



Health Information-Seeking Behavior and Sexual Literacy: Insights from Iranian Medical College Students

Mohaddeseh Bagheri¹ , Razieh Bagherzadeh² , Heidar Mokhtari² , Abdolrasool Khosravi^{1*} 

¹ Department of Medical Library & Information Science, Faculty of Paramedicine, Bushehr University of Medical Sciences, Bushehr, Iran.

² Department of Library and Information Science, Payame Noor University, Tehran, Iran.

Abstract

Received: 26 Oct 2024

Accepted: 16 Dec 2024

Keywords:

Sexual health literacy
Web-based health-information-seeking behavior
College students
Iran

Introduction: To enhance the sexual health literacy of young people, particularly students, it is essential to focus on how they seek health information online. This study aimed to investigate the relationship between sexual health literacy level and web-based health information-seeking behavior of Iranian medical students.

Methods: This cross-sectional research employed stratified random sampling method for the distribution of questionnaires to Bushehr University of Medical Sciences students in Bushehr, Iran. A total of 422 questionnaires were distributed, and 387 were completed, representing a response rate of 91.7%. Data were collected using the normalized questionnaires of web-based health information-seeking behavior and sexual health literacy of Iranian adults and analyzed using Pearson's correlational test and linear regression analysis in SPSS 22 software.

Results: The research showed that students have relatively higher rates of sexual health literacy and web-based health information-seeking behavior. Despite the desirability of sexual health literacy and web-based health information-seeking behavior, as a whole, the analysis and evaluation component of sexual health literacy and the sharing and application components of web-based health information-seeking behavior of students were at an average level. In addition, there was a direct and meaningful relationship between web-based health information-seeking behavior and sexual health literacy ($P < 0.001$). All web-based health information-seeking behavior components, but familiarity with the Internet, predicted sexual health literacy ($P < 0.001$).

Conclusion: Health officials and policymakers in the country must develop appropriate and written educational programs to improve the level of health information-seeking behavior, specifically in sharing and applying sexual information, as well as sexual health literacy, particularly in the analysis and evaluation aspects among the visited groups.

* Corresponding author

Abdolrasool Khosravi.

Email: khosravi2422@gmail.com



Introduction

Sexual activity is one of the crucial aspects of human life, affected by many factors. One of the most important aspects of an individual's health is sexual health literacy, not only during reproductive years but throughout life (1). The World Health

Organization (WHO) defines sexual health literacy as the ability to understand and use sexual health information to reduce sexually transmitted infections and sexual abuse and to improve other health-related priorities (2).



Sexual health literacy is one of the preventive factors for sexual and reproductive health problems (3). Sexual literacy has many components, including, but not limited to, knowledge of sexual function, the ability to prevent unintended pregnancies among sexually active people, knowledge of how to protect oneself from contracting or transmitting a sexually transmitted disease, the ability to distinguish sexual facts from sexual myths, the ability to successfully maintain a relationship with a sexual partner, and an understanding of the dangers posed by the wealth of sexually explicit material now so readily available (4). Increased access to the Internet as a context for providing young people with an electronic forum for the delivery of sexual information in various formats requires the promotion of sexual literacy (5). The development of social media, as well as open and quick access to the Internet for finding sexual information, has led to some negative consequences among young people, including students. These include the spread of false beliefs and pseudo-information, as well as changes in attitudes towards marriage and premarital relationships (6-9).

Low literacy and limited skills in using the web as a forum for providing information on various topics and inadequate skills in searching, finding, and evaluating health information are the main components of web-based information-seeking behavior, making individual searchers vulnerable in the virtual environment (10). Therefore, web-based health information-seeking behavior needs to be promoted among students to reduce the potential adverse effects of sexual misinformation. This behavior considers how to search for, evaluate, and use sexual health information on the web (11).

Despite some worldwide studies on web-based information-seeking behavior and sexual health literacy among different groups (6, 10, 12), few studies have been conducted on these topics among Iranians. In one study, a lack of sexual health literacy among Iranian adolescents was shown to result in unhealthy sexual relationships and sexual relationships at a younger age (13). However, sexual health literacy among Iranian women was correlated with their normal sexual behavior and performance, showing the positive effect of sexual

health information on normal sexual life (14). Approximately one quarter of Iranian women had inadequate sexual information literacy, especially in the application component, reflecting some need for training them in this area (3). Ghasemi et al. (15) found that most Iranian female students used Internet resources to obtain health information. Similarly, the use of the Internet for health information was common among Iranian pregnant women (16).

Despite the importance of studying the possible relationship between different aspects of sexual health literacy and web-based health information-seeking behavior among Iranian students, no scientific study has addressed this issue. This may be due to the fact that sexual behavior is somewhat taboo in Iran and has not been studied in depth among the general public, as well as college students. Therefore, this study aimed to investigate the relationship between web-based health information-seeking behavior and sexual health literacy among Iranian medical students.

Methods

This study is cross-sectional research. The statistical population included all 2300 students from the five colleges of Bushehr University of Medical Sciences, Bushehr, Iran, during the academic year 2021-2022.

In consideration of the main objective of the research, the results of previous studies were employed to estimate the requisite sample size. The sample size was calculated using G*Power software, with a correlation of 0.19, a type 1 error of 0.05, and a power of 0.8, resulting in a sample size of 278 individuals. However, due to the use of regression for data analysis and the regression sample size formula (10 to 30 samples for each predictor variable), and given that the model included one main predictor variable along with all demographic variables, the predictor was generally considered to have 16 predictor variables. This was calculated by considering 15 samples for each predictor variable. The sample size was calculated to be 383 individuals, with a coefficient of 1.5 to account for the type of sampling. This number was adjusted to account for a 10% dropout rate,

resulting in a final sample size of 422 individuals. Sampling was conducted stratified, with each field of study considered a stratum. The sample size for each stratum was determined according to the total number of students in that stratum. This specified size was selected from the students' file numbers using a simple random selection process. (random selection was conducted using randomization software). Of the 422 distributed questionnaires, 387 were returned, yielding a response rate of 92%. Sampling was conducted over four months, from December 2021 to April 2022.

The data collected included demographic information, data extracted from a completed Persian questionnaire on sexual information literacy (17), and data from a completed Persian questionnaire on web-based health information-seeking behavior (11). The former included 40 Likert-type items (agree=5, disagree=1) in four domains (access domain with seven items, reading and understanding domain with 18 items, analysis and evaluation domain with five items, and application domain with 10 items). The formal validity of the scale was confirmed by three specialists in the field of library and information science with some minor corrections. The reliability of the components of the scale, when tested on 30-40 subjects, ranged from 0.69 to 0.73. The latter (i.e., Persian questionnaire on web-based health information-seeking behavior) consisted of 12 items (some demographic and background information and several health information items). Items included demographic data, Internet use

habits, uncertainty, information resources, search habits, information sharing, information use, and attitudes toward the information obtained. It was designed and validated in Iran by Masoumi, Tavoosi, and Zarei (17). Its reliability was reported to be more than 0.08 (with high internal consistency reliability with Cronbach's alpha, ranging from 0.84 to 0.94). The questionnaire was designed online. The link was sent to the selected students via a previously obtained cell phone, and responses were received.

The collected data were coded and analyzed using SPSS version 22. Descriptive indicators (including frequencies, means, standard deviations, and percentages), and analytical indicators (Pearson's correlations and linear regression analyses) were performed, with statistical significance set at $P\text{-Value} < 0.05$.

Results

Among the subjects, 228 (58.9%) and 159 (41.1%) were female and male students, respectively. 20 (5.2%), 246 (63.6%), 19 (4.9%), and 102 (26.4%) were AD, BD, MD, and Ph.D. students. The subjects were in the 18-50 age range, with a mean rate of 21.93 ± 5.12 .

Considering the rates of students' sexual health literacy and its components, all components had a mean rate of more than the average point ($=2.5$). The highest and lowest rates belonged to the components of the information application (3.88) and information analysis and evaluation (3.55), respectively (Table 1).

Table 1. The mean rate of the components of students' sexual health literacy

Components	Mean	SD
Information access	3.71	0.55
Information reading/understanding	3.84	0.42
Information analysis/evaluation	3.55	0.52
Information application	3.88	0.43
Total	3.74	0.38

Regarding web-based health information-seeking behavior, all components were rated as higher than the moderate level (≤ 2.5). The high and lowest

rates belonged to the components of the attitudes to retrieved information (3.65) and sharing information (3.01), respectively (Table 2).

Table 2. The mean rate of the components of students' web-based information-seeking behavior

Components	Mean	SD
Familiarity with the Net	3.40	0.64
Seeking and evaluating information	3.64	0.51
Sharing information	3.01	0.63
Using information	3.24	0.47
Attitudes to the retrieved information	3.65	0.49

There were direct and moderate significant correlations between all fields of web-based information-seeking behavior and sexual health literacy and its components

(Table 3). The component of attitudes to the retrieved information had the strongest correlation with sexual health literacy ($r=0.463$, $P<0.001$).

Table 3. Correlational matrix of students' web-based information-seeking behavior and sexual health literacy

Web-based information-seeking behavior		Sexual health literacy				
		Access	Reading / Understanding	Analysis / Evaluation	Application	Total
Familiarity with the Net	Pearson's R	0.308	0.297	0.276	0.176	0.338
	P-Value	<0.001	<0.001	<0.001	<0.001	<0.001
Seeking and evaluating information	Pearson's R	0.283	0.376	0.343	0.257	0.396
	P-Value	<0.001	<0.001	<0.001	<0.001	<0.001
Sharing information	Pearson's R	0.243	0.202	0.230	0.190	0.280
	P-Value	<0.001	<0.001	<0.001	<0.001	<0.001
Using information	Pearson's R	0.281	0.317	0.319	0.300	0.386
	P-Value	<0.001	<0.001	<0.001	<0.001	<0.001
Attitudes to the retrieved information	Pearson's R	0.340	0.431	0.328	0.373	0.463
	P-Value	<0.001	<0.001	<0.001	<0.001	<0.001

Based on linear regression analysis, familiarity with the Net, sharing information, and attitudes toward the information obtained were the direct predictors of access as a component of sexual health literacy. Seeking and evaluating information and attitudes toward the information obtained were the direct predictors of reading and understanding

as one of the components of sexual health literacy. Seeking and evaluating information and using the information, as well as attitudes to the retrieved information, were the direct predictors of analyzing, evaluating, and using as the two components of sexual health literacy (detailed data have not been presented here for summary purposes).

Table 4 shows the predicting variables of students' sexual health literacy. As can be seen, the primary model with the educational level as a predicting variable was significant and predicted 2.1% of changes in students' sexual health literacy. In the final model, including the fields or components of web-

based information-seeking behavior, all variables predicted 31.7% of changes in students' sexual health literacy. Therefore, being a Ph.D. student and in all fields of web-based health information-seeking behavior, familiarity with the Net directly predicts students' sexual health information literacy.

Table 4. Hierarchical multivariate linear regression analysis for determining the predicting variables of students' sexual health literacy

Variable	Primary model				Final model				
	Level	Beta	P-Value	(B)	Beta	T	P-Value	Confidence interval	
								Lower	Upper
Constant			<0.001	1.619	—	9.815	<0.001	1.294	1.943
Educational Level	BD	0.252	0.027	0.112	0.143	1.490	0.137	-0.036	0.261
	MD	0.135	0.054	0.145	0.083	1.408	0.160	-0.058	0.348
	PhD	0.344	0.002	0.164	0.192	2.057	0.040	0.007	0.320
Familiarity with the Net	—	—	—	0.037	0.062	1.158	0.248	-0.026	0.099
Seeking and evaluating information	—	—	—	0.145	0.195	3.603	<0.001	0.066	0.225
Sharing information	—	—	—	0.065	0.109	2.356	0.019	0.011	0.120
Using information	—	—	—	0.109	0.137	2.580	0.010	0.026	0.192
Attitudes to the retrieved information	—	—	—	0.220	0.288	5.577	<0.001	0.143	0.298
Determinant		0.029					0.331		
Standard determinant		0.021					0.317		
F		3.815					23.316		
P-Value		<0.010					<0.001		

Discussion

The rate of sexual health literacy among the studied students was higher than the moderate level. One reason is that the participants in this study were educated persons with high levels of health-related information. However, the rate of sexual information literacy needs to be promoted, especially in the component of sexual information analysis and evaluation, as the component requires deep thinking and directed skills (18). This can be done by using

different scientific and culturally oriented methods. The correct evaluation and analysis of sexual health information, as well as users' satisfaction with its outcome, are at work in using the information for a better sexual life (12). In addition, health literacy can affect health-related behaviors, the use of information, and sexual function (19).

The web-based information-seeking behavior rate was also higher than the moderate level. The reason is also embedded in the studied students' familiarity

with new information technologies and the Net. The finding is in line with those of other studies in Iran, including one study on health information-seeking behavior and the role of public libraries (20), another on the placement of the Internet in health information-seeking behavior (11) and a study about health information seeking behavior among students (21). A study on places where university students obtain their health information in developing countries found that the web is the most important tool (22). However, the sharing of health information was relatively low, possibly due to cultural issues. In addition, these findings highlighted the high frequency of using the web as the primary source of sexual information. These findings are consistent with those of Feizabadi et al. (23) and Sabaghinejad, Baji, and Vejdani (16). They found the web to be the primary source of health information because of its vast and easy accessibility.

Since there were direct and moderately significant correlations between all areas of Web-based information-seeking behavior and sexual health literacy, as well as its components, it can be assumed that improving skills in web-based health information-seeking behavior may be beneficial to motivate sexual literacy skills. The notion is further confirmed as we found that health information-seeking behavior on the web can also predict sexual health literacy. In previous studies, Magee et al., Patterson et al., and Rakhshaei et al. (24-26) showed the relationship between information-seeking behavior and sexual health literacy.

This study does have certain limitations. One notable challenge was the lack of resources on health information-seeking behavior specific to Iran. To address this, resources from international sources were utilized. Despite this limitation, the study offers several theoretical and practical insights. With the advancement of information technologies and the widespread Internet access among young people, specifically students, there is a significant impact of sexual content and sexual information on their behavior and attitudes. Therefore, health officials

and policymakers need to develop well-structured educational programs aimed at enhancing sexual health literacy and empowering students.

Conclusion

This study identified direct and moderately significant correlations between various aspects of web-based information-seeking behavior and sexual health literacy, along with its components. Therefore, it is suggested that health information-seeking behaviors be promoted by providing relevant workshops and educational courses. Intervention studies need to be conducted to measure the effect of promoting these skills in promoting sexual health literacy. Because religion and culture play an essential role in Iranian society, a measure of religiosity and cultural embeddedness should be included in further studies. The effect of educational level and related courses, as well as the marriage state of participants, are other variables to be notified. The effect of pseudo-information on the Net on individuals' sexual behavior can be another research.

Declaration

Acknowledgment

The authors are highly grateful to those who participated in this study.

Conflict of Interest

The authors declared no conflict of interest.

Ethical Statement

Researchers have complied with all ethical requirements throughout the research. Data are available and will be provided if anyone needs them. The ethics code is IR.BPUMS.REC.1399.102

Funding and Support

No funding has been received for this study.

Authors' Contribution

All authors participated in all phases of this study.



References

1. Rafaei SK, Chinichian M, Eftekhari AH, Pourreza AG, Ramezan KA. Need assessment: Sexual health education in family planning centers, Tehran, Iran. *PAYESH* [Internet]. 2010 [cited 2024 Nov 18]; 9(3):251-260. Available from: <https://sid.ir/paper/23270/en>. [In Persian].
2. World Health Organization (WHO). Sexual and reproductive health: fact sheet on Sustainable Development Goals (SDGs): health targets [Internet]. [cited 2024 Nov 25]. Available from: <https://www.who.int/europe/ru/publications/i/item/WHO-EURO-2017-2386-42141-58055>
3. Jamali B, Maasoumi R, Tavousi M, Haeri Mehrizi AA, Zarei F. The status of sexual health literacy in Iranian women: A cross-sectional study. *J Nurs Midwifery Sci*. 2022;9(2): 132-139. doi: 10.4103/jnms.jnms_87_21
4. Shahrahmani H, Kariman N, Keshavarz Z, Ahmadi A, Nasiri M. Sexual health literacy and its related factors among couples: A population-based study in Iran. *PLoS One*. 2023;18(11):e0293279. doi: 10.1371/journal.pone.0293279
5. Khalajabadi Farahani F. Exposure to sexual explicit materials in internet and cyberspace and its intra-psyche influences on adolescents in Tehran; A qualitative study. *Interdiscip Stud Media Cult*. 2020; 9(2): 55-90. doi: 10.30465/ismc.2020.5075. [In Persian].
6. Brown JD, El-Toukhy S, Ortiz R. Growing up sexually in a digital world: The risks and benefits of youths' sexual media use (chapter 6 in media and the well-being of children and adolescents). *Child Welfare Information Gateway* [Internet]. [cited 2024 Nov 26]. Available from: https://cwlibrary.childwelfare.gov/permalink/01CWIG_INST/10a03se/alma991000088189707651
7. Khalajabadi Farahani F. Norms, attitude and sexual conduct among female college students in Tehran: implications for reproductive health policy and research. PhD thesis, London School of Hygiene & Tropical Medicine; 2008. doi: 10.17037/PUBS.00682381
8. Latifnejad Roudsari R, Nouri MJ, Hasanpour M, Hazaveyi SM, Taghipour A. The necessity of sexual-health education for Iranian female adolescents: A qualitative study. *Iran J Obstet Gynecol Infertil* [Internet]. 2012 [cited 2024 Nov 26]; 15(12):7-17. Available from: <https://www.semanticscholar.org/paper/The-Necessity-of-Sexual-Health-Education-for-FemaleNejadNouri/c6a46ba1d38aeea52d78a16e431baa24320151b>
9. Mohammadi MR, Mohammad K, Farahani FK, Alikhani S, Zare M, Tehrani FR, et al. Reproductive knowledge, attitudes and behavior among adolescent males in Tehran, Iran. *Int Fam Plan Perspect*. 2006 Mar;32(1):35-44. doi: 10.1363/3203506
10. Khedri A, Sarrafzade M. Searching health information in the Internet: A literature review. *Libr Lib 2.0* [Internet]. 2018 [cited 2024 Nov 17]; 4(1):33-42. Available from: <http://lib2mag.ir/9686/>. [in Persian].
11. Bigdeli Z, Hayati Z, Heidari GR, Jowkar T. Place of internet in health information seeking behavior: Case of young Internet users in Shiraz. *Hum Inf Interact* [Internet]. 2016 [cited 2024 Nov 26];3(1):67-78. Available from: <http://hii.khu.ac.ir/article-1-2568-en.html>. [in Persian].
12. Jayasundara CC. Sexual health information seeking behaviour of adolescents and their satisfaction with the information outcome: An application of the theory of motivated information management. *J Acad Librariansh*. 2021;47(5):102383. doi: 10.1016/j.acalib.2021.102383
13. Khalajabadi Farahani F. Sexual explicit materials in internet & cyber space and its role in interpersonal relationship among adolescents aged 15-18 Years in Tehrans. *J Family Res* [Internet]. 2019 [cited 2024 Nov 26]; 15(1):127-153. Available from: https://jfr.sbu.ac.ir/article_97710.html?lang=en. [in Persian].
14. Dehghankar L, Panahi R, Khatooni M, Fallah S, Moafi F, Anbari M, et al. The association between



- sexual health literacy and sexual function of women in Iran. *J Educ Health Promot*. 2022;11:11. doi: 10.4103/jehp.jehp_414_21
15. Ghasemi AH, Komeili Sani H, Saki Malehi A, Tumari S. The search for health information on the net among undergraduate female students at Ahvaz Jundishapur University of Medical Sciences. *Educ Dev Judishapur* [Internet]. 2016 [cited 2024 Nov 26]; 7(4):318–24. Available from: https://edj.ajums.ac.ir/article_79813_en.html. [in Persian].
 16. Sabaghinejad Z, Baji F, Vejdani M. Online health information seeking among pregnant women referring to Al-Zahra Hospital of Ahwaz City, Iran. *Heal Inf Manag*. 2021;18(1): 33-38. doi: 10.22122/him.v18i1.4277. [In Persian].
 17. Maasoumi R, Tavousi M, Zarei F. Development and psychometric properties of sexual health literacy for adults (SHELA) questionnaire. *J Hayat* [Internet]. 2019 [cited 2024 Nov 18]; 25(1):56-69. Available from: <http://hayat.tums.ac.ir/article-1-2849-en.html>. [In Persian].
 18. Graf AS, Patrick JH. Foundations of life-long sexual health literacy. *Health Educ*. 2015;115(1):56–70. doi: 10.1108/HE-12-2013-0073
 19. Panahi R, Aghaeian N, Pishvaei M, Niknami S. The need to pay attention to differences in health literacy and knowledge in health education interventions. *J Res Heal*. 2019;9(2):95-96. doi: 10.29252/jrh.9.2.95
 20. Okhovati M, Sharifpoor E, Hamzeh Zadeh M, Shahsavari M, Soltan shahi M. The role of public libraries on Kerman health information seeking behavior. *J Heal Biomed Informatics* [Internet]. 2016 [cited 2024 Nov 29]; 3(1):48–56. Available from: <http://jhbmi.ir/article-1-138-en.html>. [in Persian].
 21. Sultan K, Joshua VR, Misra U. Health information seeking behavior of college students in the Sultanate of Oman. *Khyber Med Univ J* [Internet]. 2017 [cited 2024 Nov 18]; 9(1):8–14. Available from: <https://www.kmu.jkmu.edu.pk/article/view/16883>
 22. Yilma T, Inthiran A, Reidpath D. College students from developing countries: Where do they get health information. In *Proceedings of the 2nd SIGIR workshop on Medical Information Retrieval (MedIR)* [Internet]. 2016 [cited 2024 Nov 18]. Available from: http://medir2016.imag.fr/data/MEDIR_2016_paper_10.pdf
 23. Feizabadi M, Gohari H, sakhaei A, Vasfi M. Internet use for health information search according to Technology Acceptance Model (TAM) among women. *J Sabzevar Univ Med Sci* [Internet]. 2018 [cited 2024 Nov 18]; 24(6):51-62. Available from: https://jsums.medsab.ac.ir/article_1008.html?lang=en. [In Persian].
 24. Magee JC, Bigelow L, Dehaan S, Mustanski BS. Sexual health information seeking online: A mixed-methods study among lesbian, gay, bisexual, and transgender young people. *Health Educ Behav*. 2012;39(3):276-89. doi: 10.1177/1090198111401384
 25. Patterson SP, Hilton S, Flowers P, McDaid LM. What are the barriers and challenges faced by adolescents when searching for sexual health information on the internet? Implications for policy and practice from a qualitative study. *Sex Transm Infect*. 2019;95(6):462-467. doi: 10.1136/sextrans-2018-053710
 26. Rakhshae Z, Maasoumi R, Nedjat S, Khakbazan Z. Sexual health literacy, a strategy for the challenges of sexual Life of infertile women: A qualitative study. *Galen Med J*. 2020;9: e1862. doi: 10.31661/gmj.v9i0.1862

