


Investigating the Relationship Between Health Literacy and Self-Care Behaviors to Prevent COVID-19 in the Elderly of Siahkal City, 2022

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Abstract

Background: Health literacy is a key factor influencing self-care behavior. Given their vulnerability to underlying diseases, the elderly are among the high-risk groups, so this research was conducted to investigate the relationship between health literacy and self-care behaviors in the elderly.

Methods: This cross-sectional study was conducted on 328 elderly citizens of Siahkal city selected by proportional stratified sampling. The data collection tools were Health Literacy Instrument for Adults (HELIA) and Self-care Questionnaire. For data analysis, mean, standard deviation, and Pearson correlation were employed using SPSS23 statistical software.

Results: The results of descriptive statistics showed that the health literacy score of the elderly was 67.77 ± 6.86 , and their self-care score was 71.19 ± 6.64 . The Pearson correlation coefficient test results showed a significant relationship between health literacy and self-care behaviors ($P \leq 0.05$).

Conclusion: The study found a significant relationship between health literacy in elderly people and their self-care behaviors. Thus, health policymakers and those in charge of education, especially in public health and health promotion, must promote healthy behaviors among the elderly to ensure their health and well-being, particularly during pandemics like COVID-19.

Keywords: Health literacy, Self-care, COVID-19, Elderly

Citation: Keshvardoost S, Heidarpour P. Investigating the relationship between health literacy and self-care behaviors to prevent COVID-19 in the elderly of Siahkal city, 2022. *Health Dev J.* 2023;12(4):182-187. doi:10.34172/jhad.1098

Received: January 18, 2024, **Accepted:** October 23, 2024, **ePublished:** November 13, 2024

Introduction

The World Health Organization (WHO) considers COVID-19 a global health crisis that significantly threatens public health. This virus is transmitted through direct contact, and the infection rate is very high. The pandemic impacted individuals of all ages, leading to economic decline and subsequent health issues (1). Over 50% of deaths were reported among older adults, primarily due to increased complications and extended hospital stays compared to other demographics (2). Many studies have indicated that the COVID-19 pandemic affects not only health but also has significant implications for the environment, economy, education, and mental well-being. (3).

Research shows that human coronaviruses exacerbate symptoms in conditions like obstructive pulmonary disease, asthma, heart failure, and other underlying illnesses in older adults, leading to a higher demand for emergency care and hospitalization. Therefore, focusing on preventive measures and self-care practices is essential to reduce infection risk and enhance the health of these

individuals (4). Self-care among older adults is a proactive and hands-on approach that enables them and their families to sustain health through health promotion and disease management strategies. In addition to promoting quality of life, self-care reduces costs and prevents the onset or chronic and acute symptoms of many diseases (5). The WHO defines "self-care" as "the ability of individuals, families, and communities to promote health, prevent and control disease, maintain health, and rehabilitate." According to health trainers, one of the critical components of empowerment is the individual's participation in promoting and improving quality of life (6,7). However, patients with limited health literacy (HL) may struggle to follow doctors' recommendations because they cannot understand health information. Low HL acts as an obstacle to achieving good health, resulting in patients ignoring the guidance or instructions given by healthcare providers (8). Insufficient HL was linked to a limited comprehension of COVID-19 symptoms and challenges in recognizing preventive behaviors. Therefore, healthcare providers and organizations should strive to



evaluate the HL levels within the community to effectively provide essential information during critical times through awareness campaigns, community outreach, education, and training programs as necessary (9). The importance of self-care is complemented by the clear connection between HL and patients' health and quality of life. A direct link exists between HL and adherence to medical recommendations. Consequently, assessing HL and its connection to elements influencing self-care can enhance HL and boost self-care among patients (10).

HL provides access to health-related information and awareness of hygiene issues, leading to better self-care (11). Individuals should receive and understand the necessary health-related information and healthcare (12). The elderly with low levels of HL are among the high-risk groups because they have difficulty reading and understanding health-related information that might be essential to their care situation (13). Due to their advanced age and lower ability to take care of their affairs, the elderly need health awareness in fighting the coronavirus. The most important aspect of this awareness is socio-personal self-care, which is the main component of COVID-19 prevention. Lifestyle modification and attention to quality of life can promote competence and independence among the elderly and help them manage old age complications and their treatments (14).

Self-care among the elderly is one of the best strategies against COVID-19, and following specific recommendations is necessary in those circumstances (9). Self-care activities among the elderly to counter coronavirus include entrusting to the patient the responsibility of managing self-care-related activities such as hydration, nutrition, and self-medication in case of severe symptoms, which is considered one of the most important disease control strategies and the key to treatment success (15). Any improvement in treatment results depends upon the patient's ability to exercise self-care and manage treatment outcomes. If the patient can exercise proper self-care, comply with post-discharge medication and instructions, and receive the necessary social support, more than 50% of readmissions will be prevented. Studies conducted on the relationship between HL and self-care behaviors have produced different results, with some being positive and others negative (16). The low level of HL is more prevalent among COVID-19 patients, who are at risk of adverse outcomes (17). Given the critical role that HL plays in self-care behaviors, particularly among the elderly population, this study aims to explore these relationships further. By investigating how HL impacts self-care practices to prevent COVID-19, we can identify gaps and develop targeted interventions that empower older adults to better manage their health.

Methods and Materials

This descriptive-analytical cross-sectional study

investigated the relationship between health literacy and self-care behaviors to prevent COVID-19 among the elderly in Siahkal city from February 2022 to May 2022.

The inclusion criteria specified that participants must be able to read, speak, and write in Persian, express a willingness to participate, be aged between 60 and 75 years, have no history of mental health issues, and possess the cognitive capacity to comprehend and respond to questions.

The research population involved all the elderly people referred to Siahkal city health centers in the west of Guilan for vaccination.

This study was conducted with a sample size of 328, which was selected via stratified sampling. According to the existing statistics, Siahkal City has an elderly population of 9922 and seven health centers. Based on the number of elderly people referring to each health center, they were selected via the random number table. The number of selected individuals was determined according to Table 1.

Data gathering tools included health literacy and self-care questionnaires.

The health literacy questionnaire

The design and psychometric validation of this questionnaire were performed by Montazeri et al (11).

The Health Literacy Instrument for Adults (HELIA) includes five factors measured on the 5-point Likert scale: access to information (6 items) from "always" (5 points) to "not at all" (1 point), reading (4 items) from "completely easy" (5 points) to "not hard-not easy" (1 point), understanding (7 items) from "always" (5 points) to "not at all" (1 point), appraisal (4 items) from "always" (5 points) to "never" (1 point), and decision making/behavioral intention (12 items) from "always" (5 points) to "never" (1 point). The raw score of each individual in the subscales equals the algebraic sum of scores, ranging between 33 and 165. Higher scores indicate desirable health literacy. To grade the scores, first, the questionnaire's scores were standardized to a range of 0 to 100. Scores 0 to

Table 1. 2022 statistics of the selected health centers and the elderly of Siahkal city

Center's name	Total number of covered individuals	Number of individuals who met inclusion criteria	Sample size from each center's
Deilaman	1358	812	49
Tutki	258	121	8
Taze Abad	726	310	19
Mikal	556	314	20
Urban Health Center No. 1	2884	1754	106
Urban Health Center No. 2	3322	1830	110
Pirkooh	858	299	18
Total	9922	5440	328

50 were considered inadequate health literacy, 50.1 to 66 were hardly adequate, 66.1 to 84 were adequate, and 84.1 to 100 were excellent. In 2014, Montazeri et al (11) used Cronbach's alpha to determine the reliability of each item in the questionnaire. In their study, Cronbach's alpha for the intended item was between 0.72 and 0.89, confirming the reliability of the questionnaire. In the current study, we calculated Cronbach's alpha as 0.77, confirming the reliability once more.

Self-care Questionnaire

A researcher-made questionnaire was used to assess self-care among the Siahkal city elderly. The questionnaire's items were identified by reviewing the related literature. Experts' opinions about the questionnaire's content were elicited to calculate the content validity ratio (CVR) and content validity index (CVI). Eleven university and executive experts who had doctorate degrees and were university faculty members commented on the questionnaire, and then the content validity ratio (CVR) was calculated. CVR was higher than 0.59, and CVI was higher than 0.79. Therefore, the content validity of the questionnaire was confirmed. Cronbach's alpha, used to assess the reliability of questionnaire items, was estimated as 0.83. As there were 21 valid and reliable questions, each measured on a 5-point scale from "very little" (1 point) to very much (5 points), the total score of the questionnaire ranged from 21 to 105. Higher scores indicate a higher level of self-care against COVID-19.

For data analysis, mean, standard deviation, and Pearson correlation were employed using SPSS23 statistical software. P values < 0.05 were considered statistically significant.

Ethical Considerations

The method and purpose of the study were explained to the research samples, and written consent was obtained from them. They were assured of the anonymity of their information and that they would be informed of the results on request. They were also assured they could exit the study at any time if they did not want to continue participating. The Research Committee of Shahid Beheshti University of Medical Sciences approved the research proposal with the ethics code IR.SBMU.SME.REC.1401.36. Reference letters

were acquired from the Vice-Chancellery for Research and the Vice-Chancellery for Treatment, and then, a written permit was acquired to conduct the study.

Findings

In this study, 328 participants completed the self-care and health literacy questionnaires, of whom 272 (82.9%) were married, 118 (36.0%) were between 65 and 70, and 100 (30.5%) were between 71 and 75 years old (Table 2).

According to the findings, the population's health literacy mean and standard deviation were 67.77 ± 6.86 , with a 95% confidence interval (CI) of 67.03–68.52. Analyzing the mean values of health literacy factors showed that the highest scores belonged to the factors of access (71.46 ± 12.27), understanding (71.37 ± 11.30), and reading (68.89 ± 12.68), and the lowest scores belonged to decision-making (64.12 ± 7.69) and appraisal (64.79 ± 10.60) (Table 3).

According to this table, the self-care means and standard deviation against COVID-19 among the elderly were 71.19 ± 6.64 , with a 95% confidence interval of 70.47–71.91.

According to Table 4, based on the HELIA cut-off points, most elderly had hardly adequate (51.8%) and adequate (47.6%) health literacy. Only 0.6% had excellent health literacy. The lowest level of adequate and excellent health literacy was related to the decision-making factor.

Table 5 shows a direct significant relationship between health literacy and covid-preventive self-care behaviors ($r = 0.441$, $P < 0.001$). Also, Table 5 shows a significant correlation between health literacy factors (except appraisal) and self-care behaviors. The highest correlation coefficient was between the decision-making score and

Table 2. Demographic information of the participating elderly in Siahkal city in 2022

Participants' demographic information		Frequency	Percent
Marital status	Single	56	17.1
	Married	272	82.9
Age	60–65	110	33.5
	66–70	118	36.0
	71–75	100	30.5
Total	Total	328	100

Table 3. Scores of health literacy and self-care against COVID-19 among the elderly of Siahkal city in 2022

Health literacy items	Mean (Standard deviation)	The lower limit of the 95% CI	The upper limit of the 95% CI
Reading score (0–100)	68.89 ± 12.68	68.52	71.27
Access to information score (0–100)	71.46 ± 12.27	70.12	72.79
Understanding score (0–100)	71.37 ± 11.30	70.15	72.60
Appraisal score (0–100)	64.79 ± 10.60	63.64	65.94
Decision-making score (0–100)	64.12 ± 7.69	63.28	64.96
Health literacy score (0–100)	67.77 ± 6.86	67.03	68.52
Self-care score (21–105)	71.19 ± 6.64	70.47	71.91

Table 4. Self-care factor scores of the elderly of Siahkal city in 2022

		Inadequate health literacy	Hardly adequate health literacy	Adequate health literacy	Excellent health literacy	Total
Reading	Number (percent)	28 (8.6)	87 (26.5)	165 (50.3)	48 (14.6)	328 (100)
	Confidence interval	5.9–11.9	22–31.5	44.9–55.7	11.1–18.8	-
Access to information	Number (percent)	10 (3.0)	124 (37.8)	117 (35.7)	77 (23.5)	328 (100)
	Confidence interval	1.6–5.3	32.7–43.1	30.6–41.0	19.1–28.3	-
Understanding	Number (percent)	9 (2.7)	117 (35.7)	142 (43.3)	60 (18.3)	328 (100)
	Confidence interval	1.4–4.9	30.6–41.0	38.0–48.7	14.4–22.7	-
Appraisal	Number (percent)	45 (13.7)	130 (39.7)	146 (44.5)	7 (2.1)	328 (100%)
	Confidence interval	10.3–17.8	34.5–45	39.2–49.9	1–4.1	-
Decision-making	Number (percent)	8 (2.4)	201 (61.3)	117 (35.7)	2 (0.6)	328 (100)
	Confidence interval	1.2–4.5	55.9–66.4	30.6–41.0	0.1–1.9	-
Health literacy	Number (percent)	-	170 (51.8)	156 (47.6)	2 (0.6)	328 (100)
	Confidence interval	-	46.4–57.2	42.2–53	1–1.9	-

Table 5. Pearson correlation coefficients of health literacy and self-care in the elderly of Siahkal city in 2022

		Reading score	Access to information score	Understanding score	Appraisal score	Decision-making score	Health literacy score	Self-care score
Self-care score	<i>r</i>	0.183	0.267	0.321	-0.004	0.496	0.441	1
	<i>P</i> -value	0.001	0.000	0.000	0.949	0.000	0.000	-

covid-preventive self-care behaviors ($r=0.496$, $P<0.001$).

Discussion

The results showed that the mean health literacy of the elderly was 67.77 ± 6.86 , and the majority possessed hardly adequate health literacy. Only 0.6% had excellent health literacy. Tamizkar et al found that the total score HL among of their research population was 79.58, and 86.7% had adequate or higher health literacy in Tabriz, meaning the majority had adequate health literacy, which is somewhat consistent with our results (12). However, in that study, the health literacy was higher than that of the current study. In Bostock and Steptoe's study, among older adults, 67.2% had high health literacy, 20.3% moderate health literacy, and 12% had low health literacy (13), which is consistent with the present study results. The findings of Mohseni et al are different from those of the current study, i.e., among the old people in that study, 52% had inadequate health literacy, and only 17% had adequate health literacy (14). The inconsistencies among these findings might result from the differences in cultural, economic, and social factors, level of education, and mental and physical problems experienced in old age.

Considering the mean values of health literacy factors, the highest mean values belonged to access to information, understanding, and reading. In contrast, the lowest values belonged to decision-making and appraisal. Aligned with the current study's findings, Tamizkar et al found that the highest scores belonged to understanding, and the lowest belonged to appraisal (11). The factors of health literacy can be explained as the following: Access means accessing health information; reading means

reading educational books, pamphlets, and brochures; understanding means understanding health-related and disease-related information; appraisal means evaluation of the accuracy of information about health coming from all kinds of resources; decision-making means refraining from harmful activities (14). Since appraisal and decision-making are considered high levels of health literacy, the results above are expected and point to the need to educate this age group to promote their health literacy.

The results showed that, the mean and standard deviation of self-care preventing COVID-19 among the elderly were 71.19 ± 6.64 . In Tamizkar et al, self-care score of the elderly was 68.95 (12). Sangsefidi et al reported the self-care score of the elderly at 68.95. The current study reported a higher self-care score than these studies (7). It seems different self-care scores could be related to differences in factors like education, knowledge, perceptions, and social, cultural, and economic factors.

Pearson correlation results showed a significant and direct relationship between health literacy and self-care behaviors preventing COVID-19. The results of this study are consistent with the results of Asadi et al, Nugroho et al, and Silva and Santos (15, 16, 17). Meanwhile, Seyedoshohadaee et al investigated the relationship between health literacy and self-care behaviors in type-2 diabetes and found no significant relationship between them. In that study, more than half of the research samples did not have adequate health literacy and self-care behaviors. (18)

The results of the current study also showed a significant correlation between health literacy factors

(except evaluation) and self-care behaviors. The highest correlation coefficient belonged to the relationship between decision-making and self-care behaviors related to COVID-19 prevention. Although there is a significant relationship between health literacy and self-care, health literacy is not the sole effective variable in self-care behaviors. To expand on these results, it can be said that promoting an understanding of health and general knowledge of health concepts could effectively develop a self-care culture among individuals, especially old people, who are the most vulnerable group. Accessing information and reading skills can be effective on an individual's self-care because these skills increase awareness of surroundings visually. Decision-making and applying health-related information empower the elderly to direct all their activities according to health factors and self-care behaviors.

This study faced COVID-related limitations and restrictions, which may have caused the samples to answer the questions conservatively. The research population was the elderly, so one should be cautious in generalizing the results.

According to the results, it is recommended that public health education programs for the elderly be implemented in medical centers to ensure success in delivering the necessary information to them during pandemics. Holding educational classes and providing platforms are other ways of promoting these people's knowledge and awareness while facilitating access to information. Studies are recommended to use a combination of methodologies (qualitative and quantitative) with larger research populations to reach more precise and reliable results.

Conclusion

The results of this study showed that most Siahkal city elderly had hardly adequate or adequate health literacy, and there was a significant and direct relationship between health literacy and self-care behaviors.

Implementing educational programs and periodic courses can promote the health literacy of Siahkal City's elderly to the highest levels. Appraisal and decision-making promotion among the elderly result from increasing their awareness and making them sensitive to self-care.

Acknowledgments

This article is the result of a master's thesis at Shahid Beheshti University of Medical Sciences. The authors of this study thank Shahid Beheshti University of Medical Sciences for providing them with access to the university library's electronic and print resources.

Authors' Contribution

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Competing Interests

The authors have no conflict of interest in publishing this study.

Ethical Approval

This study has the approval of Shahid Beheshti University of Medical Sciences Ethics Committee number IR.SBMU.SME.REC.1401.36

Funding

This study did not receive any financial support.

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