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# Estimate the Health Literacy in Health Centers in the Border of Yazd City: Cross sectional study

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***ABSTRACT***

**Background:** Health literacy in the 21st century is an issue for global debate, which has also introduced a number of factors, including an increase in non-communicable diseases. The use of mass communication, especially the Internet has resulted in increased attention on the importance of health literacy. Due to the importance of health literacy of women, the purpose of this study was to assess health literacy in women subscribing to health centers in the border of Yazd.

**Methods**: This descriptive cross-sectional study was carried out on 250 women referred to health centers in the periphery of Yazd city, they were selected using simple random sampling method, and data were collected using a standard questionnaire of functional health literacy in adults. Collected information was analyzed by the $SPSS_{18}$ software and appropriate non-parametric tests.

**Results**: Most participants were of ages between 18 - 30 years. Questions were administered in the areas of health literacy, access area, information access, information understanding, judgment and assessment. Results indicated that 25.2, 56.6, and 19.6% were good, but the percentage of women in area judging from collated information in this category was not good. Regarding use of information, 84.4% of women were in the middle class, but none of them was classified in good category.

**Conclusion**: Health literacy of women in general was unacceptable, and recommendations were made to establish continuous training for women to improve their views. Also, consideration should be given to centers to plan the transformation of health literacy, which has been launched to increase the health literacy of the population being studied as recipients of health services.

**Keywords:** Health Literacy, Evaluation, Women, Health Center, Yazd

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## Introduction

Literacy involves a series of complicated abilities to understand and apply for personal and social development. It is seen as a diverse set of required skills of an adult towards work and behavior, one of such skills is health literacy.[1] Health literacy is a relatively new and yet old concept, which has been in use for over 30 years in scientific literatures.[2] Health literacy includes a set of skills namely, reading, listening, analysis, decision and the ability to apply these skills to situations related to health, which is not necessarily dependent on years of schooling or public reading ability.[3, 4] As a result of the collaboration of social and personal factors, and the capacity of a person, including an inherent potential and individual skills, which are essential parts of health literacy that its adequacy influences by culture, language and health status profile.[5] Therefore, learning and understanding new health information requires high skills in reading, calculation and making decision.[6]

In the 21st century, health literacy has been introduced in global debates as a major issue[7] and a number of factors, including an increase in non-communicable diseases, customer orientation, establishment of health information platforms in the mass media, especially the Internet are factors that have increased awareness on the importance of health literacy in two recent decades.[8] World Health Organization based on this information has introduced health literacy as one of the greatest determinants of health in a report, and advised the rest of the world to build community database of affected people in order to monitor and coordinate strategic activities, to promote health literacy in different countries.[1] Health literacy is also related with health economics because the consequences of health literacy can have important economic implications.[9] It also can lead to social harm and may completely prevent people from engaging with the community and reaching their goals of life. Over the past decade, the importance and impacts of low levels of health literacy on individuals' health status have been highly considered. Health literacy has a key role in benefiting from health services and its results can be improved.[10] Many reasons suggest that various unpleasant health outcomes are caused by inadequate health literacy.[11, 12]

According to the studies conducted by the US Center for Health Care Strategies, people with less health literacy have less understanding of oral and written information provided by health professionals. They are less likely to act on orders, incur more medical expenses, have weaker health conditions, have more hospitalization and frequent use of emergency services, and have less preventive care behaviors.[13, 14] In general, they are spending more on medical expenses.[15] Health literacy is a challenge for health care providers and health systems[16] that is considered as a vital indicator of the health care outcomes and costs[17] and failure in its improve leads to longer use of health care services.[18] Therefore, achieving better and higher levels of health literacy is in fact confronting the health inequalities.[1]

In developed countries like the United States, nearly 90 million people have limited health literacy, and this contributes to an increased rate of hospitalization and the use of emergency services, which imposes an equivalent of 69 billion dollars on the economy's health system annually.[18] The results of the last study assessment of health literacy in America in 2006 showed that 36% of adults have limited health literacy (insufficient or borderline)[19] and a study in Brazil using a summary questionnaire of adults functional health literacy showed that 32% of individuals have border and inadequate health literacy.[20] In Iran, according to a study in five provinces, only 28.1% of participants have adequate health literacy, 15.3 have border health literacy and 56.6 have inadequate health literacy.[21] A study conducted in Ardabil also reported moderate level of health literacy for middle-aged people.[22]

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Culture and ethnicity are factors that affect health. The effects of family, social and cultural factors play vital roles in shaping attitudes and beliefs affecting how people interact with the health system.[23] Various surveys show a wide range of inadequate health literacy in different countries, such as Iran and due to the importance of mother's health literacy in families[24] and the limited number of health care studies in health centers located in the periphery of Iran's cities, this study was conducted to assess health literacy in women referred to health centers in the border of Yazd city.

## Methods

This study was cross-sectional and carried out on women referred to health centers in Yazd city. Sample analysis was carried out using the formula $\mathbf{n} = \frac{p(1-p)\, z^2_{1-\alpha/2}}{d^2}$, 95% of confidence, and 250 cases were considered. Sampling was done utilizing the simple sampling method. Iranian Health Literacy Questionnaire (IHLQ) was used and its reliability and validity have been approved by experts. The data were collected using a two-part checklist; the first part included demographic variables. In the demographic section, the underlying variable of economic status was divided into three groups of weak, moderate, and good using the qualitative criterion and self-assessment of participants from their income. The main part was carried out by IHLQ. This questionnaire was used in Iranian National Survey on Health Literacy by the Health Education and Promotion Office of the Ministry of Health. So, its reliability and validity were confirmed by the relevant experts.[25]

Four dimensions of health literacy questionnaire included accessibility and gathering information 11 items, understanding 19 items, judgment and assessment 8 items and the use of information 24 items. Questions were graded using the Likert scale and they were considered and in terms of four scopes of the above-mentioned, group classification of people was done using: good, fair and poor. Research input criteria were the age of 18 - 60 years, ability to read and write and exclusion criteria were acute vision and hearing problems or cognitive and psychiatric disorders. Having ratified the project and the coordination with the city health center and getting referrals to health centers, data were collected through a questionnaire in two border health centers. Before data collection, the design objectives were clarified for the samples. Two interviewers explained the study goals for the participants and in the case of their agreement, they could enter the study. Participants were supposed to complete the questionnaires as self-reports. Incomplete questionnaires were not included in the study and new questionnaires replaced them.

Data analyses were performed by $SPSS_{18}$ software and descriptive tests and non-parametric Mann-Whitney and Kruskal-Wallis tests at a significance level of 0.05.

## Results

Two hundred and fifty women participated in this study and according to the findings the largest age group was 18 - 30 and most of them possessed undergraduate education while jobs of the majority were housewives (Table 1).

According to collected data, the area of assessment and gathering information were in poor category, data understanding in good category, judgment and assessment information and also using data in fair category have the highest frequency (Table 2).

As the results indicated that there was no significant correlation among the areas of health literacy with marital status according to Mann-Whitney test and for other variables of the Kruskal-Walli test, statistically significant differences were seen in varying age groups in the area of understanding the information. Significant relationship was observed with the variable quality of education in all areas except, judge and evaluate and also significant relationship was observed in the employment of women in the field of information ranging (Table 3).

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This study only examined women as a target group and its generalization to other strata in the target community is not possible. Therefore, according to the implementation of health programs and services in border of Yazd, a more comprehensive and intervention study is suggested for future.

**Table 1.** Distribution of absolute and relative frequency of demographic characteristics of the study population

| Variable | | N | (%) |
|---|---|---|---|
| Age group | 18-30 | 129 | (51.6) |
| | 31-45 | 99 | (39.6) |
| | 46-60 | 19 | (7.6) |
| Marital status | Single | 28 | (11.2) |
| | Married | 222 | (88.8) |
| Education | Primary school | 15 | (6) |
| | Secondary school | 27 | (10.8) |
| | Diploma | 77 | (30.8) |
| | Associate Degree | 28 | (11.2) |
| | Bachelor Degree | 83 | (33.2) |
| | Master's degree and higher | 17 | (6.8) |
| Occupation | Housewife | 156 | (62.4) |
| | Self-employed | 20 | (8) |
| | Employee | 62 | (24.8) |
| | Retired | 4 | (1.6) |
| Economical status | Weak | 21 | (8.4) |
| | Moderate | 161 | (64.4) |
| | Good | 62 | (24.8) |

**Table 2.** Distribution of absolute and relative frequency of health literacy levels of participants in the four areas

| Four areas of health literacy | Good | | Moderate | | Weak | |
|---|---|---|---|---|---|---|
| | N | (%) | N | (%) | N | (%) |
| Availability and acquisition of information | 63 | (25.2) | 80 | (32) | 103 | (41.2) |
| Comprehension of information | 149 | (56.6) | 87 | (34.8) | 5 | (2) |
| Judgment and evaluation | 49 | (19.6) | 186 | (74.4) | 4 | (1.6) |
| Using information | - | - | 211 | (84.4) | 19 | (7.6) |

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**Table 3.** Average and standard deviation of health literacy areas with demographic characteristics of participants

| Demographic variable | Availability and acquisition of information | | Comprehension of information | | Judgment and evaluation | | Using information | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| **Marriage** | | | | | | | | |
| Single | 5.32 | 3.06 | 56.59 | 12.32 | 19.07 | 3.50 | 41.62 | 6.57 |
| Married | 6.25 | 3.16 | 59.01 | 9.31 | 19.26 | 4.10 | 41.50 | 6.51 |
| (Mann-Whithney U) | P-value = 0.151 | | P-value = 0.356 | | P-value = 0.905 | | P-value = 0.946 | |
| **Age group** | | | | | | | | |
| 18-30 | 5.81 | 3.10 | 59.74 | 9.13 | 19.24 | 3.62 | 41.35 | 6.75 |
| 31-45 | 6.57 | 3.33 | 58.89 | 10.25 | 19.19 | 4.59 | 41.85 | 6.48 |
| 46-60 | 6.15 | 2.52 | 52.52 | 8.29 | 19.94 | 3.76 | 41 | 5.63 |
| (Kruskal-Wallis H) | P-value = 0.198 | | P-value = 0.004 | | P-value = 0.574 | | P-value = 0.843 | |
| **Education** | | | | | | | | |
| Primary school | 4.23 | 2.52 | 45.64 | 8.9 | 20.16 | 4.07 | 37.36 | 4.63 |
| Secondary school | 5.77 | 3.42 | 56.26 | 11.48 | 19.28 | 4.08 | 40 | 6.78 |
| Diploma | 5.44 | 3.27 | 56.20 | 8.52 | 19.28 | 4.06 | 39.97 | 5.59 |
| Associate Degree | 6.77 | 3.23 | 62.14 | 9.46 | 18.65 | 4.58 | 41.96 | 8.06 |
| Bachelor Degree | 6.83 | 2.85 | 61.66 | 7.74 | 19 | 3.75 | 43.14 | 6.33 |
| Master's degree & higher | 6.52 | 3.02 | 64.64 | 7.34 | 19.70 | 4.66 | 43.81 | 5.55 |
| (Kruskal-Wallis H) | P-value = 0.014 | | P-value ≤ 0.000 | | P-value = 0.687 | | P-value = 0.006 | |
| **Occupation** | | | | | | | | |
| Housewife | 5.99 | 3.28 | 58.21 | 9.65 | 19.43 | 4.14 | 40.57 | 6.57 |
| Self-employed | 6.05 | 2.99 | 55.05 | 1.65 | 19.10 | 3.66 | 40.50 | 5.90 |
| Employee | 6.70 | 2.92 | 61.17 | 8.84 | 19.04 | 4.05 | 43.97 | 6.15 |
| Retired | 6.25 | 3.40 | 56.25 | 13.30 | 19 | 4.24 | 43 | 5.59 |
| (Kruskal-Wallis H) | P-value = 0.497 | | P-value = 0.052 | | P-value = 0.837 | | P-value = 0.006 | |
| **Economical status** | | | | | | | | |
| Weak | 5.30 | 3.51 | 54. 19 | 10.54 | 19.38 | 4.37 | 41.56 | 6.21 |
| Moderate | 6.41 | 3.15 | 59.62 | 8.97 | 18.89 | 3.80 | 41.71 | 6. 63 |
| Good | 5.72 | 3.06 | 58.65 | 10.50 | 20.04 | 4.50 | 41.05 | 6.14 |
| (Kruskal-Wallis H) | P-value = 0.191 | | P-value = 0.055 | | P-value = 0.291 | | P-value = 0.862 | |

## Discussion

The results of this study achieved based on IHLQ indicated that a large number of people were in the poor category for accessing and achieving information. So, individuals should be educated to seek information from sources and data. They should not just rely on available resources presented at the centers. Accessing information at these centers may not be possible because the staffs in these centers are usually so busy and do not have enough time to render services completely.

According to the results, 56.6% of participants had good comprehension of information. So, this assumption can be proved more assertively that people with access to health information have acceptable level of information comprehension.

Results of this study based on the IHLQ obtained showed that in the area of access to information,

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more people were in the weak category, it can be concluded according to the setup program of health transformation plan that was performed newly. It is possible that the forces used in the health centers include beginners and they offer non-effective and unnecessary information to recipients of services working in these centers, also opportunity and access to information is impossible. According to the results, percentage of people who understood the information in the area in good category included 56.6%, this assumption can be more firmly established when people with access to health information, understood information as presented. Also, within judgmental and evaluation area, more people were included in the category of medium and fewer of them included in the weak area and it can be expected with the necessary training and awareness of women, they will have better judgment and assessments in health area. In the last areas of health literacy, using data from any of them was not in good category and the highest frequency was found in average categories. The results of other studies have reported inadequate health literacy, for example, in results of Baker et al, 46% of people had inadequate health literacy border.[25] Von Wangner et al. (2007) reported average and poor levels of health literacy 11.4% in adults in England.[23] Weak health literacy was reported in the literature; 53.5% of participants in a study conducted in Isfahan,[26] 54.6% of participants in the study carried out by Ghanbari et al. (2012), and borderline and inadequate health literacy among participants that was indicated by Mahmoudi et al. (2015).[21, 27] Furthermore, in the study carried out by Fouladi et al. (2017) and Peyman et al. (2016) more individuals were in the average group.[22, 28] In this study, statistically significant difference was observed with different age groups in terms of data understanding and according to results, age group 18 - 30 have the most average rating and age group 46-60 have least. That can be justified with regard to health literacy as the country's new issue will be discussed further, younger ages are more likely to have, track and understand the information. The results are consistent with the result of Kandula et al. (2009) and Tehrani et al. (2007) studies[17, 29] but they are against the results of Afshari et al. (2014) study.[25] The reasons for this contradiction can be due to the community of research, which only included women, or the fact that women usually have more reasons for referring to health centers. Another reason can be related to the low population of older age group.

According to the obtained results, significant relationship was observed in the variable quality of education in all areas except the judge and evaluation areas, so that the groups that had university education average score, had higher grade in terms of access and understanding data and use of information that match with default researchers, but cannot be confirmed that training literacy certainly increased information literacy because these two issues are separate, but can significantly affect them. People with higher education were seeking stemming health issues in their lives, although not involved with the issues. The results of this study was in line with those of Tol et al. (2008), Tehrani et al. (2007), Lee et al. (2010), and Bains et al. (2011).[5, 29-31] The National Task Force on Health Literacy in America suggests that health materials should be written at the knowledge level of the fifth grade of the primary school, but the efficiency of these materials is still difficult for a quarter of the population.[5]

Significant relationship was seen as well as in variable employment of women in the field of using information and average scores of employed workers and in the second grade retirees were higher, respectively than this case and can be dependent on educational level and age.[1]

In this study, there was no significant correlation between the scores of health literacy areas with economic situation that is aligned with the study of Tol et al. (2008) and Von Wagner et al. (2007). [5, 23]

## Concluison

According to the present study, generally, women's health literacy is not acceptable and in order to increase the level of health literacy as a critical issue, it is suggested to pay more attention to clients' health literacy in educational programs and the use effective methods for teaching materials.

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Furthermore, other educational methods as well as health education professionals in addition to oral education have to be used in order to create appropriate training programs based on level of ability and target groups' understanding about health topics. Therefore, it will increase the target community health literacy covered as health care recipients.

## Conflicts of Interest

The Authors declare that there is no conflict of interest in this work.

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## Authors' Contribution

Conceptualization, S.S.M.M. and S.G.; Methodology, S.G.; Investigation, S.G., Z.K.K. and F.K.; Formal analysis, S.G. and H.F.; Data Curation, F.K.; Writing – Original, Draft, S.G; Writing – Review & Editing, S.S.M.M.

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