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Original Article

The Relationship of Health Literacy and General Literacy with Quality of Life among Older Adults in Bojnurd, Iran

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Introduction: Quality of life of older adults is one of the most important issues in their health care. The aim of this study was to investigate the power of health literacy and general literacy in predicting quality of life among older adults in Bojnurd, Iran.

Methods: This cross-sectional study was conducted on 180 older adults in Bojnurd city in 2016. The participants were selected by multi-stage cluster sampling method. The instruments used in this study included the demographic variables questionnaire, 12-Item Short Form Health Survey and Health Literacy for Iranian Adults. To describe and analyze the data, SPSS software was used. Descriptive statistics, Kolmogorov-Smirnov, Mann-Whitney U, ANOVA, Spearman correlation coefficient, and multifactorial regression analysis were run to analyze the data.

Results: The mean health literacy score was 69.76 ± 15.05 (score range from 0 to 100) and the mean score of quality of life was 26.2 ± 6.12 (score range from 12 to 48). The level of health literacy was insufficient in 32.2% of the participants and about half of them lacked general literacy. The relationship between health literacy and quality of life was statistically significant ($p < 0.001$) ($r = 0.54$). A significant difference was observed between the illiterate and literate seniors with regard to their quality of life scores ($p < 0.001$). The predictive power of health literacy and general literacy was statistically significant in obtaining a higher score in quality of life with Beta coefficients of 0.65 and 0.25, respectively ($p < 0.001$).

Conclusion: Although health literacy and general literacy affect the elderlies' quality of life positively, health literacy is more effective. Therefore, authorities are suggested to increase their quality of health literacy to improve the seniors' quality of life.

Keywords: Aged, Health Literacy, General Literacy, Quality of Life

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Introduction

Quality of life of the elderlies, as one of the most important issues in their health care, can be improved by designing effective programs by investigating the variables related to the quality of life of the elderly (2). Quality of life can be affected by factors such as health literacy, which is defined as an individual's ability to acquire, interpret, and understand the basic health information appropriate for decision-making. It also includes application of reading, listening, analyzing, and decision-making skills in health fields. However, health literacy is not necessarily related with the individuals' years of study or their ability to read and write (3). In fact, a person with higher education levels may have low functional health literacy or a person with low practical and experimental knowledge may have strong functional health literacy (4). Health literacy has been introduced as a global issue in the 21st century and is considered as one of the greatest indicators of health. Researchers believe that health literacy is defined as the cognitive and social skills that determine a person's motivation and ability to access, understand, and use information to maintain people's health and well-being (5).

Sensory and perceptual changes associated with aging can affect the elderlies' ability to read and understand the health information; so, it is important to pay more attention to health literacy among the elderly (6). In order to learn and understand new health information, high reading, computational, and decision-making skills are required. The low level of health literacy in this vulnerable group can be due to these skills (7). Numerous studies reported that low health literacy plays an important role in reducing health. According to the research conducted in the United States, low health literacy has led to injustice in the provision of health care services and expenses (8). Based on the literature, the level of health literacy was very low in the elderly. About 79.6% of the elderly had insufficient health literacy, which necessitates paying more attention to health literacy in health promotion programs (9). A study also found that 70 percent of the elderly people lacked adequate health literacy (3). Most related studies in this field indicated the effects of public education, medical information, and health literacy on the quality of life of the elderly, but they did not compare these effects simultaneously. Public literacy with health literacy focuses on the quality of life (10-13). Therefore, the aim of the present study was to investigate the power of health literacy and general literacy in predicting changes in quality of life among older adults in Bojnurd, Iran.

Methods

Participants and procedure

This descriptive-analytical study was conducted to investigate the effect of health literacy and general literacy in increasing the quality of life of the elderly in Bojnurd city in 2016. According to similar studies, the correlation between the seniors' health literacy and quality of life was 0.6 (3). Given that the multi-stage clustering method was applied in this research, the final sample size was estimated at 180 to increase the accuracy of this type of sampling. To select the study participants, the researchers referred to the neighborhoods and asked the elderlies to complete a 10-item Abbreviated Mental Test Score through face-to-face interviews. As a result, elderlies with the following criteria entered the study: having 60 years of age and higher, having consent to participate in the research, having no physical and cognitive impairment, and living in Bojnurd city (14).

Instruments

Demographic variables questionnaire including age, gender, education level, marital status, and type of employment.

12-Item Short Form Health Survey (SF-12): the SF-12 is a self-reported outcome measure assessing the impact of health on an individual's everyday life. It is includes 12 questions that often used as a quality of life measure. Scores of 36-48, 24-35, and 12-23 show good, moderate, and poor levels of quality of life, respectively. The validity of this questionnaire was verified using the content validity and its reliability was confirmed through test-retest method with a one week interval ($r = 0.9$) (15).

Health Literacy for Iranian Adults (HELIA): This questionnaire was designed by Montazeri et al. and includes 33 items investigating 5 components: accessibility (6 items from 1 to 6), reading skills (4 items from 7 to 10), understanding (7 items from 11 to 17), evaluation (4 items from 18 to 21), and decision making and application of health information (12 items from 22 to 33). All items in the questionnaire should be scored from 1 to 5. The raw score for each respondent is calculated by adding the scores obtained from each component. Later, these scores were changed to the standardized scores, so that all final scores ranged from 0 to 100. The total score of health literacy ranged from 0 to 100, so that a score within the ranges of 0-53, 54-66, and 67-100 indicates insufficient, moderate, and adequate levels of health literacy (16).

Ethical considerations

In order to observe the ethical considerations, all participants were ensured about confidentiality of their information and explained about the research objectives. To this end, all questionnaires were coded and the researcher was present besides the elderlies while they were answering the questions to explain about any possible questions. Furthermore, this study was approved by the Ethics Committee of Sabzevar University of Medical Sciences with the Ethics Code of ir-medsab-95-122.

Data analysis

To analyze the data, the SPSS software version 21 was used. Descriptive statistics were applied to describe the findings, Kolmogorov-Smirnov test was used to assess data distribution and Mann-Whitney U tests, One-way ANOVA, Spearman correlation coefficient, and multifactorial regression analysis were run to determine the relationship between the variables.

Results

In the present study, 49% of the participants were male (n = 92) and 51% (n = 88) were female. The elderlies' mean age was 69.5 ± 6 years and most of them were within the age range of 60 to 74 years old. Moreover, 69% of the participants (n = 124) were married and 31% (n = 56) were single. The findings showed that 57% of women were married and 31% were single or widowed, but 67% of men were married. Considering the participants' job status, only 5% (n = 9) of the elderly were employed.

Based on the findings, the mean scores of health literacy and quality of life were 69.76 ±15.05 and 26.02 ± 6.12, respectively. Moreover, 32.2% of the participants were at the insufficient level of health literacy and about half of them lacked public literacy (Table1).

The relationship between health literacy and quality of life was statistically significant ($p < 0.001$), but this relationship was at the moderate level ($r = 0.54$). Considering the public literacy variable, the results of Mann-Whitney U test showed that the difference between illiterate and literate seniors was statistically significant in terms of the quality of life scores ($p < 0.001$).

In order to investigate the effect of education levels on the quality of life scores, one-way analysis of variance test was used and the findings showed a significant relationship between quality of life of the elderly and their public education ($p = 0.015$). These findings are shown in table 2.

According to the results of regression analysis, Beta coefficients and P-value show that all variables had a simultaneous effect on the quality of life of the elderly. Furthermore, two variables of health literacy and public literacy had a significant effect on obtaining higher quality of life scores ($p < 0.001$). Based on the findings, $R 2 = 0.319$, indicating that about 32% of the data scattering, observed in this model, can be explained by the studied variables, which means that health literacy and general literacy could predict the quality of life changes. However, this effect is twice higher on health literacy than public literacy.

Discussion

In general, the aim of the present study was to investigate the effect of health literacy and general literacy in predicting the quality of life changes. According to the findings, most elderly people in Bojnurd city were at a moderate level of health literacy. The average level of health literacy obtained in the present study is consistent with other studies. In the same line with our findings, all these studies also reported an inadequate level of health literacy among the participants (3, 9, 11-14, 17). The results of various studies in different countries of the world showed low and insufficient levels of health literacy among people (11, 17). This issue has raised concerns of the health care community about the aging crisis. To meet this challenge, macro level planning is needed to improve the level of health literacy.

Our findings also showed that about half of the elderly were illiterate in Bojnurd. This level of illiteracy was inconsistent with another research conducted in 5 provinces of Iran (12). In this study, Tehrani Hashemi et al. reported a higher level of literacy in larger cities. However, the reported literacy level was consistent with the study carried out by Hekmat Pou et al. in Arak (17), which seems to confirm the previous findings. Based on the results of the present study, the quality of life scores were significantly different between the illiterate and literate elderly people. The quality of life of people with different educational levels were also different significantly. In other words, people with higher levels of education obtained higher mean scores of quality of life. This finding is consistent with the study by Shahbazi et al. (18) and Wagner et al. (19).

This finding highlights the importance of education and its impact on the elderlies' quality of life. In general, the level of general literacy has several health benefits, including psychological, social, and behavioral effects. People with higher levels of general literacy are less likely to be exposed to health risks (20).

Table 1. Frequency distribution general literacy level and health literacy status by gender

Variable	*Classification*	Male	Female	N*(%)*
General literacy level	Illiterate	40 (45)	49 (55)	89 (49)
	Primary	6 (38)	10 (62)	16 (9)
	Secondary	21(54)	18 (46)	39 (22)
	Diploma	14 (64)	8 (36)	22 (12)
	Graduated	11(79)	3 (21)	14 (8)
Health literacy	Insufficient	28 (48)	30 (52)	58 (32)
	Borderline	54 (53)	48 (47)	102 (56)
	Enough	10 (50)	10 (50)	20 (11)

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Table 2. Frequency distribution of quality of life mean scores based on health literacy status

Variable	Classification	N (%)	Mean score	p
Public literacy	Illiterate	88 (49)	23.4	< 0.001**
	Literate	92 (51)	29.0	
Health literacy	Insufficient	58 (32)	23.8	
	Borderline	102 (57)	25.9	< 0.05 *
	Enough	20 (11)	28.7	

Based on other findings of this study, the relationship between health literacy and quality of life was statistically significant. Kooshyar also reported similar findings in Mashhad. According to Kooshyar 's et al. study, people with adequate health literacy had a higher quality of life, so that quality of health had a direct relationship with quality of life (3). This relationship is consistent with the findings of the present study and highlights the importance of health literacy. The results of a study by Abdollahi et al. in Mashhad also confirm the direct relationship between health literacy and quality of life (11). The findings show that people with higher health literacy had higher quality of life.

Given the comparison between the predictive power of health literacy and public literacy (education level), the results of regression analysis showed that R2 was 0.319. This indicates that the designed model is valid (21) and about 32% of the data scatteredness observed in this model can be explained by the studied variables.

In other words, health literacy and general literacy could predict changes in the quality of life scores significantly. Considering that the effect of health literacy scores was twice higher than the effect of public literacy on the quality of life of seniors, the authorities are required to consider the elderlies' health literacy level as a more decisive factor. Health officials are required to consider the wide range of insufficient literacy in the elderly as a warning that affects their quality of life.

Conclusion

The findings showed that both health literacy and general literacy can change the quality of life scores to a large degree. In this regard, the effect of health literacy was twice higher than the effect of public literacy on the quality of life of the seniors. Therefore, authorities are suggested to improve the quality of health literacy education in order to improve the quality of life of the elderly.

Study limitation

The number of questions in the administered questionnaires was large. Since the questionnaires were completed by the elderlies, the provided information could be affected and retarded from reality. Furthermore, the relatively small sample size and selection of the study sample from one city may decrease generalizability of the study findings.

Conflict of interests

The authors state no conflict of interests with regard to this study.

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Authors' contributions

All authors read the final draft of the manuscript, provided the necessary revisions, and accepted the responsibility its contents.

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