

**Assessment of the level of health literacy among fertile Iranian women with breast cancer**Soheila Tontab Haghighi<sup>1</sup>, Minoor Lamyian<sup>2</sup>, Loabat Granpaye<sup>3</sup>

<sup>1</sup> M.Sc. of Midwifery, Department of Midwifery and Reproductive Health, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

<sup>2</sup> Ph.D. of Health Education, Associate Professor, Department of Midwifery and Reproductive Health, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

<sup>3</sup> Specialist of General Surgery, Assistant Professor, Department of General Surgery, Faculty of Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran

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**Abstract**

**Introduction:** Health literacy is one of the main determinants of health promotion. Regarding the influential role of the women in a society, enhancing their critical health literacy would be a prerequisite for the promotion of public health. The aims of this study were to determine the level of health literacy among fertile Iranian women with breast cancer and to determine the relationship between the health literacy level and socio demographic factors, such as age, educational level, occupation, age of marriage, duration of marriage, and several clinical factors, including taking psychiatric medication and the type of breast surgery among breast cancer patients.

**Methods:** This cross-sectional study was conducted on 260 fertile patients with breast cancer from screening and monitoring centers and breast cancer clinics in Tehran from August 2014 to August 2015. Data were collected using socio demographic and clinical questionnaires developed by the researchers and the questionnaire for health literacy for Iranian adults (HELIA). The results were analyzed using SPSS-IBM version 20 and the Pearson product-moment correlation coefficient, along with Kido's correlation test.

**Results:** The mean age of the participants was 43.32. Most of the participants (68.5%) had high school diplomas or lower school degrees (based on educational system in Iran). The mean score of health literacy was 75.73. The levels of health literacy among the different groups of participants were as follows: insufficient health literacy (6.9% of patients), barely enough health literacy (18.8% of patients), enough health literacy (38.8% of patients) and excellent health literacy (35.1% of patients). Also, significant relationships were found between the level of health literacy and the participants' age of marriage, duration of marriage, educational level, and occupation ( $p < 0.05$ ).

**Conclusion:** This study showed that the level of health literacy was high among women with breast cancer. This indicates that their high level of health literacy might be used as a contributor to the promotion of the public health in terms of awareness about breast cancer.

**Keywords:** health literacy, breast cancer, fertility age, Iranian women

**1. Introduction**

The term literacy refers to a group of complicated abilities to understand and use a symbolic system of a culture for personal evolution and social development. It is usually manifested as various sets of skills that an adult needs to act and behave properly in the society. Health literacy is one such skill. It includes the use of a set of skills to promote and maintain good health. These skills include reading, listening, analyzing, and decision making. Health literacy is the result of the combination of individual and social factors, and it deals with the concerns and literacy dimensions in the health area (1). In fact, health literacy refers to a person's capacity for acquiring, interpreting, and

**Corresponding author:**

Associate Professor Dr. Minoor Lamyian, Department of Midwifery and Reproductive Health, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.

Tel: +98.2182883809, Fax: +98.2188003030, E-mail: [Lamyianm@modares.ac.ir](mailto:Lamyianm@modares.ac.ir)

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understanding initial health-related information and health services that are required for suitable decision making (2, 3).

The World Health Organization (WHO) introduced health literacy as one of the most important determinant factors for the promotion of various aspects of public health (1). WHO also has tried to encourage its member countries to establish communities that include all people affected by this issue in order to monitor and coordinate strategic activities regarding the promotion of the health literacy level in their societies (3, 4). Health literacy is a necessary skill for everyone, and a lack of this skill could result in critical economic consequences (5). Poor health literacy results in frequent and unnecessary visits to doctors, and it raises costs and wastes the healthcare system's budget by increasing the duration of hospitalization of the patients (6). Health literacy is not necessarily related to the years one spends in acquiring an education or the ability to read and write (7, 8). It is difficult for a woman to make informed decisions without having enough understanding of the healthcare information, and making informed decisions results in desirable health consequences for her and her family (8). Since the training of the women is vitally important for the promotion of their children's and their families' health conditions, they are identified as the initial focus among the population for the promotion of health literacy (8).

Breast cancer is one of the most widespread cancers, and it causes many deaths throughout the world (9). Based on statistics provided by the Pan American Health Organization (PAHO), more than 1.6 million new cases of breast cancer are identified annually among women worldwide. This amounts to 10% of all the new cancer cases and 23% of all cases of cancer in women (10). Being a woman and aging are the two main risk factors for breast cancer. Therefore, the control and prevention of breast cancer is considered to be a serious and basic health problem within the context of women's healthcare (11, 12). Results from previous studies have shown that breast cancer in Iran is mostly prevalent among women in the age range of 34 to 45 (13, 14). Unfortunately, Iranian women develop breast cancer almost 10 years sooner than their western counterparts (14). It is evident that breast cancer is most prevalent among women when they are fertile, which also is when most of them are at the peak of their social, occupational, and family responsibilities. The development of breast cancer during this period definitely will affect women's and their family members' quality of life (15).

Several findings have suggested that most of the undesirable effects of adverse health conditions usually are induced by insufficient health literacy (7). Today, the identification of patients with lower levels of health literacy is a priority for many healthcare centers that are responsible for providing treatment and sanitary services (9). Our literature review showed that no study has been conducted to evaluate the level of health literacy among fertile Iranian women with breast cancer. Thus, the general objective of this research was to determine the level of health literacy among Iranian women with breast cancer. The specific objectives were to determine the relationship between the level of health literacy and socio-demographic and clinical factors.

## **2. Material and Methods**

### *2.1. Study setting*

This cross-sectional study was conducted at Sina Hospital, Mahdih Hospital, and Tehran's Jihad Daneshgahi Center for Control and Treatment of Breast Cancer. The participants in the research were fertile women with breast cancer who had been referred to these centers. The sampling was conducted by the available method between August 2014 and August 2015.

### *2.2. Sample size*

The sample size was determined based on the study power of 80% and a significance level of 0.07 ( $Z_{\beta} = 0.84$ ;  $Z_{\alpha} = 1.96$ ). Due to the lack of similar studies in this field, we initially conducted a pilot study with a sample size of 52, we used the results to determine the final sample size. In the pilot study, according to the paper on the design and psychometric evaluation of the urban population's health literacy (ages 18 to 65), the cutoff of 66% was assigned to their health literacy (16). Individuals who had scores of less than 66% were considered to have poor health literacy, whereas those with scores greater than 66% were considered to have desirable health literacy. The health literacy scores of 10 participants were less than 66%, and 42 participants had scores greater than 66%. Thus, the optimal health literacy relative to the total population was 0.8 ( $p = 42/52 = 0.8$ ). Given that  $\alpha = 0.05$ ,  $\beta = 80$ , and  $d = 0.07$ , the final sample size was determined by the following formula:  $n = (Z_{(1-\alpha)/2} + Z_{(1-\beta)/2})^2 P(1-P)/d^2$ , where  $Z_{\alpha} = 1.96$ ,  $Z_{\beta} = 0.84$ ,  $P = 0.8$ , and  $d = 0.07$ . The result was that the number of participants required was 260.

### *2.3. Inclusion and Exclusion criteria*

The inclusion criteria for this study were as follows: 1) age in the range of 15-49 (women's fertility age), 2) being Iranian (as we have considered the HELIA only among Iranian adults), and 3) the presence of breast cancer as confirmed by microscopic pathology study. All of the required information was obtained based on the information on the clinical cases and the declarations of the research units. The exclusion criteria for this study were 1) being illiterate, 2) living in rural areas (HELIA solely considers the urban population), 3) not having breast cancer, and 4) having breast cancer but being younger than 15 or older than 49.

### *2.4. Measurement tool*

In this study, two questionnaires were used as tools for collecting data: Socio demographic and clinical questionnaire (developed by the researcher). The socio demographic and clinical questionnaires included questions about the participants' age, age of marriage, marriage duration, educational level, occupation, frequency of pregnancies, frequency of childbirths, type of breast surgical operation (total or partial), and use of psychiatric medication. This questionnaire was designed based on the experts' opinions and on ideas among the members of the research team, and its validity was measured using the content validity method. The other questionnaire used in this study was the Health Literacy for Iranian Adults (HELIA) questionnaire. The latter questionnaire was designed by psychometrics of Tehran Jahad Daneshgahi Sanitary Sciences Research Center for the Iranian urban population, and the main approach that was used in developing HELIA was to create a tool that had a uniform structure along with considering different dimensions of health literacy. Thus, it was very useful because it had multiple questions that were designed to study the level of health literacy throughout Iran. We know that the definition of health literacy includes three main dimensions, i.e., availability, understanding, and use of health information, and we added the two dimensions of evaluation skills and reading skills to them by considering other sources of information. The multiple item questionnaires were based on the concept of health literacy, and they included access, reading, understanding, assessment, decision-making, and the use of health information. The questionnaires were designed by professionals, contained 66 items, and were validated as appropriate for use for Iranian society (16).

### *2.5. Data collection*

Illiterate individuals were excluded from the research, and the participants were selected according to the inclusion criteria. In the first part of the study, the researchers completed the socio-demographic and clinical questionnaires, and, subsequently, the participants completed the HELIA questionnaire. A total of 260 participants completed the questionnaire.

### *2.6. Data analysis*

Data were analyzed by IBM SPSS version 20. Pearson product-moment correlation coefficient and Kido's correlation test were used to determine the correlation between the level of health literacy and socio-demographic factors, such as age, educational level, occupation, age of marriage, duration of marriage, and clinical factors, including the use of psychiatric medication and the type of breast surgery.

### *2.7. Ethical consideration*

The research protocol was approved by the Medical Morality and Scientific Committee of Tarbiat Modares University and by Sina Hospital, Mahdich Hospital, and Tehran Jahad Daneshgahi Center for Control and Treatment of Breast Cancer. All participants were informed about the purpose of the research, and the study was conducted after all participants read and signed the informed consent forms.

## **3. Results**

### *3.1. Demographic and clinical information*

The participants' means of age, age of marriage, and marriage duration were 43.32, 22.48, and 24.08 years, respectively. Most of the participants (68.5%) were high school graduates and had either a high school diploma or lower school degrees (based on the educational system in Iran). Most of the participants (78.5%) were housewives. Thirty-six participants (13.8%) had not had surgery to remove the cancerous tissue. One hundred and thirty-five participants (51.9%) had undergone total breast removal, and 89 (34.2%) had partial breast removal (Table 1).

### *3.2. Descriptive analysis of health literacy*

The mean score of the health literacy of the women in this study was 75.73. Regarding the different groups of the participants, the following health literacy information was obtained: insufficient health literacy (6.9%), barely enough health literacy (18.8%), enough health literacy (38.8%), and excellent health literacy (35.1%) (Table 1).

**Table 1.** Distribution of educational levels, occupations, parity and levels of the health literacy among the participants (n = 260)

Variable		n	%
Educational level	Primary school degree	93	35.8
	High school diploma	85	32.7
	University degree	82	31.5
Occupation	Housewife	204	78.5
	Employee	56	21.5
Parity	Nulliparous	15	5.8
	Primiparous	48	18.5
	Multiparous	197	75.7
Level of health literacy		18	6.9
Insufficient health literacy		49	18.8
Barely enough health literacy		102	39.2
Excellent health literacy		91	35.1

### 3.3. Inferential analyses

In order to determine the possible correlation between the health literacy scores and age of marriage and marriage duration, we used the Pearson product-moment correlation coefficient. The results were as follows: there was a significant statistical relationship between the health literacy score and age of marriage ( $p = 0.001$ ,  $r = 0.225$ ) and marriage duration ( $p = 0.003$ ,  $r = -0.183$ ). There was a direct relationship between the level of health literacy and age of marriage, and there was an inverse relationship between the health literacy score and the duration of marriage. We used Kido's correlation test to determine the correlation between the level of health literacy and educational level and occupation. The results were as follows: there were significant relationships between the health literacy level and educational level ( $p < 0.001$ ,  $z = 164.73$ ) and occupation ( $p < 0.001$ ,  $z = 42.96$ ), respectively. There was a direct relationship between the health literacy level and education and occupation ( $p < 0.001$ ,  $p < 0.001$ ). The Pearson product-moment correlation coefficient was used to specify the possible correlation between the health literacy score and age. Also, Kido's correlation test was used to determine the possible correlation between the level of health literacy and the use of psychiatric medication and the type of breast surgery. The health literacy score did not have a significant relationship with age ( $p = 0.199$ ), the use of psychiatric medication ( $p = 0.624$ ), or the type of breast surgery ( $p = 0.538$ ).

## 4. Discussion

The results of this research showed that the mean score of health literacy among the participants was 75.73. Most of the participants (73.9%) had excellent or enough health literacy. Our results were consistent with Ghanbari et al.'s results in their study of the health literacy level of pregnant women (8). Cox et al. conducted a study on 127 women with breast cancer (stages 1-3), and they obtained the mean health literacy score of 64.33 and the mean performance health literacy score of 80.51. They considered the level of health literacy they obtained to be high (17), and that was what our results showed as well. The results from a survey conducted in five provinces in Iran indicated that there was an inappropriate level of health literacy in women (2). The difference between that study and our study might be related to the fact that our study was conducted with women who were patients at the breast cancer medical centers. We believe that subjects who have insufficient levels of health literacy generally are not knowledgeable and well informed about health issues, so they receive less preventive and treatment services. In other words, having breast cancer normally will increase the level of the patients' knowledge and understanding, i.e., increase their health literacy. This is particularly true of those who visit the medical or screening centers, so the remarkable level of health literacy in women with breast cancer is completely understandable.

The variables of educational level, occupation, age of marriage, and marriage duration had statistically significant relationships with the level of the health literacy of the participants ( $p < 0.005$ ). In this research, the educational level was one of the factors that had a positive effect on the health literacy level. The studies conducted by Tehrani et al. (2007) and Ghanbari et al. showed that the level of education had the strongest relationship with the level of

health literacy (2, 8). According to the 2011 systematic review by the Agency for Healthcare Research and Quality (AHRQ), the level of health literacy in the United States was low, and this issue is more apparent in the people who had not finished high school. Based on this report, the number of years that people spend in acquiring a formal education is a strong predictor of health literacy. In a national study of the America's health literacy, more than 75% of the respondents who had not finished high school had health literacy scores lower than or equal to the basic limit, while only 13% of people who had earned their Bachelor's degrees had health literacy scores at this low level.

In our study, the occupation of the women was one the factors that was related significantly to the level of health literacy. Ghanbari et al. showed that, by increasing the monthly family income, the level of health literacy increased significantly (8). It is possible that the lower level of health literacy in women with lower income has an association with the lower level of education in these groups (8). Fergosen cited that many studies had shown that there is a relationship between low literacy and low income. It is rational that people with lower levels of education are not able to find appropriate jobs and, hence, receive lower incomes. It is estimated that each additional year of education increases a woman's income by 10 to 20%, which shows the strong relationship between the two variables of education and income (18). Banihashemi et al. (2) showed that there was a significant relationship between the raw scores of health literacy and the participants jobs ( $p = 0.02$ ) and that an increase in the subjects' economic levels affected the raw scores of health literacy ( $p < 0.005$ ). A national study of health literacy in America showed that people who are illiterate in terms of performance mostly are poor, jobless people or those who have seasonal jobs with general economic fluctuations (19).

In this research, the participants' age of marriage, marriage duration, educational level, and occupation had statistically significant relationships with the health literacy level. The level of health literacy of the women in our study increased as their age of marriage increased and the duration of the marriage decreased. Considering the fact that most Iranian wives and mothers usually spend a considerable amount of time caring for their families and performing their duties, the increase in the duration of the marriage understandably could prevent them from enhancing their level of their health literacy.

## 5. Conclusions

The findings of this study confirmed the influential role of subjects' age of marriage, marriage duration, education, and occupation on the level of health literacy of fertile women with breast cancer. It is evident that health literacy empowers people to apply information and instructions related to their health issues. Since the individuals' educational background is directly and significantly related to their health literacy, provision of proper education and literacy are essential in every society, particularly in the field of health information. Several strategies could be implemented to help patients improve their health literacy, including designing and implementing public health programs; providing simple and understandable educational materials; and longer and less rapid verbal communication between doctors, health care personnel, and patients. Such training should be considered during the years of marriage for women, because, due to their many responsibilities, there are few opportunities for them to enhance the level of their health literacy.

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## 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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