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Original Research

Health Information Seeking Behavior of Pregnant Women Referring To Health Centers and Its Relationship with Their Health Literacy Level

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Abstract

Improving information retrieval skills and promoting maternal health literacy of pregnant women leads to their ability to access, understand, and use health information. It leads to maintaining and promoting the health of pregnant women. The current study aimed to investigate the relationship between health literacy and the health information-seeking behavior of pregnant women referring to health centers in Bushehr. This applied research is carried out in a survey method. The statistical population of this study is 271 pregnant women referring to health centers in Bushehr who were selected by stratified random sampling method. Data were collected using health information behavior and health literacy questionnaires and analyzed by SPSS software version 24. Findings showed that 25% of women had good health information-seeking behavior. Also, 51% of pregnant women had inadequate health literacy, 25% had border health literacy, and 24% had adequate health literacy. The findings also confirmed a significant relationship between health information-seeking behavior and health literacy (P = 0.011). As the low and unfavorable health literacy among pregnant women in Bushehr municipality, health policymakers should pay more attention to improving such a situation. If we accept that poor information-seeking behavior alongside low health literacy causes the wrong health information, then it can be advised that health information-seeking skills education becomes a part of the policymakers' planning. Furthermore, they have to provide proper educational materials with understandable language to enable pregnant women.

Keywords: Health Information Behavior, Health Literacy, Pregnant Women.

Introduction

Today, individuals need to gather information from their surrounding environment to promote the quality of their lives. In this regard, they adopt special resources and methods considering information needs. Meeting information needs requires various abilities, competencies, and different types of literacy (Kanj & Mitic, 2009). One of the primary skills to search and retrieve beneficial health information is acquiring information retrieval skills in health (i.e., health information retrieval behavior). Health information-seeking behavior (HISB) refers to individuals' purposeful behavior to meet their needs for health information and represents how they search, detect, and exploit disease information (Jung, 2014, Lambert & Loiselle, 2007).

Research on HISB and the need for pregnancy-related health information is very important since pregnancy is considered one of the most sensitive and critical phases in women's lives. During pregnancy, a woman, as a healthy and natural person, carries another human being in her womb. So, she needs further attention and cares due to variations in her psycho-cognitive (e.g., enhanced levels of anxiety and depression) and physical (e.g., weight gain and cardiac output) needs (Panahi, Mahmoudvand & Sedghi, 2020). Moreover, given their unique responsibilities and physical and mental conditions, they need information about pregnancy, birth, and parenting collected from different resources. Acquiring medical and health information about pregnancy promotes women's knowledge, decreases uncertainty levels, reduces stress during exposure to medical problems, and increases their interaction with their doctors (Barnes, Barclay McCaffery & Aslani, 2019a). During the same period, inadequate care for pregnant women poses health problems and negatively affects the baby. Such detrimental effects include abortion, stillbirth, premature birth, low birth weight, and many other problems, which impose costs on these individuals (Zibellini, Muscat, Kizirian & Gordon 2021). Pregnancy care encompasses the proper implementation of principles during pregnancy and is assumed one of the essential health indicators and issues (Kharazi, Peyman & Esmaily, 2018). In other words, the most significant guarantee to maintaining pregnant women's health in giving birth to a healthy baby is to raise their awareness of pregnancy-related care and implement such knowledge (Yee, Niznik & Simon, 2016). Mothers should be equipped with health information-seeking skills to promote their healthcare awareness.

During pregnancy, women's need for information encourages them to seek information. In this regard, the collected data would help women make decisions in pregnancy and postpartum care if the search for information and information-seeking skills are acceptable. Raising pregnant women's health awareness promotes their ability to engage in self-care and preventive health behaviors (Ojewole & Oludipe, 2017). Furthermore, initiating on-time prenatal care and following them during pregnancy promotes pregnancy outcomes. Although health centers provide pregnancy care, factors such as low awareness and health literacy among pregnant women prevent proper and timely care reception during pregnancy (Kharazi et al., 2018). Health information and recommendations provided to pregnant women should enable them to detect problems during pregnancy and encourage preventive behaviors, ultimately guaranteeing safe delivery and a healthy baby (Ojewole & Oludipe, 2017). Good maternal health literacy (MHL) is an influential factor in this issue. MHL is a cognitive and social skill representing mothers' motivation and ability to access, understand, and employ information to maintain the health of themselves and their children (Kharazi et al., 2018, Yee et al., 2016). Such literacy encompasses special knowledge and social skills to diagnose pregnancy risk factors, healthy

lifestyles, and proper nutrition during pregnancy. MHL also affects the pregnancy outcome by promoting the quality of prenatal health care (Ohnishi, Nakamura & Takano, 2005, Pirdehghan, Eslahchi, Esna-Ashari & Borzouei, 2020). Women with lower MHL remarkably experience more difficulties in seeking and learning new information. Furthermore, they have more problems in tracking different guidelines and pieces of training as MHL is associated with mothers' potential to acquire, process, and recognize basic information and services to make appropriate health decisions (Shieh & Halstead, 2009, Lupattelli, Picinardi, Einarson & Nordeng 2014, You, Wolf, Bailey & Grobman, 2012, Grimes, Forster & Newton, 2014, Carolan, 2014, Gazmararian, Elon, Yang, Graham& Parker, 2014). Accordingly, it is paramount to consider increasing health information-seeking skills and the role of information skills in promoting health literacy and recognize the relationship between increasing information retrieval skills and MHL.

Some studies have been conducted on the mentioned-above problem. Shieh, Mays, McDaniel & Yu (2009) studied the relationship between the health literacy of low-income pregnant women and their health information-seeking behavior. The findings showed that pregnant women with a low income used the Internet less than pregnant with a high income. Furthermore, pregnant women with low health literacy experienced more obstacles in the information-seeking process. Shieh, Broome & Stump (2010) concluded no significant relationship exists between health literacy and health information seeking, but health literacy could influence the fetus's health condition. Furthermore, there was a direct and significant relationship between the HISB of low-income pregnant women and the fetus's health condition and self-efficacy. As a result, by increasing the health information seeking of low-income pregnant women, their self-efficacy improved with more success in fetus health conditions. Barnes et al. (2019a) studied women's health literacy and information-seeking methods. The findings revealed that pregnant and breastfeeding women had optimal health literacy. They highlighted physicians as the best choice to obtain health information regarding supplementary drugs during pregnancy and breastfeeding.

According to the previous studies, the authors decided to investigate the relationship between the HISB of pregnant women in Bushehr and health literacy. The study explores the health information seeking of pregnant women referred to Bushehr health centers, their health literacy, and the probable relationship between these two items.

Research Questions

1. What is the health information-seeking behavior among the pregnant women referred to Bushehr health centers?
2. What is the state of health literacy among the pregnant women referred to Bushehr health centers?

Research hypothesis

There is a significant relationship between health information seeking and health literacy of the pregnant women referred to Bushehr health centers.

Materials and Methods

The present study was a descriptive-analytical survey. The study's statistical population encompassed all pregnant women referred to 17 comprehensive health clinics and health centers in Bushehr (N=1500). Further, random, and stratified sampling methods were adopted to select

the samples from the concerned centers in Bushehr. According to the Cochran formula, 271 pregnant women referring to Bushehr health centers were selected using random sampling. Each center was assumed a stratum, and the sample size was determined regarding the number of pregnant women with health records in each center to the total number of the research sample. Considering some inclusion criteria (namely Iranian, literacy, a health record in the SIB system for prenatal care, and no medicine and paramedical education), the desired sample size was reached.

The required data were collected using the MHL Scale and the HISB Questionnaire. The MHL Scale, a standard tool measuring MHL, is in English. It was developed and used in Nigeria. The scale is already localized, and its validity and reliability are confirmed (Kharazi, Peyman & Esmaily, 2016). This questionnaire has 14 items in two components, including visual and auditory comprehension (items 1-10) and self-management (items 11-14). The health literacy items are scored using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree)." Based on the proposal of health literacy tool designers and determining the cutting points of those research units whose total health literacy score was equal to and more than 75% of the maximum achievable score (<52), as adequate health literacy, a score between 60 and 75% of the maximum achievable score (42-52) was classified as borderline health literacy and score less than 60% of the maximum achievable score (<42) as inadequate health literacy (Ghanbari, Majlesi, Ghaffari, Majdabadi, 2012).

The present study used the HISB Questionnaire to measure pregnant women's HISB. It is in Persian, and its validity and reliability are confirmed (Lalazaryan, Zare-Farashbandi, Rahimi & Hasssanzadeh, 2015). The HISB components addressed in this questionnaire are as follows: Behavior, cognition, and interpersonal interaction in pregnancy health information-seeking (17 items), information resources (26 items), active and inactive reception of information (5 items), and effect of health information on diseases from patients' perspective (9 items). The questionnaire is scored on a 5-point Likert scale ranging from one (strongly agree or very low) to five (strongly disagree or very high). Those units whose total score of information retrieval behavior was higher than and equal to the 75th percentile were classified as optimal information retrieval behavior, Scores lower than the 75th are considered undesirable information retrieval behavior (Sharma, Arora & Sharma, 2014). After assessing the validity of the questionnaires and making some modifications according to 11 experts' comments, Cronbach's alpha coefficients confirmed the reliability of the questionnaires (0.892 for the MHL Scale and 0.813 for the HISB Questionnaire). The questionnaires were distributed among pregnant women referring to the concerned health centers. When the research proposal was accepted, the code of ethics(IR.BPUMS.REC.1399.030) was received from the ethics committee of Bushehr University of Medical Sciences. Then SPSS software version 24 was used to analyze the collected data. In this regard, the Kolmogorov-Smirnov test was used to assess the normality of the collected data. Then descriptive parameters (i.e., mean, frequency, percentage, and standard deviation) were determined to analyze the data. Chi-square and Fisher's exact tests were used to examine the relationship between qualitative variables. In this study, $p= 0.05$ was set as the significance level.

Results

As presented in Table 1, the mean scores are 60.09 ±7.66for cognition and interpersonal interaction in pregnancy health information seeking, 55.37±12.92 for information resources, and 47.91±12.66 for active and inactive reception of information, and the total score of HISB is 163.37 ±25.93.

Table 1

Mean score and standard deviation of the components of information-seeking behavior and the effect of health information in pregnant women

HISB components	Mean	SD	Min.	Max.
Cognition and interpersonal interaction in pregnancy health information-seeking	60.09	7.66	40.00	85.00
information resources	55.37	12.92	32.00	113.00
active and inactive reception of information	47.91	12.66	17.00	85.00
The total score of HISB	163.37	25.93	94.00	270.00

Regarding the frequency of HISBs in pregnant women, Figure 1 indicates that only 25% of the participants had acceptable levels of HISBs, and the others had unacceptable levels of HISBs.

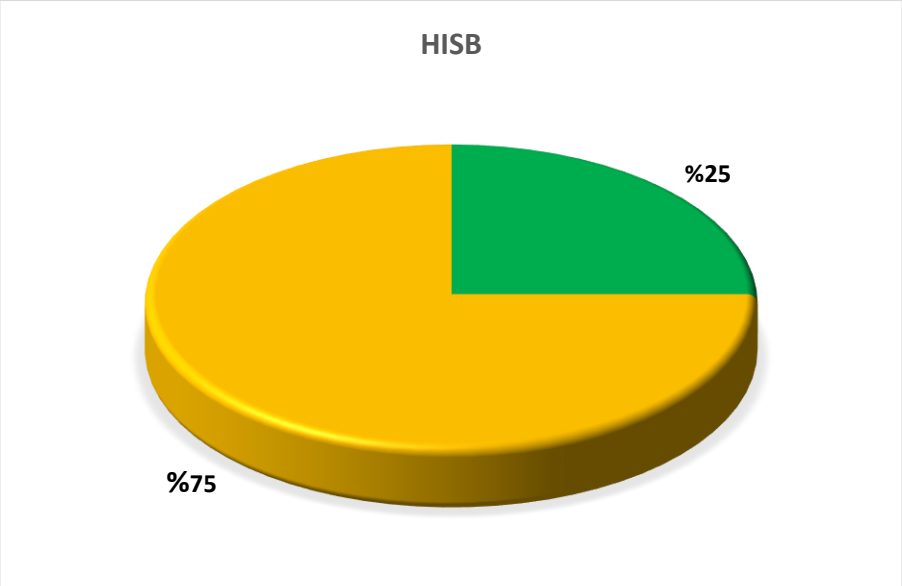

Figure 1: Frequency of HISBs in pregnant women referring to Bushehr health centers

Moreover, descriptive statistics were used to describe the scores of the MHL components (namely visual and auditory perception and self-management) and total MHL score to assess the MHL levels of pregnant women referring to Bushehr health centers (Table 2). As presented in Table 2, the mean scores of visual and auditory perception and self-management were 43.52 ± 5.51, was 16.57 ±2.61, respectively. The total MHL score was 60.10 ± 7.50.

Table 2: Mean score and standard deviation of health literacy in pregnant women

MHL components	Mean	SD	Min.	Max.
visual and auditory perception	43.52	5.51	14.00	50.00
self-management	16.57	2.61	6.00	20.00
total MHL score	60.10	7.50	20.00	70.00

Figure 3 shows the pregnant women's MHL levels, according to which 51%, 76%, and 24% of the participants had inadequate, borderline, and adequate levels of MHL.

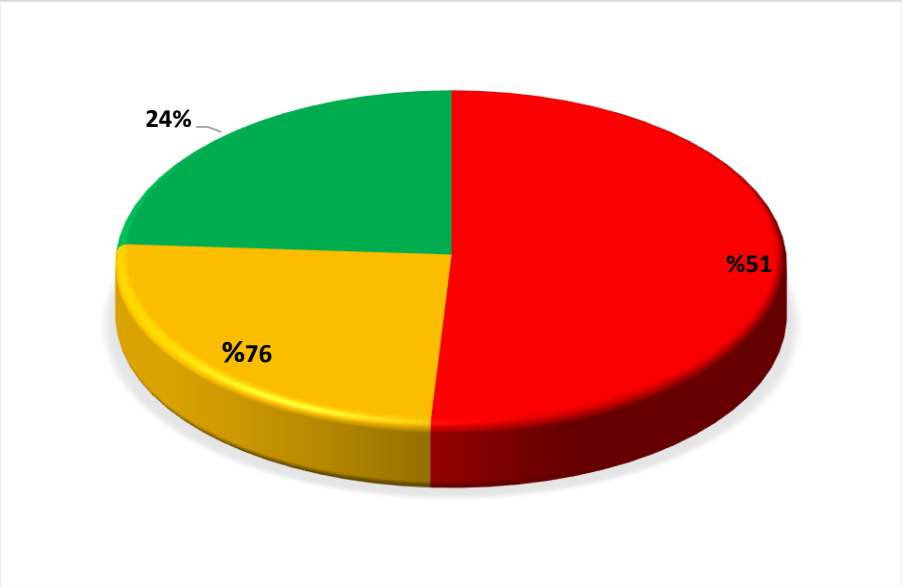

Figure 3: Frequency of MHL in pregnant women referring to Bushehr health centers

Finally, a Chi-square test was used to detect the relationship between acceptable and unacceptable HISBs and MHL levels in pregnant women. As presented in Table 3, a significant relationship exists between HISB and MHL (P=0.011) as increasing the acceptable level of HISB increased MHL. Among women with unacceptable HISBs, 55.7% had inadequate MHL, 21.3% had borderline MHL, and 23% had adequate MHL. Moreover, among the participants with acceptable HISBs, the frequency of inadequate, borderline, and adequate MHL levels were 38.2%, 36.8%, and 25%, respectively.

Table 3
Relationship between HISBs and MHL in pregnant women

Variable		MHL			*p*-value
		Inadequate	borderline	adequate	
		(%) N	(%) N	(%) N	
HISBs	unacceptable	128 (55.7)	49 (21.3)	53 (23.0)	0.011
	Acceptable	29 (38.2)	28 (36.8)	19 (25.0)	

Discussion

Health literacy describes individuals' ability to understand information and resources provided by health professionals (Noblin, Wan & Fottler, 2012). This concept can be assumed

as a solution to promote health and quality of life. Accordingly, MHL is defined as mothers' motivation and ability to access, perceive, and utilize information properly to maintain their and their babies health. The exact definitions are presented in other studies (Kharazi et al., 2018; Yee et al., 2016). The present study hypothesized that pregnant women's health information reception methods and HISBs are correlated with MHL. In addition to determining the levels of MHL and HISBs in pregnant women referring to Bushehr health centers, the relationship between MHL and HISBs was also examined.

An investigation of HISB in pregnant women referring to Bushehr health centers revealed this variable's unfavorable level in most pregnant women. This finding contrasts with those obtained for women in cities such as Tehran and Ahvaz (Nasrollahzadeh, 2014; Sabaghinejad, Baji & Vejdani, 2021). The main reason explaining the unfavorable level of HISBs in pregnant women in Bushehr might be their fear of staying for a long time in health centers because of the COVID-19 disease. The other reasons contributing to the low level of HISBs are inadequate MHL, lack of ability to assess the validity of information, shyness, lack of opportunity to seek information, and presentation of information in a sophisticated language.

Among the HISB components, cognition and interpersonal interaction received the highest score, followed by information resources and active and inactive reception of information, respectively. This implies that the pregnant women in Bushehr performed better in terms of cognition and interpersonal interaction to seek health information; hence, they are relatively more successful in communicating with others alongside health information-seeking. As Bushehr pregnant women had a poor act in receiving the active and inactive health information, the health policymakers should provide the most reliable pregnancy-based materials actively or inactively.

Regarding MHL in pregnant women referring to Bushehr health centers, the findings indicated that only a quarter of pregnant women in Bushehr had adequate MHL, and the others had borderline or inadequate levels of MHL. Their poor literacy may be attributed to the pregnant women's low awareness level, little educational resources and the non-match between those resources and patients' awareness, abundant misinformation on the Internet and other virtual networks, health care personnel's inattention to MHL, and its impact on pregnant women's health, and the non-implementation of MHL promotion strategies in Bushehr health centers. This finding is in line with many other studies in terms of the majority of pregnant women with borderline or inadequate MHL (Kohan, Ghasemi & Dodangeh, 2007; Shieh et al., 2009; Kharazi et al., 2018; Hughson, Daly, Woodward-Kron, Hajek & Story, 2018; Asadi, Amiri & Safinejad, 2020).

Among the MHL components, visual and auditory perception scored higher than self-management; hence, self-management is the main problem of inadequate MHL in pregnant women in Bushehr. Pregnant women can partly understand health information but fail to use it efficiently. Then, the enabling process of pregnant women regarding increasing their self-control and self-management is considered one of the most prominent solutions to improve the pregnant's health literacy.

The findings also showed a direct and significant relationship between HISBs in pregnant women referring to Bushehr health centers and MHL. This means that pregnant women referring to Bushehr health centers, who had adequate levels of MHL, exhibited acceptable HISBs. Accordingly, the more acceptable HISBs in pregnant women are, the higher their MHL is. This finding confirmed the findings of some other studies (Shieh, et al., 2010; Pati, Feemster,

Mohamad, Fiks, Grundmeier & Cnaan, 2011; Barnes, Barclay McCaffery & Aslani, 2019b). It can be concluded that proper information-seeking behavior is the key to lifelong health literacy. Such ability causes an increasing potential among pregnant women to decide consciously toward pregnancy care, prevention, and facing the risks to the fetus's health alongside the quality of mother and fetus care.

Conclusion

Acceptable HISBs are intertwined with improving MHL. Individuals with acceptable HISBs have high levels of MHL. In contrast, individuals with high health literacy exhibit acceptable HISBs. Acquiring information retrieval skills and promoting health literacy among individuals promotes individuals' abilities to access, understand and utilize health information, which contributes to maintaining and promoting the health of the community, including pregnant women.

In this regard, the present study's findings indicated that MHL could be used as an effective strategy to promote pregnant women's HISBs. The health officials are thus recommended to develop more educational programs to promote the MHL level and empower pregnant women. The provision of health information and high-quality, cost-effective educational programs for pregnant women in health centers would help them improve their MHL and acquire acceptable skills in HISBs; As documented in the literature, many common complications of pregnancy and child health can be prevented by promoting MHL and teaching the desired information-seeking skills (Kharazi et al., 2018, Panahi et al., 2020).

Considering the low levels of MHL and unacceptable HISBs among pregnant women in Bushehr, health information providers are suggested to plan and develop effective educational programs tailored to the target groups' needs. Considering their abilities and skills, they should also select the best teaching approach to adopt better and more measures to promote MHL and teach effective HISBs, as a highly critical issue. Librarians trained in health should also hold MHL classes for pregnant women and their companions and teach them effective techniques to find their information. After measuring pregnant women's MHL and HISB, a comprehensive educational intervention should be developed to increase MHL and promote HISBs among pregnant women to encourage healthy behaviors and promote their lifestyles.

No conflict of interest

No conflict of interest was observed.

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