Mediterranean Nursing and Midwifery

Mediterr Nurs Midwifery 2022;2(3):110-117 DOI:10.5152/MNM.2022.2223101

ORIGINAL ARTICLE

Determination of Health Literacy Levels of Senior Nursing Students' Parents of a University

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Abstract

Objective: This study aimed to determine the health literacy levels of nursing senior students' parents and the factors affecting these levels.

Methods: The universe of this study, which was performed in a cross-sectional and descriptive type, was the parents of the senior students of the nursing department of a private university ($n = 156$). The data were collected with Turkey Health Literacy Scale-32 by students who made face to face interviews with their parents. The data of the research were collected from April to May 2019.

Results: Scale's total scores of the parents were determined to be 29.90 ± 3.93. A statistically significant difference was found between the parents' scale scores and average age, income-expenditure status, and educational status ($p < .05$).

Conclusion: According to the scale's total score, parents are at the level of "problem-limited" health literacy. For this, level determinations should be made, consultancy services should be provided, awareness raising training should be provided, public should be encouraged, and such research should be done more.

Keywords: Health literacy, level, nursing, parent, student

Introduction

Social and cognitive skills that enable a person to access, understand, and use health-related information are evaluated in the field of health literacy (Aktaş, 2018; Marks, 2015; Nutbeam, 1998). Health literacy, when health literacy is given to the individual, understanding, interpreting, and taking appropriate action on this information. Therefore, health literacy is not just about reading and understanding a brochure. The individual's self-definition of health is knowing his/her medical condition and making appropriate decisions (Çopurlar & Kartal, 2016). The subject of health literacy, which has many different definitions, continues to grow rapidly and appeals to a wide interdisciplinary audience (Berkman et al., 2010).

It is difficult for individuals with insufficient health literacy to protect and improve their health, to make decisions about their own health, to recognize the symptoms of disease, and to use complex, constantly developing, and changing technology health systems in the diagnosis process. Health literacy level should not be ignored while addressing the cultural characteristics, age-related changes, chronic illness, and self-care problems of the person in health education initiatives carried out with health personnel, individuals, and society (Ertaş, et al., 2019; Yılmaz & Tiraki, 2016).

Turkey's general health literacy index score is 30.4. In terms of health literacy, it was determined that 24.5% of the population was "insufficient" and 40.1% was "problematic." These levels mean that 35 million adults have "inadequate and problematic" levels of health literacy (Durusu Tanrıöver et al., 2014). Health literacy is affected by demographic, cultural, and psycho-social factors, general literacy level, individual characteristics, experiences with the disease, and many factors related to the health system (Kaya & Sivrikaya, 2019; Marks, 2015; Sorensen et al., 2015).

*This study was presented as an oral presentation at the 6th International 17th National Nursing Congress (Ankara, Turkey) held between 19-21 December 2019.

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Received: April 4, 2022
Accepted: November 14, 2022

Cite this article as: Kaya, U., Necipoğlu, D., Turgut, N., & Bebiş, H. (2022). Determination of health literacy levels of senior nursing students' parents of a university. *Mediterranean Nursing and Midwifery.*, 2(3), 110-117.

The study aimed to determine the health literacy levels of nursing senior students' own parents and the factors affecting these levels and to get to know the society which is the target of public health courses and internships.

Methods

Design
This study was done in cross-sectional and descriptive type.

Population
The population of the study consisted of the parents of 78 senior nursing students ($n = 156$). No sample selection was made for the research.

Inclusion Criteria for Research
Parents of students studying nursing at a private university in Northern Cyprus were included in the study. The criteria include not having any communication problems, being able to read and understand Turkish, and voluntarily participating in the study.

Data Collection
In the theoretical part of the research, within the scope of the public health nursing course, the nursing students were watched by using the classical presentation technique on the subjects such as 3-hour "Knowing the Community" and 2-hour "health literacy, data collection, and evaluation," and they were asked to reinforce the subjects by applying the question-answer method. Then, within the scope of public health nursing field practice, each student was asked to determine their socio-demographic descriptive characteristics, health histories, and health literacy levels by conducting face-to-face interviews with their parents in their own homes.

Data Collection Forms

First Part of Data Collection Form
In the first part of the data collection form, there were seven questions regarding age, gender, marital status, educational status, job/profession, social security status, and income-expenditure status of family members.

Turkey Health Literacy Scale-3
"Turkey Health Literacy Scale-32," which was developed by the "European Health Literacy Research Consortium" (2012) and adapted into Turkish by the "Republic of Turkey Ministry of Health" (2016), was used in the research.

The form consists of two parts. In the first part of the form, there were seven questions regarding the descriptive characteristics of the parents (age, gender, marital status, educational status, type of occupation, social security status, and income-expenditure status).

The second part of the form is "TSOY-32 (Türkiye Sağlık Okuryazarlığı Ölçeği)." The scale has 32 items, is structured as a 2×4 matrix, and is in a 5-point Likert type. The matrices of the scale are two-dimensional. The four processes of the scale are "access to, understanding, evaluation, and use/application of health-related information." The scale's Cronbach alpha value is .92. A minimum of 0 and a maximum of 50 points can be obtained from the scale. According to the results of the scale, the scale is categorized as: 0–25 points: "unsatisfactory," >25–33 points: "problematic-limited health literacy," >33–42 points: "health literacy," and >42–50 points: "excellent health literacy" (Okyay & Abacıgil, 2016). According to the results of the study, the Cronbach alpha value was found to be .91.

Data Collection Method
The data of the study were collected by the student–parent face-to-face interview method in an average of 20 minutes. Data were collected between April and May 2019.

Ethical Approvals
In order to apply the data collection forms, approval from the Near East University ethics committee (YDU/2019/72-899), institutional permission from the Faculty of Nursing, and verbal consent from the participants were obtained.

Statistical Analysis
Statistical Package for Social Sciences (IBM 21.0) program was used in the statistical evaluation of the data. The chi-square test was applied to evaluate the categorical variables of the data. Independent samples were evaluated with the independent samples *t*-test. The difference between the general mean score of the TSOY-32 scale and the mean of the sub-components was evaluated with analysis of variance in cases where the variances were homogeneous. In case of a difference between the groups, post hoc test was applied to determine the reason for the difference. The results were evaluated and interpreted at 95% CI and $p < .05$ significance level.

Results

Table 1 shows the distribution of socio-demographical characteristics of the parents participating in the study. The average age of the parents is 51.26 ± 5.61; 78% of the participants are women, 97.4% are married, and 53.2% are primary school graduates. It was determined that 39.1% of the parents were housewives, 96.8% had social security, and 72.4% had equal income-expense status. The numbers in bold indicate the variable with the highest number.

Main Points

- The subject of health literacy, which has many different definitions, continues to grow rapidly and appeals to a wide interdisciplinary audience.
- It is difficult for individuals with insufficient health literacy to protect and improve their health, to make decisions about their own health, to recognize the symptoms of disease, and to use complex, constantly developing, and changing technology health systems in the diagnosis process.
- Health literacy level should not be ignored while addressing the cultural characteristics, age-related changes, chronic illness, and self-care problems of the person in health education initiatives carried out with health personnel, individuals, and society.

Table 1.
Parents' Socio-Demographical Characteristics (n = 156)

Socio-Demographical Characteristics	Number (n)	Percentage (%)
Age (SD)	51.26 ± 5.61	100.0
Gender		
Female	78	50.0
Male	78	50.0
Marital status		
Married	**152**	**97.4**
Single	4	2.6
Educational status		
Primary school	**83**	**53.2**
Middle school	29	18.6
Hight school	25	16.0
University	19	12.2
Job/profession		
Housewife	**61**	**39.1**
Retired	35	22.4
Freelancer	16	10.3
Offices	13	8.3
Employee	11	7.1
Farmer	11	7.1
Small business	9	5.8
Social security		
Yes	**151**	**96.8**
No	5	3.2
Perception of income status		
Income less than expenses	29	18.6
Incomeequivalenttoexpense	113	72.4
Income more than expenses	14	9.0
Total	156	100.0

Note: SD = standard deviation.

Table 2 shows the distribution of the parents' mean points of the total, two matrices, and eight matrix components of the TSOY-32 scale. The total health literacy score on the TSOY-32 scale was found to be 29.90 ± 8.93. The parents' "treatment and service" matrix score average was 31.65 ± 8.83. The matrix score average of "protection from diseases/improvement of health" was determined as 28.16 ± 10.01 (Table 2).

It was determined that the difference between the mean age of the parents and the mean scores of the scale total health literacy, reaching the information, understanding the information, evaluating the information, and using/applying the information was statistically significant ($p < .05$) (Table 3).

It was determined that the difference between the income-expenditure status of the parents and total health literacy, reaching information about total health, understanding information about total health, evaluating information about total health, and using/applying information about total health was statistically significant ($p < .05$). In the post hoc forward analysis, it was determined that this significance was due to the difference in the mean scores of those whose income was more than their expenses and those whose income was equal to their expenses (Table 4).

It was determined that the difference between the educational status of the parents and the mean scores of total health literacy, reaching information about total health, understanding information about total health, and using/applying information about total health was statistically significant ($p < .05$). In the post hoc advanced analysis, it was determined that the difference in the mean scores of the TSOY-32 subcomponents was due to the group who graduated from primary school (Table 5).

Discussion

The concept of health literacy is now important not only for the quality and duration of an individual's life but also for the more efficient use of resources. About 51% of individuals in the Turkey Health Literacy Survey use drugs without a doctor's advice, 1/3 of them do not comply with the recommended amount and duration from time to time, and television and unsafe internet sites as the primary source of information reveal health literacy and its possible consequences (Okyay & Abacıgil, 2016). When domestic and foreign research on the subject are examined, it is understood that those with insufficient education and income level and low social status, the elderly, those who have migrated to a new place, and minority groups have a lower/limited level of health literacy (Kickbusch et al., 2013; Şenel-Tekin, 2018). In the study, it is seen that the majority of the parents of the students residing in Turkey are married and more than half of them have primary school education. It is seen that almost all participants have health insurance and they perceive the economic situation as equal to income and expenditure.

Table 2.
Parents' TSOY-32 Scale Total, Matrix, and Matrix Components Score Distribution

	Accessing Total Health-Related Information	Understanding Total Health Information	Evaluating Total Health-Related Information	Using/Application of Total Health Information	Total Health Literacy
	Av. ± SD	Av. ± SD	Av. ± SD	Av. ± SD	Av. ± SD
Treatment and service	33.06 ± 11.11	31.67 ± 10.19	26.81 ± 10.63	35.04 ± 10.47	**31.65 ± 8.83**
Disease prevention/ health promotion	28.63 ± 13.01	29.83 ± 11.21	26.01 ± 11.93	28.17 ± 11.53	**28.16 ± 10.01**
Total	**30.84 ± 10.90**	**30.75 ± 10.07**	**26.41 ± 9.90**	**31.61 ± 9.38**	**29.90 ± 8.93**

Note: Av = average; SD = standard deviation; TSOY-32 = Turkey Health Literacy Scale-32.

Table 3.
Comparison of Parents' Mean Age and Score Distribution of TSOY-32 Scale and Its Sub-Components (n = 156)

Variables	Number (*n*)	Total Health Literacy Av. ± SD	Accessing Total Health-Related Information Av. ± SD	Understanding Total Health Information Av. ± SD	Evaluating Total Health-Related Information Av. ± SD	Using/Application of Total Health Information Av. ± SD
Age	156	21.36 ± 11.35	20.41 ± 13.39	20.51 ± 12.54	24.85 ± 11.58	19.65 ± 11.81
p		**.001***	**.001***	**.001***	**.001***	**.001***

Note: *$p < .05$
Av = average; SD = standard deviation; TSOY-32 = Turkey Health Literacy Scale-32.

Table 4.
Comparison of Parents' Income-Expenditure Status and Score Distribution of the TSOY-32 Scale and its Sub-Components (n = 156)

Variable	Number (*n*)	Total Health Literacy Av. ± SD	Accessing Total Health-Related Information Av. ± SD	Understanding Total Health Information Av. ± SD	Evaluating Total Health-Related Information Av. ± SD	Using/Application of Total Health Information Av. ± SD
Perception of income status						
Income less than expenses	19	30.98 ± 8.67	32.47 ± 9.68	31.82 ± 8.97	28.30 ± 11.60	31.32 ± 8.6
Income equivalent to expense[b]	113	28.79 ± 8.82	29.62 ± 11.09	29.60 ± 10.35	25.18 ± 9.34	30.75 ± 9.47
Income more than expenses[a]	14	36.68 ± 7.44	37.35 ± 9.58	37.79 ± 6.73	32.44 ± 8.24	30.75 ± 9.47
p		**.005***	**.029***	**.012***	**.018***	**.006***

Note: [a,b]Post hoc *t* test, Tukey; *$p < .05$.
Av = average; SD = standard deviation; TSOY-32 = Turkey Health Literacy Scale-32.

Table 5.
Comparison of Parents' Educational Status and Score Distribution of the TSOY-32 Scale and Its Sub-Components (n = 156)

Variable	Number (*n*)	Total Health Literacy Av. ± SD	Accessing Total Health-Related Information Av. ± SD	Understanding Total Health Information Av. ± SD	Evaluating Total Health-Related Information Av. ± SD	Using/Application of Total Health Information Av. ± SD
Educational status						
Primary school[a]	83	27.53 ± 9.38	27.71 ± 11.37	28.28 ± 10.79	24.77 ± 9.8	29.36 ± 10.18
Middle school	29	33.17 ± 9.13	33.90 ± 10.69	34.26 ± 9.22	29.09 ± 12.19	35.41 ± 8.67
High school	25	30.93 ± 6.25	32.83 ± 8.86	32.16 ± 7.29	27.58 ± 8.07	31.16 ± 6.34
University	19	33.96 ± 6.43	37.28 ± 6.54	34.32 ± 8.71	27.96 ± 7.74	36.18 ± 6.81
Total	**156**	**29.90 ± 8.93**	**30.84 ± 10.90**	**30.75 ± 10.07**	**26.41 ± 9.90**	**31.61 ± 9.38**
p		**.002***	**.001***	**.009***	**.015***	**.002***

Note: [a]Post hoc *t* test; *$p < .05$.
Av = average; SD = standard deviation; TSOY-32 = Turkey Health Literacy Scale-32.

In the European health literacy survey; eight countries (Austria, Bulgaria, Germany, Greece, Ireland, Netherlands, Poland, and Spain) had adequate health literacy (33.78). The Netherlands (37.06) has the highest and adequate health literacy, while Bulgaria (30.5) has the lowest and problematic health literacy (Lee et al., 2010). In a study conducted in Taiwan, health literacy was low or limited (Berberoğlu et al., 2018). In studies conducted in Turkey, the level of health literacy was found to be low (Durusu Tanrıöver et al., 2014; Okyay & Abacıgil, 2016). According to the Turkey Health Literacy Survey (2014); Turkey's general health literacy score was found to be 30.4. It has been determined that 64.6% of

Turkey is in the "insufficient" or "problematic" health literacy category and only one-third of the population has sufficient or excellent level of health literacy (Durusu Tanroöver et al., 2014). In another study, the health literacy of the participants was at the level of "problematic-limited" (29.5) (Okyay & Anacıgil, 2016). In the study, the health literacy of parents who are nursing students was found to be "problematic-limited" (29.9). Low level of health literacy causes insufficient understanding of health information, difficulties in performing health-related procedures and instructions, and problems in the effective use of health services.

The matrix of "protection from diseases and health promotion" may cause low level of health literacy, inadequacy of self-care in the individual (Efthymiou et al., 2018; Massompour et al., 2017; Panahi et al., 2018), difficulty in coping with the problem and adaptation (Ishikawa & Kiuchi, 2010), inability to evaluate the medical condition, and delay in seeking health care in the symptomatic period (Pelikan et al., 2014). In this context, the inability to benefit from preventive health services at a good level can be considered a reason for an increase in healthcare costs and morbidity/mortality, although it causes difficulties in applying medical recommendations and instructions.

In the Turkey health literacy study (2016), it was determined that the participants were at the level of "problematic-limited health literacy" in the "protection from diseases/health promotion" (29.1 points) and "treatment and service" (30.1 points) matrices (Durusu Tanrıöver et al., 2014). In the study conducted by Berberoğlu et al., it was determined that the scores of the sub-matrices were at the level of problematic-limited health literacy (Chen et al., 2011) and that parents had a "problematic-limited" level of health literacy in both sub-matrices of the TSOY-32 scale ("treatment and service" and "protection from diseases/health promotion").

When the two sub-matrices of health literacy were examined in the study, it was determined that the "treatment and service" sub-matrix was higher than the health literacy and the "protection from diseases and health promotion" sub-matrix score averages.

This study was found to be compatible with the results of studies conducted with the TSOY-32 scale (Incesi, 2017; Okyay & Abacıgil, 2016). In the studies conducted by the HLS-EU consortium and Tanrıöver et al. (treatment services, prevention from diseases, health promotion), the sub-matrix with the highest mean score of health literacy is "treatment services," which is consistent with this study (Durusu Tanrıöver et al., 2014; Lee et al., 2010). It is important for individuals to have the ability to reach the right information and service and the ability to use this service and to read and understand the health care instructions correctly. The correct use of resources and the creation of quality conditions in health services strengthen the individual's competence over his own health and public health. In addition, it can be said that injury from treatment and service in the right way can increase the quality of life of individuals, enable them to benefit from health services more effectively, and contribute to reducing health care costs.

In order to use the health literacy health system appropriately for the individual and society, individuals need to know how to benefit from this system. Today, it is known that accessing information about health, using technology to follow health developments, and reaching accurate and reliable information contribute to the individual's wise use of health services and increase the quality of life. In the study by Durusu Tanrıöver et al., 57.7% reported that they obtained health information from physicians, 19.9% from the internet, and 10.9% from television (Durusu Tanrıöver et al., 2014). In the study by Yakar et al., it was determined that health workers were in the first place with a rate of 34%, information access was provided via the internet at a rate of 30.6% and by means of television at a rate of 19.6% (Yakar et al., 2019). In our study, the mean score of the sub-component of "accessing health-related information" was at a sufficient level. It is thought that raising the level of health literacy in society in an accurate and effective way through technology may be beneficial for increasing the level of access to health-related information, supporting health protection and positive health behaviors, and rational use of health services.

Many situations such as social, economic, societal, environmental, and cultural factors affect the health literacy status of individuals. When the literature is examined, it is stated that individuals with low levels of health literacy have difficulties in understanding and conveying health-related information such as expressing symptoms of illness, understanding medical instructions, reading, understanding and filling out medical forms, and understanding instructions about drugs and health care workers and information about coming to a check-up (Berkman et al, 2011; Çimen & Bayık-Temel, 2017; Davis et al., 2006). In the study by Özdemir et al., low health literacy level was found to be associated with primary school education and being over 45 years old (Özdemir et al., 2010). In our study, the mean score of the sub-component of "understanding health-related information" was low, and this result is defined as problematic-limited health literacy, which can be explained by the low level of education of the individuals participating in the study.

In the study by Okyay and Abacıgil, the lowest mean score was found in the sub-component of "evaluating information about health" (Okyay & Abacıgil, 2016). In our study, the mean score of the sub-component of "evaluating health-related information" was low, and this result is defined as problematic-limited health literacy. The inability to evaluate health-related information well can cause difficulty in taking responsibility for the health of individuals, lack of practice, an increase in the risk of getting sick, and thus an increase in health expenditures.

Chronic diseases account for 47% of the global disease burden. Elderly people have difficulty in self-management of chronic diseases that are seen more than once with increasing age, and they have difficulties in conscious drug use (Ünal & Ergör, 2013). Self-management includes

all of the individual tasks that require the control of one or more chronic diseases for a better life. Although this situation causes the quality of life of the elderly to decrease, it imposes heavy burdens on the health system (Çimen & Bayık-Temel, 2017). It is important for the elderly to be health literate at a good level in terms of their health and quality of life of the elderly. In order to spend old age efficiently, being able to benefit from health services at a sufficient level, having social security, and being able to participate in social life are of great importance in terms of active aging (Hazer & Ateşoğlu, 2019).

In the study, the level of knowledge in the "use/application of health-related knowledge" component in the "treatment and service" matrix is sufficient (Table 2). In studies conducted on university students, an adequate level was determined when the result of this sub-component was examined (Güven et al., 2018; Malatyalı & Biçer, 2018). Although 'protection' in health principles of "it is superior to treatment," it can be thought that the therapeutic and health services priority "health system model" in the world and in Turkey is related to the results of the study. In the system, one reason why disadvantaged groups cannot take responsibility for their own health is thought to be related to health literacy deficiencies. It has been stated that many individuals who come to use the health service cannot understand the "words expressing their medical condition" explained by the health personnel, have difficulty in filling out the necessary forms and documents, and are hesitant to seek help (Yılmazel & Çetinkaya, 2016).

Age is a factor associated with health literacy but cannot be changed. Turkey's health literacy study (2012) has determined that the highest health literacy levels are clustered in the youngest age groups, and health literacy decreases linearly with age (Durusu Tanrıöver et al., 2014). In the Turkish health literacy study, it was found that the general index score of health literacy decreased with increasing age, and the difference was due to the middle-aged and elderly groups (Okyay & Abacıgil, 2016). The average age of the parents in the study was 51. However, in many studies, it is observed that the level of health literacy decreases with age, preventive health services are used less, and the rate of benefiting from hospital admission and hospitalization services is higher (Çimen & Bayık-Temel, 2017; Hazer & Ateşoğlu, 2019). In the study by Hazer and Ateşoğlu, an inverse relationship was found between age and health literacy (Hazer & Ateşoğlu, 2019). In today's world where the elderly population is gradually increasing, the decrease in cognitive abilities, sedentary lifestyle, the emergence of chronic diseases, and the fact of low socio-economic structure, as well as the decrease in the education level of the elderly with aging, explain the possibility that health literacy is low in the elderly.

In the HLS-EU (2012) study, the mean health literacy (HL) was found to be higher in young people who do not have financial difficulties, those with high social status, those with higher education levels, and women (Lee et al., 2010). In the Turkey health literacy research, it was determined that as the socioeconomic level decreased, the level of health literacy decreased as well. In the literature, it is stated that low socioeconomic level also causes increased health expenditures (Okyay & Abacıgil, 2016) and that there was a negative relationship between the income and expenditure status of the parents and the mean score of the eight subcomponents. Our study results are similar to the literature.

According to The United Nations Educational, Scientific and Cultural Organization (UNESCO), literacy is "the ability to bring together, define, understand, interpret, communicate, and calculate different types of written sources." Health literacy also includes reading, writing, and numeracy skills (Malatyalı & Biçer, 2018). In this study, a positive and significant relationship was found between health literacy status and educational status ($p < .05$). It was determined that the level of health literacy increased as the education level increased, and the health literacy scores of the parents with "primary school" education level were found to be lower than the other levels. The same results are available in the Turkish health literacy study (Durusu Tanrıöver et al, 2014). Health literacy should be developed together with general literacy.

Conclusion and Recommendations

According to the results of the study, the general health literacy score obtained by the parents from the TSOY-32 scale is at the "problematic-limited" level. It was determined that the health literacy levels of the parents with low education levels, advanced age, and low-income levels were also low. According to this,

- Nurses should be able to determine their socio-demographic needs and health literacy levels, and they should provide training and consultancy services according to their individual characteristics.
- As the content of health literacy awareness training, training that can raise awareness about using the health system and communicating with health personnel should be organized, and the public should be encouraged to attend these training.
- Studies should be conducted to measure the knowledge and skills of health personnel to know society and evaluate the level of health literacy.

Limitation of the Study

This study is limited to the parents of fourth-year nursing students at a private university in Northern Cyprus.

Ethics Committee Approval: Ethical committee approval was received from the Ethics Committee of Near East University University (approval No: 2019/72-899).

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept– U.K., D.N., N.T.A., H.B.; Design – U.K., D.N., N.T.A., H.B.; Supervision – U.K., D.N., H.B.; Materials – D.N., N.T.A,. H.B.; Data Collection and/or Processing – D.N., H.B..; Analysis and/or

Interpretation – U.K., D.N., H.B.; Literature Review – U.K., D.N., N.T.A.; Writing – U.K., D.N., N.T.A., H.B.; Critical Review – H.B.

Declaration of Interests: The authors declare that they have no competing interest.

Funding: The authors declare that this study had received no financial support.

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