

Relationship between Health Literacy and the Socioeconomic Status among primiparous pregnant women referring to comprehensive health services centers in Bushehr

ABSTRACT

Background and Objective: Health literacy is an important element in the ability of a woman to engage in activities that promote their health, family, or children's health. The health literacy of pregnant mothers can affect the pregnancy health and also the health of the baby by improving the quality of prenatal care. Understanding the most important factors affecting the health literacy of pregnant women is very important. Therefore, the present study aimed to determine the relationship between health literacy level and socioeconomic status among primigravida women in Bushehr, Iran.

Materials and Methods: In this descriptive cross-sectional study, 100 primigravida women referring to the comprehensive health centers of Bushehr were randomly selected. Health literacy standard questionnaires (FCCHL) and socioeconomic status questionnaire (SES) were used to collect data. Data were analyzed by SPSS v.22 software.

Results: The mean age of participants was 26.96 ± 4.84 . The highest score of health literacy was in the functional and the lowest score was in the critical domain. Employed pregnant women had better communicational ($p=0.002$, $z=-3.12$) and critical health literacy ($p=0.006$, $z=-2.938$). There was a direct and significant relationship between socioeconomic status and critical health literacy; participants with higher levels of socioeconomic status had a higher level of critical health literacy ($p=0.04$, $r=0.206$).

Conclusion: It is necessary to pay attention to women with low socioeconomic status in order to improve their health literacy level and provide health services and appropriate education.

Paper Type: Research Article.

Keywords: Health literacy, Socio-economic status, Pregnant women, Comprehensive Health services centers

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Introduction

Health information is an important source for helping people understand and engage in health status management. Although, health care technology are greatly developed, today's health information has become very complicated. Therefore, using the best information is necessary for promoting health rational decision. This requires the special skills which have been emphasized today as "health literacy" (1). Health literacy is a collection of reading, listening, analysis and decision-making skills and the ability to apply these skills in health situations that do not necessarily refer to education level or general reading ability (2, 3). Health literacy has different dimensions which provides a concrete framework for this concept including three levels of functional, communicative and critical (4).

These dimensions of health literacy were expressed by Nutbeam, a pioneer in research on health literacy. Functional health literacy is the primary level of health literacy and including sufficient skills in reading and writing, which is considered as necessary performance in routine and health-related lifestyles (1).

Interpersonal or communicative concept is considered as a advanced level of health literacy that includes cognitive and literacy skills. This practical as basis for data collection and extracting meanings from a variety of sources, and adapting them to individual factors across the social skills of people. The critical level of health literacy is also a more advanced level of literacy and cognitive skills that is combined with social skills and can be used to critically evaluate obtained information and utilizing this information to gain more control over the events and

living conditions. This classification has been considered by many scholars (5, 6).

According to Community Health and Counseling Services (CHCS) studies, people with low levels of health literacy are less likely to understand the written information and speech provided by health professionals and follow the given instructions. They also pay more medical expenses and have a poorer health status. Therefore, they have higher hospitalization and using emergency services and less preventive cares (3). Given the importance of health literacy to people's health, the WHO has recently highlighted health literacy as one of the greatest determinants of health (7).

Health literacy is important in different target groups and pregnant women are one of the most vulnerable and important sectors of society. The health literacy of pregnant women is a matter of concern for two reasons. First, pregnancy may be the first woman exposure to a health care system and moving to this complex system for the first time (even with adequate skills related to health literacy) can be frightening; and for this reason, women with inadequate health literacy significantly experience more difficulties in learning new information and following recommendations. The second reason is that the health status of a woman and her understanding of health information before pregnancy, during pregnancy, and during years of child evolution, directly affects the child health (8).

In general, health literacy is an important element in the ability of a woman to engage in health promotion activities and improve her health and the children. Without a sufficient understanding of health care information, it would be difficult or impossible for a woman

to make informed decisions that lead to the health and well-being consequences for herself and her families (9). Maternal health literacy is a cognitive social skill that shows the motivation and ability of women to access, understand and use information to maintain their children health (10). Maternal health literacy can affect the health and success of pregnancy by improving the quality of prenatal care (10, 11). In the study of Cho et al., mothers with a lower level of education were less likely to have prenatal care, and began their prenatal care in a later time. The babies of these mothers were more exposed to low birth weight and were mostly admitted to the Neonatal Intensive Care Units (12). Therefore, according to available evidence, mothers with high health literacy are less likely to have low birth weight children, early birth and neonatal death (11). The results of Shieh et al. showed that low health literacy has a negative effect on the preventive behavior of woman and their health care as well as their children training (13).

Unfortunately, despite the importance of health literacy in pregnant women, the results of the research show that health literacy level in pregnant women is not acceptable. Ghanbari et al. results showed that 30% of pregnant women had inadequate health literacy, 24.6% had borderline health literacy and only 42.4% of them had adequate health literacy. In general, limited health literacy has been a common problem among pregnant women, which prevents the proper understanding of health messages and recommendations (8). In Dadipoor et al. study, more than half of pregnant women (57.2%) had limited (inadequate and borderline) health literacy and this limited health literacy was related to poor care during pregnancy (14).

Regarding the importance of health literacy in the society, recognizing the most important factors related to the level of health literacy is essential, and it has always been of interest to the researchers. The level of health literacy in various studies was related to factors such as age, level of education, employment status and gender, marital status and family income (15). Socioeconomic status is one of the most important determinants of health which is determined by factors such as level of education, occupation and individuals income (16). In fact, the socioeconomic status can create different conditions of getting sick, the quality of disease acceptance, the behavior in the state of illness, the response to the disease and the quality of the treatment. Also, the socioeconomic status of a person in society is affected by various factors such as income limitations, nutrition, health, mental well-being, care, etc. (17). Since health literacy is considered as one of the most important determinants of health, the study of relationship between socioeconomic status and health literacy level in pregnant women can also provide significant results. Considering that few studies have been done in this field and regarding the importance of health literacy during pregnancy as an effective factor in providing maternal and fetal health, and since knowing the most important factors can be useful, the purpose of this study was to investigate the relationship between health literacy in three functional, communicative and critical domains with the socioeconomic status of pregnant women as a vulnerable group.

Materials and Methods

In this descriptive cross-sectional study, 100 primigravid women referring to the

comprehensive health centers of Bushehr were selected. According to Ghanbari et al. (18) for sample size calculation using the prevalence estimation formula with 95% confidence level and accuracy equal to 0.1, the sample size was obtained 95 and finally, 100 individuals participated in the study. Participants in the study were selected by multi-stage sampling. In the first stage using cluster sampling method, five health centers were randomly selected. Then, by entering the Integrated Health System, a total of 184 primiparous pregnant women who had inclusion criteria such as being primiparous pregnant and having reading and writing health literacy skills were selected to attend in this study. The research objectives were fully described for pregnant women and after obtaining informed consent, questionnaires were completed by 100 pregnant women with interview. The exclusion criteria was unwillingness to answer the questionnaire during interview. Health literacy standard questionnaires (FCCHL) and socioeconomic status questionnaire (SES) were tools for assessing health literacy in primiparous pregnant women. Socioeconomic Status Questionnaire (SES), including questions about education background and supervisor, employment status, family, insurance coverage and type, residence place and individual assets. Validity and reliability were approved in previous studies (19).

Health literacy standard questionnaires (FCCHL) has been developed based on the Nutbeam Health Literacy Model by Ishikawa et al. (Japan) in order to assess the level of health literacy among patients in three functional, communicative and critical domains. In fact, this questionnaire is an instrument that measures health literacy in

terms of communicative and critical domains along with the functional domain. In this instrument, 5 questions for the functional, 5 questions for the communicative and 4 questions for the critical domains are considered. The answer to each question in four - option Likert scale from never to always. The questions scores are gathered together in each domain and divided into the number of questions in that domain; thus the score of each domain is calculated. The minimum score of the individuals in this questionnaire is 1 and the maximum score is 4; and the higher score indicates higher health literacy in individuals and lower score indicates lower health literacy. This instrument has been validated in several languages of the world and has been used in numerous studies. In Reisi et al. study, the internal consistency of the questionnaire was obtained 0.82, 0.91, 0.80, and 0.76 for the whole instrument, functional, communicative and critical domains, respectively (21). Data were analyzed by SPSS v22 and descriptive statistics methods including frequency, frequency percentage, mean and standard deviation were used to describe each of the demographic variables. After assessing the status of the normality of the data and considering the lack of data normality, analyzes were performed using the Spearman correlation coefficient to determine the relationship between health literacy variables in different domains with the socioeconomic status. To determine the relationship between qualitative demographic variables with different levels of health literacy, Mann-Whitney test was used. The Principal Component Analysis (PCA) was used to categorize the socioeconomic status, and this variable was divided into low, average and high socioeconomic levels.

Results

Participants characteristics

The mean age of women was 26.96 ± 4.84 . The minimum and maximum age of women was 16 and 45 years, respectively. The average education years of the participants and their spouses were 14.06 ± 3.70 and 13.86 ± 3.62 , respectively. 22% of the participants were employed and 78% were unemployed. Wanted Pregnancy was reported in 93% of women. 5% of participants had a history of infertility and treatment of infertility.

Socioeconomic status of the participants

The family size or the number of people living with pregnant women was 1.35 ± 1.06 . 91% of the participants were under insurance coverage and 27% had supplementary insurance. 35 percent owned building, 69 percent had personal cars and 88 percent had LED or LCD. 95% of pregnant women had a vacuum cleaner and 85% had a washing machine at home. 54% had PC, 43% had freezer and only 16% had dishwasher.

Health literacy status and its relationship with other variables

The total mean score of health literacy was 3.66 ± 0.37 , the minimum score of the participants was 1.93 and the highest score was 4. Among the three domains of health literacy, critical health literacy had the lowest score (Table 1).

Among the individual characteristics, the

age of pregnant women had a significant relationship with the critical health literacy level ($r = 0.220$, $p = 0.028$) and total health literacy ($r = 0.204$, $p = 0.042$). The education level of pregnant women had a direct and significant relationship with communicative health literacy ($p = 0.000$, $r = 0.360$), critical health literacy ($r = 0.398$, $p = 0.000$) and total health literacy ($r = 0.402$, $p = 0.000$). The spouse's education level was also associated with communicative health literacy ($p = 0.001$, $r = 0.324$) and critical health literacy ($p = 0.015$, $r = 0.242$) as well as total health literacy ($p = 0.004$, $r = 0.398$). There was a relationship between employment status with communicative health literacy ($p = 0.002$), critical health literacy ($p = 0.006$), total health literacy ($p = 0.003$) and employed pregnant women with higher health literacy. There was no significant relationship between variables such as marriage duration, infertility history and infertility treatment with three functional, communicative, critical, and total health literacy domains (Table 2).

According to the results, there was a significant relationship between socioeconomic status and critical health literacy ($r = 0.206 = 0.040$); people with a lower socioeconomic status had less critical health literacy. However, there was no significant relationship between socioeconomic status and functional and communicative health literacy (Table 3).

Table 1: The mean, standard deviation and possible range of health literacy scores of primiparous pregnant women in different domains

Variables	Mean \pm standard deviation	Possible Range
Functional health literacy	0.33 ± 3.77	0-4
Communicative health literacy	0.45 ± 3.53	
critical health literacy	0.71 ± 3.37	
total health literacy	0.37 ± 3.56	

Table 2: Demographic characteristics of primiparous pregnant women and their correlation with functional, communicative and critical health literacy

characteristics	Functional health literacy		Communicative health literacy		Critical health literacy		Total health literacy	
	p	r	p	r	p	r	p	r
1								
(Age(year	0.594	-0.054	0.181	-0.135	0.028	0.220	0.042	0.204
(Education(year	0.355	0.93	0.000	0.360	0.000	0.398	0.000	0.402
Spouse (Education(year	0.224	0.123	0.001	0.324	0.015	0.242	0.004	0.286
Duration of marriage ((month	0.906	-0.012	0.219	-0.124	0.655	-0.045	0.717	-0.037
2	P	Z	P	Z	P	Z	P	Z
Employment status	0.964	-0.045	0.002	-3.12	0.006	-2.731	0.003	-2.936
History of infertility	0.381	-0.87	0.225	-1.21	0.311	-1.01	0.323	-0.988

Table 3: Mean, standard deviation and correlation between functional, communicative and critical health literacy with the socioeconomic status of primiparous pregnant women

Variables	Functional health literacy	Communicative health literacy	Critical health literacy	Total health literacy
High socioeconomic status	0.25 ± 3.82	0.52 ± 3.52	0.69 ± 3.50	0.35 ± 3.61
Middle socioeconomic status	0.28 ± 3.75	0.34 ± 3.58	0.62 ± 3.42	0.25 ± 3.58
Low socioeconomic status	0.44 ± 3.74	0.48 ± 3.49	0.81 ± 3.18	0.47 ± 3.47
	r=0.018 (P=0.859)	r=0.056 (P=0.581)	R= 0.206 (P=0.040)	r=0.143 (P=0.191)

Discussion

Prenatal care is the most important guarantor for maintaining maternal well-being and a healthy baby (22). Maternal health literacy is an important determinant for prenatal care and mother- child health. Therefore, it is important to know the most important factors related to maternal health literacy (23). The present study aimed to determine the relationship between health literacy level and socioeconomic status of primiparous pregnant women. Based on our knowledge, this study is the first research that evaluates the health literacy of pregnant mothers in three domains (functional, communicative and critical) and assess the relationship

between socioeconomic status with this component.

Based on the results of this study, the health literacy rate of pregnant women was generally acceptable (3.56 ± 0.37 out of 4) and functional health literacy had the highest score, and critical health literacy had the lowest score. These results are consistent with other studies (24, 25), and with health literacy conceptual framework presented by Nutbeam. In fact, Nutbeam has provided a framework for health literacy, in which individuals usually have more functional skills, including more simple reading, writing, and reading comprehension skills. Subsequently,

there are communicative health literacy and then critical health literacy requiring more sophisticated skills such as proper communication and the ability to analyze health-related information (4). Contrary to these results, in a study conducted on diabetic patients, the lowest level of health literacy was related to functional health literacy (5). This results can be attributed to the differences in the characteristics of the samples. In the mentioned study, the subjects were old diabetic patients, who may experience vision problems due to their age and illness and these factors can affect their skills related to functional health literacy which mainly includes reading and writing skills. In the study of Lai et al., which was performed on diabetic patients with kidney problems, functional health literacy had the lowest score. In the last study, the researchers mentioned two reasons: the problems of these patients that could affect the low level of their functional literacy and the chronicity of their disease and involvement with their illness for an average duration of more than 20 years. This long time can affect the experience transfer, the exchange of information and the receipt of information from various channels (communicative health literacy) as well as the ability of individuals to analyze information (critical health literacy) and their higher level of communicative and critical health literacy in comparison with functional health literacy (26).

Based on other findings of this study, the age of pregnant women was associated with their critical health literacy level; older pregnant women had a higher level of critical health literacy. Health literacy has reversed relationship with age in most studies (27, 28). However, considering that the target

group of the study was pregnant women with an average age of 26.96 ± 4.84 , the study population in general were young women whose higher age can lead to higher education, better experiences and more abilities. In this study, more educated pregnant women and those whose husbands had higher levels of education, had higher communicative and critical health literacy, that the same results has been reported in numerous studies (3, 7, 8, 11, 22 29, 30).

Although functional health literacy (which includes skills such as reading and writing) can be the most relevant dimension of health literacy to education level, since the target group in the study were young women who had high levels of education, this difference was not observed in this dimension of health literacy and appeared at other levels. However, these women who generally had similar education could be different in terms of employment or income. Therefore, differences in the level of communicative and critical health literacy in people with higher education can be attributed to other factors such as their job status.

Also, the results of this study showed that employed women had a higher level of health literacy. In line with the results of this study, Ghanbari et al. (8) and Zaree et al (7) also related the health literacy of pregnant women to their employment status. This finding may be due to the fact that the working environment is likely to allow people to discuss, share and analyze information about their own issues, including their health problems.

To achieve the main objective of this study, the socioeconomic status of women was assessed by principal component analysis (PCA) method. The review of existing studies

and documents suggests that the subject of the socioeconomic status is very complex and there is no golden standard method for measuring it (31). Also, measuring the variables related to some of these dimensions such as income, occupation and household expenses is simply not possible or reliable. Therefore, researchers have to use other proxies as alternatives and agents. For example, asset and living conditions can be used as income proxy; so that the interviewer collects information by observing and recording the family condition or by asking very simple questions. However, measurements based on only one proxy can lead to unreliable and unstable results. So, the best idea is to integrate some of these proxies together and control various measurement errors. The PCA for making the socioeconomic status variable has been used repeatedly in studies of this area (32-34), which is a method for reducing the number of variables to a lesser extent without losing a lot of information (35). In this study, after determining the socioeconomic status of women, the results showed that the socioeconomic status of women had a significant statistical relationship with their critical health literacy level and people with lower socioeconomic status had less critical literacy. Consistent with the present study, the results of a study in Japan showed that people with lower socioeconomic status had less critical health literacy (15).

Since critical health literacy is considered as the highest level of health literacy, the inadequate level means that people do not have the skills needed to analyze health information and they are not able to recognize valid information from the invalid, and thus, they have no proper behavior and

performance. This is especially important in the health area and given the fact that today, unfortunately, people are bombarded by information and media through social networks and various messages available to them. It should be noted that any inaccuracy and inadequate analysis of health information can lead to incorrect decisions and behaviors that seriously endanger the health of individuals and sometimes at the expense of their lives. Therefore, the results of the present study and the discovery of the above relations suggest that it should be given special attention to people with low socioeconomic status; because their critical health literacy status is inadequate which is more closely related to their health behaviors and performances than other levels of health literacy. Also, It is also more important for women, and especially for pregnant women, because they are experiencing very important times and special conditions. The results of a review study by Stormacq et al. indicated that health literacy is related to the socioeconomic status of individuals, and this factor can play a role in mediating the relationship between the socioeconomic status and individuals health (36).

Overall, it seems that higher socioeconomic level, which can be seen as key components such as education level, occupation and assets, is likely to affect the delivery of complex skills needed to have critical health literacy. Therefore, people with higher critical health literacy can better manage their health by careful analyzing and rational decision-making in the health area. Therefore, it seems that having higher critical health literacy which is related to the socioeconomic status of pregnant women (based on the results of this study) can play a key role in pregnant

women health and their empowerment for prenatal care. As a result, policies and plans promoting the health literacy level in women, and in particular women with poor economic status tailored education can be effective in moderating this situation and reducing inequalities in health.

In this study, the Principal component analysis (PCA) was used to determine the socioeconomic status of individuals, which can be considered as one of the strengths of the present study; because there are many advantages to using this method, including the fact that measurement problems such as recall bias or data measurement time are avoided (37). On the other hand, considering that most studies use health literacy tools that only assess the functional health literacy of individuals; in this study, a multidimensional instrument with the ability to measure health literacy in functional, communicative and critical dimensions was used. This could be a better indication of the health status of individuals in general. The low sample size as well as measurement tools are among the limitations of this study. Also, since the studied population was covered by comprehensive health service centers, it might be possible to generalize the results to the entire community with doubt. According to the Health Department of Bushehr province, more than 90% of the people are covered by these centers. In this research, the population of the study was randomly selected from among the covered subjects and then by making telephone call, they were asked to refer to the centers for inclusion in the study. According to the average response rate, these results can be described as the status of the whole population of the first pregnant women in the city of Bushehr.

Regarding the average response rate, these results can be considered as a state of the whole population of the primiparous pregnant women in Bushehr.

Conclusion

Overall, the results of this study showed that the functional health literacy had the highest level and critical health literacy had the lowest levels of health literacy in pregnant mothers. Communicative and critical health literacy as levels of health literacy that require high level skills such as strong communication, and analysis power were low in mothers with lower education levels, mothers whose spouses had lower education level and unemployed mothers. Since health literacy is considered as a key determinant for the health of individuals, it should be emphasized more on considering pregnant mothers who spend their sensitive periods of life and the slightest negligence in this period can endanger their health and their fetus. Based on the results of this study, among the three dimensions of health literacy, the critical health literacy as the highest level of health literacy is related to the socioeconomic status of pregnant mothers. Therefore, it is necessary to pay attention to mothers with poor socioeconomic status and to provide policies for improving their level of health literacy or providing appropriate services for them in order to achieve health equity. Also, given the changing paradigm of receiving health information on the internet and social networks, the need for targeted policy making to exploit the potential of cyberspace to support the information and education of this important population by health professionals and healthcare organizations should be emphasized more.

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