Assessment of the Relationship between Health Literacy and self-care in Afghan Pregnant Mothers with Chronic Diseases

ABSTRACT

Background and Objective: Poor health literacy can increase the risk of chronic disease, especially in vulnerable groups such as pregnant women. Meanwhile, the self-care component can be affected by the level of health literacy. Despite the importance of this issue, accurate information on health literacy in Afghan pregnant mothers living in Iran, and its relationship with their self-care is not available. Therefore, the present study aimed to determine the relationship between health literacy and self-care in Afghan pregnant mothers with chronic diseases (diabetes, hypertension and heart diseases).

Materials and Methods: This descriptive correlational study was performed with the participation of 242 Afghan pregnant mothers referring to the health centers and maternity hospitals affiliated to Mashhad University of Medical Sciences in 2021. Mothers were selected by cluster and stratified methods. The study tools included the questionnaires of pregnant mothers' health literacy, gestational diabetes self-care behavior, hypertensive self-care, and heart disease self-care. Data were analyzed using SPSS 25 statistical software and descriptive statistics and Pearson correlation test.

Results: The findings showed that there is no significant direct linear relationship between health literacy and self-care of Afghan pregnant women with diabetes (p= 0.001; r = 0.74), and hypertension self-care (p= 0.09; r =0.434), while health literacy has a significant inverse relationship with cardiovascular diseases self-care (p= 0.003; r = -0.37).

Conclusion: The findings of this study showed the significant relationship between Afghan pregnant mothers' health literacy and their self-care ability, so it is necessary to pay attention to the increasing awareness of this growing population, which are mainly marginalized in metropolitan areas and are at risk of no awareness.

Paper Type: Research Article

Keywords: Health Literacy, Self-Care, Pregnant Mother, Chronic Disease.

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Introduction

The effect of health literacy on patients' health outcomes is well known and plays an important role in deciding about health needs (1). According to the studies, people with low levels of health literacy will face the problems such as arbitrary and indiscriminate drug use, lack of adherence to treatment, poor disease control, poor health knowledge, lack of expression of health concerns, and poor communication with health care providers (2). Health literacy is important in different target groups, including the elderly and adults. Pregnant women are the most vulnerable and important groups in society in this regard (3).

The concept of health literacy in pregnant mothers is related to use of health literacy in achieving content and how to provide prenatal care (4). Health literacy is an important element in a woman's ability to engage in the activities leading to health promotion for the mother and child. Informed decisions leading to good health outcomes will be difficult for a woman without an adequate understanding of health care information (5). In the study of Kharazi et al., it was mentioned that there is a significant relationship between maternal health literacy and prenatal care, pregnancy outcome, and birth weight (6). Asadi et al. (2020) also reported that pregnant women with higher health literacy significantly received more prenatal counseling than other women, and had a planned pregnancy. Therefore, addressing health literacy and its relevant factors is important in pregnant mothers (7).

However, the status of literacy in pregnant women is not desirable, so that the findings of the study by Safari et al. (2017) (3) and Baqaei et al. (2017) (4) showed that maternal health literacy was insufficient and borderline. However, in the study by Sadeghi et al. (2019), the status of maternal health literacy was favorable in mothers who had newly delivered (8). These findings are contradictory due to the difference in the place of residence, a number of pregnancies, income, age, job, and education of the mother, so addressing the health literacy in different samples of pregnant mothers is important to obtain the information related to health literacy (3,6). On the other hand, the results of various studies indicate that low level of health literacy is associated with high prevalence of chronic diseases. Considering the significant burden of chronic diseases, improving the level of health literacy can play a decisive role in the prevention and treatment of these diseases and saving resources (9). In pregnant women with chronic diseases, the mother should control the chronic disease before pregnancy. it was evidenced that the control and management of chronic diseases and health literacy level, are related to various components such as self-care (10).

Self-care activities during pregnancy which pregnant mothers consciously perform can maintain the health of the mother and fetus during pregnancy, childbirth, and postpartum (11). Self-care in patients and mothers with chronic diseases includes addressing the physical, emotional, spiritual, and social areas, which enable chronic patients to maintain or improve their health and well-being (12). In the study by Kurdi et al. (2016), 65.2% of women with gestational diabetes had moderate self-care (13). Therefore, addressing the issue of self-care in the community of pregnant women with chronic diseases is important to obtain reliable and up-to-date information in order to plan the necessary interventions. This issue is very important for Afghan pregnant mothers living in the suburbs of Mashhad; the health status of these people is at significant risk (14).

Of course, it should be noted that self-care

is related to health literacy and it seems that health literacy can be effective on patients' self-care (15). However, the most important issue for pregnant mothers is to get information about the level of health literacy and self-care of Afghan pregnant women inside the country. In the study by Im et al. (2019), aimed to examine health literacy among Afghan refugees located in the United States, a low level of health literacy was reported (16). Also, in the studies of Hewitt et al. (2018) and Riggs et al. (2020) conducted on Afghan pregnant mothers, low health literacy was reported (17,18). Despite performing the studies in other countries on the health literacy of Afghan citizens in Iran and its high importance, there is no accurate information on the health literacy of Afghan pregnant mothers who live in Iran. Most Afghan immigrants refuse to go to the hospital due to various problems (19). There may even be adequate health facilities and services available in the community, but some people, such as immigrants, do not use them due to the problems such as cultural alienation and low health literacy, this issue is doubly important especially for pregnant mothers who need care during pregnancy (20).

Despite the importance of seeking health and access to health facilities and its relationship with health literacy among Afghan immigrants especially those live in Iran, so far, no study has been conducted to examine health literacy behavior among immigrants, especially Afghan pregnant mothers. Most studies have focused only on some of the barriers to access health services for immigrants. Also, research on other health-related components, such as immigrant self-care, especially pregnant women, has been neglected and further studies are needed. Therefore, the present study aimed to determine the relationship between health literacy and self-care in Afghan pregnant mothers with

chronic diseases (diabetes, hypertension, and cardiovascular disease).

Methods and Materials

This descriptive correlational study was performed in 2021. The study population included Afghan pregnant women with chronic disease referring to (No. 1,2,3,5 and Samen) maternity wards (Hasheminejad, Omol Banin, Imam Reza, and Ghaem) in Mashhad, Iran. The sample consisted of 252 mothers who met the inclusion criteria. They entered the research in a cluster and stratified manner with informed written consent. The minimum sample size was estimated using the study of Barati et al. (2019), with the first type error of 0.05 and 80% test power. The sample size was estimated as 242 with considering the sample loss, a total of 255 women were included in this. in this study, 13 women were excluded due to incomplete answers (more than 30%) to the questions of the questionnaires.

Women were included if they were interested to participate in the study, able to written consent, were Afghan pregnant mothers living in Mashhad, have a health record for prenatal care, chronic diseases (diabetes, hypertension, heart disease) and have a minimum literacy of reading and writing. Exclusion criteria were an incomplete response to the research questionnaires, unwillingness to continue cooperation, and delay in completing the questionnaire for up to 24 hours. The study tools included the Pregnancy-Individual Information Questionnaire and the questionnaires of Maternal Health Literacy Inventory in Pregnancy (MHELIP), Gestational Diabetes Self-Care Behavior, Hypertension Self-Care, and Heart Disease Self-Care. Pregnancy-Individual Information Questionnaire consisted of 11 completing and multiple choice questions about age, education level, job status, spouse job status, income status, chronic underlying

disease, disease control, disease type, level of spouse support, number of referrals to the prenatal care center, and the reasons for not referring to the prenatal care center.

The Maternal Health Literacy Inventory in Pregnancy has 48 items and 4 areas of maternal health knowledge (21 questions), search for maternal health information (6 questions), evaluation of maternal health information (6 questions), and decision-making and maternal health behavior (15 questions). It is scored on a 5-point Likert scale from "I don't know at all" (score 1) to "I very high" (score 5). The total score of the questionnaire is 48-240, which higher scores indicate higher level of health literacy in pregnant mothers. The validity of the questionnaire was confirmed in the study of Taheri et al. (2020), and internal consistency and test-retest methods was used to determine the reliability. The overall Cronbach's alpha coefficient of the questionnaire was calculated for the areas of maternal health knowledge (94%), search for maternal health information (66%), evaluation of maternal health information (79%), and decision-making and maternal health behavior (87%) (21). Gestational Diabetes Self-Care Behavior Questionnaire includes 18 questions on diet (11 questions), physical activity (5 questions), blood sugar monitoring (1 question) and consumption of prescribed medication (1 question), with a 5-point Likert scale (very low, low, moderate, high, and very high). The minimum score is zero and the maximum score is 72. The higher self-care score from this questionnaire indicates higher level of self-care ability in the patient (22). The validity of this questionnaire was desirable in Iranian studies and Cronbach's alpha coefficient was estimated to be 0.86 using internal consistency (23).

The Hypertension Self-Care Questionnaire (HTN-SCP) was developed in 2014 by Hahn. The questionnaire consists of 20 items. It measures the behaviors such as (low-fat and low-salt diet, alcohol restriction, non-smoking, self-monitoring, weight control, frequent doctor visits, and stress reduction). It has a 4-point Likert scale (always 4, often 3, sometimes 2, rarely / never 1). Questions 12 and 13 are scored reversely. Higher scores in this questionnaire indicate more desirable self-care (23). The European Heart Failure Self-Care Behavior (EHFSCB) Scale consists of 12 questions, each question is scored based on the 5 options Likert scale from 1 (it is exactly like this) to 5 (not at all). The total score is ranged from 12 to 60. The higher score indicates less self-care and the score from 12 to 28 indicates good self-care, 29-44 indicates moderate self-care, and score of 45-60 indicates poor self-care. The validity of the questionnaire was reported favorable in the study of Salehzadeh et al. (2013) and its Cronbach's alpha coefficient was calculated as 0.71 (24). Also, the validity of all the above questionnaires was reviewed by 10 faculty members of Mashhad School of Nursing and Midwifery.

After obtaining the permission of the regional ethics committee of the university, a letter of introduction was received from the Faculty of Nursing and Midwifery in Mashhad and presented to the officials of the above-mentioned centers and maternities. The researcher explained the purpose of the study after introducing herself. the eligible mothers entered the study if they met the inclusion criteria and filling the written and informed consent to participate in the research. They were assured that the information obtained was confidential and the results would be expressed in general.

Then, individual-pregnancy information questionnaire, the questionnaires of health literacy of pregnant mothers, and self-care (gestational diabetes, hypertension and cardiovascular) were given to pregnant mothers

for 20 minutes. Researcher was available to answer to mothers' questions in the case of doubt or questions. If mothers failed to answer during this time, they provided other time for them to complete the questionnaires. If the mothers didn't want to complete the questionnaires in person and one of their family members had a mobile phone, the researcher firstly explained the purpose of the study and how to participate in the study. If they desired to participate in the study and obtained the informed consent, their phone number was obtained and the questionnaire was sent to them electronically through one of the messengers. Then, they were followed-up to complete the questionnaires within a maximum of 24 hours.

The most important ethical considerations of this study included obtaining permission from the ethics committee of Mashhad University of Medical Sciences (ethics code: IR.MUMS.NURSE.REC.13400.002) and obtaining written and informed consent from the participating mothers. Data were collected and coded and were analyzed with SPSS statistical software (version 25) and descriptive statistics including mean, standard deviation, frequency, frequency percentage (to summarize data) and Pearson test (to examine the relationship between the main variables).

Results

The mean age was 31.48±6.27 years (age range: 16 to 46). Most of the research units, 86.5% (n=185) had education diploma or under diploma and only 3.7% (n=9) had university education. Other individual-pregnancy characteristics of the research units are listed in Table 1.

Table 1: Frequency distribution of individual-pregnancy characteristics in the studied pregnant mothers

Variable		N (%)
Job	Household	(5/97) 236
	Employed	(2/1) 3
	Student	(2/1) 3
Husband's job	Unemployed	(5/21) 52
	worker	(9/47) 116
	Free	(6/30) 74
Income status	Less than enough	(3/65) 158
	Enough	(5/33) 81
	Higher than enough	(2/1) 3
Underlying disease	Diabetes	(4/43) 105
	Cardiovascular	(6/18) 45
	Hypertension	(831) 77
	Cardiac and diabetes	(21) 3
	Hypertension and diabetes	(1/2) 5
	Cardiac and hypertension	(9/2) 7
Disease control	yes	(8/88) 215
	no	(2/11) 27
Type of current pregnancy	wanted	(7/51) 125
	unwanted	(3/48) 105
Information related to the disease	low	(8/36) 89
	moderate	(1/54) 121
	high	(1/9) 22

The mean health literacy score of the pregnant mothers was 118.9±28.2, the self-care of mothers with diabetes was 48.5±11.6, hypertension was 43.8±8.4, and with cardiovascular diseases was 43.3±11.0. Regarding the relationship between health literacy and self-care in Afghan pregnant women with diabetes, the Pearson correlation coefficient showed a direct linear relationship between health literacy score and diabetes self-care (p=0.001; r = 0.74) (Diagram 1).

diagram 1: correlational relationship between health literacy with diabetes self-care in the studied women

Regarding the relationship between health literacy and self-care of Afghan pregnant women with hypertension, the Pearson correlation coefficient showed no significant direct linear relationship between health literacy score and hypertension self-care (p=0.43; r = 0.09) (Diagram 2).

Regarding the relationship between health literacy and self-care of Afghan pregnant women with cardiovascular diseases, the Pearson correlation coefficient showed a significant inverse relationship between health literacy score and cardiac self-care (p=0.003; r = -0.37) (Diagram 3).
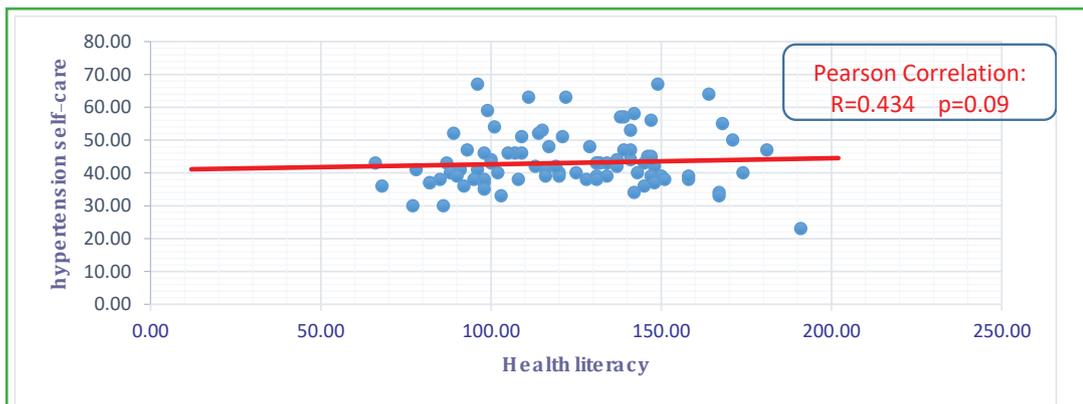
diagram2: Correlation between health literacy and hypertension self-care in women

diagram 3: correlational relationship between health literacy with cardiac self-care in the studied women

Discussion

The results of the present study indicate a significant direct linear relationship between health literacy score and self-care in Afghan mothers with diabetes, meaning that with increasing health literacy of pregnant mothers with diabetes, their self-care increased. The results of the studies by Ilhan et al. (2020) (25), Robatsarpooshi et al. (2020) (26), and Taheri et al. (2018) (15) showed that the mean scores of self-care in patients with insufficient health literacy levels were significantly lower than other patients with higher levels of literacy. The results of these studies are consistent with the results of the present study. Among the causes of consistency, according to the previous studies, it can be noted that patients with higher levels of education have a better ability to judge and decide on self-care behaviors. With increasing knowledge and awareness of patients with diabetes about its complications and understanding its severity, their attitudes likely change and they decide to take more care of themselves (26). Also, increasing the level of awareness and education in patients who are worried about their illness facilitates the process of self-care, in other words, high levels of awareness facilitate the compliance of self-care behaviors, but low levels of awareness make this process difficult (27).

Marciano et al. (2019) (28), Juul et al. (2018) (29) and Shin et al. (2018) (30) showed that health literacy plays an essential role in self-care and awareness of patients with diabetes. The results of these studies are consistent with the results of the present study. It seems that health literacy and increasing knowledge have an important role in patients' self-care ability, which is due to its effects on the level of knowledge and attitude of patients (30). Self-care is one of the most important issues in diabetes

control, and self-care training programs may have positive effects on the ability of these patients to control diabetes (29). It is important to train the patients with diabetes about medication, exercise and diet, because treatments will be effective when the patient knows the nature of disease and is effectively compatible with it. If medication, exercise and diet be considered as three components of diabetes disease, undoubtedly, the fourth component will be training and raising the level of awareness to increase self-care (28,29).

However, the results of the study by Ghaedi et al. (2016) showed that there is no significant relationship between the health literacy level and self-care of these patients (31). The results of their study are not consistent with the results of the present study. Among the possible reasons for the inconsistency are the cultural and geographical differences between the two studies and also the differences between the research communities. Because in the present study, Afghan pregnant mothers referring to health centers in Mashhad were studied, while in the study of Ghaedi et al. (2016), the patients with diabetes (male and female) living in Bastak were studied.

The results of the present study also showed that there is no significant direct linear relationship between health literacy score and hypertension self-care. In this regard, the results of the study by Barkhordari-Sharifabad et al (32) and Barati et al. (2020) (33) showed that there is a significant relationship between self-care behaviors and health literacy of patients with hypertension. The results of these studies are not consistent with the results of the present study. In their study, the patients with hypertension often have a low level of education and education of 86.5% of their participants' were high school or lower. likewise, the level of health literacy is also low

and these people cannot receive important health information from reliable sources (33). Therefore, lack of health literacy led to prevent people from understanding their disease and dealing with it. Therefore, health literacy is a vital indicator in the results and costs of health care and improving health literacy leads to reduction in use of medical services (34).

Larki et al. (2018) (35) and Mohammadpour et al. (2018) (34) also concluded that perceived self-efficacy and self-care behaviors have a significant relationship with the health literacy level in patients with hypertension. The results of these studies are not consistent with the results of the present study. That is, the higher health literacy will increase the level of self-care in patients with hypertension. They better understand the correctness and inaccuracy of information available in cyberspace, magazines, radio and television, as well as advice from friends and acquaintance, and they do it. Therefore, lack of health literacy prevents people from understanding their disease and dealing with it. Patients with poor health information have more difficulty to follow medications consumption. several studies reported that access to high level of health literacy is confrontation with inequalities in the field of health (34).

Regarding the relationship between health literacy and self-care in Afghan pregnant women with heart disease, the findings of the present study showed that there is a significant inverse relationship between health literacy score and self-care of mothers with heart disease. In this regard, the results of the studies by Chen et al. (2011) (36) and Ghaffari et al. (2021) (37) showed that health literacy is inversely related to self-care of patients with heart failure. The results of these studies are consistent with the results of the present study. Of course, this finding means that although increasing

the self-care level may not completely occur in heart failure patients with increasing levels of health literacy, but increasing levels of health literacy may improve some aspects of self-care such as feeling happy, improving social function, increasing mobility, and reduce fatigue (37). Although in these studies and the present study, health literacy was inversely related to patients' self-care, but the role of increasing knowledge and awareness related to the disease and its care is not hidden.

In this regard, the results of the studies by Reisi et al. (38) and Wu et al. (2017) (39) showed that there is a positive and significant relationship between health literacy dimensions and self-care subscales in patients with heart failure. The results of these studies are not consistent with the results of the present study. Possible causes for inconsistency include the type of questionnaires used to assess self-care and differences in economic status, level of education and reliable and available resources to obtain information about their disease. In the present study, the chronic patient's self-care questionnaire and in the study of Sheikh Sharafi, the cardiac patient's self-care questionnaire has been used. Also, 90.9% of Afghan pregnant women in the present study had low and moderate information about their disease and about 52% didn't refer to medical centers for various reasons, such as high cost of tests and lake of spouse's permission, However, due to the effective role of increasing health literacy in improving self-care behaviors, and on the other hand, advances in new technologies and cyberspace, we can help them in this way.

The most important limitations of this study was the lack of cooperation of the officials in the health centers and maternities for sampling, as well as pregnant mothers, that it was tried to explain the goals and benefits of conducting research and encourage them to participate in this study.

Conclusion

Regarding to the relationship between health literacy and self-care abilities among Afghan pregnant mothers with diabetes and heart diseases, and also the limited access of these mothers to the facilities and reliable information resources, the educational programs are recommended to modify various complications and problems in this sensitive group and to promote their awareness which led to reduce heavy costs in the health care system.

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