



# Women's Reproductive Health Literacy: A Qualitative Study

Rafat Bakht<sup>1</sup>, Mahrokh Dolatian<sup>2</sup>, Sepideh Hajian<sup>2</sup>, Ali Montazeri<sup>3</sup>, Hamid Alavi Majd<sup>4</sup>, Elham Zare<sup>2\*</sup>

## Abstract

**Objectives:** Considering the importance of reproductive health and the major role of health literacy in health promotion, this study was conducted to explore the concepts and dimensions of women's reproductive health literacy.

**Materials and Methods:** This is a qualitative study based on semi-structured interviews with 13 married women of reproductive age residing in Tehran, Iran, and 9 Ph.D.-educated health professionals.

**Results:** 4 themes emerged: 1) knowledge about sexual and reproductive health consisted of knowledge about physical and mental aspects of reproductive health, especially in pregnancy and sexual matters, 2) obtaining and understanding information about reproductive health, including the ability to obtain information, acquiring information, and understanding information from different sources, 3) evaluating the information about reproductive health (by assessing the validity of information sources, consulting informed people about information accuracy, and concluding from the information), and 4) using the information to improve reproductive health behaviors: by making informed decisions, general health self-care behaviors, having desirable sex by talking about their needs and desires and trying to solve sexual issues.

**Conclusions:** Reproductive health literacy, from the view of the participants, consisted of having knowledge and obtaining an understanding of correct information about reproductive health and using them as behaviors that lead to the promotion of reproductive health. Therefore, the attention of health policymakers and stakeholders to these concepts and dimensions can increase the reproductive health literacy of women in society through effective planning and strategies.

**Keywords:** Women, Reproductive health, Health literacy

## Introduction

Reproductive health is a global health priority, and one of the main development goals for the 3<sup>rd</sup> millennium is to provide universal access to reproductive health (1). According to the health definition of the World Health Organization (WHO) (2), reproductive health, including sexual health (3), is a state of complete physical, mental, and social well-being in all matters relating to the reproductive system (4). It addresses the reproductive processes, functions, and system at all stages of life, and its purpose is to enhance the quality of life and personal relations so that people can have a satisfying and safe sex life, the capability to reproduce, and the freedom to decide if, when, and how often to do so (4,5).

Reproductive health is an important aspect of life, both for people of reproductive age and the whole community (6), and universal access to sexual and reproductive health is a key to improving the quality of life for every one (5).

As a declaration of WHO about health promotion recognizes 'health literacy as a critical determinant of health; it empowers individual citizens and enables their engagement in collective health promotion action' (7); Having good reproductive health requires important

factors such as adequate health literacy.

The term "health literacy" was first used in 1974 in a conference article discussing health education in the school (8,9). The terms "literacy" and "health literacy" have been defined, refined, and measured in various ways over the years (10). Over 250 different definitions exist in the academic literature (11,12).

The WHO describes health literacy as "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health" (13,14). Sørensen et al combined 17 definitions of health literacy in a comprehensive definition in their study: "Health literacy is linked to literacy and entails people's knowledge, motivation and competences to access, understand, appraise, and apply health information to make judgments and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve quality of life during the life course" (15).

Low health literacy has been reported to be associated with increased hospitalization (16), mortality (17), more emergency admissions, increased re-admissions

Received 10 July 2022, Accepted 27 September 2022, Available online 11 November 2022

<sup>1</sup>School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran. <sup>2</sup>Department of Midwifery and Reproductive Health, Midwifery and Reproductive Health Research Center, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran. <sup>3</sup>Health Metrics Research Center, Iranian Institute for Health Sciences Research, ACECR, Tehran, Iran. <sup>4</sup>Department of Biostatistics, Faculty of Para Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

\*Corresponding Author: Elham Zare, Email: elhamzare.phd@gmail.com



### Key Messages

- ▶ Women's reproductive health literacy is a critical subject to attend to improve the health status of families, and society. Proper strategies should be planned for increasing knowledge, obtaining, understanding, evaluating, and using reproductive health information in women.

within 30 days of discharge from the hospital (10), poor adherence to prescribed medications (18), lower use of preventive healthcare services (14,19), etc. Furthermore, health literacy is important in women's ability to achieve cognitive skills and their involvement in health promotion and preventive behavior (20).

Given the importance of health literacy in health promotion, several instruments have been developed to measure general and specific health literacy. However, we found only one women reproductive health literacy instrument derived from Japanese research (21,22). Therefore, considering the significance of reproductive health and the crucial role of health literacy in the enhancement of health and quality of life, and its diverse meaning in different cultures and societies, and the lack of a qualitative study to explore women's reproductive health literacy in our societies, we conducted this qualitative study to explore the concepts and dimensions of women's reproductive health literacy in women of Tehran city to use the results to develop the women's reproductive health literacy instrument.

## Materials and Methods

### Study Design

This qualitative study was based on face-to-face, in-depth interviews using the conventional content analysis approach and the first phase of mixed-method research.

### Participants and Setting

Participants of this study consisted of 13 married women of reproductive age (18-49 years) who were selected with a maximum variation of socio-economic characteristics and their residential address (north, south, east, west, and center of the city) and 9 health education and promotion and reproductive health PhD-educated professionals with different levels of work experience.

The inclusion criteria consisted of living in Tehran city, Iran, being literate, sufficient mental health, and speaking Persian. Withdrawing from the study after the interview was the exclusion criterion. We used different interview's locations based on participants' preferences, such as their workplace, the researcher's workplace, or public parks.

### Data Collection

Qualitative data were collected between May and December 2019. Since the sampling method was purposive, the researcher chose eligible participants to form Faculty

members, employees, housewives, and women who visited a teaching hospital in Tehran. After greeting, the research goals were explained to the participant, and permission for audio recording was obtained after ensuring the confidentiality of the conversation.

An interview guide was used for all participants to ensure a homogenous information gathering. The interviews began with an open-ended question: "How do you explain health?" What comes to your mind when you hear the word reproductive?" then continued focusing on the specific questions. For more clarification, probing questions were asked if necessary. The researcher tried to lead the interview and go back to the topic whenever the conversation moved in a wrong direction by asking questions extracted from the participant's previous answers. All interviews conducted by the researcher lasted until saturation point, meaning that no newer information could be extracted from the conversation. To enrich the information obtained from the married women interviews, nine Ph.D.-educated health professionals were selected and interviewed to reach information saturation.

### Sample Size

This study interviewed 13 married women of reproductive age, and 9 health professionals. Women were interviewed and the interviews lasted between 26-52 min (mean = 43). We reached data saturation in the 11<sup>th</sup> interview with married women. The health professionals' interviews lasted between 20 and 57 min (mean = 30), and we did not get a new code from the 8<sup>th</sup> interview with them. We conducted 3 supplementary interviews, 2 with married women and 1 with health professionals, in other words, 25 interviews with 22 people.

### Data Analysis

Data analysis began at the same time as the data collection. In the shortest possible time, after repeated listening, the interviews were transcribed verbatim and imported into MAXQDA software version 10. After reading the text several times and placing each line of data as a unit of analysis, the explicit and implicit meaning of the participants' statements was extracted. Using the deductive approach, the semantic units were compared according to the familiarity of the content and named primary codes. Combining and summarizing the primary codes, similar codes were categorized into relevant subcategories. As the number of codes increased, new sub-categories were formed, and each category included several subcategories. Reworking data established links between sub-categories and main categories. Finally, the main categories formed separate themes based on semantic and structural matching.

### Data Trustworthiness

The four criteria of credibility, dependability, transferability, and conformability were used to evaluate

the accuracy of the data (23,24). Credibility was determined through long-term involvement with the data, selecting the participants with maximum variety and different experiences, and providing the texts of the interviews and extracted codes to 2 of the married women and 2 of the expert participants to confirm the accuracy of the researcher’s perception. All the activities have been recorded carefully for the transferability of the gathered data. 2 qualitative researchers and 2 external supervisors evaluated 4 of the interviews, codes, and extracted categories for conformability. To ensure dependability, external observers were asked for assistance in coding. To this end, the interviews were encoded separately by two experts in the field of qualitative research to identify differences in coding.

**Results**

The mean age of the married women of reproductive age was 34.7 ± 9.2 years, and the mean work experience of the experts was 23 ± 6.3. Other demographic characteristics of the women and experts in this study are shown in (Table 1). Four themes, 8 categories, and 19 subcategories were extracted from the data analysis of this study (Table 2).

**Knowledge about Sexual and Reproductive Health**

The participants believed that pregnancy and childbearing was significant aspect of life for individuals and society. Therefore, sexual health is important in reproductive

health as sexual relationship is the main part of the reproduction process. This theme consists of 2 categories:

*Knowledge About Reproductive Health*

Participants specified that women needed to know the physical and mental aspects of reproductive health.

*a. Physical Aspect of Reproductive Health*

Many of participants pointed out that women needed to know about the anatomy and physiology of the reproductive system to some extent; for example, they need to know about ovulation, their cycle and the relation between age and fertility. Also, they need to know about the importance of their diet before and during pregnancy, problems and risk factors in pregnancy, physical activities during pregnancy, and contraceptive methods, including the emergency method using progesterone pills. In addition, knowledge about women’s disease and common women’s cancer screening programs were mentioned by the participants that should be part of reproductive health literacy.

*“First of all, a lady needs to know about the anatomy of her body.”* (A 6-year-old woman with having graduate degree education).

*“They should know when they have the highest chance of pregnancy during their cycle.”* (Ph.D. in Health education and promotion, having 18 yr of experience).

*“A woman must know how to prevent pregnancy.”*

**Table 1.** A Summary of the Participants’ Demographic Characteristics

Age (y)	Education Level	Job	Number of Children	Spouse's Education Level	Spouse's Job	The Residential Area of the City
<b>Characteristics of the Married Women of Reproductive age (n = 13)</b>						
49	High school diploma	Housewife	2	High school diploma	Employee	East
28	Middle school	Housewife	2	Elementary	workless	Center
44	High school diploma	Hairstylist	2	Associate degree	Building contractor	West
41	High school diploma	Housewife	1	High school diploma	Self-employed	East
38	Middle school	Housewife	3	Middle school	Self-employed	South
36	Graduate Degree	Private sector employee	1	Bachelor	Engineer	Center
39	Graduate Degree	Housewife	2	Graduate	Businessman	North
45	Bachelor	Nurse	0	Bachelor	Engineer	North
34	Bachelor	Teacher	2	Graduate	Engineer	West
18	Middle school	Housewife	1	Middle school	Self-employed	South
25	Elementary	Housewife	0	Middle school	Labor	South
28	Bachelor	Private sector employee	0	Bachelor	Engineer	West
26	High school diploma	Housewife	0	High school diploma	Labor	South
<b>Characteristics of the PhD Educated Health Professionals (n = 9)</b>						
Age (y)	Major of Participant		Academic Ranking of Participant			
46	Reproductive health		Associate professor			
42	Health education and promotion		Assistant professor			
60	Health education and promotion		Associate professor			
56	Health education and promotion		Professor			
45	Health education and promotion		Professor			
61	Reproductive health		Assistant professor			
52	Reproductive health		Assistant professor			
58	Health education and promotion		Assistant professor			
40	Reproductive health		Associate professor			

**Table 2.** Classification of theme, Categories, and Subcategories Regarding Reproductive Health Literacy

Themes	Categories	Subcategories
Knowledge about sexual and reproductive health	Knowledge about reproductive health	The physical aspect of reproductive health
		The mental aspect of reproductive health
	Knowledge about sexual health	Knowledge about the healthy sexual relationship
		The importance of a happy and healthy sexual relationship
		Knowledge about sex and pregnancy
Obtaining and understanding the information about reproductive health	Obtaining information about reproductive health	Knowledge about sexually transmitted diseases
		The ability to get information from different sources
	Understanding the information about reproductive health	Getting information about different aspects of reproductive health
		Understanding written information
Evaluating the information about reproductive health	Assessing the validity of information about reproductive health	Understanding verbal information
		Judging about logic and accuracy of information
	Analyzing the information about reproductive health	Recognizing the validity of information sources
		Consulting experts to determine the accuracy of information
Using information to improve reproductive health behaviors	Appropriate reproductive health behaviors	Ability to critique the information
		Concluding the information
	Appropriate sexual health behaviors	Deciding reproductive health issues
		Self-care behaviors related to Reproductive health
		Having a healthy sexual relationship
		Resolving problems in a sexual relationship

(A 39-yr-old woman with having graduate degree education).

#### *b. Mental Aspect of Reproductive Health*

Women might experience some mood changes during menstruation, pregnancy, and during or after menopause; therefore, knowledge about some of the following items mentioned by some participants:

*“Close to your period, you might easily get angry. It’s good to know that it’s because your period is coming so you can do some relaxing activities or using some soothing herbal tea.”* (A 28-year-old woman having Middle school education).

*“Women should try not to stress out during their pregnancy. They should not worry about anything, and it’s best for the health of their baby if they stay calm and peaceful.”* (A 34-year-old woman with having Bachelor’s education).

#### *Knowledge About Sexual Health*

All participants mentioned that a good sexual relationship was crucial for a happy married life, helped the durability of marriage, and positively affected couples mental and physical health.

#### *a. Knowledge About Healthy Sexual Relationships*

Knowledge about a healthy sexual relationship includes knowledge about both male and female genital parts of the body, orgasm and its importance, the necessity of agreement and respect of needs for both parties, awareness about own sexual needs, and knowing how to request them some of the items in this category.

*“I think they need to know about their own needs and desires and that of their partner.”* (A 34-year-old woman

with having Bachelor’s education).

*“I think the sexual relationship is healthy when the needs of both man and woman are met, and both are satisfied. I heard some women don’t know what an orgasm is, and they might never experience that. Therefore they gradually might see sex as a habit or a duty, and as they don’t have information about it, they never try to find a solution.”* (A 39-year-old woman with having graduate degree education).

#### *b. The Importance of a Happy and Healthy Sexual Relationship*

Participants mentioned the importance of sex in marriage and its continuity, mutual satisfaction, and beneficial impact of a healthy sexual relationship on general health. *“I think sex plays the first role in marriage, it means it is very important for both man and women. I think sex is the main factor for a stable and long-lasting marriage.”* (A 38-year-old woman having a Middle school education).

*“If the sex is done properly, it’s good for the body and soul, it’s reviving and good all in all.”* (A 28-year-old woman with having Middle school education).

#### *c. Knowledge About Sex and Pregnancy*

Regarding the importance of having children in life, even in the eye of society, the participants stated that women must know about actions that can help the chance of pregnancy. They needed to be aware of the impacts of pregnancy on a sexual relationship.

*“If someone plans to get pregnant, she should have regular sex. I knew this, they said if you’re trying to conceive, you should have sex every other day. The gap should not be too short nor too long.”* (A 39-year-old woman with having graduate degree education).

*“If you are pregnant, you should know what to do and how to have sex, so it’s safe.”* (A 25-year-old woman having Elementary education).

#### *d. Knowledge About Sexually Transmitted Diseases*

This subcategory is defined by knowledge about the transmission of diseases and methods of prevention and protection against them.

*“A woman needs to know how these diseases are transmitted during sex. She should be aware of the consequences of high-risk sex and methods of protection.”* (Ph.D. in reproductive health, having 26 year of experience).

#### **Obtaining and Understanding the Information About Reproductive Health**

This theme consists of 2 categories: obtaining information and understanding information about reproductive health.

##### *Obtaining Information About Reproductive Health*

Which consists of 2 subcategories. Participants specified that the ability to get information from different sources, especially valid and reliable sources, and obtaining information about a different aspect of reproductive health should be considered in reproductive health literacy.

##### *a. The Ability to Get Information From Different Sources*

This subcategory is about seeking and finding information that can be obtained from different sources like books, magazines, the internet, radio and television, and human sources (health workers, informed family, and friends).

*“One should have searching skills to be able to look into different information banks.”* (Ph.D. in Health education and promotion, having 25 years of experience).

*“I read books about sexual issues, although the internet is available, I usually try to find a book to read or borrow from others.”* (A 41-year-old woman with having High school diploma).

##### *b. Getting Information About Different Aspects of Reproductive Health*

This subcategory is about the skills of getting information in different areas of reproductive health like puberty, before pregnancy, during pregnancy, delivery, post-delivery, family planning, etc.

*“I was trying to find information from books and the internet before, and during my pregnancy, also I asked my sister-in-law whenever I had questions.”* (A 36-year-old woman with having graduate degree education).

*“After giving birth, I consulted the experienced people around me like my mom because I knew they had done this before.”* (A 49-year-old woman with having High school diploma).

*“I like to listen to the radio while working, many of its health programs are educational.”* (A 38-year-old

woman having a Middle school education).

##### *Understanding the Information about Reproductive Health*

This category is about the necessity of understanding and comprehending all the information about reproductive health obtained from different sources and consists of two subcategories:

##### *a. Understanding Written Information*

Participants indicated that the ability to understand the information from written sources like books, booklets, and websites was necessary for reproductive health literacy.

*“One should understand the information, which means she should be able to grasp and take in the concepts.”* (Ph.D. in Health education and promotion, having 25 year of experience).

*“I had some pain in my breasts that made me stressed out, then I researched on the internet and read a book about it and learned that not all pains were related to cancer.”* (A 38-year-old woman with Middle school education).

##### *b. Understanding Verbal Information*

Participants also expressed that the ability to understand verbal information was part of reproductive health literacy. Verbal information sources include radio and television, and informed people like health workers, experienced family, and friends.

*“I never took my monthly examination seriously until I learned from a medical TV program that I had to do self-examination for my breasts.”* (A 44-year-old woman with having High school diploma).

*“Sometime when you visit your gynecologist, the doctor might talk to you very quickly, but you should ask questions if you don’t understand.”* (Ph.D. in Health education and promotion, having 9 year of experience).

##### **Evaluating the Information About Reproductive Health**

This theme is about the necessity of evaluating health information, considering that applying wrong information in life can damage people’s health. This theme consists of 2 categories:

##### *Assessing the Validity of Information about Reproductive Health*

This category is about the importance of information accuracy and includes 3 subcategories:

##### *a. Judging About Logic and Accuracy of Information*

*“I think about the information I get to see if it makes sense or not.”* (A 44-year-old woman with having High school diploma).

*“When I search something, then I see, for example, 10 websites are the same, I guess it is correct although I don’t solely rely on it.”* (A 36-year-old woman with having graduate degree education).

### *b. Recognizing the Validity of Information Sources*

Participants mentioned that paying attention to information sources as part of literacy. Checking the reliability of information sources is a good way to assess the accuracy of information.

*“During my pregnancy, I always referred to articles with reliable references.”* (A 36-year-old woman with having graduate degree education).

*“Health literacy means I should get my information from reliable sources.”* (Ph.D. in reproductive health, having 24 year of experience).

### *c. Consulting Experts to Determine the Accuracy of Information*

*“I never relied on the internet only, after I search about something on the internet, I ask my GP or call my sister-in-law who is a doctor, to make sure that information is correct. For example, I had terrible morning sickness during my pregnancy. I found on the internet that ginger is good, also a medicine called Demitron could help, then I asked my sister-in-law about them.”* (A 36-year-old woman with having graduate degree education).

*“When I want to know about a contraceptive method, first I searched on the internet about it and its usage or side effects, then I consult the midwife in the clinic near my house.”* (A 41-yr-old woman with high school diploma).

### *Analyzing the Information about Reproductive Health*

This category has 2 subcategories:

#### *a. Ability to Critique the Information*

Participants mentioned that to conclude from information coming from different sources, they needed to be able to critique the information.

*“When we say someone knows means she knows what information is good for her own life, what is useful. It means she can analyze and critique the information.”* (Ph.D. in Health education and promotion, having 9 year of experience).

*“When I visit a website and read the information, I’ll know if it is practical and useful for me or not, what is correct and what is wrong.”* (A 44-year-old woman with having High school diploma).

#### *b. Concluding the Information*

Participants said that to use and apply the information they got, they have to reach a conclusion.

*“I go up and down on the internet until I come up with a result.”* (A 38-year-old woman with having middle school education).

*“You need to conclude, because you need to act; for example, you want to do a pap smear or mammogram?”* (Ph.D. in reproductive health, having 26 year of experience).

### *Using Information to Improve Reproductive Health Behaviors*

Almost all participants believed that having reproductive health literacy meant acting and applying the information in actual life. This theme has 2 categories:

#### *Appropriate Reproductive Health Behaviors*

Participants stated that having information would help them work toward better reproductive health and make decisions when facing a problem. This category consists of 2 subcategories:

##### *a. Making Decisions about Reproductive Health Issues*

This subcategory is about making an informed decision about different aspects of reproductive health, like marriage, pregnancy, type of delivery, contraceptive methods, and health problems.

*“When one decides to get pregnant, she should be well informed about everything because she is bringing another human into this world.”* (A 38-year-old woman with having Middle school education).

*“For example, a lady that has unintentional passing of urine, someone tells her to strengthen her muscle by doing Kegel exercise, and a surgeon tells her to do surgery. She is the one who needs to analyze and make a decision.”* (Ph.D. in reproductive health, having 24 year of experience).

##### *b. Self-care Behaviors Related to Reproductive Health*

Many participants believed that most general health-positive behaviors would help reproductive health as well. A healthy lifestyle and self-care behaviors like physical activity, exercise, a good night’s sleep, and a healthy diet promote general health and reproductive health at the same time.

Participants mentioned some reproductive health self-care behaviors: menstrual hygiene, breast cancer screening, pap smear test, physical activity during pregnancy, and contraceptive methods.

*“What is good for your health, in general, is good for your reproductive health too. I think exercise and a healthy diet are very important. For example, if you exercise and strengthen your muscles, you feel less pressure on your body during pregnancy.”* (A 39-year-old woman with having graduate degree education).

*“Before conceiving, consult a doctor.”* (A 34-year-old woman with having Bachelor’s education).

*“I had pain in my armpit for a while since I heard it could be dangerous, I did a mammogram.”* (A 41-year-old woman with having High school diploma).

#### *Appropriate Sexual Health Behaviors*

Some items mentioned by the participants that could support sexual health were: having a healthy sexual relationship and commitment to that, avoiding high-risk sexual activities, talking to a partner about each

other needs and desires, and trying to resolve the sexual problem. This category consists of 2 subcategories:

*a. Having a Healthy Sexual Relationship*

*“Couples should consider each other’s pleasure when having sex.”* (A 28-year-old woman with having Middle school education).

*“Mutual agreement and satisfaction are important in terms of quality and quantity. Both man and woman should try to satisfy each other.”* (A 39-year-old woman with having graduate degree education).

*b. Resolving Problems in Sexual Relationships*

Participants believed that solving sexual problems was one of the important ways to ensure the information is utilized.

*“If couples have a problem in their sex, they have to follow up and find a solution. If both man and woman are willing, they will do whatever they can to solve the problem.”* (A 44-year-old woman with having High school diploma).

*“Couples should talk to each other and discuss their problem, and if necessary, they should get help from a therapist.”* (A 36-year-old woman with having graduate degree education).

## Discussion

In this study which aimed to explore the concepts and dimensions of women’s reproductive health literacy, four themes were extracted. One out of four themes derived from our study was “knowledge about sexual and reproductive health”. In the study by Rakhshae et al, one of the dimensions of health literacy in infertile women was “Information needs of sexual health” (25). In a study by Kawata et al, “knowledge of the female body” was one of the scale factors designed for reproductive health literacy (22). Also, Suto et al considered health knowledge as one of the dimensions of health literacy in their scale (26). Necessary knowledge about contraceptive methods was an example of reproductive health literacy in our study. In Yee and Simon study on urban Chicago women, low literacy scores were associated with poor contraceptive knowledge and difficulty with contraceptive use (27).

In our study, most women considered mental health important for fertility and pregnancy and mentioned psychological distress as one of the fertility-compromising risks. In a study by Chawłowska et al, over 90% of the respondents knew psychological distress as one of the fertility-compromising risks (6). In the qualitative study by Taheri et al, one of the designed tools for psychotherapy of maternal health literacy inventory in pregnancy was “assessing the information related to pregnancy health” (28). Also, WHO states: “Health literacy implies the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and

living conditions” (13).

The second theme derived from this study was “Obtaining and understanding information about reproductive health”. The first category is about the skills to gather and obtain information from different sources, while the second category focuses on using those skills to get information about different aspects of reproductive health. Information sources in our study included the internet, books, radio and television, and human sources like health workers and informed family and friends. This was in agreement with studies by Rakhshae et al and Mercer et al (25,29). Almost all participants emphasized the importance of understanding the obtained information to use them, which matches the findings in studies by Rakhshae et al and WHO, the CDC definition of personal health literacy (10,13,15,25,30). As mentioned in the study done by Toronto, understanding and comprehending information significantly affect individual health (31).

The third theme was “Evaluating the information about reproductive health”, focusing on judging the logic of information, recognizing the validity of information sources, consulting informed people about the information’s accuracy, and conclusions from the information. It was in line with the dimension (aspect) of “validity of information” in Rakhshae and colleagues study (25) which consisted of distinguishing between valid and invalid resources, searching from different sources, comparing information, and asking informed people. In our study, some participants mentioned that repetition of a piece of information on multiple websites might indicate of its accuracy; Metzger and Schrah et al stated that comparing the information obtained from different sources was a method for judging the information (32,33).

The fourth theme was “Using information to improve reproductive health behaviors,” covering 2 categories of making decisions about reproductive health issues and self-care behaviors related to reproductive health like menstrual hygiene and women’s cancer screening (breast examination and pop smear). Since reproductive health is a significant part of general health (13), many participants mentioned that general self-care behaviors such as physical activities, good diet, and good sleep would positively affect reproductive health. Some behaviors stated in these subcategories were in line with factors mentioned in the study of Kawata et al, such as self-care during menstruation and sexual discussion with a partner (22). Also, it matches the WHO’s definition of health literacy “use of information to maintain and enhance health” (13). Deciding health issues and usage of information to improve health are used in many different definitions of health literacy (10,15,30), and Tavousi et al. highlighted the importance of decision-making and actions in regard of health information and medical services for all aspects of health literacy in their review of health literacy definitions (34).

## Limitations

The married participants in this study were women living in Tehran city. Although it would be better if we could choose participants from all over the country, considering the diversity of ethnic people living in Tehran city, we tried to minimize this limitation by selecting women participants with a maximum variety of demographic characteristics and their residential area in an Tehran city.

## Conclusions

From the view of married women of reproductive age and health professionals, consisted of having knowledge and obtaining an understanding of correct information about reproductive health and using them as behaviors that lead to the promotion of reproductive health. Therefore, the attention of health policymakers and stakeholders to these concepts and dimensions can increase the reproductive health literacy of women and, in turn, their families in society. This can be achieved by effective planning and strategies such as providing easy access to valid and reliable reproductive health information through the internet, radio, and TV programs. Also, enhancing reproductive health education offered by health providers, etc.

## Authors' Contribution

MD designed and monitored the study and reviewed the article. RB contributed to the study's design, conducted the study, and wrote the initial manuscript. EZ supervised the study and monitored and evaluated the result of the study and contributed to the writing of the manuscript, and responded to reviewers' comments. SH contributed to the analysis, and assessed the results of the research, and reviewed the article. AM evaluated the study and reviewed the article. HAM contributed to the analysis and reviewed the article. All authors approved the final manuscript and take responsibility for the integrity of the data.

## Conflict of Interests

Authors declare that they have no conflict of interests.

## Ethical Issues

This article was obtained from the qualitative part of a mixed method study approved by the ethics committee of the Research Council of Shahid Beheshti University of Medical Sciences, Tehran, Iran (IR.SBMU.RETECH.REC.1398.056). Before each interview, the researcher explained the aims of the study, confidentiality, the voluntary nature of participation, and the possibility to withdraw from the study at any stage. Written informed consent were obtained from all participants.

## Financial Support

This article was a part of a Ph.D. dissertation in reproductive health supported by Shahid Beheshti University of Medical Sciences, Tehran, Iran.

## Acknowledgments

The authors would like to thank the Vice-Chancellor in Research Affairs, Shahid Beheshti University of Medical Sciences, Tehran, Iran for their efforts to approve the research project and all participants for their cooperation in this study.

## References

- Mascarenhas MN, Flaxman SR, Boerma T, Vanderpoel S, Stevens GA. National, regional, and global trends in infertility prevalence since 1990: a systematic analysis of 277 health surveys. *PLoS Med.* 2012;9(12):e1001356. doi:10.1371/journal.pmed.1001356
- World Health Organization (WHO) Definition of Health [Database on the Internet]. Available from: <https://www.publichealth.com.ng/world-health-organizationwho-definition-of-health/>. Accessed August 1, 2019.
- United Nations Population Information Network (POPIN) UPD, Department of Economic and Social Affairs, with support from the UN Population Fund (UNFPA). Guidelines on Reproductive Health [Online]. New York: 1995. Available from: [https://www.unfpa.org/sites/default/files/resource-pdf/Guidelines\\_complete\\_text\\_without\\_figures\\_296K.pdf](https://www.unfpa.org/sites/default/files/resource-pdf/Guidelines_complete_text_without_figures_296K.pdf).
- Sexual & Reproductive Health [Database on the Internet]. 2021. Available from: <https://www.unfpa.org/sexual-reproductive-health>.
- World Health Organization (WHO). Action Plan for Sexual and Reproductive Health: Towards Achieving the 2030 Agenda for Sustainable Development in Europe – Leaving No One Behind. Copenhagen, Denmark: WHO Regional Office for Europe; 2016. [https://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0003/322275/Action-plan-sexual-reproductive-health.pdf](https://www.euro.who.int/__data/assets/pdf_file/0003/322275/Action-plan-sexual-reproductive-health.pdf).
- Chawłowska E, Lipiak A, Krzysztozek J, Krupa B, Staszewski R. Reproductive health literacy and fertility awareness among Polish female students. *Front Public Health.* 2020;8:499. doi:10.3389/fpubh.2020.00499
- Nutbeam D, Levin-Zamir D, Rowlands G. Health literacy and health promotion in context. *Glob Health Promot.* 2018;25(4):3-5. doi:10.1177/1757975918814436
- Frisch AL, Camerini L, Diviani N, Schulz PJ. Defining and measuring health literacy: how can we profit from other literacy domains? *Health Promot Int.* 2012;27(1):117-126. doi:10.1093/heapro/dar043
- Simonds SK. Health education as social policy. *Health Educ Monogr.* 1974;2(1\_Suppl):1-10. doi:10.1177/10901981740020s102
- Berkman ND, Davis TC, McCormack L. Health literacy: what is it? *J Health Commun.* 2010;15 Suppl 2:9-19. doi:10.1080/10810730.2010.499985
- Liu C, Wang D, Liu C, et al. What is the meaning of health literacy? A systematic review and qualitative synthesis. *Fam Med Community Health.* 2020;8(2):e000351. doi:10.1136/fmch-2020-000351
- Malloy-Weir LJ, Charles C, Gafni A, Entwistle V. A review of health literacy: Definitions, interpretations, and implications for policy initiatives. *J Public Health Policy.* 2016;37(3):334-352. doi:10.1057/jphp.2016.18
- Nutbeam D, Kickbusch I. Health promotion glossary. *Health Promot Int.* 1998;13(4):349-364.
- Osborne RH, Batterham RW, Elsworth GR, Hawkins M, Buchbinder R. The grounded psychometric development and initial validation of the Health Literacy Questionnaire (HLQ). *BMC Public Health.* 2013;13:658. doi:10.1186/1471-2458-13-658
- Sørensen K, Van den Broucke S, Fullam J, et al. Health literacy and public health: a systematic review and integration of definitions and models. *BMC Public Health.* 2012;12:80. doi:10.1186/1471-2458-12-80
- Baker DW, Gazmararian JA, Williams MV, et al. Functional health literacy and the risk of hospital admission among Medicare managed care enrollees. *Am J Public Health.* 2002;92(8):1278-1283. doi:10.2105/ajph.92.8.1278
- Friis K, Aaby A, Lasgaard M, Pedersen MH, Osborne RH, Mairal HT. Low health literacy and mortality in individuals with cardiovascular disease, chronic obstructive pulmonary disease, diabetes, and mental illness: a 6-year population-based follow-up study. *Int J Environ Res Public Health.* 2020;17(24):9399. doi:10.3390/ijerph17249399
- Berkman ND, Sheridan SL, Donahue KE, Halpern DJ, Crotty K. Low health literacy and health outcomes: an updated systematic review. *Ann Intern Med.* 2011;155(2):97-107. doi:10.7326/0003-4819-155-2-201107190-00005
- Scott TL, Gazmararian JA, Williams MV, Baker DW. Health literacy and preventive health care use among Medicare enrollees in a

- managed care organization. *Med Care*. 2002;40(5):395-404. doi:10.1097/00005650-200205000-00005
20. Shieh C, Halstead JA. Understanding the impact of health literacy on women's health. *J Obstet Gynecol Neonatal Nurs*. 2009;38(5):601-610. doi:10.1111/j.1552-6909.2009.01059.x
  21. Kawada S, Fujii H, Hatashita H. Conceptual analysis of health literacy in nursing practice. *Shiga University of Medical Science Nursing Journal*. 2011;9:24-31.
  22. Kawata S, Hatashita H, Kinjo Y. [Development of a health literacy scale for women of reproductive age: an examination of reliability and validity in a study of female workers]. *Nihon Koshu Eisei Zasshi*. 2014;61(4):186-196. doi:10.11236/jph.61.4\_186
  23. Speziale HS, Streubert HJ, Carpenter DR. *Qualitative Research in Nursing: Advancing the Humanistic Imperative*. Lippincott Williams & Wilkins; 2011.
  24. Thomas E, Magilvy JK. Qualitative rigor or research validity in qualitative research. *J Spec Pediatr Nurs*. 2011;16(2):151-155. doi:10.1111/j.1744-6155.2011.00283.x
  25. Rakhshae Z, Maasoumi R, Nedjat S, Khakbazan Z. Sexual health literacy, a strategy for the challenges of sexual life of infertile women: a qualitative study. *Galen Med J*. 2020;9:e1862. doi:10.31661/gmj.v9i0.1862
  26. Suto M, Mitsunaga H, Honda Y, Maeda E, Ota E, Arata N. Development of a health literacy scale for preconception care: a study of the reproductive age population in Japan. *BMC Public Health*. 2021;21(1):2057. doi:10.1186/s12889-021-12081-0
  27. Yee LM, Simon MA. The role of health literacy and numeracy in contraceptive decision-making for urban Chicago women. *J Community Health*. 2014;39(2):394-399. doi:10.1007/s10900-013-9777-7
  28. Taheri S, Tavousi M, Momenimovahed Z, et al. Development and psychometric properties of maternal health literacy inventory in pregnancy. *PLoS One*. 2020;15(6):e0234305. doi:10.1371/journal.pone.0234305
  29. Mercer MB, Agatista PK, Farrell RM. What patients are reading about noninvasive prenatal testing: an evaluation of Internet content and implications for patient-centered care. *Prenat Diagn*. 2014;34(10):986-993. doi:10.1002/pd.4410
  30. What is Health Literacy? CDC website. 2020. Available from: <https://www.cdc.gov/healthliteracy/learn/index.html>.
  31. Toronto CE. Health literacy competencies for registered nurses: an e-Delphi study. *J Contin Educ Nurs*. 2016;47(12):558-565. doi:10.3928/00220124-20161115-09
  32. Metzger MJ. Making sense of credibility on the Web: models for evaluating online information and recommendations for future research. *J Am Soc Inf Sci Technol*. 2007;58(13):2078-9201. doi:10.1002/asi.20672
  33. Schrah GE, Dalal RS, Sniezek JA. No decision-maker is an island: integrating expert advice with information acquisition. *J Behav Decis Mak*. 2006;19(1):43-60. doi:10.1002/bdm.514
  34. Tavousi M, Ebadi M, Azin A, et al. Definitions of health literacy: a review of the literature. *Payesh*. 2014;13(1):119-124. [Persian].

© 2023 The Author(s); This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.