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Association Between Maternal Health Literacy Level and Prenatal Care in Iran

ABSTRACT

Background and Objective: Maternal health literacy includes cognitive and social skills, providing the motivation and ability for pregnant women to access, understand, and use the health information. Given the effect of maternal health literacy on health of mothers and their children, recognizing the maternal health literacy level in pregnant women is essential. Thus, the present study was conducted to evaluate the relationship between maternal health literacy and prenatal care and its outcomes among the women who have recently given birth and admitted to Yazd health centers in 2017.

Materials and Methods: This descriptive-analytical study was conducted on 390 women. They were selected using multistage cluster sampling method. The data collection tools were maternal health literacy level and pregnancy outcome questionnaires. Data were analyzed using SPSS (version 21). The significant level was considered 0.05.

Results: The mean score of health literacy score was 54.67 ± 9.85 and the mean score of pregnancy outcomes was 47.41 ± 6.2 and Pearson correlation test showed a significant correlation between health literacy and pregnancy outcomes ($R=0.633$, $p<0.0001$). Maternal health literacy was also associated with cares such as proper weight gain during pregnancy and the use of some supplements (folic acid and multivitamin), but it did not show any significant association with the nutritional status of the neonate and birth weight.

Conclusion: As a significant relationship was found between maternal health literacy and pregnancy outcome, the mothers should be encouraged for pregnancy cares by providing proper health and up-to-date information and materials required by pregnant mothers in healthcare centers.

Paper Type: Research Article

Keywords: Health Literacy, Pregnant Mothers, Prenatal Care, Neonate

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Introduction

Health literacy is one of the key elements in promoting the health of individuals and includes a set of reading, listening, analysis, decision-making skills and the ability to use these skills to enhance the health-related behaviors, which are not necessarily back to years of study or general reading ability (1, 2). It is the result of interaction of social and individual factors (3). Hence, one of the important elements in the ability of women to perform health-promoting behaviors is maternal health literacy, defined as the cognitive and social skill of pregnant women and their ability and motivation to access, understand, and use the information to ensure the positive health outcomes for them and their children (4). Health literacy in pregnant women is special knowledge and special social skill to diagnose risk factors of pregnancy period, healthy lifestyle and proper nutrition during pregnancy. It affects the outcome of the pregnancy and the birth of a healthy neonate. In this regard, studies have shown that mothers with high health literacy had a lower rate of low birth weight infants, premature births, and neonatal deaths and breastfeeding was more in these women (5-8). However, low birth weight was two times more in women with low health literacy. Thus, the promotion of maternal health is one of the key factors in controlling neonatal low birth weight (9).

Various studies have evaluated the health literacy of pregnant women, for example, in the study conducted by Bennett et al., women with low health literacy started the pregnancy cares late and the frequency of their admission to health centers was not adequate (10). In a study conducted by Boss et al, pregnancy period cares reduced the death of neonates, reduced low weight birth, and proper weight gain of the mother during pregnancy (11). Some studies have been also conducted in Iran on maternal health literacy. They have shown that high maternal health literacy was significantly associated with proper weight gain for pregnant women, good birth weight, the use of supplements, and anemia (12). In a study conducted by Kohan et al in Isfahan, only 18% of women had proper maternal health literacy and their health literacy level was associated with proper weight gain during pregnancy, proper weight at birth, and use of supplements (13). Ghanbari and et al, showed that women with adequate health literacy had received health care properly (14).

Given the effect of pregnancy health literacy level on the health of mothers and their children, finding the maternal health literacy level in pregnant women is very important and necessary, since some steps can be taken to enhance the health level of mothers by proper planning and providing appropriate training through various ways (15). The researchers found no study to evaluate the level of pregnancy health literacy in Yazd. Hence, they decided to conduct a study to evaluate the relationship between the health literacy of pregnant women and their prenatal care and its outcomes among pregnant women admitted to health centers of Yazd province (Iran) in 2017.

Materials and Methods

This is a descriptive-analytical type of cross-sectional study conducted on 390 women who have recently given the birth and admitted to health centers (rural and urban) of Yazd city of Iran. The multistage cluster sampling method was used in a way that among the health centers, 63 health centers were randomly selected and one health base was selected from each health center. The inclusion criteria of the study included having Iranian nationality, having reading and writing literacy, gestational age more than 25 weeks, and willingness to participate in the study. The exclusion criteria of the study included women with high-risk pregnancy (no complication during pregnancy, spotting, bleeding, etc.) and those who did not fill out the questionnaire completely.

Multi-section questionnaire was used in this study to collect the data. The first section consists of the demographic information (age, job, education, monthly income of the family, and living place). The second section of the questionnaire included the maternal health literacy questionnaire. It included 14 items, scored on a 5-point Likert scale (I strongly agree= 5, I agree = 5, I have no idea = 3, I disagree = 2, and I strongly disagree = 1), with a range of 14-70. This questionnaire is used uniquely for pregnant women, developed by Mojoyinola and standardized by Peyman et al in Iran (13, 14). Content validity of this questionnaire has been calculated 0.96 and its reliability has been calculated 0.89 using Cronbach's Alpha coefficient. The third section of the questionnaire included 12 questions and the questions were responded on a 5-point Likert scale (I strongly agree= 4, I agree = 3, I disagree = 2, and I strongly disagree = 1), with a range of 12-14. Validity and reliability of the health literacy and pregnancy outcomes questionnaire were confirmed in the study conducted by Kharazi et al (12). After approval of the proposal by the research committee of university and obtaining permission to enter the health centers of Yazd, the researcher coordinated with officials of each center. Then, the researcher provided the mothers have recently given birth to fill out them. In a phone call, mothers were asked to refer to center in a specified day to fill with the questionnaires. First, the research goals were explained to them and they completed the informed consent form. Then, they filled out the questionnaires with the help of health caregivers. It should be noted that the subjects were allowed to withdraw the study at any stage of the study in order to observe and protect the spiritual rights of them. Data were analyzed by using SPSS (ver.21). Normality of the data was analyzed using Kolmogorov-Smirnov statistical index. Independent t-test, ANOVA and Pearson correlation coefficient tests were used.

Ethics approval and consent to participate: All participants were informed about the aims of study. Informed consent was obtained from all the participants; The Ethics Committee of Isfahan University of Medical Sciences confirmed the study.

Results

The results showed that the mean age of mothers was 31.25 years (minimum of 16 years and a maximum of 45 years). In terms of education, 60.60% of them had high school and below it and 88.49% of them were housewife and the rest of them were employed. In terms of living place, 88.49% of them were living in urban areas and the rest of them were living in rural areas. The relationship between demographic information and the level of maternal literacy was presented in Table 1. Table 1 shows that maternal health literacy had a significant relationship with the education level of mothers.

Table 1: Comparison of the relationship between demographic characteristics and health literacy level in the participants

Variable		Frequency		Health literacy	
		n	%	Mean±SD	p-value
Age	19 years and less	31	7.93	51.67±8.4	0.07
	Over 19 years	360	92.07	54.92±9.93	
Education	Illiterate and low level of literacy	28	7.16	43.14±11.69	0.0001
	High school and lower	237	60.61	53.56±8.94	
	academic	126	32.23	59.3±8.32	
job	housewife	346	88.49	54.72±9.59	0.74
	employed	45	11.51	54.22±11.74	
Monthly family income	15 million Rials and less	242	61.89	54.97±10.28	0.42
	Over 15 million Rials	149	38.11	54.15±9.11	
Living place	urban	330	84.4	54.49±9.71	0.41
	Rural	61	15.60	55.6±10.56	

Table 2: Relationship between pregnancy-related care and the level of maternal health literacy in the participants

Variable		frequency		maternal health literacy	
		n	%	mean	p-value
Start of pregnancy care	First trimester	260	66.50	55.1±9.72	
	Second trimester	105	26.85	53.44±10.15	0.33
	Third trimester	26	6.65	55.19±9.8	
Number of cares received during pregnancy	5>	88	22.51	54.15±9.87	0.74
	5	76	19.44	54.27±9.97	
	6≤	227	58.06	54.99±9.83	
Maternal weight gain during pregnancy	normal	127	32.48	53.35±6.63	0.004
	Less or more than normal	264	67.52	55.29±9.9	
Knowledge of pre-pregnancy weight	yes	335	85.9	55.81±9.26	0.0001
	no	55	14.10	48.01±5.66	
Start to use folic acid tablet	Before pregnancy	24	6.15	43.7±46	0.0003
	First trimester	359	92.05	47.7±5.76	
	Second trimester	7	1.79	44.2±6.89	
Start to use iron tablet	Before pregnancy	5	1.28	57.6±10.06	0.05
	First trimester	21	5.37	59.19±7.83	
	Second trimester	359	91.82	54.46±9.92	
	Third trimester	6	1.53	48.16±6.27	

With regard to pregnancy care and its relationship with health literacy, Table 2 shows that 85.9% of pregnant women who had knowledge on their pre-pregnancy weight significantly obtained higher health literacy scores than the women who did not have knowledge on their pre-pregnancy weight (p = 0.0001). In the present study, 26.27% of women had a history disease or anomalies in pregnancy, and these mothers obtained health literacy score significantly, compared to healthy mothers (0.005).

With regard to the relationship between pregnancy and health literacy, Table 2 shows that maternal health literacy was significantly associated with mother's knowledge of pre-pregnancy weight, mother's weight gain during pregnancy, and having diseases before the pregnancy, but it did not show a significant relationship with other health-related information.

With regard to relationship between pregnancy cares in the area of using folic acid, iron, and multivitamin supplements and health literacy, results showed that women who started using supplements at the right time had higher levels of pregnancy health literacy and statistical test has shown this relationship significant with regard to the use of folic acid and multivitamin. The results showed that the mean score of health literacy was 54.67 ± 9.85 and the mean score of pregnancy outcome was 47.41 ± 6. Pearson correlation test showed a significant correlation between health literacy and pregnancy outcomes (R=0633, P<0.0001).

In this study, about 95% of neonates had weight 2500 g and more and maternal health literacy score was 54.9 ± 78.81, while maternal health literacy level in mothers with a birth weight of less than 2500g was 52.10±69.47 and the statistical test did not show this difference significant (p=0.32).

Results on breastfeeding showed that majority of neonates (90.4%) were exclusively breastfed and the health literacy of their mothers was 54.10 ± 81.61 and only 1.02% of them were exclusively fed with baby formula, which their mothers' health literacy was 58.6 ± 8 and 8.44% of the mothers fed their neonates with both breast milk and baby formula. However, the results of statistical tests showed that there was no significant statistical difference between the maternal health literacy score and neonate feeding (p= 0.32).

Discussion

Results showed that the mean of health literacy score in women who have recently given the birth was 54.67 ± 9.85 in the range 14-70. The statistical test showed that the level of maternal health literacy level had a significant relationship with the education level of mothers and the level of maternal health literacy was high in mothers with the academic level of education. Most of the Iranian mothers in today's society have an academic level of education and it can be one of the factors, which can enhance the level of knowledge of women and their health literacy on pregnancy and care. This association has also been observed in the study conducted by Moshki et al in pregnant women of Gonabad city (17). In the mentioned study, health literacy showed a significant relationship with the level of education (17). Most studies conducted on health literacy of pregnant women indicate a positive and significant relationship between the level of health literacy and level of education (18-21). Another important factor affecting the health literacy of pregnant mothers is the financial status of households. In the present study, this relationship was not significant, but in a study conducted by Zaree on pregnant women of Minab city, the results showed women's health literacy has a significant relationship with their family financial status (22,23). It seems that these issues to affect the health literacy of women living in southern parts of Iran, due to the lack of access to various media and the low level of education. In the mentioned study, the health literacy level of women was reported to be at the border level. The researcher recommended the use of simple materials along with pictures in training the health-related materials.

Based on the obtained result, people who were aware of their pre-pregnancy weight had higher health literacy score and this difference was statistically significant. In it clear that people who are more sensitive to their health are more aware of the current state of their bodies and these people are likely to seek to enhance their health knowledge. In addition, they pay more attention to their weight gain during pregnancy in order to keep their body fit. It causes that their weight gain during pregnancy to be at the allowed level. It prevents malnutrition and obesity in the future and it helps them give a healthy birth. This relationship has also been confirmed in other studies (25, 13, 12). The findings of this study also suggest that people with a history of disease or anomaly before pregnancy or during the current pregnancy show higher health literacy than other people. Having the history disease causes one to seek information and knowledge about the disease, improvement and prevention and, consequently, it leads to higher health literacy. This finding has been clearly seen in studies conducted on the relationship between health literacy and various diseases (26-28). The results of this study showed that more than half of pregnant women started their care since the first trimester, which is consistent with the result of the research conducted by Ghanbari et al (29). Based on the results obtained, the health literacy score in all three groups (start of care since the first, second and third trimester were almost same and there was no statistically significant difference in this regard. Results showed that more than 50% of pregnant women received more than 6 cares during pregnancy.

The results of this study showed that the health literacy score in the three groups of care (received care less than 5 times, received care 5 times, and received care 5 times and more) was almost the same and there was no statistically significant difference in this regard. Therefore, health care providers should emphasize more on increasing pregnancy care and encourage them to receive more cares by controlling pregnant women. In addition, it can be stated that one of the reasons for not referring the health centers by mothers to receive the care might be a mismatch between these activities and their needs or these activities are performed at a level lower than that their expectations. To the researcher's opinion, it causes mothers to refer to midwifery specialists to receive more specialized services, which are consistent with their needs. Hence, policymakers should pay attention to these health issues in order to bridge this gap by providing services based on the clients' needs. While no significant relationship was found between health literacy and ferrous sulfate consumption, the results showed that people who had lower health literacy used this supplement late. This result was also seen in the study conducted by Izadirad et al, Kohan et al, and Kharrazi et al (29, 13, 12). The use of an iron supplement should start from the end of the 16th week to prevent fetal complications. Anemia in pregnancy is an important risk factor in increasing maternal and neonatal mortality and increasing the prevalence of low birth weight and premature births.

The World Health Organization has introduced iron supplement prescription at the onset of the second trimester of pregnancy as a major strategy in combat with anemia during pregnancy in developing countries (30). This issue is also seen with regard to the use of other supplements, such as folic acid and multivitamins, and women with higher levels of literacy have taken appropriate action to start taking supplements. The results of studies conducted by other researchers (25 ,12) are also in line with those of our research. The results of the Pearson correlation test showed a positive and significant relationship between health literacy and pregnancy outcomes in the present study. In line with the results of the present study, Masoumy et al and Kharrazi et al showed a positive and significant relationship between the health literacy of pregnant women and the outcome of pregnancy (20,12). However, in a study conducted in Nigeria hospitals, the health literacy score of women who have recently given the birth and the outcome of delivery were not significantly associated. Its reason might be attributed to cultural differences in these two communities (30).

Conclusion

The results of this study suggest that the health literacy of women who have given birth recently and admitted to health centers in Yazd is relatively desirable. In addition, as health literacy score has a significant relationship with maternal education, pregnancy outcomes, pre-pregnancy knowledge of weight, history disease, and the start of using supplements, it is necessary to consider this issue in the major social, health and economic planning and policy-making in order to promote the health literacy of mothers. Health education professionals should select the best educational approach by planning and designing appropriate and effective educational programs in this field based on the target group and considering their level of skills and abilities.

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Competing interests: The authors declare that they have no competing interests.

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