



ORIGINAL ARTICLE

Investigating the Use of Online Social Networks to Obtain Health Information among Pregnant Women

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Received 27/04/2025



Accepted for publication 18/05/2025



Published 30/06/2025



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ABSTRACT

This study aimed to explore various aspects of accessing health information through online social networks among pregnant women in Bojnurd. This cross-sectional study was conducted among 243 women from seven healthcare centers in 2024. Data were collected using an online questionnaire. The inclusion criteria encompassed proficiency in Persian and residency in Bojnurd, while the exclusion criteria included incomplete questionnaires. Descriptive statistics and analytical statistics were used for analysis, with a significance level set at $p < 0.05$. The mean scores for online social networks usage among the mothers were as follows: attitude (2.72), perceived ease of use (3.38), intensity of internet use (3.05), access to infant care information (2.95), childbirth-related information (2.89), pregnancy-related information (2.48), and postpartum information (2.13). A mean score above 3 indicates a desirable level. The results indicated that online health information seeking among the participating mothers was below average. Given the significant role of internet resources in alleviating maternal anxiety, it is recommended that websites provide necessary information for mothers.

Keywords: Social Networking, Consumer Health Information, Pregnant People, Distance Education, Health Literacy

INTRODUCTION

Pregnancy is associated with numerous physiological changes, and many women experience feelings of surprise, anxiety, fear, guilt, and hopelessness during pregnancy and after childbirth due to various pregnancy-related issues. If they had been informed about the chances of these challenges, they might have been better equipped to handle their emotional states (1). Essentially, pregnancy induces significant changes in the mother's body, leading to various questions and concerns. Therefore, it is crucial for pregnant women to receive information that addresses their health-related concerns. During this period, access to reliable and appropriate information sources is vital for enhancing their awareness and understanding of pregnancy-related issues, ultimately contributing to their health and that of the fetus (2).

The level of awareness among pregnant women is significant for two reasons. First, for some women, pregnancy may be their initial interaction with the healthcare system. Navigating this complex process for the first time can be challenging, even for those with a high level of knowledge and skills. Second, a woman's health conditions and her understanding of these conditions, both before and during pregnancy, have a direct impact on the health of the fetus and newborn (3). Some pregnant women do not receive adequate information during in-person visits with their physicians and therefore turn to information and communication technologies, including the internet, applications, online social networks, and electronic messaging platforms, to fill this information gap. Internet usage



has significantly increased in recent years, with rates ranging from 28% to 95%. In Italy, the usage rate is 95%, in Canada it is 93%, and in China it is 88%. (4-6).

In 2011, seeking health information ranked among the top three most common online activities (7-8). Statistics indicate that approximately 4.5% of global internet searches pertain to health topics. Numerous studies on health information-seeking behaviors among women worldwide have been published, demonstrating a heightened focus on this demographic. A study by Chermis et al. found that 70% of pregnant women consider midwife consultations the most effective source for fulfilling their information needs, while 17.2% rely on books and 28% turn to the internet due to insufficient information and unanswered questions (9). McAdriel noted that many pregnant women seek answers to queries that healthcare providers did not address by consulting the internet and social networking (10). The validity of health information found online is frequently questionable. Many users do not share health information obtained from the internet with healthcare specialists and instead utilize it independently (11, 12). One study indicated that first-time pregnant women prefer to use media and online social networks to obtain information related to pregnancy and the postpartum period (13, 14).

Although most pregnant women believe that online health information is reliable, a significant portion of this information is incorrect or outdated (13). Pregnant women often seek out online social networks for information when they are unable to meet their educational and therapeutic needs through healthcare providers. Given the significance of this demographic as a high-risk population and the scarcity of studies on online social network usage in Bojnurd, we aimed to conduct a study to evaluate health literacy among pregnant women who use online social networks in Bojnurd County.

METHODS

This cross-sectional descriptive-analytical study employed quota sampling from seven healthcare centers in Bojnurd, covering a total population of 228,199 people served by these health centers. The sampling process was conducted in two stages: first, non-probability quota sampling was employed, followed by convenience sampling. The sample size was calculated using the Estimating Population Mean formula, which included a 20% sample dropout rate of 250 people. Ultimately, 243 mothers entered the study. Seven questionnaires were excluded due to incompleteness, yielding a total of 243 pregnant women who participated in the study.

Data collection involved two questionnaires: a demographic questionnaire and a pregnancy characteristics questionnaire, which included ten questions. The online health information-seeking questionnaire for pregnant women, developed based on the Technology Acceptance Model, consisted of 33 questions across seven domains: user attitude (items 1-10), perceived ease of use (items 11-16), intensity of internet use (items 17-20), infant care information (items 21-23), childbirth-related information (items 24-25), pregnancy-related information (items 26-30), and postpartum-related information (items 31-33). Responses were measured on a five-point Likert scale: very much (5), much (4), somewhat (3), little (2), and not at all (1). A mean score above 3 indicated a desirable level in each



domain. The validity of the demographic and pregnancy characteristics questionnaires was established through content validity. The online health information-seeking questionnaire, grounded in the Technology Acceptance Model, was developed by Ahadzadeh et al. in Malaysia (15). Its psychometric properties were evaluated by Sabaghinejad et al. in Iran in 2021, revealing an overall Cronbach's alpha of 0.946, indicating high reliability. This questionnaire was further validated by Sabaghizadeh et al. in Ahvaz in 2021, with a Cronbach's alpha of 0.94(16).

Descriptive statistics were employed to generate frequency tables and calculate central and dispersion indices for the study variables, thereby characterizing the study population. Analytical statistical tests, including one-way ANOVA, were conducted using SPSS version 23, with a significance threshold set at $P < 0.05$. After collaborating with the directors of comprehensive health centers, the sampling process began in accordance with the established inclusion criteria, which required participants to be proficient in Persian, reside in Bojnurd, possess literacy skills, have internet access, be capable of using Online Social Network, and provide consent to participate in the study. Exclusion criteria encompassed incomplete questionnaires and participant withdrawal. The researcher visited the comprehensive health centers to explain the study objectives to eligible individuals and invite them to participate if they were agreeable. Written informed consent was obtained from the mothers, and they were provided with the questionnaires. These questionnaires were self-administered in a quiet room with minimal foot traffic at the healthcare center. The estimated response time for the complete set of questions was approximately 15 minutes.

Ethical considerations were addressed by obtaining ethical approval from the ethics committee (IR.NKUMS.REC.1402.183) and securing written consent from the participants.

RESULTS

The majority of the mothers (35.4%) and their spouses (37%) possessed a university education. Eighty-six percent of the participating mothers were homemakers, while 77% of their spouses were self-employed. Furthermore, 62.1% of the mothers reported a monthly income of less than ten million tomans (Table 1). The mean age of the participating mothers was 27.69 years, with an average of 2.08 pregnancies and a mean gestational age of 24.23 weeks (Table 2).

TABLE I. FREQUENCY DISTRIBUTION OF THE PARTICIPANTS' CHARACTERISTICS

<i>Variable</i>	<i>Category</i>	<i>Frequency</i>	<i>Percentage</i>
Mother's Education Level	Elementary	28	11.5
	Middle School	50	20.6
	High School	79	32.5
	University	86	35.4
Spouse's Education Level	Elementary	27	11.1
	Middle School	52	21.4
	High School	74	30.5
	University	90	37
Occupation	Homemaker	209	86
	Employed	34	14
	Employee	44	18.1
Spouse's Occupation	Self-employed	187	77
	Unemployed	12	4.9
Monthly Income	Less than 10 million tomans	151	62.1
	Between 10-20 million tomans	80	32.9
	More than 20 million tomans	12	4.9

TABLE II. DESCRIPTIVE DATA OF THE PARTICIPANTS

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>Total</i>
Age	27.69	6.07	15	46	243
Number of Pregnancies	2.08	1.1	1	6	243
Gestational Age	24.23	10.10	4	41	243

The primary source of information for the participating mothers was healthcare professionals, specifically physicians and midwives, accounting for 43% (Table 3). The subscales of the Online Social Network usage questionnaire for accessing health information among the studied mothers yielded the following scores: attitude (2.72), perceived ease of use (3.38), intensity of internet use (3.05), access to infant care information (2.95), childbirth-related information (2.89), pregnancy-related information (2.48), and postpartum-related information (2.13). A mean score above 3 indicates a desirable level in each domain. The mothers reported favorable scores in ease of use and



intensity of internet use, but lower scores in other areas, particularly in accessing information related to infant care, pregnancy, and postpartum (Table 4).

TABLE III. INFORMATION SOURCES USED BY THE PARTICIPANTS

<i>Information Source</i>	<i>Frequency</i>	<i>Percentage</i>
<i>Friends and Family</i>	47	20
<i>Internet</i>	87	37
<i>Physician and Midwife</i>	101	43

TABLE IV. DESCRIPTIVE DATA ON SOCIAL NETWORKING USE FOR ACCESSING HEALTH INFORMATION AMONG PARTICIPANTS

<i>Item</i>	<i>Mean</i>	<i>SD</i>
<i>Attitude</i>	2.72	0.70
<i>Perceived Ease of Use</i>	3.38	0.02
<i>Intensity of Internet Use</i>	3.05	0.86
<i>Infant Care Information</i>	2.95	1.09
<i>Childbirth-Related Information</i>	2.89	1.19
<i>Pregnancy-Related Information</i>	2.48	0.75
<i>Postpartum-Related Information</i>	2.13	1.47

Table 5 presents the results of a one-way ANOVA, which indicates no significant differences in the scores of various dimensions of Online Social Network usage for accessing health information among mothers in different stages of pregnancy (first, second, and third trimesters) ($P > 0.05$).



TABLE V. Statistical Data on Social Networking Usage for Accessing Health Information Among Participants at Various Pregnancy Stages

Item	Stage	Number	Mean	SD	ANOVA Results	
					F (df)	P-value
Attitude	First Trimester	57	2.74	0.69	0.28 (2,240)	0.758
	Second Trimester	91	2.68	0.71		
	Third Trimester	95	2.75	0.70		
Perceived Ease of Use	First Trimester	57	3.83	0.96	2.25 (2,240)	0.079
	Second Trimester	91	4.08	1.04		
	Third Trimester	95	4.21	1.02		
Intensity of Internet Use	First Trimester	57	2.94	0.78	1.03 (2,240)	0.358
	Second Trimester	91	2.99	0.81		
	Third Trimester	95	3.13	0.94		
Infant Care Information	First Trimester	57	2.90	1.10	0.23 (2,240)	0.797
	Second Trimester	91	3.01	1.05		
	Third Trimester	95	2.92	1.13		
Childbirth-Related Information	First Trimester	57	2.89	1.13	0.001 (2,240)	0.999
	Second Trimester	91	2.89	1.20		
	Third Trimester	95	2.89	1.24		
Pregnancy-Related Information	First Trimester	57	2.44	0.75	0.49 (2,240)	0.612
	Second Trimester	91	2.44	0.77		
	Third Trimester	95	4.24	0.74		
Postpartum-Related Information	First Trimester	57	3.63	1.24	0.12 (2,240)	0.885
	Second Trimester	91	3.51	1.52		
	Third Trimester	95	3.57	1.58		

DISCUSSION

The respondents demonstrated favorable scores in terms of ease of use and intensity of internet usage. However, their scores in accessing information related to infant care, pregnancy, and postpartum care were comparatively lower. In a 2021 study by Sabaghinejad et al. conducted in Ahvaz, mothers reported scores above the desirable level across all domains. Variables such as ease of use, trust, and perceived usefulness, with levels exceeding 50%, influenced the attitudes and health information-seeking behavior of pregnant women (1). Furthermore, a 2018 review study by Javanmardi et al. indicated that internet usage among pregnant women was primarily driven by their information needs and the convenience of access (11). Additionally, research by Bert et al. (2013) in Italy revealed that 95% of pregnant women utilized the internet to seek pregnancy-related health information (6), while a study by Abbasi et al. in 2016 found that 89% of pregnant women engaged with online social networks (4).

Numerous studies conducted in Iran and globally have shown that online social networks were used during pregnancy to enhance information accessibility. However, the findings of the present study revealed suboptimal results in certain areas. Our analysis indicated that, compared to other studies, the mean usage of online social networks for health information among the participants was lower, presenting both positive and negative implications. The internet is often regarded as a cost-effective source for accessing diverse information, enabling individuals to obtain information from virtually anywhere. Nonetheless, the content available on various websites frequently lacks scientific credibility and often simply relays personal experiences without considering other influencing factors. The dissemination of inaccurate information to pregnant women can result in significant harm (12).

One key factor contributing to the decline in website visit statistics in this province is the substantial access that pregnant women have to general practitioners, midwives, and specialists across various regions (17).

Other factors influencing the decline in online social network usage include cultural and ethnic diversity in North Khorasan Province, limited access to high-speed internet in border areas, and a lack of trust in the healthcare system. Implementing targeted strategies to increase awareness of the correct use of online social networks is very important (18). If the resources accessed are scientifically validated and provide accurate and relevant information, they can be advantageous. This can alleviate stress and anxiety among individuals, reduce unnecessary visits to healthcare facilities, and ultimately lessen the burden on hospitals and healthcare centers while also mitigating financial strain on families.

A primary limitation of this study was the incomplete submission of questionnaires by pregnant women, who often did not allocate sufficient time to complete them during their visits to healthcare centers. To mitigate this limitation, questionnaires were administered during the waiting period preceding the receipt of prenatal care.



CONCLUSION

The use of online social networks for accessing information about maternal and fetal health in Bojnurd city, North Khorasan Province, was significantly lower than in other provinces. Key factors contributing to this trend include a strong trust in healthcare professionals and satisfactory access to these practitioners. Other considerations include cultural and ethnic influences, access to online social networks, and varying income levels. Clearly, if utilized effectively within well-defined frameworks that ensure the delivery of accurate, precise, and relevant scientific information, online social networks can be an invaluable resource for enhancing the healthcare system and reducing unnecessary visits to a more acceptable level.

Acknowledgments

This study is part of the results of a medical student's thesis at North Khorasan University of Medical Sciences. The authors would like to thank all participants in the health centers. Additionally, the research project has been approved by the North Khorasan University of Medical Sciences, with the approval number 4020179.

Declaration of the Use of Artificial Intelligence Tools

The authors stated that they did not use any artificial intelligence tools in conducting this study and preparing this article.

Contributorship Statement

Conceptualization: SN and HSH, Data curation: HSH, Formal analysis: RR, Methodology: SN and HSH, Writing original draft: SN and ZK. All authors reviewed and commented on the manuscript, as well as all being responsible for the content of the manuscript.

Funding Statement

North Khorasan University of Medical Sciences financially supported this research. In addition, this research did not receive any specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Declaration Of Conflicting Interests

The authors declared there are no conflicts of interest regarding the research, authorship, and publication of this article.

Data Availability Statements

The data will be made available by the corresponding author upon reasonable request.



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