

## **A Study of Health Literacy Components and their Relationships with Health-Promoting Behaviors in Students at Kermanshah University of Medical Sciences**

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### **Abstract**

#### **Background**

Health literacy is the capacity of individuals to acquire process and understand information and basic health services needed for proper health decision-making. Medical students, as health promoters and professional care providers, play a key role in promoting health. Therefore, the present study aimed to investigate the components of health literacy and their relationships with health-promoting behaviors in students at Kermanshah University of Medical Sciences in 2017.

#### **Materials and Methods**

In this descriptive, analytical and correlational study, the statistical population consisted of all students at four faculties of Nursing and Midwifery, Health, Paramedics and Medicine in 2017. Then, the sample size was determined using the Cochran's sample size formula ( $n=420$ ), and cluster random sampling was the sampling method. For data collection, a researcher-made demographic questionnaire, the health literacy questionnaire (1) the standard questionnaire of health-promoting lifestyle profile II were utilized. Furthermore, for data analysis, the descriptive (frequency distribution, mean, and standard deviation) and inferential statistics (Pearson correlation coefficient) were employed in the SPSS Statistics Software Version 23.0.

#### **Results**

The results of the present study demonstrated that the means of students' health literacy and health-promoting behaviors measured  $4.04 \pm 0.43$  out of a score of 5 and  $2.68 \pm 0.43$  out of a score of 4, respectively. Also, the results indicated that the health literacy significantly and positively correlated with students' health-promoting behaviors ( $p < 0.020$  and  $r = 0.31$ ).

#### **Conclusion**

Given the results of the present study, it is recommended that some planning be done towards training and developing the health-promoting behaviors in students and more attention be paid to health literacy in health promotion programs.

**Key Words:** Health Literacy, Health-promoting Behaviors, Students.

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## 1- INTRODUCTION

Health literacy is seen as a set of skills, such as reading, listening, analysis, decision-making and the ability to apply them in health-related situations (2). Today, health literacy has had such major effects on health care that effective health care system needs health literacy (3). According to the Health Literacy Committee of the Medical Association, health literacy is seen as a public concern over health promotion in terms of the individual and environmental health, disease prevention, early screening, continuity of health care, and policy-making (4, 5). The concept of health literacy was first introduced in 1974 in scientific literature related to health education. Then, Nutbeam referred to this concept in the formulation of the health promotion glossary and argued that health literacy was different from the concept of literacy (6, 7).

Health literacy has been introduced by the World Health Organization as cognitive and social skills that determine the motivation and ability of individuals to access, understand and use information in ways that maintain and improve their health (8, 9). Health literacy is one of the growing issues in health education and promotion in the 21st century, which has been defined as a direct consequence of health education. In addition, health literacy can be considered a measurable tool for individuals' health capacities (10, 11). Health-promoting behaviors, as a key issue in the concept of health promotion in communities, has attracted widespread attention in research and development (12, 13). Moreover, health-promoting behaviors are regarded as one of the key determinants of health that have been known as the underlying factors in the absence of many diseases (14). Promoting health behaviors is an international priority (15, 16) and has been a main challenge for health care providers over the next few

decades (17, 18). Conducting research into health promotion began in early 1960s, and the health-promoting behaviors were defined as realistic trends towards improving health and well-being, self-empowerment and self-realization (19). At this stage, health was defined using the positive qualities proposed by the World Health Organization. Health means realizing the human potential and maintaining balance and objective orientation in the environment (20, 21).

Health promotion includes behaviors in which one deals with proper nourishment, regular exercise, avoidance of destructive behaviors and drugs, protection against accidents, timely diagnosis of symptoms in the physical aspect, controlling emotions and thoughts, coping with stress, and problems in the psychological dimension, independence and adaptation, and correction of interpersonal relationships in the social dimension (22, 23). Some of the factors associated with healthy and unhealthy behaviors are the demographic factors such as gender, age, marital status, and economic status (24, 25).

In addition, one's lifestyle affects his/her health, and health-promoting behaviors and healthy lifestyle are important ways to facilitate and maintain health. A healthy lifestyle is a multidimensional pattern of self-healing activities, as well as the perception that these behaviors are aimed at maintaining or enhancing one's health and evolution (26-28). In recent years, the Iranian student population has witnessed a significant growth. Hence, it is important to recognize the relevant factors that affect the students' adaptation to the healthy behaviors and reducing risk behaviors (29). Given the significance of the two categories of health literacy and health-promoting behaviors in students, their key roles in improving and promoting the health of communities, the reports of the Agency for Healthcare Research and Quality (AHRQ) (30), and the fact that no

previous studies have been conducted about the relationship between health literacy and health-promoting behaviors in students in Iran, the present study aimed to investigate the components of health literacy and their relationships with health-promoting behaviors in students at Kermanshah University of Medical Sciences in 2017.

## **2- MATERIALS AND METHODS**

### **2-1. Study design and population**

This descriptive, analytical and correlational study aimed to investigate a study of health literacy components and their relationships with health-promoting behaviors in students at Kermanshah University of Medical Sciences in 2017.

### **2-2. Methods**

The statistical population consisted of all students at four faculties of Nursing and Midwifery, Health, Paramedics and Medicine (Kermanshah University of Medical Sciences) in 2017. Then, the sample size was determined using the Cochran's sample size formula ( $n=420$ ), and cluster random sampling was the sampling method.

### **2-3. Measuring tools: validity and reliability**

#### **2-3-1. Demographic questionnaire**

The items of this questionnaire included gender, age, marital status education, faculty, and mode of residence.

#### **2-3-2. Health Literacy Questionnaire**

This 33-item Standard questionnaire by Montazeri et al. (1), which consisted of five dimensions with Likert scale (1=Never, 2=Rarely, 3=Sometimes, 4=Usually, 5=Always). The dimensions were as follows: comprehension (seven items), reading skills (four items), assessment skills (four items), decision-making skills (12 items), and access to health information (six items). The score range for

each question was between one and five. In addition, this questionnaire was also used in studies conducted by Mohammad and Taheri (31), and Ziapour and Kianipour (32), and its reliability and validity were confirmed using the Cronbach's alpha coefficient ( $\alpha=0.89$ ). The reasons for using this tool include its native nature, addressing and measuring all aspects of health literacy and ease and speed of completion in comparison with other tools such as Test of Functional Health Literacy in Adults (TOFHLA).

In the present study, the validity and reliability of the tool was re-evaluated. Moreover, the content validity was used to assess the validity of the questionnaire. To this end, the questionnaires were distributed to 12 faculty members and their corrective comments were included in the questionnaire. The Cronbach's alpha was used to determine the reliability of the questionnaire, and the Cronbach's alpha coefficient of the whole questionnaire measured 89%.

In addition, 30 questionnaires were distributed among the students of Kermanshah University of Medical Sciences as a pre-test. The results showed that the Cronbach's alpha measured 0.83 for the whole health literacy questionnaire, an indication that the reliability and internal consistency of the questions of the questionnaire were acceptable

#### **2-3-3. Health-promoting Lifestyle Profile II**

This Standard questionnaire by Walker et al. (33), which comprised 52 questions with Likert scale (1=Never, 2= Sometimes, 3= Often, and 4= Always). This instrument measured the health promoting lifestyles in six dimensions as follows: health accountability (nine questions), physical activity/exercise (eight questions), nutrition (nine questions), interpersonal relations (nine questions), stress management (eight questions), and self-

actualization/ spiritual growth (nine questions). The total score of the questionnaire was between 52 and 208. Further, a separate score was calculated for each dimension (22). Furthermore, the exploratory factor analysis (EFA) was employed by Walker et al. (34) to examine the validity of the questionnaire, and the Cronbach's alpha measured 0.94 for the entire questionnaire. The validity and reliability of the Persian version of the Health Promoting Lifestyle Profile II questionnaire were assessed and confirmed by Mohammadi Zeidi et al. (35), in which the Cronbach's alpha was 0.89 for the entire questionnaire.

#### **2-4. Procedure**

To commence the study, the required permits were obtained from the Vice Chancellery for the Department of Research and Technology at Kermanshah University of Medical Sciences. Then, the questionnaires were distributed among the target sample. To this end, the objectives of the present study were explained to the target subjects, and they were assured that their information would be kept confidential. Additionally, their informed consent was obtained, too. In addition, agreement to participate in the research was the inclusion criterion, whereas incomplete questionnaires were excluded from the study.

#### **2-5. Ethical Consideration**

Participation in the scheme was optional and it was not required to write their names. This study was approved by the Ethics Committee of Kermanshah University of Medical Sciences, with ID code No. 96423.

#### **2-6. Data Analyses**

For data analysis, the descriptive statistics of frequency distribution, mean and standard deviation (SD) were used, and to examine the relationship between health literacy and health-promoting behaviors,

the Pearson correlation coefficient was employed in the SPSS Statistics Software Version 23.0. P-value less than 0.05 were statistically significant.

### **3- RESULTS**

Of the total of 420 subjects in the present study, 200 students (47.6%) were male and 220 (52.4%) were female. The average age of the subjects was  $22.50 \pm 2.22$  years, and the majority of subjects were aged 20 and over (338 subjects or 80.5%). In terms of marital status, 402 of the participants (95.7%) were single. In addition, the majority of students were studying bachelor (203 students or 48.3%) of health (117 students or 27.9%). Further, the majority of students were living in dormitories (236 students or 56.2%) (**Table.1**). The results of the present study revealed that the mean and standard deviation of the total health literacy of university students were  $4.04 \pm 0.43$  out of a score of 5, an indication that the health literacy of university students was relatively good. As for the dimensions of students' health literacy, the results showed that the dimensions of comprehension and access to health information had the highest and the lowest means ( $4.28 \pm 0.60$  and  $3.88 \pm 0.69$ , respectively) (**Table.2**).

The results of the present study also demonstrated that the mean and standard deviation of the health-promoting behaviors of university students measured  $2.68 \pm 0.43$  out of a score of 4, an indication that the health-promoting behaviors of university students were relatively good. As for the dimensions of students' health-promoting behaviors, the results indicated that interpersonal relations and physical activity/exercise had the highest and the lowest means ( $3.17 \pm 0.62$  and  $2.23 \pm 0.63$ , respectively) (**Table.2**). Also, the results indicated that the health literacy significantly and positively correlated with

students' health-promoting behaviors (p=0.020 and r=0.31). In this regard, reading skills had the highest correlation with health-promoting behaviors (p=0.02 and r=0.65), while access to health information had the lowest correlation with health-promoting behaviors (p=0.000 and r=0.25) (Table.3).

**Table-1:** The demographic Characteristics of the participants

Variables	Groups	Frequency (%)
Gender	Male	200 (47.6%)
	Female	220(52.4%)
Age (years)	≤ 20	82(19.5%)
	20>	338(80.5%)
Marital Status	Single	402(95.7%)
	Married	18(4.3%)
Faculty	Medicine	100(23.8%)
	Nursing and Midwifery	102(24.3%)
	Health	117(27.9%)
	Paramedics	101(24%)
Degree	Bachelor's degree	203(48.3%)
	Master's degree	154(36.7%)
	Ph.D.	63(15%)
Residence	Dormitory	236(56.2%)
	Others	184(43.8%)

**Table-2:** The Means and Standard Deviations of the Scores of Students in Terms of Health Literacy and Health-promoting Behaviors

Statistical Indices		Items	Mean± SD	Rank
Scale	Sub-scales			
Health Literacy	Comprehension	7	4.28±0.60	1 <sup>st</sup>
	Reading Skills	4	4.07±0.60	2 <sup>nd</sup>
	Assessment Skills	4	4±0.61	3 <sup>rd</sup>
	Decision-making Skills	12	3.89±0.54	4 <sup>th</sup>
	Access to Health Information	6	3.88±0.69	5 <sup>th</sup>
	Total Health Literacy	33	4.04±0.43	-
Health-promoting Behaviors	Interpersonal Relations	9	2.76±0.56	1 <sup>st</sup>
	Stress Management	8	2.75±0.61	2 <sup>nd</sup>
	Nutrition	9	2.61±0.51	3 <sup>rd</sup>
	Health Accountability	9	2.54±0.57	4 <sup>th</sup>
	Self-actualization/ Spiritual Growth	9	3.17±0.62	5 <sup>th</sup>
	Physical Activity/Exercise	8	2.23±0.63	6 <sup>th</sup>
	Health-promoting Behaviors	52	2.68±0.43	-

**Table-3:** The Results of Comparing the Correlation Coefficients of Health Literacy Dimensions and Health-promoting Behaviors

Variables	Health-promoting Behaviors	
	Pearson Correlation Coefficient	Sig (2-tailed)
Reading Skills	0.65**	0.022
Decision-making Skills	0.56**	0.025
Comprehension	0.45**	0.012
Assessment Skills	0.38**	0.044
Access to Health Information	0.25**	0.000
Total Health Literacy	0.31	0.020

#### 4- DISCUSSION

The present study aimed to investigate the components of health literacy and their relationships with health-promoting behaviors in students at Kermanshah University of Medical Sciences in 2017. The results of the present study indicated that the mean scores of most students' health literacy was high. Also, among the dimensions of health literacy, comprehension and access to health information had the highest and lowest mean scores, respectively. This finding was consistent with the results of studies conducted by Ickes and Cottrell (36), Nekoei Moghadam et al. (37) and Mahmoudi and Taheri (31). In a study done by Azimi et al. (2015), the score of students' health literacy measured 2.21, which was inconsistent with the results of the present study. In another study performed by Raeisi et al. (38), the score of students' health literacy measured 2.7. According to the findings of the present study, the medical students' health literacy was at a desirable level.

From the view point of the researchers of the present study, this can be attributed to the content of the courses that medical students passed, such as health and illness of individuals and society. The results of the present study also demonstrated that the mean scores of health-promoting behaviors of university students were relatively good. In contrast, in a study done by Kim et al. (39), the mean of health-promoting behaviors of university students was low. In a study conducted by Musavian et al. (40), the mean score of health-promoting behaviors measured 3.58 in students of Rasht University, which was consistent with the results of the present study. While the results of a study performed by Wei et al. (41) showed that the mean of health-promoting behaviors of Japanese university students measured 2.50, which was lower than that in the present study. In addition, Hong et al. (42),

obtained a mean score of 2.99 among Thai nursing students. McEligott et al. (43), reported that the mean of health-promoting behaviors of nursing students measured 2.60. Moreover, Can et al. (22), showed that the mean score of health-promoting behaviors of the subjects under study was 2.46, which was consistent with the results of the present study, and it was demonstrated that interpersonal relations and physical activity/exercise had the highest and lowest mean scores, respectively.

Considering that the health-promoting behaviors were moderate among students at Kermanshah University of Medical Sciences and the fact that the implementation of health training programs and health promotion with emphasis on these behaviors seem necessary, students may not have the opportunity to participate in activities that encourage the health-promoting behaviors, including physical activities.

On the other hand, living in dormitories doubles the students' problems student due to being away from family, mental problems, and so on. As the results of the correlation coefficient test showed, there was a positive and significant relationship between the students' health literacy and health-promoting behaviors, which was concurrent with the results of studies done by Reisi et al. (38), Aghamolaei et al. (44), Tsai et al. (45) and von Wagner et al. (46). In general, the findings of the present study showed a significant relationship between the levels of health literacy and health-promoting behaviors that indicate the key role of health literacy in promoting health. Given that the health-promoting behaviors have potential effects on students' health and quality of life, health literacy should be paid special attention, as a factor in promoting health behaviors and creating healthy lifestyles and ultimately improving their quality of life.

#### 4-1. Limitations of the study

The present study had some limitations. First, the data were collected through a self-reporting method, possibly affecting the accuracy of the results. Second, because the sample consisted of doctoral students in the for-profit Schools of Medicine, Paramedical, Nursing and Midwifery and Public Health in Kermanshah University of Medical Sciences, the results could not be generalized to students in other medical schools. Finally, it is suggested that further studies be conducted in this respect to draw comparisons towards reaching a consensus on this matter.

#### 5- CONCLUSION

The bilateral relationship between health literacy and health-promoting behaviors is one of the topics that are discussed in health fields. Given the results of the present study, it is recommended that some planning be done towards training and developing the health-promoting behaviors in students and more attention be paid to health literacy in health promotion programs.

**6- CONFLICT OF INTEREST:** None.

#### 7- ACKNOWLEDGMENTS

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