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Research Article

Healthy Lifestyle Levels and E-Health Literacy Among Nursing Students: A Descriptive Correlational Study

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Abstract

This descriptive, cross-sectional, and correlational study was conducted to evaluate the association between e-health literacy and healthy lifestyle behaviors in nursing students. The sample consisted of 142 nursing students. Data were obtained using a researcher-prepared personal information form, the Healthy Lifestyle Scale, and the E-Health Literacy Scale. The dataset was analyzed using descriptive statistics, independent-samples t-test, one-way analysis of variance, and Pearson correlation analysis, with statistical significance accepted at $p < 0.05$. The students' mean total score was 161.55 ± 30.72 on the Healthy Lifestyle Scale and 29.71 ± 6.85 on the E-Health Literacy Scale. E-health literacy was significantly higher among students aged over 20 years and among fourth-year students than first-year students. Male students reported higher sports activity scores than female students, while students who did not smoke or consume alcohol had higher scores for health protection and promotion. A positive and statistically significant relationship was observed between e-health literacy and overall healthy lifestyle behaviors. These results suggest that nursing students with greater e-health literacy tend to demonstrate healthier lifestyle behaviors. Strengthening students' ability to access, interpret, and use reliable digital health information may contribute to improvements in health protection, nutrition, physical activity, and interpersonal relationships. Therefore, educational initiatives integrating e-health literacy and healthy lifestyle promotion are recommended in nursing education.

Keywords: *E-health literacy; healthy lifestyle; nursing students; health promotion; physical activity.*

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1. Introduction

Digital technologies have become an important source of health information for university students. Through websites, mobile applications, and social media platforms, students can access information on disease prevention, nutrition, physical activity, treatment options, and psychological well-being. However, access to digital information alone does not ensure that individuals can judge its accuracy, reliability, or relevance for health-related decisions. In this context, the World Health Organization emphasizes the role of digital health in promoting well-being, supporting healthier lives, and strengthening health systems (WHO, 2021). Therefore, the ability to identify reliable online health information and use it appropriately has become an important issue in health promotion and public health (Norman & Skinner, 2006).

E-health literacy refers to the competence required to find, understand, evaluate, and apply health information obtained from digital sources. This concept includes several literacy-related skills, such as traditional literacy, health literacy, information literacy, scientific literacy, media literacy, and computer literacy (Norman & Skinner, 2006). In Türkiye, the validity and reliability of the E-Health Literacy Scale were examined by Gencer (2017), supporting its use in assessing individuals' perceived ability to use online health information. For nursing students, e-health literacy is particularly relevant because they are expected to use reliable and evidence-based information both for their own health behaviors and for future professional responsibilities, including patient education, health counseling, chronic disease management, and health promotion practices (Gencer, 2017; Turan et al., 2021).

Healthy lifestyle behaviors include daily practices that contribute to the protection and improvement of health. These behaviors involve physical activity, healthy nutrition, health responsibility, stress management, interpersonal relationships, and avoidance of risky habits (Durak & Muslu, 2023). The university period is an important stage for the development of lifestyle behaviors, as habits acquired during this period may continue into adulthood. Among nursing students, healthy lifestyle behaviors also have professional importance because these students are expected to act as role models and promote healthy behaviors among individuals, families, and communities in their future clinical practice (Yiğitalp, 2022).

Previous studies have shown that e-health literacy is positively associated with health-promoting and healthy lifestyle behaviors among nursing and university students (Kasımoğlu et al., 2023; Öztürk et al., 2023; Turan et al., 2021). Students with stronger e-health literacy may be more capable of accessing trustworthy health information, evaluating its relevance, and using it to support daily health practices. However, students' digital health information use, trust in online resources, academic year, and lifestyle characteristics may vary across universities, departments, and regional contexts. Therefore, examining e-health literacy together with healthy lifestyle behaviors in specific student groups may provide useful evidence for nursing education and health promotion planning (Öztürk et al., 2023; Turan et al., 2021).

This study was conducted to examine the relationship between e-health literacy and healthy lifestyle behaviors among nursing students. The findings may help identify students' current levels of digital health competence and lifestyle-related health behaviors, while also informing educational efforts aimed at improving reliable digital health information use and strengthening health-promoting practices in nursing education.

2. Methods

2.1. Aim and Design of the Study

This descriptive, cross-sectional, and correlational study aimed to examine the relationship between e-health literacy and healthy lifestyle behaviors among nursing students. The study was carried out between June and July 2026 in the Department of Nursing of a public university.

2.2. Population and Sample

The study population included 160 students registered in the Department of Nursing, Faculty of Health Sciences, Tarsus University. Since the entire accessible population was targeted, no sample size calculation was performed. Students who were enrolled in the nursing department, agreed to participate voluntarily, and completed the online form were included. Students who declined participation or submitted incomplete forms were not included. The final sample consisted of 142 students, representing 88.8% of the target population.

2.3. Data Collection Tools

Data were obtained using a Personal Information Form, the E-Health Literacy Scale, and the Healthy Lifestyle Scale.

The Personal Information Form was prepared by the researchers based on the relevant literature (Gipson et al., 2026; Öztürk et al., 2023; Ruiz et al., 2022; Turan et al., 2021). The form included 14 questions covering sociodemographic characteristics, health-related variables, and internet use behaviors.

The E-Health Literacy Scale was developed by Norman and Skinner (2006) to assess individuals' perceived competence in using online health information. The Turkish validity and reliability study was conducted by Gencer (2017), who reported a Cronbach's alpha coefficient of 0.91. The scale includes eight scored items and two supplementary items related to internet use. Scored items are rated from 1 "strongly disagree" to 5 "strongly agree," and total scores range from 8 to 40. Higher scores indicate greater e-health literacy. In this study, the Cronbach's alpha coefficient was 0.94.

The Healthy Lifestyle Scale was used to evaluate students' attitudes and behaviors toward a healthy lifestyle. The scale consists of 32 items and four subdimensions: sports activity, health protection and promotion, healthy nutrition, and interpersonal relationships/spirituality/stress management. Items are scored on a seven-point Likert-type scale from 1 "never" to 7 "always," with total scores ranging from 32 to 224. Higher scores indicate more favorable healthy lifestyle attitudes and behaviors. In the scale development study, Cronbach's alpha was reported as 0.96 (Gökkaya, 2025). In the present study, the Cronbach's alpha coefficient was 0.94.

2.4. Ethical Considerations

Ethical approval was obtained from the Mersin University Non-Interventional Clinical Research Ethics Committee before data collection (Date: 20.05.2026; Decision No: 11). Institutional permission was received from the university where the study was conducted (Date: 15.06.2026; No: E-59279490-605.01-9904). Permission to use the measurement tools was obtained from the relevant scale authors. Students provided electronic informed consent before completing the online form. The study was conducted in accordance with the Declaration of Helsinki.

2.5. Data Collection

Data were collected online through Google Forms. The first section of the form provided information about the study purpose, voluntary participation, confidentiality, and scientific use of the data. Students who agreed to participate confirmed the electronic informed consent statement before accessing the questionnaire. No personally identifiable information was requested.

2.6. Data Analysis

Data were analyzed using JASP version 0.19.3.0. Frequencies and percentages were used for categorical variables, and means and standard deviations were used for continuous variables. Normality was evaluated using skewness and kurtosis values. For normally distributed variables, independent-samples t-test, one-way analysis of variance, and Pearson correlation analysis were performed. Tukey and Tamhane's T2 tests were used for post-hoc comparisons when required. Statistical significance was accepted as $p < 0.05$.

3. Results

The study included 142 nursing students with a mean age of 21.46 ± 2.83 years. Most participants were older than 20 years, female, single, and reported living with their families in a city center. The majority also reported a moderate income level, no chronic disease, no regular medication use, and no smoking or alcohol consumption. The average daily internet use was 4.85 ± 2.17 hours. The most frequently reported purposes of internet use were social media, research and education, watching films/videos, and listening to music (Table 1).

Table 1. Descriptive characteristics of the students.

Variable (n = 142)	n	%
Age (Mean $\pm$ SD: 21.46 ± 2.83)		
≥ 20 years	58	40.8
20 years <	84	59.2
Gender		
Female	103	72.5
Male	39	27.5
Academic year		
First year	42	29.6
Second year	35	24.6
Third year	32	22.6
Fourth year	33	23.2
Marital status		
Single	137	96.5
Married	5	3.5
Place of residence with family		
City center	76	53.5
District	55	38.7
Village	11	7.8
Perceived income level		
Low	11	7.7
Moderate	127	89.4
High	4	2.9
Presence of chronic disease		
No	126	88.7

Yes	16	11.3
Regular medication use		
No	130	91.5
Yes	12	8.5
Smoking status		
No	119	83.8
Yes	23	16.2
Alcohol consumption status		
No	127	89.4
Yes	15	10.6
Daily internet use duration (Mean $\pm$ SD: 4.85 $\pm$ 2.17)		
4 hours or less	70	49.3
5 hours or more	72	50.7
For what purposes do you use the internet?*		
Social media	133	93.7
Research and education	113	79.6
Films/videos	108	76.1
Listening to music	104	73.2
Playing games	50	35.2

*Multiple responses were allowed; usage rates are presented.

The students' mean total Healthy Lifestyle Scale score was 161.55 $\pm$ 30.72. Among the subdimensions, the highest mean score was obtained from interpersonal relationships, followed by health protection and promotion, healthy nutrition, and sports activity. The mean total E-Health Literacy Scale score was 29.71 $\pm$ 6.85 (Table 2).

Table 2. Mean scores of the students on the Healthy Lifestyle Scale and the E-Health Literacy Scale.

Scales	Mean $\pm$ SD*	Min-Max*
Healthy Lifestyle Scale Total Score	161.55 $\pm$ 30.72	67-224
Sports Activity	28.54 $\pm$ 10.39	7-49
Health Protection and Promotion	49.86 $\pm$ 9.79	15-63
Healthy Nutrition	31.16 $\pm$ 9.79	7-49
Interpersonal Relationships	51.97 $\pm$ 9.78	21-63
E-Health Literacy Scale Total Score	29.71 $\pm$ 6.85	8-40

*Mean: arithmetic mean; SD: standard deviation; Min: minimum; Max: maximum.

Group comparisons showed that e-health literacy differed significantly according to age group and academic year. Students older than 20 years had higher e-health literacy scores than those aged 20 years or younger, and fourth-year students scored higher than first-year students. Sports activity scores varied by gender, with higher scores among male students. Sports activity also differed according to family place of residence, with students whose families lived in districts scoring higher than those whose families lived in villages. Health protection and promotion scores were higher among students who did not smoke and among those who did not consume alcohol. Interpersonal relationship scores showed a borderline difference according to alcohol consumption status (Table 3).

Table 3. Comparison of students' Healthy Lifestyle Scale and E-Health Literacy Scale scores according to descriptive characteristics.

Characteristics	Sports Activity	Health Protection and Promotion	Healthy Nutrition	Interpersonal Relationships	Healthy Lifestyle Scale	E-Health Literacy Scale
Age						

≥20 years	27.43 ± 9.96	49.87 ± 9.55	31.06 ± 9.13	52.98 ± 9.53	161.36 ± 28.34	28.25 ± 6.98
20 years <	29.32 ± 10.66	49.85 ± 10.01	31.23 ± 10.27	51.27 ± 9.96	161.69 ± 32.43	30.71 ± 6.63
p(t)	0.28	0.98	0.92	0.30	0.95	0.03
Gender						
Female	26.63 ± 9.68	49.88 ± 9.27	31.15 ± 9.25	52.27 ± 9.49	159.94 ± 28.70	29.68 ± 6.21
Male	33.61 ± 10.62	49.82 ± 11.19	31.20 ± 11.22	51.17 ± 10.61	165.82 ± 35.57	29.76 ± 8.41
p(t)	<0.001	0.97	0.97	0.55	0.31	0.95
Academic year						
First year	29.85 ± 10.73	50.83 ± 8.70	30.80 ± 9.27	53.42 ± 8.08	164.92 ± 27.85	27.40 ± 7.58
Second year	28.38 ± 11.18	47.65 ± 11.69	31.08 ± 10.40	51.51 ± 11.51	158.62 ± 34.28	29.05 ± 7.53
Third year	28.12 ± 10.06	50.46 ± 10.73	30.62 ± 11.56	50.93 ± 10.70	160.15 ± 36.70	31.31 ± 5.13
Fourth year	27.48 ± 9.67	50.39 ± 7.85	32.24 ± 8.12	51.60 ± 9.07	161.72 ± 24.20	29.71 ± 5.79
p(F)	0.78	0.49	0.90	0.70	0.83	0.01
Difference						1<4
Place of residence with family						
City center (1)	28.78 ± 9.80	49.32 ± 8.73	31.00 ± 9.15	51.88 ± 9.51	161.00 ± 26.58	29.69 ± 6.54
District (2)	29.70 ± 10.97	50.69 ± 11.33	32.41 ± 10.39	52.12 ± 10.42	164.94 ± 36.35	30.12 ± 6.80
Village (3)	21.09 ± 9.08	49.45 ± 9.05	26.09 ± 10.13	51.81 ± 9.22	148.45 ± 24.90	27.72 ± 9.29
p(F)	0.04	0.73	0.14	0.98	0.26	0.57
Difference	2>3					
Smoking status						
No	28.00 ± 10.19	51.36 ± 9.14	31.53 ± 9.23	52.41 ± 9.58	163.32 ± 29.58	29.95 ± 6.42
Yes	31.34 ± 11.17	42.08 ± 9.56	29.26 ± 12.36	49.69 ± 10.72	152.39 ± 35.40	28.43 ± 8.84
p(t)	0.15	<0.001	0.30	0.22	0.11	0.33
Alcohol consumption status						
No	28.64 ± 10.63	51.14 ± 9.14	31.51 ± 9.73	52.51 ± 9.75	163.81 ± 29.58	29.87 ± 6.74
Yes	27.73 ± 8.36	39.00 ± 8.51	28.26 ± 10.18	47.40 ± 9.18	142.40 ± 35.40	28.33 ± 7.91
p(t)	0.74	<0.001	0.22	0.05	0.10	0.41

E-health literacy was positively correlated with all healthy lifestyle domains and with the total Healthy Lifestyle Scale score. The strongest correlation was observed between e-health literacy and the total healthy lifestyle score, followed by health protection and promotion, interpersonal relationships, healthy nutrition, and sports activity. These results show that higher e-health literacy scores were accompanied by more favorable healthy lifestyle behaviors among nursing students (Table 4).

Table 4. Correlation analysis between mean total scores of the E-Health Literacy Scale and the Healthy Lifestyle Scale.

	Sports Activity	Health Protection and Promotion	Healthy Nutrition	Interpersonal Relationships	Healthy Lifestyle Scale Total Score
E-Health Literacy Scale Total Score	r = 0.278 p < 0.01	r = 0.427 p < 0.001	r = 0.293 p < 0.001	r = 0.350 p < 0.001	r = 0.436 p < 0.001

4. Discussion

This study showed that nursing students with higher e-health literacy scores tended to report more favorable healthy lifestyle behaviors. This pattern was observed not only in the total healthy lifestyle score but across several domains, including sports activity, health protection and promotion, healthy nutrition, and interpersonal relationships. Although the cross-sectional design does not allow causal interpretation, the findings indicate that students' competence in using digital health information may be closely related to how they manage and maintain daily health-related behaviors.

The overall result is compatible with previous evidence linking e-health literacy with health-related and health-promoting behaviors. Kim et al. (2023), in a systematic review and meta-analysis, reported a positive relationship between e-health literacy and health behaviors, with a stronger pattern for health-promoting behaviors. Similarly, studies conducted among nursing and university students in Türkiye found that higher e-health literacy was associated with healthier lifestyle patterns and protective health behaviors (Kasımoğlu et al., 2023; Öztürk et al., 2023; Turan et al., 2021). The present study supports this body of evidence by showing that e-health literacy is related to multiple lifestyle dimensions rather than a single behavioral area.

Students older than 20 years and fourth-year students had higher e-health literacy scores. This may be related to increasing academic exposure, clinical experience, and the need to search for evidence-based information during nursing education. As students advance through their education, they may become more familiar with health terminology, scientific sources, and digital platforms used for professional learning. This finding suggests that e-health literacy can develop alongside educational progression, but it also indicates the need to support digital health competencies from the early years of nursing education.

Male students had higher sports activity scores than female students. This difference may reflect variations in physical activity habits, social expectations, perceived barriers, and access to sports opportunities. In addition, students whose families lived in districts had higher sports activity scores than those whose families lived in villages. This result may be associated with differences in environmental opportunities, recreational facilities, or lifestyle routines. Previous research has also emphasized that physical activity is an important component of health-promoting behaviors and may be connected with broader health literacy-related competencies (Jiang et al., 2024). Therefore, nursing education programs should encourage physical activity through accessible and inclusive strategies for all students.

Students who did not smoke or consume alcohol had higher health protection and promotion scores. This finding is consistent with the structure of healthy lifestyle behaviors, which includes avoidance of risky habits, responsibility for health, and engagement in preventive practices. Students who avoid tobacco and alcohol may have stronger self-care awareness and a more protective orientation toward their own health. Recent literature also suggests that e-health literacy may support healthier lifestyle patterns by helping students access health information, recognize risks, and make more informed behavioral choices (Mousazadeh et al., 2025).

The findings have practical implications for nursing education. Nursing students are future health professionals who will provide education and guidance to individuals, families, and communities. Therefore, their ability to access reliable digital health information, critically evaluate online content, and translate this information into health-promoting behaviors should be strengthened during undergraduate education. Integrating digital health literacy into nursing curricula may contribute both to students' personal health behaviors and to their future role in patient education and health promotion.

4.1. Limitations

The study was conducted with nursing students from a single department, which limits the generalizability of the findings to other student groups. Its cross-sectional design does not allow causal

interpretation of the association between e-health literacy and healthy lifestyle behaviors. The use of self-report measures may also have led to socially desirable responses. Although students' internet use characteristics were assessed, the quality and reliability of the digital health resources they used were not examined in detail.

5. Conclusion

Nursing students with higher e-health literacy demonstrated more favorable healthy lifestyle behaviors. This association was observed across several lifestyle domains, suggesting that digital health competence may be relevant to students' health-related daily practices. However, the cross-sectional design prevents causal interpretation. Strengthening nursing students' ability to identify reliable digital health resources, critically evaluate online information, and use this information in health-related decisions may support both their personal health behaviors and their future role in health education.

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Conflict of Interest

The authors declare that they have no conflict of interest.

Ethical Approval

Ethical approval for the study was obtained from the Mersin University Non-Interventional Clinical Research Ethics Committee (Date: 20.05.2026; Decision No: 11). Official permission was also obtained from the university where the study was conducted.

Informed Consent

Informed consent was obtained from all participants before data collection. Participation was voluntary, and participants were informed that they could withdraw from the study at any time.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

- Durak, Y., & Muslu, G. K. (2023). Examination of the relationship between adolescents' healthy lifestyle beliefs and their awareness of sustainable living. *Unika Sağlık Bilimleri Dergisi*, 3(3), 588–600. [In Turkish]
- Gencer, Z. T. (2017). Validity and reliability study for the cultural adaptation of Norman and Skinner's E-Health Literacy Scale. *İstanbul Üniversitesi İletişim Fakültesi Dergisi | Istanbul University Faculty of Communication Journal*, (52), 131–145. <https://doi.org/10.17064/iuifd.333165> [In Turkish]

- Gipson, C. S., Deal, B., & Skinner, M. (2026). Examining well-being and healthy lifestyle interventions among nursing students worldwide: A scoping review. *Journal of Holistic Nursing*, 44(1), 90–108. <https://doi.org/10.1177/08980101241283856>
- Gökkaya, D. (2025). Healthy Lifestyle Scale (HELIS): A scale development research. *Süleyman Demirel Üniversitesi Vizyoner Dergisi*, 16(45), 53–68. <https://doi.org/10.21076/vizyoner.1496574>
- Jiang, S., Ng, J. Y. Y., Choi, S. M., & Ha, A. S. (2024). Relationships among eHealth literacy, physical literacy, and physical activity in Chinese university students: Cross-sectional study. *Journal of Medical Internet Research*, 26(1), e56386. <https://doi.org/10.2196/56386>
- Kasımoğlu, N., Karakurt, P., & Başkan, S. A. (2023). The relationship between university students' e-health literacy and healthy lifestyle behaviors. *International Journal of Health Services Research and Policy*, 8(1), 38–47. <https://doi.org/10.33457/ijhsrp.1206219>
- Kim, K., Shin, S., Kim, S., & Lee, E. (2023). The relation between eHealth literacy and health-related behaviors: Systematic review and meta-analysis. *Journal of Medical Internet Research*, 25(1), e40778. <https://doi.org/10.2196/40778>
- Mousazadeh, Y., Sarbakhsh, P., Arbabisarjou, A., Tolouei, M., Mousavi, H., & Molaei, S. (2025). Association between health-promoting lifestyle and electronic health literacy among Iranian university students. *BMC Medical Education*, 25(1), 246. <https://doi.org/10.1186/s12909-025-06823-6>
- Norman, C. D., & Skinner, H. A. (2006). eHEALS: The eHealth Literacy Scale. *Journal of Medical Internet Research*, 8(4), e507. <https://doi.org/10.2196/jmir.8.4.e27>
- Öztürk, E., Işık, S. S., & Can, Z. (2023). Determining the relationship between e-health literacy and health-improving and protective behaviors in nursing students. *Halk Sağlığı Hemşireliği Dergisi*, 5(2), 106–116. <https://doi.org/10.54061/jphn.1266193>
- Ruiz, V. M. T., Lima, R. B. dos S., Hernández, J. R. S., Zúñiga, E. A. J., & Barbosa, L. P. (2022). Nursing students' lifestyle and related factors. *Texto & Contexto - Enfermagem*, 31, e20220070. <https://doi.org/10.1590/1980-265X-TCE-2022-0070en>
- Turan, N., Güven Özdemir, N., Çulha, Y., Özdemir Aydın, G., Kaya, H., & Aştı, T. (2021). The effect of undergraduate nursing students' e-health literacy on healthy lifestyle behaviour. *Global Health Promotion*, 28(3), 6–13. <https://doi.org/10.1177/1757975920960442>
- WHO. (2021). Global strategy on digital health 2020–2025. <https://www.who.int/publications/i/item/9789240020924>
- Yiğitalp, G. (2022). The effect of a health promotion course on nursing students' healthy lifestyle behaviors. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi*, 11(1), 271–278. <https://doi.org/10.37989/gumussagbil.1050329> [In Turkish]