Explaining the relationship between health literacy and health information avoidance in university students

Abstract

Aim: Health literacy is a crucial components in enabling individuals to make informed decisions, recognize health risks, and prevent diseases both at the personal and community levels. Despite its importance, some individuals consciously avoid seeking health-related information. This study aims to explore the relationship between health literacy and health information avoidance among university students.

Methods: A cross-sectional study was conducted in 2024 involving 369 students from Ahvaz Jundishapur University of Medical Sciences. Participants were selected utilizing a random stratified proportional sampling technique. Data collection was conducted through two HL and HIA questionnaires. Data analysis was performed using descriptive statistics, and correlation analysis.

Findings: The analysis indicates that nearly fifty percent of the students demonstrate a satisfactory level of HL, with 7.25% exhibiting a high degree, while less than 25% reveal a somewhat insufficient or inadequate level of health literacy. Despite students displaying a robust comprehension of health information, their proficiency in applying this knowledge for decision-making purposes is notably deficient. Regarding HIA, a substantial majority of participants (93.2%) exhibit a moderate degree of avoidance. A significant inverse correlation was established between HL and HIA. Furthermore, a notable association was identified between gender and academic year in relation to HL.

Conclusion: The study underscores the importance of enhancing health literacy to mitigate health information avoidance, particularly among university students. Educational interventions tailored to improve health literacy may serve as a viable strategy to reduce information avoidance and promote proactive health-seeking behavior.

Keywords: Health literacy, holistic health, information avoidance, health promotion

Introduction

Health literacy (HL) denotes an individual's capacity, motivation, knowledge, and competencies requisite for effectively accessing, comprehending, evaluating, and utilizing health information. It constitutes a fundamental component of facilitating informed decision-making regarding health matters (1). According to the World Health Organization (WHO), HL encompasses both cognitive and social proficiencies that signify an individual's motivation and ability to procure, interpret, and implement health information to improve and maintain their well-being (2). This construct empowers individuals to actively engage in altering their surroundings to positively influence their health, functioning as an essential component in acquiring control over social determinants of health and fostering community

welfare. Moreover, HL plays a critical role in influencing health disparities prevalent in both affluent and economically disadvantaged nations; demographics characterized by low HL frequently encounter adverse health outcomes and demonstrate insufficient self-care behaviors. Individuals possessing limited HL commonly experience deteriorated health status, utilize preventive and screening services less regularly, and incur elevated healthcare costs. The consequences of inadequate HL are significant, impacting patient behavior, increasing mortality rates, and posing a considerable public health challenge (3).

HL and Health Information Avoidance (HIA) are interrelated constructs that pertain to the field of information studies. The acquisition and application of information are crucial for the sustenance of both individuals and organizations (4). Thus, the interplay between humans and information constitutes a significant area of inquiry within the domains of information science and knowledge studies (5). Information avoidance signifies a mode of human interaction with information, typified by behaviors that inadvertently obstruct the acquisition or defer the reception of accessible information. Such avoidance may be exemplified by the intentional sidestepping of particular subjects or contexts (5). A salient illustration of this phenomenon is HIA, wherein individuals may abstain from seeking or employing health-related data for various rationales (6). Those individuals who exhibit a propensity for avoiding health information frequently demonstrate diminished engagement in preventive health behaviors. Moreover, individuals with lower levels of HL are more susceptible to evading information concerning illnesses. A significant correlation exists between knowledge and the propensity for avoidance; as an individual's comprehension in a specific domain escalates, the inclination to avoid information diminishes (7, 8). Numerous scholarly inquiries have investigated the dimensions of HL alongside the phenomenon of information avoidance. Hironen's empirical investigation revealed a significant correlation between daily HL and the propensity to circumvent information related to physical activity (9). The research conducted by Jean, Jindal, and Liao elucidated that information avoidance, limited HL, and the lack of health equity are intrinsically linked (10). Chen, Li, and Kerps ascertained that individuals exhibiting lower levels of HL are more predisposed to eschew information regarding COVID-19 (8). Orom and colleagues illustrated that a notable association exists between inadequate HL and the HIA, particularly in comprehending the risks associated with diabetes and colorectal cancer (11).

The principal objective of this study is to investigate the relationship between HL and HIA among students. This research aspires to evaluate the degree of HL (considering the reading capability of health information, accessibility to health information, comprehension and interpretation of health information, assessment of health information, and the decision-making process and application of health information), to gauge the extent of HIA (based on attitudes towards health information, the pursuit and reception of health information, and the acquisition of health information), and to clarify the relationship between disparate levels of HL and HIA in the student population. The results of this study could potentially be beneficial in expanding the knowledge base and elucidating the dynamics between HL and HIA for professionals in information science, researchers, and policymakers within the fields of health and wellness.

Materials & Methods

This descriptive research is quantitative and cross-sectional. A correlational research design was adopted and employs a survey-based methodology conducted in 2024. The participant cohort consisted of 7,500 students enrolled at Ahvaz Jundishapur University of Medical Sciences (AJUMS) during 2024. A proportional stratified sampling method was utilized to collect data from a diverse array of academic levels, encompassing undergraduate (BA), master's (MA), professional doctora (MD), and PhD. Utilizing the Krejcie and Morgan formula, the determined sample size was 369. The eligibility criteria for participation mandated that individuals be currently enrolled at the university and demonstrate a willingness to partake in the research study. Within the participant group, 68.8% (253 individuals) were classified as female, whereas 31.4% (116 individuals) were classified as male. the distribution of students across various academic levels in the current study shows that 46% of the participants were MD and 38% were BA srudents. MA students (13%) and PhD students (3%) had the lowest distribution.

Data was collected using two questionnaires: a validated Iranian HL questionnaire (Helia) assessing access, understanding, utilization, reading, and evaluation of health information(12) (Cronbach's alpha = 0.91 in this study), and a researcher-developed HIA questionnaire(13) with three subscales (attitude, seeking avoidance, and acquiring avoidance) validated with a Cronbach's alpha of 0.88. To determine the total score, the sum of the sub-scale scores was divided by the quantity of sub-scales. The HL levels were categorized as: insufficient (0-50), not quite sufficient (50.1-66.0), sufficient (66.1-84.0), and excellent (84.1-100). HIA was classified as low, moderate, or high avoidance based on quartile scores. The scoring range spans from 13 to 65. In order to classify scores into quartiles, three distinct categories were established: low, moderate, and high avoidance. The delineation of score ranges was established as follows: low avoidance level: scores from 1 to 21/6, moderate avoidance level: scores between 21/7 and 43/3, and high avoidance level: scores ranging from 43/4 to 65. Self-administered printed questionnaires were enclosed in sealed envelopes and distributed to participants. Respondents were instructed to complete the questionnaires, reseal them in the original envelopes, and submit them to their respective faculty libraries. Upon collection, the questionnaires were examined for completeness and subsequently entered into statistical analysis software for data processing.

Ethical approval (IR.AJUMS.REC.1402.389) was secured from the Ethics Committee of AJUMS. Data analysis was conducted utilizing correlation tests, independent t-tests, one-way ANOVA, LSD post-hoc tests, and the SPSS statistical software version 21, with all analyses performed at a 95% confidence level.

Results

This study investigated health literacy (HL) and health information avoidance (HIA) among a student population, exploring the levels of each, their relationship, and how they vary based on gender and educational level. The findings reveal a nuanced picture, highlighting both strengths and areas for improvement in students' ability to access, understand, and utilize health information.

Table 1. Health literacy standardized scores

Components	Min	Max	Mean	St. Error	Status
Reading health literacy	18.75	100	74.74	18.52	Sufficient
Access to health literacy	16.67	100	78.2	15	Sufficient
Understandg health literacy	21.43	100	85.08	13.58	Excellent
Health literacy evaluation	12.5	100	72.66	16.69	Sufficient
Health literacy utilization	10.42	100	64.15	16.16	Not quite sufficient
Total health literacy Score and levels					
	Frequency		**Percentage**		**St. Error**
Excellent	95		25.7		0.75
Sufficient	186		50.4		
Not quite sufficient	79		21.4		
Insufficient	9		2.4		

Considering the standard score cutoff, the component “understandg health information" is classified in the "excellent" category, whereas the component related to the "decision-making and health information utilization" is positioned in the “not quite sufficient”. A significant portion of the student population (50%), demonstrates a sufficient level of HL, with 25.7% exhibiting an excellent level, and 23.8% of students categorized as Not quite sufficient and Insufficient level of HL. In order to investigate HL in relation to gender, an independent samples t-test was employed, while a one-way ANOVA was utilized for the analysis based on academic level. The results are delineated in Table 2.

Table 2. analysis of health literacy mean delineated by gender and educational level

	Gender	No.	Mean	St. Error	Mean St.Error	F	t	P-Value
Health Literacy	**Female**	253	75.76	12.53	0.78	0.986	1.85	0.05
	Male	116	73.23	11.18	1.03			
	Education level			**Sum of Squares**	**DF**	**Mean Square**	**F**	
	Betweenes groups			4646.12	3	1548/7	11.34	0.0001
	Within group			49825.43	365	136/5		

According to Table 2, the HL mean scores of females exhibit a statistically significant elevation in comparison to male. Furthermore, a significant disparity exists in the HL mean scores among students enrolled at varying educational levels. The results derived from the LSD post-hoc analysis indicate that the HL mean scores of undergraduate students are considerably lower than other academic levels ($p<0.0001$), with the most pronounced difference identified in relation to PhD students (mean difference: -18.16). The HL mean scores of master's degree students are significantly superior to those of undergraduate students (mean difference: 6.08, $p<0.002$) yet inferior to the scores of PhD students (mean difference: -12.07, $p<0.002$). Additionally, the HL mean scores of MD students are significantly greater than those of undergraduate students (mean difference: 4.02, $p<0.003$) while remaining lower than those of PhD candidates (mean difference: -14.13, $p<0.0001$). (Only statistically significant results are presented).

Table 3 presents the status of HIA in total and by specific components.

Table 3. The status of health information avoidance

	Component	Min	Max	Mean	St. Error			Frequency	Percentage	St. Error
Health information avoidance	Attitude	6	24	11.99	2.89	**Category**	Low	1	0.3	**0.25**
	Seeking and receiving	4	20	11.67	1.92		Moderate	344	93.2	
	Accuiring	4	19	11.27	1.83		High	24	6.5	

As demonstrated in Table 3, the highest mean pertains to the "attitude towards the HIA," with a substantial proportion of participants (93.2%) exhibiting a moderate level of HIA. In order to analyze the patterns of HIA in relation to gender, an independent samples t-test was employed, while a one-way ANOVA was utilized to assess the differences based on educational attainment. The pertinent results are presented in Table 4.

Table 4. Health information avoidance mean delineated by gender and educational level

	Gender	No.	Mean	St. Error	Mean St.Error	F	t	P-Value
Health information avoidance	**Female**	253	34.92	5.13	0.32	1.82	0.11	0.91
	Male	116	34.98	4.65	0.43			
	Education level			**Sum of Squares**	**DF**	**Mean Square**	**F**	**P-Value**
	Betweenes groups			13.57	3	4.52	0.18	0.9
	Within group			9123	365	24.99		

Findings indicate that male demonstrate elevated mean scores in HIA, juxtaposed with female counterparts; nevertheless, the outcomes of the independent samples t-test reveal that this difference is not significant. Moreover, there exists an absence of significant variation in the mean scores of HIA among students across different academic tiers.

A correlation analysis using Spearman's coefficient was conducted to examine the relationship between HL and HIA. The findings are presented in Table 5.

Table 5. Relationship between health literacy and health information avoidance

	HL Factors	Statistical index	Health information avoidance		
			Attitude	seeking	acquiring
Health literacy	Reading health literacy	Correlation coefficient	-0.174	0.062	-0.013
		P-value	0.001	0.235	0.8
	Access to health literacy	Correlation coefficient	-0.145	0.052	0.073
		P-value	0.005	0.316	0.163
	Understandg health literacy	Correlation coefficient	-0.188	0.062	-0.004
		P-value	0.0001	0.238	0.938
	Health literacy evaluation	Correlation coefficient	-0.079	0.14	0.04
		P-value	0.13	0.007	0.442
	Health literacy utilization	Correlation coefficient	-0.125	0.199	0.143
		P-value	0.016	0.0001	0.006
Total Correlation coefficient= -0.041, P-value=0.04					

As demonstrated in Table 5, there is a significant inverse correlation between HL and HIA. Consequently, enhanced HL results in a reduction of HIA. Among the fifteen relationships identified between the components, seven demonstrate statistical significance.

The relationship between gender and educational attainment with HL and HIA was assessed utilizing Spearman's correlation. The results indicated a significant correlation between HL and gender (0.103, P-value= 0.048) as well as educational attainment (0.022, P-value= 0.0001). Conversely, no significant correlation was identified between the HIA and gender (0.028, P-value= 0.58) or educational attainment (0.027, P-value= 0.68).

Discussion

This study investigated students' comprehension and application of health information, revealing a strong understanding of concepts but a deficiency in decision-making and practical application. While students showed the ability to interpret information, access resources, and assess validity, they struggled with translating knowledge into action, such as engaging in routine medical examinations(14). These findings contrast with some studies showing challenges in health information acquisition (15), but align with others indicating strong health literacy among clinical program students (16, 17).Furthermore, individuals engaged in medical emergencies demonstrated remarkable proficiency in comprehension, whereas participants in radiology technology exhibited superior capabilities in evaluation, and students specializing in laboratory science revealed praiseworthy competencies in decision-making and behavior, thereby substantiating the findings of this study.

The research highlighted that students could generally evaluate health information and assess the accuracy of recommendations, contradicting findings that students struggle to distinguish between reliable and unreliable online sources (18). Support for this finding comes from studies that reported above-average health literacy and the ability to discern fraudulent health information (19). Students often demonstrated the capacity to assess the reliability of health advice from their social circles, showing promise in navigating health-related information.

Despite their understanding, many students didn't routinely engage in preventative health measures, citing "time limitations" as a factor (14). The study found varying levels of health literacy, with 50% demonstrating adequate and 28% excellent proficiency. This contrasts with research indicating lower health literacy levels among university students (20)and highlights the need for tailored health communication strategies. Gender differences were also observed, with women demonstrating higher health literacy than men (21), a finding that diverges from studies showing lower health literacy among women and older adults (22), emphasizing the need for targeted approaches.

Health literacy scores varied significantly across educational levels. Students in graduate programs and basic sciences exhibited higher health literacy (1). Education level significantly influences health literacy (20), with final-year students showing higher levels than first-year students (23). Factors like education, field of study, parental education, age, and region are key determinants of health literacy (24). Prioritizing education level is a viable strategy for health policymakers due to this correlation.

The study explored health information avoidance (HIA), revealing that a majority of students were inclined to engage with health information, even if it caused psychological distress. This contrasts with research showing that high information distress leads to information avoidance and reduced compliance with preventive measures (6, 25, 26). However, the current findings align with studies indicating that concern and perceived risk can drive information-seeking behavior (8).

Students actively seek information during pandemics, demonstrating a desire for diverse health data (27). Deliberate evasion of health information may be influenced by concerns about influential entities exploiting the data (28). Students showed eagerness to learn about severe medical conditions affecting relatives, even if it caused emotional instability. This contrasts with studies indicating that people often avoid information that may cause discomfort or psychological distress (29). Gender did not play a significant role in health information avoidance, contradicting findings that males were more likely to avoid health information than females (30).

This study assessed students' health literacy (HL), health information avoidance (HIA), and their capacity to make informed health decisions. Results indicated that students possess a strong understanding of health information and can evaluate its reliability, contrary to some past studies . However, they struggle with applying this knowledge and making proactive health decisions, such as engaging in routine check-ups . HL levels varied, with women generally scoring higher than men, although some research contradicts this . Factors such as education level significantly influenced HL . While many students actively seek health information during crises , a moderate number exhibit HIA, though not necessarily due to anxiety or distress as previously suggested , and no significant gender differences were found in HIA, contradicting other research .

Conclusion

Health literacy is essential for improving health outcomes and minimizing disparities, particularly among students where lower health literacy correlates with higher health information avoidance. Enhancing health literacy through educational initiatives, accessible resources, and policy-driven strategies—especially for vulnerable populations—can empower individuals to make informed decisions, strengthen preventive health behaviors, and reduce health information avoidance.

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