smith, 2015). In Turkey, the Health Literacy Survey shows that lower HL was associated with more frequent use of emergency services and less use of preventive services (Durusu-Tanriover et al., 2014). Health services encourage individuals to take self-responsibility for their own health. The degree to which one is able to manage one's own health care has huge implications for the future health of the individual and members of the individual's family. So, nurses are expected to have

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appropriate knowledge and skills related to health literacy.

Health Literacy is an issue that concerns individuals, as well as health systems and health professionals (Hernandez, 2012). Healthcare professionals recognize when patients are struggling to understand health-related instructions. These professionals identify patients' ways of compensating for health literacy limitations, and intervene appropriately to assure patients' understanding of their health conditions and self-care behaviors (Sand-Jecklin et al., 2010). Nurses, especially play a key role in educating individuals, particularly about the remarkable subjects that require information, such as medication management and discharge planning (Mosley and Taylor, 2017). However, if patients do not understand what nurses have taught them, effective communication has not taken place (Parker and Gazmararian, 2003). Assisting patients to understand the directions related to health, their self-care behaviors and health status, and performing appropriate interventions appear among the roles and responsibilities of nurses (Chang et al., 2017; Sand-Jecklin et al., 2010). Many nurses and other healthcare professionals have not been adequately trained in identifying and interacting with patients having lower health literacy levels (DeSilets and Dickerson, 2009; Speros, 2009). Therefore, enabling students to acquire HL skills becomes essential during the student years, from the beginning of professional training.

The literature (McCleary-Jones, 2016; Mosley and Taylor, 2017; Park and Lee, 2015; Sand-Jecklin et al., 2010; Zhang et al., 2016) indicates that integrating the HL concept into the nursing curriculum becomes important to ensure that new nurse graduates will be more qualified to communicate with individuals who have low HL. Therefore, nurses and nursing students should be able to identify patients at risk for not being able to understand and act on health information, communicate health information and instructions in a way that promotes patient understanding, and check for patient understanding (Chung and Prato-Lefkowitz, 2015). However, there are scarce number of studies investigating HL levels of students and influencing factors (Zhang et al., 2016; Cormier and Kotrlik, 2009; Williamson and Chopak-Foss, 2015). These studies revealed that nursing students lack HL knowledge and experiences and their level of HL is inadequate. In this context, it is predicted that improving HL levels of nurses during the student years will contribute to positive health outcomes in individuals and to promote health care quality.

This study aimed to investigate the health literacy and affecting factors of nursing students. Research questions were followed:

1. What is the health literacy level of nursing students?
2. Do differences exist in health literacy levels between first year and fourth year nursing students?
3. Which factors influence the level of health literacy in nursing students?
4. Does health status of students affect the level of health literacy?
5. Do socio-demographic features of students affect the level of health literacy?

2. Methods

2.1. Study design and sample

This was a descriptive and cross-sectional study. The population of the study consisted of all nursing students who were first and fourth year students at a university (N = 370). Voluntary participation rate in the study was 81.8% (n = 303).

2.2. Data collection instruments

The data were collected by a questionnaire and the Adult Health Literacy Scale for Turkish people (Sezer and Kadıoğlu, 2014).

2.2.1. The questionnaire

The questionnaire was prepared by the researchers according to the literature (Cormier and Kotrlik, 2009; Williamson and Chopak-Foss, 2015; Zhang et al., 2016). The questionnaire consisted of 13 close-ended questions about the students' socio-demographic features such as age, gender, family income, having social security, the place where the student lived the longest. Also included were the health status of the students and their family members with any chronic disease, regular use of medicine and, any visual or auditory problem. The questionnaire was pilot tested on a sample group of students (n = 30). All questions were clear.

2.2.2. The adult health literacy scale (AHLS)

The AHLS was developed by Sezer and Kadıoğlu (2014) to determine the adequacy of HL levels in adults. The scale consists of 23 items. Scale items included 22 questions about an individual's health information and medication usage, and a figure which determines the status of knowledge about places of organs in the body. Among the questions in the scale, 13 are yes-no, four are filling the blank, four are multiple-choice, and two are matching questions. The questions are scored separately according to the question type. Total score obtained from the scale ranges between 0 and 23. There is no cut-off point of this scale. Higher scores indicate higher levels of health literacy. Reliability and validity analysis reveal a Cronbach's alpha coefficient of the Adult Health Literacy scale of 0.77 and test-retest reliability coefficient of.87. The content validity index of the scale is 90.71% (Sezer and Kadıoğlu, 2014). In this study, Cronbach's alpha of the scale was found as 0.67.

2.3. Data collection

Data was collected in September 2015. The questionnaire and the AHLS was conducted to the first and fourth year students on different days. The researchers went to each classroom and informed the course responsible teachers about the study before the data collection. Then, students were informed about the study. The purpose of the study was explained and the voluntary and confidential nature of the study were emphasized. After reading the contents of the consent form, the instruments were distributed in a sealed envelope to those agreeing to participate in the study. Participants voluntarily consented and were told they could withdraw from the study at any time without prejudice. After the instruments completed, they were collected by the researchers. Data collection lasted approximately 20–25 min.

2.4. Data analysis

Data analysis was performed using SPSS 18.0 (Statistical Package for the Social Sciences, Chicago, Illinois). Categorical variables were presented as frequencies and percentages. Continuous variables were expressed as mean and standard deviation (SD). For evaluating the normality of the data distribution, the Shapiro-Wilk test or Kolmogorov-Smirnov test were used. Independent t tests were used in two groups which had continuous variables and one-way analysis of variance (ANOVA) for more than two groups. A two-sided p value < 0.05 was considered significant for all analyses.

2.5. Ethical approval

Before data collection, ethics committee approval was obtained from Ethics Commission of the university. A written permission was obtained from the Dean's Office of Faculty of Health Sciences. Written consents of the students, who participated in the study, were obtained after reading an informed consent.

3. Results

The socio-demographic characteristics of the students were depicted

Table 1
The sociodemographic characteristics of the students (N = 303).

Sociodemographic characteristics	n	%
Degree		
First year	183	60.4
Final year	120	39.6
Gender		
Women	257	84.8
Men	46	15.2
Social security		
Yes	252	83.2
No	52	16.8
The place of residence		
Rural	142	46.8
Urban	161	53.1
Family income (monthly)		
Revenue < income	67	22.1
Revenue is equal to income	208	68.6
Revenue > income	28	9.2
Having any chronic disease		
Yes	23	7.6
No	280	92.4
Regular medication usage		
Yes	18	5.9
No	285	94.1
Visual problem		
Yes	113	37.3
No	190	62.7
Wearing glasses/contact lenses		
Yes	103	34.0
No	200	66.0
Auditory problem		
Yes	11	3.6
No	292	96.4
The internet use		
Yes	299	98.6
No	4	1.4

in Table 1. It was found that 84.8% of the students were women, 60.4% were first year, 83.2% had social security, 68.6% stated that their monthly income was equal to expenses, 7.6% had co-morbidities, 5.9% used medication regularly, 37.3% had visual problems, 34% had glasses/contact lenses, and 3.6% had auditory problems. Of the participants, 71.6% used the internet to obtain health information, 86.5% had a habit of reading, 63.4% stated their reading level was good, and 98.7% used the internet for general use.

The mean AHLS scores of the students, according to the socio-demographic characteristics are illustrated in Table 2. The mean AHLS score was 15.9 ± 3.2 (the highest score attainable on this scale is 23). The mean AHLS score was found to be significantly higher in the fourth year students, had health insurance, had chronic disease, took a medication regularly, using the internet, and had no difficulties in reading ($p < 0.05$). It was found that the students' socio-demographic features such as gender, education level of mother or father, income level of the family, and the place where the student lived, did not influence the mean AHLS scores ($p > 0.05$). Also, the features of having visual/auditory problem, wearing glasses/contact lens, and reading books were found not to influence the mean AHLS scores ($p > 0.05$).

4. Discussion

Individuals are responsible for making correct decisions and being knowledgeable about health/illness situations they experience in every sphere of their lives and at all ages (Peerson and Saunders, 2009). Nurses and nursing students should assist patients understand vital health information (Sand-Jecklin et al., 2010). Therefore, HL is essential in the health care, particularly in effective communication between the nurses and the patients (Zhang et al., 2016). The section was discussed according to the study questions.

Table 2
The mean adult health literacy scale scores of the students according to the sociodemographic characteristics (N = 303).

Sociodemographic characteristics	n	Adult Health Literacy Scale (Mean ± SD)	p
Degree			
First year	183	14.2 ± 2.8	**p < 0.05**
Final year	120	18.3 ± 2.0	
Gender			
Women	257	15.9 ± 3.2	p > 0.05
Men	46	16.0 ± 3.2	
Social security			
Yes	252	16.2 ± 3.2	**p < 0.05**
No	51	14.5 ± 3.1	
Having any chronic disease			
Yes	23	18.0 ± 2.6	**p < 0.05**
No	280	15.7 ± 3.2	
Regular medication usage			
Yes	17	17.5 ± 2.0	**p < 0.05**
No	285	15.8 ± 3.3	
Visual problem			
Yes	113	16.1 ± 3.1	p > 0.05
No	190	15.8 ± 3.3	
Wearing glasses/contact lenses			
Yes	103	15.7 ± 3.3	p > 0.05
No	200	16.0 ± 3.2	
Difficulty in reading			
Yes	17	13.8 ± 4.1	**p < 0.05**
No	249	16.0 ± 3.0	
Auditory problem			
Yes	11	15.9 ± 2.6	p > 0.05
No	292	15.9 ± 3.2	
Internet use			
Yes	299	15.9 ± 3.2	**p < 0.05**
No	4	11.5 ± 1.2	

SD = Standard Deviation.

4.1. Health literacy level of nursing students

Lack of HL knowledge influences nurses at all levels, from the beginning of their undergraduate education to post-graduation (Williamson and Chopak-Foss, 2015). Nursing curriculum includes information about the process of patient education; however, it does not sufficiently address the HL issue (Dickens and Piano, 2013; Sand-Jecklin et al., 2010). For example, Williamson and Chopak-Foss (2015) revealed that, in their nursing education, senior nursing students lack health literacy knowledge and experiences. In the study of Shieh et al. (2013), students did not employ standardized tools to assess the health literacy of the patient or the patient's knowledge of specific diseases. Similarly, this study indicates that the HL level of the nursing students was found as adequate. Sand-Jecklin et al. (2010) suggest that nurses' health literacy knowledge and experiences are enhanced if health literacy-related content is incorporated into the nursing curriculum. It is thought that nursing students should have adequate HL level to provide efficient health care after the graduation. Therefore, the HL content should a component of the nursing curriculum, and should be emphasized during clinical practice (McCleary-Jones, 2016; Mosley and Taylor, 2017).

4.2. Difference between health literacy levels of first and fourth year students

The systematic review of the literature revealed that inclusion of health literacy content and experiences in nursing curricula enhances nursing students' awareness, knowledge, and skills regarding health literacy (McCleary-Jones, 2016). McCleary-Jones (2012) found that undergraduate nursing students' HL knowledge was increased after implementation of an educational module. In the study of Park and Lee (2015), students who are taking nursing courses performed markedly

better than pre-nursing students in eHealth literacy competence. Accordingly, in this study, HL level of the final year students was found to be higher than that of the first year students. Similarly, Williamson and Chopak-Foss (2015), and Zhang et al. (2016) stated that the HL scores of the senior year students were higher than those of the freshman year students. It is thought that HL content, integrated into the nursing curriculum, can be useful for nursing students. In this way, new graduate nurses will be capable of communicating with patients with low HL, and will help the patients understand the health-related directions and the information.

4.3. Factors including health status and internet use affect health literacy level in nursing students

As the population with chronic illness grows and the complexity of health care multiplies, preparing health workers with the knowledge and skills to help patients with low health literacy is imperative (Shieh et al., 2013). In this study, the HL level was found to be higher in the students with chronic disease, with social security, and who use medication regularly. It is thought that the students, who had a chronic disease and took a medicine regularly, have greater self-responsibility for their health and prefer to access health care services more frequently. As the population with chronic disease has gradually increased and the health care needs of this population have become so complicated, it is a necessity to train nurses with knowledge and skills which are useful for the patients with low HL (Shieh et al., 2013).

The rapid development of the knowledge and communication technology affects health care as well in all other areas. The increase in the internet and mobile technology use make knowledge accessible to anyone, anywhere, and anytime (Robb and Shellenbarger, 2014). In this study, the HL level of the students using the internet was determined as higher than those who do not use the internet. This finding may be explained by the access of these students to e-health information resources to prevent diseases and to manage their own health. Similarly, Park and Lee (2015) revealed that the HL levels of the nursing students, who knew how to use the internet frequently, were significantly influenced.

4.4. Socio-demographic features affect health literacy level in nursing students

In the literature, students living in an urban area, having a high level of education and socioeconomic status, had higher HL scores (Zhang et al., 2016). In this study, it was found that the students' sociodemographic features such as gender, education, income level of family, and the place where they lived did not affect the mean AHLS scores significantly. In addition, unlike the literature, the HL level of the students who did not have difficulty in reading despite wearing glasses/contact lens, was identified as higher in this study. This finding is noteworthy for it shows that reading skill is necessary to improve the HL level.

There are some limitations in this study. The results of this study may only be generalized to the nursing students where the study was conducted. The study was limited to the data obtained from the students who were present in the class on the data collection day, and agreed to participate in the study. The data could change from one individual, culture, or society to others. Therefore, it should not be generalized to the whole population.

5. Conclusion

This study reported the health literacy level and affecting factors of the nursing students. The findings concluded that, health literacy level of the final year students was higher than that of the first year students. Factors questioned in this study, such as having social security, any chronic diseases and using medication regularly affected the students' health literacy level. The nursing students, who were the internet users and lack of any difficulties in reading had the higher health literacy level.

The nurses should have the optimal health literacy skills to catch the rapid changes in the healthcare systems, both in their own country and in the world. In light of our results, it is thought that the health literacy skills should be acquired and continuously improved during the student years. The higher health literacy level during the undergraduate education, the more competent nursing workforce. The more health literate nurses in the workforce means the more empowered patients and communities.

6. Implications for practice

This study underlines the importance of health literacy levels of nursing students. Nurses have been designated as key staff to address the problem of low health literacy, by improving health outcomes for patients in health education and health promotion practices. Health education is a fundamental nursing responsibility. Nurses provide healthy/patient individual health education in the health care environment. It is expected that nurses with significant responsibilities in the care of individuals will have adequate and appropriate knowledge and skills in HL. New graduate nurses are required to be competent in core areas of nursing care, including patient education, and must prioritize their care to ensure safety outcomes for their patients (Chung and Prato-Lefkowitz, 2015; Zanchetta et al., 2013). Although this study indicates that the HL level of the nursing students was found as adequate, it is thought that the higher HL level acquired in the undergraduate education the more competent nursing workforce. Therefore, the HL concept should be integrated into the nursing curriculum to improve the HL levels of the nursing students. A lack of training limits their level and knowledge of HL. In this study, the HL level was found as higher in the students with chronic disease, with social security, and who use medication regularly. As students become more aware of their own health status, health literacy levels also increase. It is appropriate to train nursing students in the application of health literacy strategies. Nurse educators can emphasize the importance of health literacy and patient empowerment in the curricular, so students have sufficient health literacy and opportunities for application as they advance in the healthcare system.

Contributions

Study design: SAA, HT; acquisition of the data: HT; data analysis: SAA; drafting of the article: SAA, HT.

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Conflicts of interest

None.

Ethical approval

Before the data collection, ethics committee approval was obtained from Gazi University Ethics Committee. A written permission was obtained from Dean's office of Gazi University Faculty of Health Sciences. After reading the informed consent to the students, their written informed consents were obtained.

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study.

Appendix

Questions

1. Age:.....years
2. Degree: ☐ First year ☐ Fourth year
3. Gender: ☐ Woman ☐ Man
4. Social security: ☐ Have ☐ Do not have
5. How do you evaluate your family's income?
   ☐ Revenue less than expenditure
   ☐ Revenue is equal to expenditure
   ☐ Revenue more than expenditure
6. Do you have any disease that requires continuous monitoring and treatment??
   ☐ Yes ☐ No
7. Do you have a medication you use regularly?
   ☐ Yes ☐ No
8. Do you use the Internet? ☐Yes ☐No
9. Do you read books? ☐ Yes ☐ No
10. Do you have any vision problem? ☐ Yes ☐ No
11. Are you using glasses/contact lenses? ☐ Yes ☐ No
12. Do you have difficulty reading though you use glasses / contact lenses?
    ☐ Yes ☐No
13. Do you have any auditory problem?
    ☐Yes ☐ No

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