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Original Article

Investigating the Relationship Between Health Literacy and Health-Promoting Behaviors: A Cross-sectional Study Among the Iranian Elderly Population

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Abstract

Background: Statistics predict an explosive rising figure in the elderly population in Iran. Therefore, it is considered a major health-related challenge in the coming decades. The purpose of the present study was to detect the relationships between health literacy and health-promoting behaviors among Iranian elderly people.

Methods: This cross-sectional study was conducted among 402 Iranian elderly in 2020, who were enrolled using a convenience sampling method. The subjects' health literacy and health-promoting behavior were separately measured with standard instruments. Descriptive statistics and Pearson correlation coefficient were used for data analysis ($P<0.05$).

Results: Most respondents were female (56.22%, n=226). The means±standard deviations of total health literacy and health-promoting behaviors were 60.14±15.45 and 115.4±14.07, respectively. There was a positive significant relationship between health literacy and health-promoting behavior (r=0.53, $P<0.001$). Responsibility toward health had the highest correlation with health literacy (r=0.60, $P<0.001$).

Conclusion: According to these findings, it is necessary to increase and maintain health literacy at high levels to improve health behavior among the Iranian elderly.

Keywords: Health literacy, Health-promoting behavior, Elderly, Iran, Population

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Introduction

Elderliness is considered a major health-related challenge among Iranians. It is estimated to be about nineteen million elders thirteen years later. However, there are about nine million elderly people living in Iran right now (1,2), implying an explosive rising figure in the elder population in Iran.

The elderly period comes up with health demands and disabilities and requires more healthcare and maintenance (3-6). It is associated with morbidity and mortality, namely, the loss of national and social capital. It does not matter where they live; the elderly population always face the challenges of using healthcare facilities (7). According to the World Health Organization's figures, there will be about 1.6 billion old people worldwide by 2050. The most debilitating diseases spreading among elderly populations are cognitive diseases related to changes in the central nervous system, musculoskeletal diseases, coronary diseases, and cancers (1,3,4,7-11). Health promotion, health maintenance, and disease prevention are the key routes for healthy aging, considered by scientists and the main health organizations, such as the World Health Organization. They consist of various activities such as increasing health literacy and promoting health behaviors (lifestyle modification).

A health-promoting lifestyle is defined as life promotion through a change in lifestyle in six components; they include "physical activity", "nutrition", "health responsibility", "spiritual growth", "interpersonal relation", and "stress management". Studies have revealed

low levels of health-promoting behaviors among Iranian in aspects of "physical activity", "health responsibility", and "stress management" and moderate levels in the other three aspects (11-16). Positive changes in these components improve health and welfare. The foundation of healthy aging starts from youth and even before. Thus, governments seek to institutionalize a healthy lifestyle among the population from birth. For this purpose, the most suitable method is health education (educating people about health), which encompasses some aspects of health, such as "physical health", emotional health", "intellectual health", and "spiritual health" (17-19). Increasing these aspects leads to an increase in health literacy.

Health literacy is defined as the capacity or power to find, perceive, and easily use health information and services to make informed decisions and take informed actions, respectively. According to recent statistics in Iran, the mean health literacy level was 10.2 ± 3.8 (out of 20). However, the level of health literacy varies between countries, and global studies show moderate levels of health literacy, with higher levels in developed ones (11,15,20-23). Based on the findings of Liu et al, health literacy is a construct with three upcoming broad components, namely, (*a*) being aware of health and health systems, (*b*) processing and using data in various ways in relation to health and healthcare, and (*c*) being able to maintain health via self-management and working in partnerships with health providers (24).

There are some global studies regarding the health literacy and health-promoting behavior relationship. Although these two parameters are interrelated, and health literacy is a power determinant for health-promoting behavior (20,21,25-28), there is a limited body of research regarding health literacy and behavior among the elderly population in Iran. Accordingly, this study was conducted among the Iranian elderly population to reveal the level of health literacy and health-increasing behaviors and discover the association between them.

Materials and Methods

Study Design

This descriptive-analytical study was performed to address the relationship between health literacy and health-promoting behavior among the elderly in Qazvin, Iran, 2020.

Setting and Sampling

The study population consisted of elderly living in the urban and rural regions of Qazvin, Iran. Using a convenience sampling method, a total of 402 participants were enrolled in the study (d = 0.05, *P* = 0.17). The inclusion criteria for sampling were age ≥ 65, lack of disability, the ability to converse, and willingness to participate in the study. Participants were selected from various community settings, such as parks, religious places, and health-promoting centers.

Data Gathering

All data were gathered via face-to-face interviews with participants. In this study, two standard tools were used, including the Health-Promoting Lifestyle Profile II and Health Literacy for Iranian Adults (HELIA). A demographic questionnaire was employed as well. The demographic section consisted of five items, namely, age, gender, place of residency, educational level, and job status.

Health-Promoting Lifestyle Profile II is a standard 52-item Likert-type questionnaire with multiple dimensions, including nutrition, stress management, spiritual growth, responsibility toward health, and interpersonal relationships. All 52 items are on a four-point scale ranging from 1 to 4 (1 = never, 2 = sometimes, 3 = often, 4 = always). Accordingly, the total score is between 52 and 208. The scores 52-91, 92-130, 131-169, and 170 and over represent poor, average, good, and excellent levels, respectively. There is a general consensus on the Cronbach's alpha coefficient of this questionnaire (22,29-31).

Furthermore, the HELIA questionnaire is a standard 33-item Likert-type scale with five 5-point sections, namely, skills of reading (4 items), accessibility (n = 6), understanding (n = 7), evaluation (n = 4), and decision (n = 12). The total score is in the range of 0–100. Finally, the scores 0–50, 50.1–66, 66.1–84, and 84.1–100 are considered inadequate, poor, adequate, and excellent health literacy, respectively (23).

Data Analysis

The obtained data were coded and then analyzed using SPSS software, version 16. The means ± SD of variables were measured and analyzed with descriptive statistical methods and t-tests, respectively. Furthermore, the Pearson correlation coefficient (r) was used to determine the relationship among variables, and a *P* value less than 0.05 was considered statistically significant.

Results

The majority of the respondents were female (56.22%, n = 226). The mean ± standard deviation (SD) of the participants' age was 69.7 ± 8.1. The distribution of other demographic data is presented in Table 1. There was no association between the population's demographic characteristics and their health literacy and health-promoting behavior in this study (*P* > 0.05).

The results demonstrated an adequate level of health literacy and the average level of health-promoting behavior distribution among the participants. The mean ± SD of total "health literacy" and "health-promoting behaviors" was 60.14 ± 15.45 and 115.4 ± 14.07, respectively. The mean ± SD of the dimension of health literacy" and "health-promoting behavior is provided in Table 2.

The data on the correlation between total "health literacy" and "health-promoting behaviors" and their related dimensions are presented in Table 3. There was a positive significant relationship between "health literacy"

Table 1. Distribution of Demographic Information Among the Participants

Variable	Category	Number	Percent
Place of residence	Total	402	100
	Urban areas	235	58.5
	Rural areas	167	41.5
Numbers of offspring	Total	402	100
	0	25	6.23
	1-4	192	41.4
	≥4	210	52.3
Gender	Total	402	100
	Male	176	43.7
	Female	226	56.2
Marital status	Total	402	100
	Married	333	82.8
	Single	37	9.2
	Others	32	7.96
Job status	Total	402	100
	Retired	106	26.3
	Employee	270	67.1
	Others	26	6.47
Educational status	Total	402	100
	Illiterate	150	37.5
	Elementary school	103	25.0
	Guidance school	67	16.7
	High school	41	10.2
	Bachelor's degree	41	10.2

and "health-promoting behavior" ($r = 0.53$, $P < 0.001$). Among health literacy dimensions, decision-making had the highest correlation with health-promoting behaviors ($r = 0.47$, $P < 0.001$). Moreover, the "responsibility toward health" dimension in health-promoting behavior had the highest correlation with "health literacy" ($r = 0.60$, $P < 0.001$). Among health-promoting behavior dimensions, "weight control and nutrition" had the highest correlation with decision-making in health literacy ($r = 0.57$, $P < 0.001$).

Discussion

A few decades later, an increase in the proportion of the elderly population will be a major health challenge in Iran. This cross-sectional descriptive-analytical study evaluated the level of health literacy and health-promoting behaviors among the Iranian elderly population and attempted to discover the association between them.

The findings demonstrated an adequate level of health literacy among the elderly population. In this regard, it is noticeable that investigations about health literacy among different subgroups reveal various findings. A systematic review among Iranians showed an inadequate level of health literacy (32). Tavakoly et al (33) and Delavar et al (34) reported an average level of health literacy among the elderly population, which was lower than that of the total population. In a similar study using the HELIA instrument,

Table 2. Means and Standard Deviations of Health Literacy Score and Health-Promoting Behavior Items of Participants

Variable		Means	SD
Health literacy score	Accessibility	58.33	13.4
	Reading skills	59.25	11.6
	Comprehension	61.44	12.3
	Evaluation	62.5	15.4
	Decision-making	59.2	12.1
	Total score	60.14	15.45
Health-promoting behavior domains' score	Spiritual development	23.4	5.3
	Responsibility	28.6	7.5
	Interpersonal communication	17.7	3.9
	Stress management	12.0	3.1
	Food habitation	16.6	4.0
	Total score	115.4	14.07

Note. SD: Standard deviation.

Avazeh et al (35) found an adequate level of health literacy among Iranians. Some other studies demonstrated a variety of consequences in measuring health literacy in the general population among Iranians, ranging from inadequate to adequate levels (36-40). A specific study conducted among Iranian elderly people reported an inadequate score in health literacy (41). Furthermore, the results of our study revealed an average score of the health-promoting lifestyle among elderly people. Different studies confirmed the positive effect of health literacy on improving the lifestyle (3,9,16,18,29,36,41-43). In this regard, it was estimated that these differences are due to methods of measuring or official systematic new interventions about health education in the Iranian general population in order to develop a healthy lifestyle.

Another finding revealed a positive significant correlation between health literacy and health-promoting behavior lifestyle, which is supported by other similar studies; more health literacy leads to promoting health behaviors lifestyle. Cui et al (9) found a significant relationship between health literacy and health behaviors. In addition, Iwasa and Yoshida (12), Kim et al (30), and Rathnayake et al (18) reported a similar relationship between health literacy and health behaviors. However, this correlation varies between subcategories of health literacy and health-promoting behaviors. In our study, "decision making" (a subcategory of health literacy) had the highest correlation with health-promoting behaviors. Further, the "responsibility toward health" dimension in health-promoting behavior had the highest correlation with "health literacy". Finally, "weight control and nutrition", among health-promoting behavior dimensions, had the highest correlation with "decision making" in health literacy.

Study Limitations

This study was conducted among elderly people only in Qazvin province, Iran. Thus, it is ineligible to generalize

Table 3. Correlation Between Health Literacy and Health-Promoting Behavior Domains of Participants

Health Literacy							
Dimensions		**Accessibility**	**Reading Skills**	**Comprehension**	**Evaluation**	**Decision-Making**	**Total**
Health promoting behaviors	Spiritual growth	r=0.23 *P*=0.03	r=0.35 *P*<0.001	r=0.47 *P*=0.03	r=0.52 *P*=0.05	r=0.53 *P*=0.04	r=0.53 *P*<0.001
	Responsibility toward health	r=0.44 *P*=0.02	r=0.52 *P*=0.04	r=0.56 *P*<0.001	r=0.55 *P*<0.001	r=0.73 *P*<0.001	r=0.60 *P*<0.001
	Interpersonal relationship	r=0.55 *P*<0.001	r=0.44 *P*<0.001	r=0.46 *P*<0.001	r=0.50 *P*<0.001	r=0.46 *P*<0.001	r=0.53 *P*<0.001
	Stress management	r=0.44 *P*<0.001	r=0.35 *P*<0.001	r=o.36 *P*<0.001	r=0.46 *P*<0.001	r=0.47 *P*<0.001	r=0.44 *P*<0.001
	Weight control and nutrition	r=0.52 *P*<0.001	r=0.53 *P*<0.001	r=0.44 *P*<0.001	r=0.36 *P*<0.001	r=0.57 *P*<0.001	r=0.53 *P*<0.001
	Total	r=0.45 *P*<0.001	r=0.43 *P*<0.001	r=0.46 *P*<0.001	r=0.36 *P*<0.001	r=0.47 *P*<0.001	r=0.53 *P*<0.001

the findings nationwide. On the other hand, the coronavirus disease 19 pandemic was initiated at the beginning of this study. Hence, we inevitably made some changes in the method, including changing the systematic sampling method to a convenience method because most participants died due to coronavirus disease 19 infection or avoided conducting interviews due to the fear of infection.

Conclusion

Overall, the findings confirmed a positive relationship between "health literacy" and "health-promoting behaviors" of the elderly in Qazvin province, Iran, with the maximum correlation observed between "responsibility toward health" and "health literacy". It is proposed that the researchers assess the mediators and modification factors among these two main variables. In addition, it is recommended that other similar studies be conducted in this field worldwide.

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Authors' Contribution

Conceptualization: Kazem Hosseinzadeh, Majid Barati, Parisa Shahbaderi.
Data curation: Majid Barati, Parisa Shahbaderi.
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Writing–original draft: Majid Barati, Kazem Hosseinzadeh.
Writing–review & editing: Majid Barati, Kazem Hosseinzadeh.

Competing of Interests

The authors declare no conflict of interests.

Ethical Approach

All ethical considerations of this study were approved by the Ethics Committee of Gazvin University of Medical Sciences (the ethical unique code IR.QUMS.REC.1399.511).

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