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The relationship between health literacy and health-seeking behavior in late adolescent college students: A cross-sectional study

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Abstract

This study examines the relationship between health literacy and health information seeking behavior in late adolescent students at Surabaya State University through a cross-sectional study. Health literacy is defined as an individual's ability to acquire, understand, evaluate, and use health information for informed decision-making. A total of 229 students aged 17-19 years were respondents who were voluntarily taken using the HSL-EU-16 questionnaire. The results showed that the majority of respondents had a sufficient level of health literacy with an average score of 14.08, where women had a slightly higher score than men. Health information search behavior was dominated by the use of online media (95.6%) and social media (99.1%), with the frequency of searches more than twice a week for most respondents (67.7%). The analysis showed a significant relationship between health literacy and the type of information search media and social media use, but not with gender, ownership of health applications on smartphones, and frequency of online searches. These findings underscore the importance of using digital media as the main means of increasing health literacy among students to support appropriate health decision-making and healthy lifestyles. Recommendations are given for the development of health literacy-based education programs and applications that are adaptive to the needs of the younger generation.

Keywords: Health literacy; Health information; Digital media; Healthy Lifestyle

1. Introduction

Health literacy includes an individual's ability to acquire, understand, evaluate, and use health information effectively to make decisions related to personal health (1). In late adolescence, the transition to cognitive maturity is accompanied by increased autonomy in making health decisions (2), So that health literacy skills are very important to prevent misinformation and improve evidence-based health practices.

Health information seeking behavior is an important component of health literacy (3). Late teenage students often access a variety of sources, from official health sites, social media, to online discussion forums (4). The quality of the information found varies greatly, so the ability to assess the credibility, relevance, and validity of the information source is crucial (5). Uncertainty of information can lead to inappropriate health decisions, such as improper use of medications, low adherence to medical recommendations, or excessive fear of certain health issues (6).

Individuals with high health literacy tend to use trusted sources, identify biases, and compare information from multiple sources before taking action (7). However, variations in local contexts, education levels, access to technology, and information culture can moderate these relationships (8). Therefore, it is important to examine this relationship contextually in the population of late-teens-age students in a university setting.

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This cross-sectional research is needed to explore the extent to which health literacy plays a role in health information seeking behavior patterns in late adolescent college students (9). The findings of this study can be the basis for the development of curricular interventions and health information literacy programs that focus on improving the ability to evaluate information sources, digital media literacy, and critical literacy to health news. In addition, the results can provide an overview for the preparation of health literacy guidelines that are adaptive to the needs of students and improve their ability to make evidence-based health decisions.

This research is relevant for improving the quality of medical education and public health at the university level, as well as for the development of effective health communication strategies among the younger generation. With a better understanding of how health literacy affects health-information-seeking behaviors, educational institutions can design concrete training programs, improve information literacy, and ultimately contribute to better health behaviors among late-teenage students.

2. Material and methods

The cross-sectional study was conducted with respondents of Surabaya State University students. Data collection was carried out by distributing questionnaires so that 229 data were collected in accordance with the inclusion criteria in the selection of respondents, namely active students of the State University of Surabaya aged 17-19 years old at the time of data collection. This type of survey is voluntary, written consent is filled out by filling out the form online. The purpose and manner of participating have been explained. Participants have the opportunity to ask questions during the data collection process or cancel participation before the questionnaire is collected.

The questionnaire used HSL-EU-16 to assess the level of comprehensive health literacy. Comprehensive health literacy is the ability to seek information, understand, evaluate, and apply that information to make beneficial health choices (Sørensen et al., 2012). The questionnaire consists of 16 questions that measure people's perceptions of their ability to search, understand, evaluate, and apply health information to maintain and improve their health. For the HLS-EU-16 assessment, the answers are converted to binary codes, with 1 for "very easy" and "easy," or 0 for "difficult" and "very difficult." A "don't know" answer or a refusal to answer is considered missing data. The CHL score is calculated based on the sum of all answers and can range from 0-16. Only respondents who answered at least 14 questions were taken into account in the analysis. The total score was converted into 3 categories: adequate (score more than 12), problematic (score from 9 to 12), and inadequate (score less than 9) (Sørensen et al., 2015).

Descriptive analysis and nonparametric differential tests were used to analyze differences in the health literacy ability of male and female students. Cross-sabulation analysis was also used to describe gender differences based on the distribution of CHL levels. Statistical analysis was performed using IBM SPSS Statistics for Windows version 25 (IBM, Armonk, NY, USA).

3. Results and discussion

Table 1 Characteristics of respondents

Parameter	N	Minimal	Maximal	Average	SD
Age (years)					
Man	83	17	19	18.72	0.48
Woman	146	17	19	18.67	0.51
Weight (kg)					
Man	83	45	115	64.94	12.38
Woman	146	36	85	51.61	10.00
Height (cm)					
Man	83	160	180	170.10	4.81
Woman	146	130	169	156.18	5.28
BMI (kg/m2)					
Man	83	15.57	38.42	22.10	4.03
Woman	146	14.61	36.69	21.19	4.19

Table 1 shows the characteristics of respondents divided into two groups based on Gender (Male and Female) with a total of 229 participants (83 males, 146 females). The average age of respondents was near the end of adolescent adulthood, about 18.7–18.8 years, with a low standard variation of deviation (±0.48–0.51). The average body weight was about 64.9 kg for males and 51.6 kg for females, while the height was about 170.1 cm for males and 156.2 cm for females, with SD showing a moderate spread (±4.8–5.3 cm). The mean body mass index (BMI) was 22.1–22.2 kg/m^2 for both genders, indicating normal nutritional status in most respondents, although there was considerable individual variation (SD around 4.0–4.2).

Table 2 Respondents' health information search behavior

Parameter	N	Percentage (%)
Gender		
Man	83	36.2
Woman	146	63.8
Health information search media		
Media *online*	219	95.6
Offline media	10	0.4
Health apps installed on *smartphones*		
Yes	84	36.7
Not	145	63.3
Frequency of searching for health information online		
1-2 times a week	74	32.3
More than 2 times a week	155	67.7
Search for health information through social media		
Yes	227	99.1
Not	2	0.9

Table 2 summarizes the respondents' health information seeking behavior, with a total of 229 participants divided between males (83) and females (146). In general, respondents used online media more to search for health information (95.6%), compared to offline media (0.4%). As many as 36.7% have health apps installed on smartphones, while 63.3% do not. The frequency of searching for information online for most respondents was more than twice a week (67.7%), while 32.3% searched 1–2 times a week. Regarding the use of social media to find health information, almost all respondents did so (99.1%), while the rest did not (0.9%).

Table 3 Respondents' health literacy

Parameter	N	Minimal	Maximal	Average	SD
Total score	229	5	16	14.08	2.64
By gender					
Man	83	5	16	13.65	3.02
Woman	146	6	16	14.32	2.37

Table 3 shows the health literacy scores of the respondents with a total of 229 participants, consisting of 83 men and 146 women. Health literacy scores range from 5 to 16, with an overall average of 14.08. The average score for men was 13.65 with a standard deviation of 3.02, while for women the average was slightly higher at 14.32 with a standard deviation of 2.37. This data shows that women have slightly better levels of health literacy and smaller variation in scores than men.

Table 4 Correlation of health literacy with gender

	Health Literacy				
Parameter	**Inadequate N (%)**	**Problematic N (%)**	**Sufficient N (%)**	**Total N**	**p-value**
Gender					
Man	7 (8.4)	17 (20.5)	59 (71.1)	83	0.069
Woman	4 (2.8)	24 (16.4)	118 (80.8)	146	
Total	11 (4.8)	41 (17.9)	177 (77.3)	229	
Health information search media					
Media *online*	9 (4.1)	37 (16.9)	173 (80)	219	**0.033***
Offline media	2 (20)	4 (40)	4 (40)	10	
Total	11 (4.8)	41 (17.9)	177 (77.3)	229	
Health apps installed on *smartphones*					
Ya	3 (3.6)	11 (13.1)	70 (83.3)	84	0.100
No	8 (5.5)	30 (20.7)	107 (73.8)	145	
Total	11 (4.8)	41 (17.9)	177 (77.3)	229	
Frequency of searching for health information online					
1-2 times a week	7 (9.4)	15 (20.3)	52 (70.3)	74	
More than 2 times a week	4 (2.6)	26 (16.8)	125 (80.6)	155	0.149
Total	11 (4.8)	41 (17.9)	177 (77.3)	229	
Search for health information through social media					
Ya	10 (4.4)	40 (17.6)	177 (80)	227	**0.049***
No	1 (50)	1 (50)	0 (0)	2	
Total	11 (4.8)	41 (17.9)	177 (77.3)	229	

Table 4 shows the correlation between health literacy with several variables, including gender, health information search media, health apps on smartphones, frequency of online searches, and social media use. The results of the analysis showed that there was a significant relationship between health literacy and information search media ($p = 0.033$) and the use of social media in searching for health information ($p = 0.049$). On gender, health apps installed on smartphones, and frequency of online searches, no significant association with health literacy was found ($p > 0.05$). Most of the respondents had a sufficient level of health literacy (77.3%), with a higher proportion of women than men.

The discussion of this study shows that the demographic characteristics of the respondents, especially age and gender, reflect the student population of late adolescent age with an average age range of around 18.7 years. Significant differences were seen in physical aspects such as weight, height, and body mass index between males and females, which corresponded to biological differences and physiological development in late adolescence. This is important in the context of health literacy because physical conditions can affect the need and attention to health information (10).

The behavior of seeking health information for the majority of respondents is dominated by online media (95.6%) and the use of social media (99.1%), indicating a shift in the lifestyle of the younger generation who are highly dependent on digital technology to obtain information. The high frequency of searches (>2 times a week) also indicates a strong awareness of maintaining health through the information obtained. However, only about a third of respondents install health apps, which could be an opportunity for the development of health literacy-based apps that are more attractive and easily accessible to students.

Respondents' health literacy in general was at a sufficient level with an average score of 14.08 out of a maximum of 16, where women tended to have higher literacy scores than men. These differences may be related to social and cultural roles that give women more attention to health aspects and critical use of information (11). This variation shows that health literacy needs to be continuously improved, especially in male students, in order to be able to make the right health decisions (12).

The correlation between health literacy and the significant media of information search and social media use emphasizes the importance of access and the ability to use digital technology effectively (13). Respondents who use online media and are active on social media tend to have better health literacy, indicating that the strategy of disseminating health information through digital platforms is very effective for college students (14). In contrast, variables such as gender, health apps installed, and search frequency did not show a significant influence, indicating that the quality and manner of searching for information was more decisive than the number of searches or app ownership.

4. Conclusion

The study found that health literacy among late-teenage students is generally at a sufficient level, with women showing slightly higher literacy scores than men. The behavior of seeking health information is dominated by the use of online media and social media, which is significantly related to the level of health literacy. However, variables such as gender, ownership of health apps on smartphones, and frequency of online searches did not have a significant relationship with health literacy. These findings affirm the importance of using digital media and social media as the main means of improving health literacy among students. Recommendations for the development of educational programs and applications that are adaptive to the needs of the younger generation are important to support appropriate health decision-making and healthy lifestyles.

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