



## Lifelong Learning and Sexual Health Literacy in Nursing Students: Cross-Sectional Study

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Received: 04.03.2024  
Accepted: 24.05.2024  
Available Online: 19.08.2024

### Abstract

**Objective:** Lifelong learning and sexual health literacy are two separate concepts that are important in improving health today. The aim of this study is to determine the relationship between sexual health literacy and lifelong learning in nursing students.

**Methods:** 269 individuals were involved in this cross-sectional investigation. An online poll was used to gather data between August 10 and September 10, 2023. The "Life-long Learning Scale" and the "Sexual Health Literacy Scale" were employed in the research. The data analysis techniques included post-hoc testing, ANOVA, T-tests, and basic linear regression studies.

**Results:** The mean age of the participants was 21.62±2.41. Of the students, 77.3% were female, 97.8% were single, and 36.1% were in third grade. A moderate, positive, and substantial connection was found between the variables based on a simple linear regression analysis conducted between the scales ( $R=0.470$ ,  $R^2=0.221$ ,  $F=75.776$ ,  $p=0.000$ ). Life-long learning tendency explained 22% of sexual health literacy.

**Conclusions:** Lifelong learning has a significant impact on sexual health literacy. It is recommended that the necessary programs be prepared, implemented and closely monitored to increase the tendency for lifelong learning in educational institutions.

**Keywords:** Life-Long Learning, Nursing Student, Sexual Health

## 1. Introduction

Globalization causes various changes and developments in science, technology, and health services (1). With rapid and continuous technological changes, it is necessary to keep up to date with the latest developments to find creative solutions to problems, increase employability, and gain a sustainable competitive advantage. At this point, educational institutions aim to prepare their students as independent, self-directed, and self-confident lifelong learners with creative and entrepreneurial skills (2). The process of acquiring knowledge and skills that allows people to continue their education after completing formal education is known as lifelong learning. Being a lifelong learner requires deciding what and to what extent one needs to learn, being willing and curious about learning, using information and communication technologies, taking responsibility for one's learning, and having the ability to learn on one's own (1). The creativity process requires specific skills to understand the need for knowledge about a problem and how to find, access, evaluate, use, and manage this knowledge ethically and legally. The combined efforts for creativity can also be defined as lifelong learning (2). Lifelong learning is defined in clinical settings as a collection of self-initiated activities and knowledge-seeking skills in people who have a persistent drive to learn and the capacity to identify their own learning needs (3).

Health literacy is a determinant of health behaviors and refers to the acquisition of knowledge, personal skills, and confidence to improve individual and community health. Sexual health literacy is an extension

**Cite as:** Güllü A, Aloğlu N. Lifelong Learning and Sexual Health Literacy in Nursing Students: Cross-Sectional Study. *Sakarya Üniversitesi Holistik Sağlık Dergisi*. 2024;7(2): 113-122. <https://doi.org/10.54803/sauhsd.1445868>

of health literacy and refers to the ability to understand and act based on information about sexual health. Sexual health literacy is considered a very important issue for all people in society. A high level of sexual health literacy increases a person's skills in analysis, judgment, discourse, decision-making, and sexual behavior changes and strengthens their ability to improve and maintain their sexual health. Although people's concerns about sexual practices and relationships are not new, changes in health information in this area have changed the nature of these concerns (4).

Sexual and reproductive health education is protective for adolescent pregnancy, negative sexual and reproductive health outcomes, and negative social outcomes. However, knowledge about this is often inadequate. Social skills and competencies are also important to promote and maintain a healthy life (5). Having sexual health literacy leads to an improved ability to understand and assess risks associated with sexual health, delaying the first sexual experience, engaging in a safe sexual experience, properly fulfilling the gender role, improving sexual interactions of couples, improving individual sexual health, and eventually improving family and social health (6).

Life-long learning is an important part of professionalism for nurses to maintain their practice competence and up-to-date knowledge (7). The literature contains a variety of studies on nursing students' inclinations toward lifelong learning (1,7,8). However, there is no study in which the effect of lifelong learning on sexual health literacy in nursing students has been examined. Nursing students with high levels of lifelong learning tendency and sexual health literacy will be effective in meeting society's educational needs in the future. However, co-promoting the sexual health literacy and lifelong learning tendencies of nursing students will ensure the improvement and development of health services to be provided to individuals and society. Considering the importance of sexual health literacy in promoting individual sexual health and improving family and social health and that lifelong learning requires using information and communication technologies and following current scientific knowledge, this study aimed to determine the relationship between lifelong learning and sexual health literacy in nursing students.

### **1.1. Hypothesis of the research**

Lifelong learning positively and significantly affects sexual health literacy.

## **2. Methods**

### **2.1. Study design**

There is a cross-sectional design to the investigation. An online poll was used to gather the data (Google Forms) between August 10 and September 10, 2023.

### **2.2. Participants**

Nursing students enrolled in the "Faculty of Health Sciences" at a state university in Hatay, Turkey participated in this study. A total of 405 students who were enrolled in the nursing department during the spring semester of the 2023 academic year made up the study's population. It was calculated that the sample should be at least 198 people within the 95% confidence interval in the population of 405 people. Of the 269 students who fulfilled the inclusion criteria, 269 made up the study sample. These were the eligibility criteria: being aged 18 or over, being an undergraduate nursing student, completing the surveys completely, and volunteering to participate in the study. Data collection was conducted using online surveys (Google Forms).

### **2.3. Data collection tools**

Three distinct forms were used to collect the study's data: "Personal Information Form", "Life-long Learning (LLS) Scale", and "Sexual Health Literacy (SHLS) Scale".

**2.3.1. Personal information form:** This form consisted of 5 questions that were prepared to determine some descriptive characteristics of the participants. It included questions regarding sex, age, grade, socio-economic level, and place of longest residence.

**2.3.2. Life-long learning (LLS) scale:** The original life-long learning scale was developed by Wielkiewicz and Meuwissen (2014) and its Turkish validity and reliability study was conducted by Engin et al. (2016). The original LLS scale developed by Wielkiewicz and Meuwissen (2014) has 16 items, but in the Turkish adaptation study, the first item of the scale was removed from the scale since it was non-factorial and a scale with a total of 15 items was obtained. The scale items were grouped under a single factor. The scale aims to assess the life-long learning tendencies of students and other groups. A 5-point Likert-type rating system is used: (1) never, (2) rarely, (3) occasionally, (4) often, and (5) always respectively. The Cronbach alpha reliability coefficient for the overall scale was reported as 0.93 (9).

**2.3.3. Sexual health literacy (SHLS) scale:** Ustgorul (2022) developed the “Sexual Health Literacy Scale” to determine the literacy levels of individuals about sexual health and established its validity and reliability. The scale was determined to be a tool with acceptable values in different professional groups to measure the sexual health literacy of individuals. The Sexual Health Literacy (SHLS) Scale consists of 17 items and 2 factors (sexual knowledge and sexual attitude) and has a 5-point Likert-type rating scale ranging from Strongly Disagree (1) to Strongly Agree (5). The sexual knowledge subscale has 12 items, and the sexual attitude subscale consists of 5 items and is reverse-coded. An increase in the scores on the total SHL scale and its subscales indicates a high level of sexual health literacy. The scale's reported Cronbach alpha coefficient was 0.88 (10).

## **2.4. Data analysis**

Analyses were performed in SPSS (IBM SPSS for Windows, ver.26) statistical package program. Frequency and mean were used to describe the characteristics of the participants. The normality assumptions of the numerical variables were evaluated with Kolmogorov Smirnov and Shapiro-Wilk normality tests. A skewness and kurtosis coefficient of a data set between -1.5 and +1.5 indicates that the data are normally distributed (11). Accordingly, since the data were normally distributed, the t-test was used for the analysis of two variables, and the ANOVA test was used for the analysis of more than two variables. Post-hoc tests were used to determine the difference between three or more groups. The association between the variables was investigated using a simple linear regression analysis. A 95% confidence interval and a significance level of  $p < 0.05$  were used to assess the results.

## **2.5. Ethical consideration**

Ethics committee approval was taken from Hatay Mustafa Kemal University Noninvasive Clinical Research Ethics Committee (Dated 01/08/2023 Numbered 6 Page: 1-2 Decision Number: 4). The objective of the study and the participants' voluntary participation were explained to them at the outset of the investigation. Their consent was taken after the explanation text about the research. The research complied with the principles of the Declaration of Helsinki.

### 3. Results

#### 3.1. Descriptive characteristics of the participants and results of the distribution of LLS scores

**Table 1.** Descriptive Characteristics of the Participants and Distribution of Their Scores on the LLS Scale

Variables (n=269)	n	%	LLS scores	t/F/p values
<b>Gender</b>				
Female	208	77.3	54.37±8.49	t=0.532
Male	61	22.7	53.72±7.91	p=0.595
<b>Marital status</b>				
Married	6	2.2	62.33±5.59	t=2.425
Single	263	97.8	54.03±8.32	<b>p=0.016</b>
<b>Grade</b>				
1st	46	17.1	50.86±5.47	2>1,2>3
2nd	57	21.2	55.70±9.17	4>1,4>2,4>3
3rd	97	36.1	51.65±8.42	F=15.206
4th	69	25.7	58.84±6.75	<b>p&lt;0.001</b>
<b>Socioeconomic Status</b>				
Low (1)	53	19.7	50.83±7.62	2>1,3>1
Moderate (2)	203	75.5	54.99±8.41	F=5.719
High (3)	13	4.8	56.00±7.30	<b>p=0.004</b>
<b>Longest residence</b>				
Village/town	68	25.3	54.60±9.10	
District	105	39.0	55.01±7.67	F=1.443
City	96	35.7	53.08±8.49	p=0.238
<b>Age (mean:21.62±2.41)</b>				
18-21	130	48.3	52.20±7.20	2>1
22-25	134	49.8	56.10±9.05	F=7.676
26 ≤	5	1.9	56.20±4.91	<b>p=0.001</b>

LLS= Life-long Learning Scale, T test, One way anova, LSD or Tamhane T2

When some descriptive characteristics of the nursing students included in the study were examined, the mean age was 21.62±2.41 years. Of the students, 77.3% were female; 97.8% were single; 36.1% were in the third grade; 75.5% had moderate socioeconomic status; and 39.0% lived in the district for the longest time (Table 1). When the LLS scores of the participants were examined according to their descriptive characteristics, the score of female students (54.37±8.49) was higher than that of male students (53.72±7.91), but the difference was insignificant (p=0.595). When the scores were compared according to marital status, the score of married students (62.33±5.59) was higher than that of single students (54.03±8.32) and the difference was significant (p=0.016). When the scores were analyzed according to grade level, the scores of students in the 4th grade were significantly higher than the scores of students in lower grades (p< 0.001). When the scores were compared according to socioeconomic status, the score of students with moderate and high socioeconomic status (54.99±8.41, 56.00±7.30) was significantly higher than that of students with low socioeconomic status (50.83±7.62) (p=0.004). The longest-residence location and scale scores did not significantly correlate (p=0.238). Finally, it was discovered that students between the ages of 22 and 25 had considerably higher scores than students between the ages of 18 and 21 (p=0.001) (Table 1).

### 3.2. Results of the distribution of participants' SHLS and SHLS subscale scores

**Table 2.** Distribution of the SHLS Scores of the Participants According to Their Descriptive Characteristics

Variables (n=269)	SK scores	t/F/p values	SA scores	t/F/p values	SHLS scores	t/F/p values
<b>Gender</b>						
Female	37.92±6.18	t=0.259	16.43±3.24	t=0.949	54.35±5.89	t=0.149
Male	38.21±8.06	p=0.796	15.96±3.75	p=0.343	54.18±8.65	p=0.882
<b>Marital status</b>						
Married	43.00±5.05	t=1.877	16.83±1.94	t=0.372	59.83±4.11	t=2.082
Single	37.87±6.64	p=0.062	16.53±3.30	p=0.710	54.19±6.60	<b>p=0.038</b>
<b>Grade</b>						
1st	34.63±9.12		13.86±3.02	2>1,3>1	48.50±6.65	2>1,3>1
2nd	40.28±6.03	2>1,4>1	16.08±3.14	4>1	56.36±7.07	4>1
3rd	37.74±5.99	F=6.898	16.92±3.55	F=12.773	54.67±5.66	F=18.260
4th	38.68±5.06	<b>p&lt;0.001</b>	17.31±2.65	<b>p&lt;0.001</b>	56.00±5.17	<b>p&lt;0.001</b>
<b>Socioeconomic Status</b>						
Low (1)	35.47±7.41	2>1	15.13±2.71	3>2,3>1	50.60±7.62	3>2,3>1
Moderate (2)	38.55±6.42	F=4.973	16.46±3.46	F=8.008	55.02±6.10	F=13.081
High (3)	39.38±4.13	p=0.008	19.00±2.12	<b>p&lt;0.001</b>	58.38±3.04	<b>p&lt;0.001</b>
<b>Longest residence</b>						
Village/town (1)	38.19±7.29		15.35±2.75	2>1,2>3	53.54±7.40	
District (2)	36.93±6.30	F=2.495	17.71±2.60	F=16.325	54.64±6.79	F=0.632
City (3)	39.00±6.42	p=0.084	15.50±3.96	<b>p&lt;0.001</b>	54.50±5.76	p=0.532
<b>Age</b>						
18-21(1)	36.72±7.20		15.46±3.20	2>1	52.18±7.32	2>1
22-25(2)	39.24±5.90	F=4.933	17.10±3.38	F=8.987	56.35±5.16	F=14.490
26 ≤ (3)	37.20±4.43	p=0.008	18.00±00	<b>p&lt;0.001</b>	55.20±4.43	<b>p&lt;0.001</b>

SK= Sexual Knowledge Subscale, SA= Sexual Attitude Subscale, SHLS= Sexual Health Literacy Scale

T test, One way anova, LSD or Tamhane T2

Table 2 shows information on total SHLS scores and SK (Sexual Knowledge) and SA (Sexual Attitude) subscale scores of the participants according to their descriptive characteristics. The results on the SHLS scale and its subscales were not substantially impacted by gender ( $p>0.05$ ). SHLS scores of married students were found to be significantly higher than single students ( $p<0.05$ ). In terms of grade, the 'SK (sexual knowledge)' subscale score of 2nd-grade and 4th-grade students was significantly higher than that of 1st-grade students ( $p<0.001$ ). The 'SA (sexual attitude)' subscale scores of the students in the 2nd, 3rd, and 4th grades respectively were significantly higher than that of the students in the 1st grade ( $p<0.001$ ). The total SHLS scale scores of the 2nd-, 3rd-, and 4th-grade students respectively were significantly higher than that of the 1st-grade students ( $p<0.001$ ). When the SHLS scale scores were examined according to socioeconomic status, the 'SA' subscale score and the total SHLS scale score of students with high socioeconomic status were significantly higher than those of students with low and moderate socioeconomic status ( $p<0.05$ ). In addition, students who identified their place of longest residence as a district had a significantly higher score on the 'SA' subscale than students who identified their place of longest residence as a village/town and city ( $p<0.05$ ) (Table 2).

### 3.3. The results of regression analysis for LLS tendency and SHLS attitude

**Table 3.** The Results of Regression Analysis for LLS Tendency and SHLS Attitude

Variables (n=269)	B	Std.Error	$\beta$	t	p
(Constant)	34.168	2.342		14.590	0.000
LLS	0.372	0.043	0.470	8.704	0.000
R=0.470	R <sup>2</sup> =0.221	F=75.766	p=0.000	Durbin-Watson=1.873	
SHLS total score= 54.31±6.60, LLS total score= 54.22±8.35					
DependentVariable: <i>SHLS</i> , Simple Linear Regression Analysis					

Based on the findings of the basic linear regression study carried out to ascertain how lifelong learning tendencies affect the attitude towards sexual health literacy, there was a moderate, positive, and significant correlation between the variables (R=0.470; R<sup>2</sup>=0.221; F=75.766; p<0.001). Life-long learning tendency explained 22% of sexual health literacy (Table 3).

### 4. Discussion

It has been emphasized that clinicians need to be lifelong learners to provide effective care, as medical knowledge, skills, and social needs in patient care are rapidly developing (12). In this respect, it is necessary to develop lifelong learning habits in students to keep them pace with technological developments and transformation (2). In this study, the lifelong learning tendencies and sexual health literacy levels of nursing students were determined and the relationship between these two important variables was revealed. The students' LLS scale score was 54.22±8.35, which can be considered a moderate level compared to the total scale score (min:15, max:75). Unlike this study, Senyuva and Kaya (2022) found that nursing students had high levels of life-long learning tendencies (1). According to Dikmen et al. (2016), nursing students had low levels of life-long learning tendencies (13). In the study conducted by Naveed et al. (2023) with medical students, it was found that students had a good level of life-long learning tendencies (2). It is essential to encourage life-long learning tendencies of nurses, who have an important role among health professionals, starting from their student life. Because lifelong learning in nursing is necessary to keep knowledge and skills up to date throughout your career.

This investigation revealed that fourth graders' LLS scores were substantially higher than those of students in lower grades. Likewise, in the study conducted by Karakus (2013) with university students, it was concluded that the life-long learning competencies of the students increased as their grades increased (14). This information suggests that university education may positively influence life-long learning tendency. However, in another study, the grade of nursing students did not significantly affect their life-long learning tendencies (15). Due to constant advances in technology and healthcare practices, it is important that the curriculum is updated to include lifelong learning. To develop lifelong learning competencies in universities, it is necessary to enable students to manage their educational processes, include active learning methods in education, enable students to be involved in problems, and encourage students' self-evaluation (16).

In this study, the LLS scores of students with a moderate and high socioeconomic level were found to be significantly higher than those of students with a low socioeconomic level. Unlike this study, Dindar and Bayraktar (2015) reported that socioeconomic level did not affect life-long learning tendencies (17). In another investigation, it was found that life-long learning tendency was not influenced by students' characteristics such as age and income status (13).

In this study, the sexual health literacy (SHLS) scores of nursing students were found to be 54.31±6.60. When this result was evaluated according to the total scale score considering that the students were studying in the health department, it was determined that they had deficiencies in SHLS. In a similar study, it was found that the rate of seeking information about sexually transmitted diseases (STDs)

among university students was low (18). One study found that most school adolescents aged 15-19 had insufficient sexual and reproductive health literacy (5). There is also a study stating that sexual and reproductive health literacy among young people is alarming and has not been fully researched (19). In another study conducted with Iranian women, it was determined that sexual health literacy was at the desired level (20).

In this study, the SHLS scores of married students were found to be significantly higher than single students. This result suggested that married people have a higher level of sexual health literacy to access correct reproductive knowledge and behaviors.

According to this study's findings, the SHLS score and the sexual attitude subscale score were significantly higher in students in the 4th grade than in students in lower grades. It was thought that the awareness acquired in university education and the courses on sexual health were effective in this. Moreover, in this investigation, it was found that the sexual attitude subscale score and the total SHLS score of students with high socioeconomic status were significantly higher. Higher economic status may have caused an increase in the SHLS score since it facilitates access to the internet, information, and technology. Again, in this study, students who stated the place they lived longest as a district received higher scores from the 'sexual attitude' scale sub-dimension than students who stated as village/town or city. This may be due to personal or social characteristics. Various factors can affect sexual health literacy. Nevertheless, in an Australian university research, it was reported that the level of sexual health literacy was influenced by factors such as sex, age, sexual education, sexual experience, place of birth, and religious commitment (21).

Sexual and reproductive health problems such as adolescent pregnancy, unsafe abortions, sexual dysfunction, sexual violence, and sexually transmitted infections are quite high in the world and Turkey. Individuals need to benefit from resources based on scientific data on reproductive and sexual health (10). Lifelong learning refers to the continuous voluntary and self-initiated pursuit of acquiring knowledge and skills (2).

In this study, a moderate, positive, and significant correlation was determined between lifelong learning tendency and attitude toward sexual health literacy. The study's conclusions state that, lifelong learning tendency explained 22% of sexual health literacy. Lifelong learning tendency caused an increase in sexual health literacy. When the literature was examined, no study was found examining the relationship between lifelong learning and sexual health literacy. However, this result confirmed our hypothesis that, lifelong learning positively and significantly affects sexual health literacy. Sexual health literacy, which plays an important role in eliminating problems related to sexual health and reproduction, is expected to be high in nursing students. In this context, the lifelong learning tendencies of students should be supported, and their sexual health literacy levels should be increased. Students with high lifelong learning tendencies and sexual health literacy will have a good knowledge of current information and developments and be effective in improving public health in their professional lives. Students' adaptation to contemporary developments shows that the future workforce is ready to solve real-life problems (2). Today, information is accessed through the Internet. According to Shimie et al., students' information-seeking behaviors regarding STDs can be improved by increasing their digital literacy and providing computer and internet access across the campus (18).

## **5. Conclusion and Recommendations**

Findings from this study indicated that attitudes toward sexual health literacy and life-long learning tendencies were moderately, positively, and significantly correlated. Lifelong learning has a significant impact on sexual health literacy. Life-long learning tendency explains 22% of sexual health literacy. Since nursing students will play a key role in the protection and development of community and family health in the future, and they need to be constantly knowledgeable about developing and changing health practices, it is necessary to increase their lifelong learning tendencies levels. Currently, it is advised that the necessary up-to-date programs be prepared and implemented in educational institutions and be followed up. Additionally, it is recommended to carry out experiential intervention studies to increase lifelong learning and sexual health literacy in nursing students.

## **Limitations**

The study used a sample of nursing students and a cross-sectional research design, which limits the generalizability of the research. It may be recommended to repeat the research with larger and different sample groups.



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#### **Article Information Form**

**Authors Notes:** The authors would like to express their sincere thanks to the editor and the anonymous reviewers for their helpful comments and suggestions.

**Funding Source:** To conduct the research, writing, and/or publishing this paper, the authors received no funding.

**Ethics Approvals and Consent to Participate:** Ethics committee approval was taken from Hatay Mustafa Kemal University Noninvasive Clinical Research Ethics Committee (Dated 01/08/2023 Numbered 6 Page: 1-2 Decision Number: 4).

**Conflict of Interest Disclosure:** The authors declare that they have no conflict of interest.

**Author Contributions:** All authors contributed equally to the writing of this article. All authors have read and approved the final manuscript.

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