

Relationship between health literacy and pregnancy consequences in women referring to comprehensive health service centers

ABSTRACT

Background and Objective: Maternal health literacy is a cognitive and social skill that demonstrates women's motivation and ability to properly access, understand, and use the information to maintain the health of themselves and their children. This study aimed to investigate the relationship between health literacy and pregnancy consequences in women referring to comprehensive health service centers in Dezful.

Materials and Methods: This cross-sectional study (descriptive-analytical) was performed in 2020 on 220 pregnant women referring to comprehensive health service centers in Dezful for routine pregnancy care. Subjects were selected by multi-stage cluster random sampling. Data collection tools were Maternal Health Literacy and Pregnancy Consequences Questionnaire (MHLAPQ). Data analysis was performed using SPSS statistical software (version 16).

Results: There was a positive and significant relationship between the average score of health literacy and the mean score of pregnancy consequences including the higher level of health literacy, the lower level of the pregnancy consequences ($P < 0.0001$, $r = 0.695$), and there was a positive and significant relationship between the mean average of health literacy and the average score of birth weight (< 0.002).

Conclusion: The results obtained in the study demonstrated that there was a significant relationship between maternal health literacy and prenatal care, pregnancy consequences, and birth weight, which indicates the need to pay more attention to education and increase maternal health literacy in health promotion programs.

Paper Type: Research Article

Keywords: Pregnancy, Literacy, Health literacy.

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Introduction

Pregnancy is one of the most sensitive and important stages of a woman's life. In this period, the woman needs more care as a healthy and normal person and needs more care because of psychological changes and physical needs. Hence, the importance of pregnancy care is redoubled to protect the mother's health and to the birth of a healthy baby (1, 2). Health care during pregnancy is considered as one of the main issues and important health indicators in the community (3, 4). Proper delivery and initiation of prenatal care and its continuation throughout pregnancy will improve pregnancy consequences including reducing infant mortality, maternal mortality due to pregnancy, and childbirth (4).

Pregnancy care is a strict and accurate implementation of a series of principles during pregnancy, which is the most important guarantor of keeping a mother's health and birth to a healthy baby (5). To give birth to a healthy baby, women need special care to ensure their health and baby (6). In this regard, birth weight is one of the main factors of growth and the first indicator of survival, physical growth, and neurodevelopment of the baby and a reliable sign of intrauterine growth of the fetus. So that with increasing birth weight, the infant mortality rate is significantly reduced (7). Also, low birth weight, prematurity, and intrauterine growth retardation can affect postnatal growth and cause neonatal mortality or disability at different stages of life (8). Inadequate care of a pregnant woman during pregnancy, cause problems for the health of the pregnant woman and can lead to adverse consequences in the baby such as abortion, stillbirth, premature birth, macrosomia, and many other problems (9). With meticulous care during pregnancy, severe and permanent complications in mother and baby can be reduced, and high costs can be

avoided (3). The results of a study by Barites et al. showed that women who received prenatal care had a significant reduction in premature and low birth weight infants (10).

Despite the provision of extra care by health centers, factors such as low awareness and health literacy of pregnant women and lack of knowledge about the manner and number of referrals during pregnancy prevent the correct and timely receipt of care during pregnancy (11, 12). On the other hand, health care providers are not aware of patients' health literacy skills to read and only provide health information. Health professionals use words and phrases in their dealings with patients that most women do not understand. Therefore, the transfer of information between women and health care providers is not complete (13).

Health literacy is vital for pregnant women in understanding the risks of pregnancy. Pregnant women's awareness and perception of these risks are essential for patients' willingness to follow health and treatment recommendations (3, 14). Health literacy is the ability of a person to acquire a set of skills of reading, listening, analyzing, basic understanding information about health services, and applying these skills to make decisions about health-related situations that are not necessarily related to general reading ability (15, 16). Health literacy in pregnant women, exceptional knowledge, and unique social skills effectively diagnose the danger signs of pregnancy, healthy lifestyle, and proper nutrition during pregnancy. So that mothers with high health literacy, had low birth weight infants, fewer premature births, and fewer infant deaths (17, 18). The results of Izad Rad (17) and Zarban et al.'s (9) studies reported that pregnant women's level of health literacy was inadequate level. However, the study of Sajjadi et al. showed

that there is no relationship between health literacy level and self-care during pregnancy (19). Khazaei et al.'s study also showed a statistically significant relationship between the average health literacy with the time of onset and the number of prenatal care (20). Women's health literacy is a significant concern for two reasons: first, pregnancy may be a woman's first exposure to the health care system; as the complex system for the first time, even with sufficient literacy skills. On the other hand, women with low literacy experience significantly more problems learning new information and following tips. The second reason is that a woman's health status and perception of the pre-pregnancy health information directly affect the child health, growth, and development during pregnancy. Therefore, educating women is vital to promote the health of their children and families. Women have been identified as a vulnerable population to emphasize increasing health literacy (3, 5). It is crucial to identify pregnant women with inadequate health literacy; however, health care providers are often poor in this area (21-23). Likewise, several differences are reported in the results of studies that were conducted in the field of health literacy. Considering this gap, it is essential to evaluate the relationship between health literacy and factors affecting pregnancy consequences (normal weight birth, etc) because of the importance of pregnant women's health literacy in promoting the health of the family and society. Therefore, this study aims to investigate the relationship between health literacy and pregnancy consequences in women referring to comprehensive health service centers in Dezful city in order to provide the necessary information for quality improvement and health planning which may effectively support this vulnerable group.

Materials and Methods

The present study is a descriptive and analytical cross-sectional study. The target population is all pregnant women (from 28 weeks of pregnancy to 40 days after delivery) who refer to the comprehensive health centers of Dezful city from August 2020 to November 2020. After approving the method and obtaining the code of ethics from the ethics committee of Dezful University of Medical Sciences, the researchers selected the study sample using cluster sampling, multi-stage among 15 comprehensive health centers in Dezful,

In the first stage, four comprehensive urban health centers of Dezful city (north, south, east, and west) were randomly selected. Then, according to the total samples registered in the SIB system (electronic file), 44 pregnant women were selected by simple random sampling method using a random number table. Totally, 220 eligible women were selected to attend in this study. The sample size was calculated based on the study that was conducted by Peyman et al. (1). with using the following formula and considering the 95% confidence level and $d = 0.07$, the sample size of 204 people was determined. However, the final sample size is equal to 220 eligible women considering the possible fall rate.

$$n = \left[\frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})}{0.5 * \ln[(1+r)/(1-r)]} \right]^2 + 3$$

Data collection

After obtaining informed consent and assuring the participants to keep their information confidential, the questionnaires were distributed with the guidance of the questioner and self-reported by the participants, and after completing the data collection, they were collected within three months.

This study's data collection tools include personal information form, pregnancy history

and maternal health literacy, and pregnancy results questionnaire (MHLAPQ). In the first part of the personal information form - pregnancy history has 15 questions, about the age of mother and spouse, level of education of mother and spouse, occupation of mother and spouse, level of family income, and information about pregnancy, age of the pregnancy, including Last Menopausal Period (LMP), common complaints, whether or not pregnancy is desired, laboratory information (hemoglobin level, weight, body mass index) and etc. The second part of the Maternal Health Literacy Level Questionnaire and Pregnancy Consequences (baby weight, number of pregnancies, anemia -*hemoglobin below 11, time to start caring for pregnant women, Pre-eclampsia) has 26 questions. The first 14 questions are related to health literacy, and the following 12 questions are related to pregnancy consequences. The question-answering scale is based on a 5-point Likert scale (strongly agree, agree, do not know, disagree, strongly disagree from 1 (strongly disagree) to 5 (strongly agree) The validity and reliability of the questionnaire(MHLAPQ) in the study of Peyman et al. (2016) have been confirmed in Iran (21). Accordingly, Cronbach's alpha coefficient in the health literacy section is 0.89 and for sub-branches 0.87 and 0.66 and in pregnancy consequences was 0.67 and for sub-branches was 0.72 and 0.69.

Ethical Issues

The Ethics Committee of Dezful University of Medical Sciences (IR.DUMS.REC.1399.041) confirmed this study. The researchers considered certain research ethics principles including respecting voluntary participation right, obtaining informed consent from the participants, and informing the participants of the purpose of the stud.

Statistical Analysis

The data obtained from this study were analyzed using SPSS statistical software version 16 based on descriptive statistics to report percentage, mean and standard deviation and bivariate tests (T-Test, One-way analysis of variance, Chi-square, and logistic regression test). A P-value less than 0.05 was considered significant.

Results

The mean age of participants in this study was years, of which 82 women (41%) had the first pregnancy, and 118 women (59%) had second or more pregnancies. The level of education of pregnant mothers was as follows: 77 participants (38.5%) were under diploma, 83 participants (41.5%) were diploma, and 37 participants (20%) had university education. Likewise, 39 participants (19.5%) in this study were employees and the others (161 people, 80.5%) were housewives. As well as 125 participants (62.5%) were covered by an insurance and 75 participants (37.5%) were not covered by any insurance (Table 1).

Table 1: Absolute frequency distribution and frequency percentage of demographic characteristics

Variable		Frequency	absolute frequency
Gravida	one	41	82
	Two or more	59	118
nationality	Dezfuli	70	140
	Lor	10.5	21
	Fars	9.5	19
	Other	10	20
Level of Education	High school	38.5	77
	Diploma	41.5	83
	expert	16.5	33
	Masters	3.5	7
Job	Employee	19.5	39
	housewife	80.5	161
Insurance status	yes	62/.5	125
	no	37.5	75

The mean score of health literacy of pregnant mothers was which indicates the average level of health literacy in pregnant mothers. The mean score of pregnancy consequences was indicating the existence of pregnancy consequences at the intermediate level. It is also ranged from 20 to 40. Among other demographic variables, only the job of pregnant mothers had a significant relationship with their health literacy, so that the health literacy of pregnant mothers was significantly higher than homemakers in employees, and no significant relationship was found between other variables(table2).

Table 2: Relationship between other demographic characteristics and health literacy and pregnancy consequences

variable	consequences of pregnancy	health literacy
age	($r=0.011$) $P=0.878$	($r=-0.052$) $P=0.465$
Gravida	0.937	0.722
nationality	0.649	0.563
Level of Education	0.796	0.514
job	0.120	0.008
Insurance status	0.374	0.373

Table 3: Mean and standard deviation of variables related to maternity care with maternal health literacy

Variables		Number (%) M±SD	Maternal health literacy	
			p- value	
Baby weight	Under 2500 grams	12(8.21)	54.90±7.50	P<0.002*
	2500 grams and above	208(91.79)	58.68±7.58	
Number of pregnancies	one	82(41)	56±6.4	P<0.722
	Two or more	118(59)	58.51±7.68	
Anemia (Hemoglobin below 11)	yes	21(13.6)	55.89±8.32	P<0.001*
	no	199(86.4)	59.61±7.02	
Time to start caring for pregnant women	First three months	199(86.3)	88.23 ±13.56	P<0.490
	Second three months	16(10.1)	92.31±9.68	
	Third three months	5(3.6)	85.24 ±12.53	
Pre-eclampsia	yes	5(3.6)	58.53±7.79	P<0.897
	no	215(96.4)	56±7.05	

Table (3) shows the mean score of maternal health literacy in the study population based on pregnancy status. According to the results of t-test, there was a significant relationship between maternal health literacy, baby weight, and Pre-eclampsia ($p < 0/05$). But there was no relationship between maternal health literacy and other variables

related to pregnancy care ($p > 0/05$).

Table4: There is a significant relationship between the mean score of health literacy and the mean score of pregnancy consequences, such as the higher the health literacy was associated with the less negative pregnancy consequences ($P < 0.0001$, $r = 0.695$).

Table 4: Determining the relationship between the average score of maternal health literacy and the consequences of pregnancy

variable	M±SD	p-value
Health literacy of pregnant Mothers	9.89 (23/42)	r=0.695 P<0.0001
Consequences of pregnancy	8.15 (25/25)	

Significance level 0.05

Discussion

This study investigated the relationship between health literacy and pregnancy consequences in women referring to comprehensive health service centers in Dezful, 1399.

Health literacy is an essential determinant of women's and children's health and impacts community health. High-risk behaviors of parents before fertilization and during pregnancy affect health-threatening factors (24). Arabin et al. (2019) reported that improving health literacy and transferring clinical knowledge to understandable models to policymakers, health care providers, pregnant women, and their spouses play an influential role in reducing health risks during pregnancy in the future communities (25).

The present study results had a positive and significant relationship between the mean score of health literacy and the mean score of pregnancy consequences. These results are consistent with the study of Nodoshan et al. (2020). Their study also examined the relationship between pregnancy health literacy and pregnancy status (4), which was in line with the present study (4). likewise, in line with the present study, Tugut N study (2021) showed that the level of health perception and health literacy were sufficient in pregnant women (23)(23). Forghani et al.'s study showed that based on the Pearson correlation coefficient, pregnancy consequences is significantly related to health literacy, which is consistent with the finding of present study (22).

In the present study, the level of health literacy in pregnant mothers, who employee, was higher than hotelkeeper, and this relationship was statistically significant. This result is consistent with the study of Dadipour et al. (26). and the study of Rahmani et al (27).

Pregnancy care and birth weight had a significant relationship with the health literacy of pregnant mothers in the present study, and these results are consistent with the study of Kharrazi et al. (20). likewise, Izayazdi Rad et al. (17) examined the effect of health literacy and adequacy of pregnancy care index on birth weight consequences in pregnant women in Balochistan, Iran. They showed that the components of health literacy and adequacy of Prenatal Care Utilization (APNCU) index affect birth weight. This relationship is consistent with the results of the present study. On the other hand, in the present study, the relationship between the education level of pregnant women and their health literacy level was not significant. This result is different from the study of Wilhelmo et al. (24). They found a significant relationship between education level and health literacy level of pregnant women. França et al., examined the level of health literacy in adolescent and adult pregnant mothers. They indicated that the level of health literacy, and receiving prenatal care and counseling in adolescent pregnant mothers was lower than that of adult pregnant mothers. In this regard, the pregnant women in our study had a mean adult age, and receiving their care, and pregnancy counseling had a significant relationship with their health literacy (28).

Conclusion

The present study's findings showed that there is a significant relationship between maternal health literacy and prenatal care, and pregnancy consequences. Since the importance

of maternal health literacy in promoting the whole community's health shows, the need to pay more attention to maternal health literacy in developing health promotion and education programs on a large scale is essential.

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