Relationship between self-care behaviors and health literacy among elderly women in Iran, 2015

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Type of article: Original

Abstract

Background and aim: Self-care is a basic concept in health promotion, regarding the importance of health literacy as a key factor in self-care. This study aimed to identify the relationship between self-care behaviors and health literacy among elderly women in Iran.

Methods: This descriptive and analytic study was performed between October and December 2015. A total of 360 participants were selected from elderly women referred to health centers. Data was collected by test of functional health literacy in adults (S-TOFHLA) and a checklist for assessment of self-care behaviors, and health information seeking. Data were analyzed by SPSS software (version 22) with One-Way Analysis of Variance, and the Pearson correlation coefficient, t-test and regression test.

Results: The mean score of functional health literacy was 41.30±6.29. Of the participants, 73.6% had inadequate health literacy, 20.8% borderline health literacy, and 5.6% enough health literacy. The mean score of health information seeking was 1.791. Also, 31.9% of elderly women had poor self-care behaviors, 56.9% moderate, and 11.1% high. A significant difference was observed in mean score of health literacy between different levels of self-care (F=30.087, p<0.001). Based on regression analysis, health literacy and health information seeking predicted 19.9% of the variance of self-care behaviors.

Conclusion: This study highlights the necessity of promoting health literacy and attention to its influencing factors to improve self-care ability of elderly women. In conclusion, Planning interventions to improve health literacy is essential for health promotion among elderly women.

Keywords: Health literacy, Self-care, Behavior, Information seeking, Elderly

1. Introduction

In the third millennium, aging is manifested more than ever as a major global reality (1). According to the reports, about 6% (4 million, 562 thousand) of the total population of Iran includes the elderly over 60 years (2). It is predicted that by 2050, this rate will reach to 25 million, 912 thousand people which is equivalent to 24.62% of the total population of the country (3). Statistics indicate that the proportion of elderly women is significantly higher than elderly men in most developed and developing countries. In Iran, the population of elderly women has been increased and it is predicted to increase over the next decades (4). One of the consequences of the elderly population in many countries is the problems caused by chronic diseases and the burden of inability on health and social systems (5), consequences which, can be reduced through self-care programs (6). A broad look at the situation of elderly women in various aspects including physical, psychological, familial, and social health reveals that despite the efforts and advances in health, social and economic status, there are differences in social and demographic health indicators of Iranian elderly women than elderly men that could be due to the unequal health and social status of women and men, including the prevalence of heart disease and hypertension, drug consumption, and literacy rate, which is lower in older women than older men. Also, the rate of being admitted to a nursing home is lower in older

men than older women (4). Self-care is one of the important aspects of healthy lifestyle. People with a high degree of self-care pay attention to their health care, and try to be less patient and if they become patient, they try to regain their health as soon as possible. Self-care improves quality of life and reduces the cost. Continuous follow-up of self-care can prevent acute and chronic complications of disease or delay its onset (7). Inadequate health literacy is a potential barrier that prevents from obtaining health-related information and skills (8). Health literacy is the result of a collaboration of social and individual factors which pays to the aspects and concerns of literacy in the field of health. Today, health literacy is known as a critical and important indicator in the results and the cost of health care, and the lack of its improvement causes an increased mortality rate and increased hospitalization and use of health services in the elderly, and imposes huge sums annually on the public health system (9). Health customers encountered with many challenges, including the increasing prevalence of chronic diseases, need to participate in their care, and increase the available data from multiple and different sources. People should be able to accept the new role for seeking information, advocating for rights and privacy issues, understanding the responsibilities, measuring and monitoring health, and choosing the type of their care (9, 10). Inadequate health literacy among the elderly is a global problem (11). In a national survey, it was revealed that about 70% of adults in North American have no health literacy skills (11). In a study by Chen et al. it was shown that health literacy has a positive impact on the use of preventive care (12). Tiller et al. in their study, found that women had a lower level of health literacy than men (13). Geboers et al. showed that a low level of health literacy was associated with reduced self-management abilities in the elderly (14). In a study it was shown that people who had a low level of health literacy on adherence to self-care behaviors were unsuccessful and had twice the risk of hospitalization compared to other people (13). Another study indicated that healthy behavior is not suitable in elderly in Iran (3). Among the determinants of health, self-care behavior is the most important way to prevent chronic diseases (15). The elderly are faced with a shortage of basic needs for health (16). A systematic review study highlighted that health literacy is evaluated according to demographics factors, health outcomes, treatment adherence, mortality and cognitive health (17). Despite growing interest among health professionals for promoting health literacy among the population in Iran (18) and other countries (17), information on health literacy and its relationship with other factors is low especially in the elderly, who are a vulnerable group (18). The results of one study in three states (Massachusetts, Boston and Chicago) in the US showed that literacy could increase self-care behaviors (19). According to the World Health Organization, a high percentage of health services use is related to the elderly compared to the total population (20). Results indicate that the elderly population in the world is increasing so that, according to the World Health Organization between 2015 and 2050, elderly population worldwide almost doubled from 12% to 22%. In 2050, 80% of elderly people will live in middle and low income countries. All countries are facing significant challenges to provide their health and social systems (21). Considering the demographic transition toward aging, and increase in chronic non-communicable diseases, and the burden of inability on health and social systems (1), and the importance of health literacy on self-care behaviors (22, 23), more emphasis on self-care behaviors and health literacy in this age is necessary. This study was performed with an aim to determine the health literacy and its relationship with self-care behavior among Iranian elderly women.

2. Material and Methods
2.1. Research Design and Setting
This descriptive and analytic study was performed between October and December 2015. Data was collected by random stratified sampling, so that among 5 health centers in Mashhad, Iran, 3 health centers were selected. The study's samples were determined among the files of elderly people available in 6 elderly clinics in health centers based on sample volume, and inclusion and exclusion criteria. After a phone call, they were asked to refer in order to complete the questionnaires if they had consent. Inclusion criteria included: Iranian nationality, written informed consent, age >60 years, reading and writing literacy. Lack of hearing, visual, speech and psychological disorders were barriers for establishing communication.

2.2. Sampling and Data Collection
The sample size in this study was determined using Cochrane formula and considering the confidence coefficient of 0.95% and test power of 80%, which was calculated as 330 cases that was increased to 360 cases for increased accuracy. Data collection tools included two parts. The first part which was related to health literacy test was completed by the participants taking 10-15 minutes to answer. To enhance and increase questioning coverage, the second part which was related to demographic questions and the evaluation of self-care behaviors (including physical, psychological, social, and spiritual) and seeking of health information (including print sources, Internet and mobile, and receiving information from family members and friends and health professionals) was completed through a 10 to 15-minute debrief with the participants, by one of the researchers.

2.3. Instrument of the Study

In order to assess health literacy, the short test of functional health literacy in adults (S-TOFHLA) (24) which is one of the most reliable questionnaires for assessment of health literacy in the world was used. The questionnaire consisted of two parts of calculations and reading. The calculation part is: an individual's ability to understand and act based on the recommendations which the health physician and educators have suggested that need to be calculated. This section includes 4 health descriptions or orders about the drugs prescribed by the physician, and the time of physician referral, and a question of results of laboratory tests. These descriptions are given to the selected sample in the form of cards, and the questions of this section are asked. The score of each individual in this section is 0 to 28 (7 score for each questions). In the part of reading comprehension, 2 texts are assessed; the first text is to prepare for the imaging of the digestive system and the second text is the patient's responsibilities in the form of insurance. This section has 36 questions and its score is 0 to 72 (2 score for each questions). Total score of the tool is the sum of these two parts of the questionnaire (0-100), and based on it, health literacy is divided to 3 levels of to 0 to 53 (inadequate), 54 to 66 (borderline), 67 to 100 (enough). The internal reliability of S-TOFLHLA questionnaire with Cronbach's alpha was 0.88 for calculation section and 0.69 for reading comprehension section. This questionnaire is used by Kooshyar and colleagues in a study among diabetic patients (25). In the other studies also, the reliability of the questionnaire has been determined (19, 26). The second part of the tool was the self-care assessment questionnaire (31 questions) including 12 questions related to the physical self-care behaviors (such as following a healthy diet, physical activity, adherence to recommended drugs and screening, etc), 4 questions related to spiritual self-care (eg, I try to do my spiritual duties on time), 7 questions on the social dimension (I meet my family members and friends at least once a week), and 8 questions related to the psychological dimension (eg, I understand my own feelings and attempt to improve them). The participants reported their adherence in doing self-care behaviors during the last month (the highest score was 2 and the lowest score was 0). This section of the questionnaire was developed by using the scientific literature and other resources. The score of each participant in this section was 0 to 62. The section of the questions related to health information seeking with 7 questions (score 0 to 7) related to searching health information resources over the past month, was reported by the participants as yes (score 1) and no (score 0). The reliability and validity of the tool for the section of the self-care behaviors assessment were determined using Cronbach's alpha test in a pilot study which was performed on 30 elderly people other than those who participated in this study. Cronbach's alpha for physical self-care behaviors section was (0.759), spiritual (0.796), social (0.825), and psychological (0.829). The correlation coefficient of test-retest was found with 10 days' interval (r=0.623-0.732, p<0.001).

2.4. Etical Consideration

This study was approved (ID. 25975) by the Faculty of Health, Iran University of Medical Sciences. In order to comply codes of ethics in this study, the researcher introduced herself to the community health centers by the introduction from Iran University of Medical Sciences. Then, purpose of the study was described for the elderly and they were asked if they wanted to participate in the study.

2.5. Data analysis

After data collection and analysis by IBM© SPSS© Statistics version 22 (IBM© Corp., Armonk, NY, USA), the status of quantitative variables distribution was determined using the Kolmogorov-Smirnov test. Then, descriptive (frequency, mean) and analytical statistics (independent t-tests and ANOVA, Pearson correlation for determining the relationship between self care behavior and health literacy, regression to determine the highest effect of the variables on self-care behaviors) were used. In all tests, power of 80% and confidence coefficient of 95% and significance level of 0.5 were considered.

3. Results

In this study, 360 elderly women with mean age of 66.961±5.758 years (min =60 and max =82 years) were included. Educational level of 60% of participants was primary school (less than 5 classes). A total of 81.10% of subjects had a history of chronic diseases and aging problems. The mean duration of chronic diseases was 2.04±2.816 years (Max=0, Min=11) (Table 1). Most of the study's participants (70.6%, n=256) obtained their health information through doctors and other health professionals, and then through television, 48.3% (n=174), printed resources 27.50% (n=129) and a small number of them 6.10% (n=22) through mobile and Internet. There was a significant inverse correlation between age and health information seeking (p=0.003). Mean score of functional health literacy was 41.30±6.29 (min=0.00 and max=72.00). Of the participants, 73.6% had inadequate, 20.8% borderline, and 5.6% enough health literacy. The mean score of health information seeking was 1.791 (min=0.00 and max=7.00). Furthermore, 31.9% of elderly women had poor, 56.9% moderate, and 11.1% high self-care behaviors. ANOVA and

post hoc test showed a significant difference in mean score of health literacy between different levels of self-care (F=30.087, p<0.001) and education (F=14.329, p<0.001). Participants who had poor self-care behaviors had lower health literacy score (37.200±15.379) compared with participants with high self-care behaviors (56.650±16.294). Also, people with college education had higher mean score of health literacy (48.240±14.847) compared to those with lower education (38.050±16.341). The results of independent t-test showed that mean scores of health literacy had a significant difference in participants with no history of disease (t=2.213, p=0.028), participation in the classes of training health (t=3.637, p=0.000), and employment status (t=- 2.306, p<0.220). The patients with a history of disease had higher health literacy (42.212±16.667 vs. 37.382±14.033). The people who had participated in health education classes had higher health literacy (45.590±17.435 vs. 39.100±15.252). The mean score of self-care behaviors had positive significant correlation with health literacy (p<0.001) and with the score of health information seeking (p<0.001). Age had a significant negative correlation with health literacy (p<0.001), self-care behaviors (p=0.023), and health information seeking (p=0.009) (Table 2). Based on the results of regression analysis, health literacy and health information seeking predicted 19.9% of self-care behaviors variance (Table 3).

Table 1. The distribution of demographic variables in study subjects (n = 360)

Variable		n	%
Level of Education	Elementary	216	60.00
	Middle school and diploma	119	33.10
	Academic education	25	6.90
Employment status	Housewife	273	75.80
	Employed	87	24.20
Self-care behavior	Low	115	31.90
	Medium	205	56.9
	High	40	11.10
Medical history	Yes	292	81.10
	No	68	18.90
Attending health education chasses	Yes	122	33.90
	No	238	66.10

Table 2. Correlations between study variables

Variables	1	2	3	4	5	6	7	8
Functional Health Literacy	1.000	-	-	-	-	-	-	-
Self- Care	0.374	1.000	-	-	-	-	-	-
Physical self-care	0.315	0.829	1.000	-	-	-	-	-
Spiritual self-care	0.277	0.825	0.618	1.000	-	-	-	-
Social self-care	0.338	0.813	0.524	0.603	1.000	-	-	-
Psychological self-care	0.296	0.830	0.472	0.639	0.631	1.000	-	-
Health information seeking	0.322	0.351	0.290	0.204	0.287	0.337	1.000	-
Age	-0.222	-0.120	-0.078	-0.077	-0.152	-0.095	-0.137	1.000

Table 3. Regression analysis of health literacy and other variables in predicting self-care behaviors in study subjects

Variable	P Value	β	SE	Beta	R^2
Functional health literacy	<0.001	0.209	0.037	0.287	-
Health information seeking	<0.001	2.233	0.439	0.255	0.199
Age	0.659	-0.044	0.101	-0.022	-

4. Discussion

This study demonstrated that health literacy is low in Iranian elderly women, and a high percentage of people have inadequate health literacy, which is an important problem among this group for health promotion. In the study of Reisi et al., similarly, it reported functional health literacy in the elderly. In their study, most of the elderly had inadequate health literacy (2). In the study of Slonska et al., more than half of older people in Poland had low health literacy (27), and in the study of Smith et al., about half of the elderly had borderline and inadequate health literacy (28), which is consistent with the findings of the present study. In this study, age, education, and health information seeking were directly correlated with health literacy. These results have also been reported in other studies in which the incidence of inadequate health literacy were more frequent in older people with less education. In a study of

Chin et al, findings showed health literacy is related to the recall of health information and knowledge modifies the effect of the processing capacity limitation, which is likely to be related to the call for information and supports understanding of health information among elderly (29). With increasing age, cognitive and perceptual problems increase, which is a major obstacle in gaining information and health literacy (30). In our study, health literacy was related to self-care behaviors adoption, and was the most effective predictor of self-care behaviors in the elderly women. In other studies also, health literacy was an important factor on self-care behaviors and adherence to health-related behaviors (26), health risk behaviors (31), and adherence to treatment (25), which is consistent with the findings of the present study. Health literacy increases self-efficacy and use of preventive care in the elderly (12). The study of Park reported that age and health status, and chronic diseases and basic literacy predicted 33% of the variance of elderly health literacy (32). The difference observed in the findings of their study and the present study may be due to the use of different tools to measure health literacy that is used with different numbers of questions and dimensions or more independent variables which have entered to the regression equation. Other studies have indicated that people with adequate health literacy had higher frequency of self-care behaviors, compliance in treatment and quality of life (22, 33). In the present study, health information seeking was of the other important variables predicting self-care behavior in elderly women. Studies have shown that people who had low health literacy and searched health information, had better health status than those who did not use health information resources. Those who actively seek health information are more active participants in their own health care (34). In a study of Kim et al., functional health literacy had positive impact on intention of searching for health information and health information resources (35). Nasrabadi and colleagues, in a qualitative study, stated that inadequate health literacy is one of the barriers for health information seeking in women (36). People with inadequate health literacy are less likely to seek health information (37). There is a mutual relationship between health problems and health information seeking. Demographic factors such as higher education level and higher income are related to health literacy and the frequency of health information seeking. Also, female gender, aging, adopting healthy behaviors such as not smoking, and regular physical activity are associated with health information seeking (38). In the present study, there was an inverse correlation between age and health information seeking, and more participants obtained their health information through physicians and other health professionals, and then through television, print resources, and a small number of them sought health information through Internet and mobile phone. These findings suggest that those who have most need for health information, had the least use of health resources and information. For the elderly population, there is need to adopt efficient strategies to develop their skills to use these resources and improve the communication of health professionals with patients, and designing and delivering the messages. Attention to the special needs of the elderly are important for improving the health status and quality of life (39). Gavgani in his study showed that most Iranian people receive their health information from television (40). The results of this study are different from the results of the present study, which may be due to having no similar demographic variables such as age in the studied groups. In the study of Jamal et al., most participants reported that their main source of health information was through a physician and then, television, family, newspapers, and Internet, respectively, and the health-related information seekers were better in doing self-care behaviors such as regular testing of blood sugar, appropriate action to control blood sugar, and the adoption of non-pharmacological management (41), which is consistent with the findings of this study. In the study performed by Wang et al., the elderly, compared with younger people, used less Internet to search for information (37). Levy et al. also reported that only 7% of American elderly who had low health literacy have used the Internet for obtaining health information (42). In the study of Lubetkin et al., the participants with lower health literacy receive health-related information from their family and friends and religious leaders (43). These results demonstrate the importance of designing interventions appropriate to culture in order to promote health, according to understanding how to receive and gain access to health information in the population.

5. Limitation of the Study

Our study had some limitations; first, the data related to the section of demographic characteristics and doing self-care behaviors was self-report, of course, there was an effort to adapt as much as possible with the existing data in the file of the elderly in health care centers. Also, the findings can not be generalized to other age groups and men. This study did not evaluate all dimensions of health literacy as communication and critical health literacy. In this study, the direct impact of health literacy, demographic variables and information seeking about heath on self-care behaviors was determined. It is recommended that in future studies with statistical methods of structural equation, the direct and indirect effects between the variables of health literacy and information seeking about health and other factors affecting self-care behaviors and health outcomes in the elderly be evaluated. This study has some strengths, including a large population with a wide randomly distribution that minimizes the presence of bias. The factors other than health literacy, which were effective on self-care behaviors of elderly were studied, which provides a good

insight to consider other factors in designing, implementation and evaluation of interventions to health promotion of elderly women.

6. Conclusions
Planning interventions to improve health literacy is essential in order to improve the ability of self-care among elderly women in Iran. Health information seeking from various print and electronic resources can be an important factor to improve the elderly's self-care behaviors. In general, health literacy is considered as an important strategy for reducing disparities among vulnerable groups including the elderly, due to the ability to increase control over health and health promotion. Our findings could help health professionals for educational planning, and management of the problems of the elderly.

Conflict of Interest:
There is no conflict of interest to be declared.

Authors' contributions:
All authors contributed to this project and article equally. All authors read and approved the final manuscript.

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