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Perspectives of high-risk pregnant women on home care program in high-risk pregnancies: A multicenter, qualitative study

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ABSTRACT

Objective: To explore the perspectives of high-risk pregnant women regarding the home care program for high-risk pregnancies.**Methods:** This qualitative study was conducted in a university hospital and 5 comprehensive health centers in Ahwaz, Iran, from February 2023 to July 2023. The sampling method used was purposive sampling considering the maximum possible diversity, which continued until data saturation. 11 in-depth and semi-structured interviews were conducted with high-risk pregnant women. Data were simultaneously analysed using Graneheim and Lundman content analysis by MAXQDA version 20 software.**Results:** Data analysis extracted 3 themes, 12 categories, and 26 subcategories. The themes and categories were “high-risk pregnancy and related issues (pursuing treatment and paying attention to the high-risk situation by pregnant women, psychological aspect of high-risk pregnancy on pregnant women and caregivers, emotional and physical aspects of high-risk pregnancy, the consequences of high-risk pregnancy on the people around them and empowerment of high-risk pregnant women)”, “support dimension (family and community support for high-risk pregnant women)”, and “framework of program (acculturation, means and equipment, security, manpower and the necessary arrangements for the home care)”.**Conclusions:** High-risk pregnancy affects various aspects of the lives of high-risk pregnant women and their families. Creating the necessary conditions for providing care at home plays a vital role in supporting high-risk pregnant women and removing related obstacles to receiving prenatal care in person. It will be especially beneficial for high-risk pregnant women in low-income areas.**KEYWORDS:** High-risk pregnancy; Home care; Program; Qualitative study

1. Introduction

A high-risk pregnancy is a pregnancy in which the life or health of the mother or fetus is endangered or threatened by a complication or disorder unique to the pregnancy. Risk factors may be pre-existing factors developed before or during antenatal visits or later in the current pregnancy. Mothers who are in the high-risk pregnancy group include those who have a history of chronic diseases (diabetes, high blood pressure, heart disease, *etc.*) and those who have a history

Key Points

Question: What are the perspectives of high-risk pregnant women on the home care program for high-risk pregnancies?**Findings:** In the study, 608 initial conceptual codes were extracted. Data analysis led to the extraction of 26 subcategories, 12 categories, and 3 themes. The themes were “high-risk pregnancy and related issues”, “support dimension”, and “framework of program”.**Meaning:** Providing care at home plays a critical role in supporting high-risk pregnant women, especially for high-risk pregnant women in low-income areas.

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of problems in a previous pregnancy (miscarriage, stillbirth, *etc.*). Multiple pregnancy and pregnancy under 18 years or over 35 years, more than 4 pregnancies and the pregnancy interval is less than one year. Nearly 50% of maternal complications and 60% of primary cesarean sections are related to high-risk group[1,2]. The prevalence of high-risk pregnancy is reported to be up to 20% worldwide. In addition, 50% of all prenatal maternal mortality is related to high-risk pregnancies. The prevalence of high-risk pregnancy varies in different countries[3]. Pregnant women with medical or social risk factors and insufficient personal, psychological, or financial resources are at high risk of adverse pregnancy outcomes, including preterm birth or low birth weight infants. These women need the help, support and guidance of a health or social service professional who can meet them where they are geographically and psychologically. Home visits are one of the approaches to providing such assistance to high-risk women[4].

In the last two decades, the world's health system has changed from hospital-based care to community-based care. Home care is a community-based method of providing health services with reduced costs, hospital complications, and length of hospitalization[5]. Home visits are considered an economical and effective method for preventing and controlling chronic diseases, as they can provide benefits for the patient, their family and society[6]. Implementation of a home care program would provide tangible psychosocial support, improve medical communication, and increase the use of social services. Through the education that pregnant women receive at home, they learn behaviours that reduce the risk of preterm birth and modify their lifestyles[7]. Qualitative content analysis is done to extract the main themes and discover the patterns in the data, and conventional content analysis is by extracting the objective content more than what is written in the textual data. It creates overt and hidden themes and patterns from the participants' data content[8]. The qualitative content analysis method was used to explore the experiences and views of the participants. The objective of the present qualitative study was to explore the perspectives of high-risk pregnant women on home care program in high-risk pregnancies.

2. Participants and methods

2.1. Study design

This qualitative study was conducted in 1 university hospital (Imam Khomeini) and 5 comprehensive health centers in Ahvaz (Iran) from February 2023 to July 2023. The method we used for this study is conventional content analysis. Participants included 11 high-risk pregnant women (two of them had a history of high-risk pregnancies and the other women currently have high-risk pregnancies). The approach used for sampling in the study was purposeful sampling. To achieve more comprehensive information, the sampling strategy with maximum diversity was used.

2.2. Participants

The number of participants was not determined before the termination of the research. Sampling should continue until no new data is found (data saturation)[9]. In the present study, data collection continued until a new code was created.

Inclusion criteria for participants are: mothers with high-risk pregnancies according to the definition of high-risk pregnancy: have ability to speak and understand the Persian language, ability to reflect feelings and express needs, willing to participate in the study, and those who could allocate time for the interview were included.

2.3. Procedure

Interviews were conducted individually and face-to-face and after explaining the purpose of the study by an in-depth, semi-structured manner. All interviews were conducted in comprehensive health centers, hospital and perinatology ward. Demographic information including age, education, job, place of residence, number of pregnancies, gestational age, place of receiving prenatal care services and high-risk pregnancy factor, was collected from the participants. Appointment of place and time of interviews were suggested by the participants. The interviews started with open-ended questions according to the interview guide with follow-up questions of high-risk pregnant women:

“Can you explain more about your concern and problem?” “What centers do you go to for prenatal care?” “Describe the problems that exist to receive care in hospitals and clinics, *etc.*?” “In your opinion, what is prenatal care at home?”

Then, based on the answers of the participants, supplementary and exploratory questions were asked so that they could give more explanations and details about their answers. The duration of each interview was between 20 and 50 minutes. The interviews were recorded with a tape recorder after obtaining permission from the participants. Interviews were written immediately after each interview. The text was read several times to fully familiarize with the data before starting coding.

To achieve validity in the data, we used Guba and Lincoln criteria. This criterion consists of credibility, dependability, confirmability and transferability[10].

The credibility criterion was achieved by selecting eligible data sources, long-term involvement of the researcher with the research topic, spending a long time and interacting with the participants, selecting the participants with a maximum variation, reading the transcripts frequently. For dependability, several interviews were given to some people familiar with qualitative research to be coded again, the results were compared and the agreement in coding was checked. Confirmability of the data was confirmed *via* auditing the interviews and analysis process by some qualitative research experts. To improve the level of transferability, the research process, such as the participants, the sampling method, and the method of data collection, were described in detail so that it would be possible

for others to follow the research path and the characteristics of the studied population.

2.4. Statistical analysis

Data were analysed using the Graneheim and Lundman method with MAXQDA20 software. This process was as follows: 1-Conducting interviews immediately after each interview, 2-Reading the text for a general understanding of it, 3-Determining the unit of meaning and primary codes, 4-Classifying primary codes into subcategories and categories, 5-Determining the hidden content in the data[11].

2.5. Ethics statement

This study was performed after obtaining approval from the Ethics Committee of Shahroud University of Medical Sciences (IR.SHMU.REC.1401.152). Informed written consent was obtained from all participants and they were assured about the confidentiality of their information and privacy of their identity. They were informed that their participation in the study was voluntary and that they had the right to withdraw from the study at any stage. We got their agreement to record their voice and reassured them to delete that after registration.

3. Results

3.1. High-risk pregnant women

The demographic characteristics of high-risk pregnant women are shown in Table 1. In total, 608 initial conceptual codes were extracted. The codes, based on their similarities and differences with each other and based on the homogeneity of the content, were classified into the subcategories and then into the main categories and finally to the themes. At the end, data analysis led to the extraction of 26 subcategories, 12 categories, and 3 themes. The themes and categories were “high-risk pregnancy and related issues

(pursuing treatment and paying attention to the high-risk situation by pregnant women, psychological aspect of high-risk pregnancy on pregnant women and caregivers, emotional and physical aspects of high-risk pregnancy, the consequences of high-risk pregnancy on the people around them and empowerment of high-risk pregnant women)”, “support dimension (family and community support for high-risk pregnant women)”, and “framework of program (acculturation, means and equipment, security, manpower and the necessary arrangements for the home care)”. The themes, main categories and subcategories are given in Table 2.

3.2. High-risk pregnancy and related issues

This theme consists of 5 main categories as follows: “Pursuing treatment and paying attention to the high-risk situation by pregnant women”, “Psychological aspect of high-risk pregnancy on pregnant women and caregivers”, “Emotional and physical aspects of high-risk pregnancy”, “The consequences of high-risk pregnancy on the people around them” and “Empowerment of high-risk pregnant women”.

Follow-up treatment and attention to the high-risk situation are neglected by pregnant women, which leads to the worsening of their conditions and the severity of their disease, which may be caused by low responsibility and other reasons such as low knowledge and awareness, lack of financial ability, busy life and lack of understanding of the importance of high-risk pregnancy.

Participant No. 11 stated: “Then I went and found another doctor. I said that I wanted to check my blood sugar to make sure it was not high. He took some tests and such things, then he gave me a letter and told me to go to an endocrinologist.” (Participant No. 11)

One of the participants stated in this regard: “Many families don’t have the money for something like this, they don’t have insurance, and these costs multiply several times. They certainly don’t go to the hospital, and this causes the mother to face many risks.” (Participant No. 3)

Another main category of high-risk pregnancy and related issues’ theme is the psychological aspect of high-risk pregnancy. The interviewees stated in this regard:

Table 1. Demographic characteristics of high-risk pregnant women.

No.	Age, years	Position	Education	Gravida	Parity	Abortion	Settlement	Causes of high-risk pregnancy
HR1**	39	Employee	Master's degree	2	1	1	Ahvaz	Age over 35 years and a history of abortion
HR2*	42	Housewife	Diploma	3	2	0	Ahvaz	Deep vein thrombosis (DVT) & systematic lupus erythematosus
HR3*	35	Housewife	Bachelor's degree	2	0	1	Izeh	Pregnancy-induced hypertension (PIH)
HR4*	40	Housewife	Bachelor's degree	5	1	3	Dezfol	Recurrent abortion, lupus and high blood pressure
HR5*	28	Housewife	Diploma	1	0	0	Haftkel	Bicornuate uterus
HR6*	32	Housewife	Diploma	1	0	0	Ahvaz	Infertility (13 years)
HR7*	27	Housewife	Diploma	1	0	0	Shoush	Infertility (5 years) & twin pregnancy
HR8*	35	Housewife	5th	11	1	9	Soosangerd	Gestational diabetes & hypothyroidism
HR9**	38	Housewife	Diploma	4	3	1	Ahvaz	Threaten abortion & preterm labor
HR10*	30	Housewife	Diploma	2	1	0	Gotvand	Placenta accreta
HR11*	30	Housewife	Bachelor's degree	1	0	0	Ahvaz	Gestational diabetes

*High risk pregnant women, **Women with history of high-risk pregnancy.

Table 2. Themes, main categories and subcategories extracted from qualitative data analysis.

Themes	Main categories	Subcategories
High-risk pregnancy and related issues	- Pursuing treatment and paying attention to the high-risk situation by pregnant women	- Responsibility of high-risk pregnant women for follow-up care and treatment - Reasons for non-follow-up and compliance with orders by high-risk pregnant women and their consequences
	- Psychological aspect of high-risk pregnancy on pregnant women	- Vulnerability and increased psychological sensitivity of high-risk pregnant women - Factors affecting the mental state of high-risk pregnant women - Fears and worries of high-risk pregnant women
	- Emotional and physical aspects of high-risk pregnancy	- Self-care and lifestyle modification - Physical and medical issues of high-risk pregnant women - Psychological conditions and emotional needs of high-risk pregnant women in the hospital
	- Consequences of high-risk pregnancy on the people around them	- Harm and psychological effects of high-risk pregnancy on family members - Financial burden caused by high-risk pregnancy
	- Empowerment of high-risk pregnant women	- Appropriate information and its effects on high-risk pregnant women - Resources promoting high-risk pregnancy information - Information and training received by high-risk pregnant women
Support dimension	- Family support for high-risk pregnant women	- Spousal support - Support of other family members (high-risk pregnant relatives)
	- Community support for high-risk pregnant women	- Behavior of care providers with high-risk pregnant women in health care systems - Government support - Coverage of health care services
Framework of program	- Acculturation	- Normalization - Incorrect attitude and misconception
	- Means and equipment	- Infrastructure and necessary equipment for home care
	- Security	- Acceptance or resistance to receiving home care - Security challenges and their solutions
	- Manpower	- The amount of workload and supply of human resources
	- Arrangements for the home care	- Environment preparation - Appropriate timing for the home care

"Because I see all kinds of diseases and the hospital has a kind of atmosphere, you get homesick, you get depressed, your mood is ruined, it's very difficult for me to be here for some time now. For example, in the evening, I get heartbroken, it's quiet, there is no sound." (Participant No. 10)

Based on the statements of the interviewees, factors with a favourable psychological effect and factors with an unfavourable psychological effect were extracted. In this regard, participant No. 11 said "Then one of the doctors said that maybe this baby died in your stomach, they stressed me to such an extent that I cried and begged... (high-risk pregnant stress and anxiety due to doctor's words)." (Participant No. 11)

Statements of several participants about the factors of fears and worries are given below:

"Considering the high-risk pregnancy, I had and considering my age (over 35 years old), the health of the child is very important to me, meaning that the fetus is healthy and without any problems." (Participant No. 1)

"I worry about my child, I miss my son, and when my son calls and talks to me... I miss him more." (Participant No. 10)

Self-care and lifestyle modification, physical and medical issues of high-risk pregnant women in the hospital and afterwards and

psychological conditions and emotional needs of high-risk pregnant women in the hospital are emotional and physical aspects of high-risk pregnancy.

In this regard, the interviewees said:

"At the age of 4 months, my blood pressure went up and my blood pressure was high for almost two weeks, then I controlled it, I kept calm, and I didn't get angry." (Participant No. 11)

"I was on complete bed rest the whole pregnancy and in the last month, I had severe reflux. There was a bucket next to my mouth from night to morning, I couldn't eat anything at all. The doctor suggested that I do a caesarean section at 36 weeks, which I refused, and I endured this pain until the end of 37 weeks, I had a caesarean section at my discretion and God gave me his miracle." (Participant No. 9)

"Visiting my family makes me feel better and I will feel much better when I am discharged and leave the hospital, then I will be very happy." (Participant No. 5)

High-risk pregnancy has different consequences on the family and other people around a high-risk pregnant woman (harm and psychological effects and the financial burden).

The statements of several interviewees are as follows:

"My complete bed rest put a lot of pressure and stress on all of us, especially my daughter and my husband." (Participant No. 9)

"I told my husband not to bring my son to the hospital, I don't want him to see me in this condition, cry and have a bad memory in his mind." (Participant No. 10)

One of the participants said: *"I had a high-risk pregnancy and I was on complete bed rest. We had a lot of expenses. The food we used to get from outside, my husband used to put a pad under me, wash me and put a basin under me and there were many other things and additional expenses that I didn't understand at all. I didn't think he had."* *"My complete bed rest put a lot of pressure and stress on all of us, especially my daughter and my husband."* (Participant No. 9)

Empowerment of high-risk pregnant women and proper training through appropriate and available resources is necessary and important for high-risk pregnant women. The education acquired by the high-risk pregnant woman helps her to better control the situation and high-risk conditions.

Participant No. 1 stated *"The care providers are expected to give full guidance and counseling according to the conditions. For example, those who have a high-risk pregnancy have a series of special care every month from the beginning of pregnancy to the first trimester, when the risk of miscarriage is high, they must receive all the training. They should give a high-risk pregnant woman, including the way she eats, her rest, and the time to visit for pregnancy care."* (Participant No. 1)

Other interviewees stated:

"I get my information through people who are in my relatives." (Participant No. 1)

"I read on the Internet and the users who spoke on the doctors' site said that these problems were created for us, or they had skin allergy problems or digestive problems, or similar problems." (Participant No. 2)

"I did not know many things. I didn't even know about salt and oil and these things. I was using solid oil. When I went to the health center there, they told me that you shouldn't use solid oil or even sea salt. They taught me a lot about diet." (Participant No. 11)

3.3. Support dimension

Another of the themes extracted during this study is the support dimension. This theme includes two main categories: family support for high-risk pregnant women and community support for high-risk pregnant women.

Spouses and other family members play an important role in patronizing high-risk pregnant women. The statements of the interviewees are as follows:

"When I was at home on complete bed rest, My husband took care of me and did the housework." (Participant No. 5)

"My sister sometimes cooks food and brings it to me... she likes me!" (Participant No. 6)

Society's support can be seen in the way care providers treat high-risk pregnant women in healthcare systems, government support and coverage of healthcare services.

The statement of the interviewees in this regard:

"Now both the health center and my endocrinologist are following me up more. The endocrinologist treated me very well, as soon as she found

out that I was pregnant, she immediately hospitalized me. At first, I was hospitalized for 15 days, and two weeks ago, I was hospitalized for a week." (Participant No. 8)

"Many families don't have money, they don't have insurance, and these costs multiply many times. This issue causes the mother to face many risks." (Participant No. 3)

3.4. Framework of the program

Another one of the themes extracted from the interviews with high-risk pregnant women is the framework of the program which included acculturation, means and equipment, security, manpower and the necessary arrangements for home care.

Providing care at home requires normalizing and creating a correct culture and eliminating negative attitudes and misconceptions about home care. In this regard, participants stated:

"If culture is created and the concept of care at home is told to people, that it does not matter if the mother is at risk or any other patient, it is possible to take care of the mother or the patient at home, be sure that all people accept this, it is also in their interest." (Participant No. 1)

"There are many people whose families or neighbours have not accepted care at home. When the caregivers visit the pregnant woman's home, they say who are these unknown people (caregivers) and what are they doing in the house? What is the problem well, there must be a very special disease that they visit from the health center or the hospital." (Participant No. 3)

The participants' statements indicate that to provide care at home, special medical devices and equipment are needed.

"Yes, in my opinion, this program is 100% good, but the midwife or doctor must have the necessary equipment and tools. No, they just check the fetal heart rate and leave, it must be a sono machine, NST. Now I don't know the conditions of transporting the NST machine. It is difficult or not difficult in that situation. If they can do the care that is in the hospital at home, it is good." (Participant No. 4)

The presence of caregivers at home may be associated with challenges, in terms of security. Under certain conditions, they are sometimes welcomed by families and sometimes they may face resistance from other families. The safety of caregivers and families and having a license (permission to enter) to provide care at home are some of the issues that are raised in this field and should be taken into consideration. The statements of the participants in this regard are as follows:

"My family will be very happy if I receive care at home. It's great." (Participant No. 7)

"The person coming to the home for care must be identifiable. I don't allow someone I don't know to enter my house (I'm afraid)." (Participant No. 8)

To provide care at home, trained, experienced and professionally qualified personnel are needed. The number of human resources should be sufficient and their workload should be reduced so that they can provide high-quality care. The information obtained through interviews with key informants in this field is stated below.

“The center that we call now or request for services, their personnel have time and are free to provide us services. There are no hospital or other personnel who have to do home care at the same time, so their workload increases and they get tired.” (Participant No. 3)

Arrangements should be made before visiting the home. Coordinate the visit time with the high-risk pregnant mother and her family, so that they provide the necessary conditions for the visit (be present at home, tidy the house, etc.).

Participant No. 10 stated *“In this sense, be prepared and prepare the space of the house for a midwife or a stranger who wants to come.”* (Participant No. 10)

Another participant said: *“It must be with prior coordination, that their family members are informed and that they are at home, and several other issues.”* (Participant No. 1)

4. Discussion

Home care as a community-based program can play an important role in providing prenatal care, but unfortunately, it has been neglected in our country. In this study, the views of high-risk pregnant women regarding the home care program for high-risk pregnancies were investigated and 3 themes including “high-risk pregnancy and related issues”, “support dimension” and “framework of the program” were expressed by them.

Regarding the results of the present study, high-risk pregnant women need to be responsible and look for suitable care providers in high-risk situations and pay attention to the high-risk status of the pregnant woman or her family. In a study conducted on nulliparous women, they found that several factors, including pregnancy-related anxiety, medical risk conditions, gestational age, the effect of the healthcare provider, previous experiences and one's life philosophy, affect the risk perception (status of high-risk pregnant women seeking care and medical support) in pregnancy[12]. Several studies aligned with the findings of our study stated the relationship between knowledge of mothers with responsibility and the ability to deal with adverse and high-risk maternal and newborn outcomes. Mother's knowledge is an important factor in attending to receive ante-natal care[13–15]. Delay in seeking prenatal care may have reasons such as lack of resources, cost of care (services), unfamiliar practices, restrictions on the presence of family members before going to medical centers, etc[15].

In Zanganeh Baygi *et al*'s study, the main causes of maternal mortality are delay in referral, non-compliance with treatment, complete disregard for prevention and treatment, interest in traditional and local medicine instead of doctor's recommendations, lack of trust in health and treatment staff, and religious beliefs, and traditional and ethnic reports[16]. Another issue related to high-risk pregnancy is the psychological aspect of high-risk pregnancy on pregnant women. One study reported that emotional and psychological experiences (*eg*, shock, fear, despair, sadness, isolation and loneliness, anger, sadness, guilt and mental health disorder) are

expressed in women during high-risk pregnancy[17]. The stress and impact of a diagnosis of a high-risk pregnancy condition, along with the associated treatment regimens for the condition, can heighten pressure and negatively impact a woman's coping, well-being, and symptoms of psychopathology[18].

High-risk pregnant women may need hospitalization due to their conditions. Our findings are in line with other research that found that women who have been diagnosed with a high-risk pregnancy, are hospitalized for a long time to ensure effective management of their condition and monitor fetal growth and health. Hospitalisation can be stressful for pregnant women because their environment is disturbed and this causes a range of emotional responses expressed by high-risk pregnant women[12,17,19].

A high-risk pregnancy is associated with actual or potential risk to the mother or the fetus. The chance of pregnancy complications for women with risk factors for high-risk pregnancies compared to low-risk pregnant women is one in four, while the chance for low-risk women is approximately one in ten[20].

Janighorban *et al* mentioned the need for financial support and the need to take care of children during high-risk pregnancy and bed rest. The financial consequences of a high-risk pregnancy and bed rest are caused by care, hospitalization and treatment costs of high-risk pregnant women and newborns (when a high-risk pregnancy leads to preterm birth), the husband's absence from work and the elimination of the mother's income. The mother's inability to take care of the children and not accompanying them in their free time and doing their homework causes them to be dissatisfied[19].

Training during pregnancy is one of the effective ways to reduce diseases mental disorders and anxiety, as well as improve the physical and mental health of people. Education of pregnant women during pregnancy, especially in high-risk pregnant mothers, is one of the most important effective factors in preventing the occurrence of mortality and reducing perinatal complications, depression, anxiety and subsequent issues[21]. Lack of awareness and fear causes anxiety in pregnant women, and this anxiety and fear is transmitted to the brain and increases the release of stress hormones in the mother, which causes adverse fetal and neonatal outcomes[16,21,22].

As for support dimension, it includes family support and community support for high-risk pregnant women. Spouses and family members' support for high-risk pregnant women plays an important role. Family support has an enormous impact on high-risk pregnant women's ability to cope with the fluctuating circumstances that surround them. Stress and anxiety dealing with a high-risk pregnancy can be overwhelming. Receiving emotional support from healthcare professionals, family and friends can help alleviate these challenges[23]. The experiences of the women who participated in a study conducted by Janighorban *et al* showed that due to the activity restriction during the complete bed rest during high-risk pregnancy and postpartum period, they need others to help them with handle their house tasks and their personal affairs. Also, they need someone to take care of their children. High-risk pregnant women need numerous clinical, therapeutic and hospitalization procedures,

which incur a lot of costs for them and make them face financial problems, so they need financial support[19]. They are faced with difficulties in solving problems which is caused by their personal and family conditions they have, in less community support. To move to specialized services, they need to create alternatives to care for their children, during their absence from home[24]. In a study, it was recommended to refer families of high-risk pregnant women to support groups and organizations (community support) and implement programs to identify and resolve their financial problems[19].

One of the infrastructural issues that must be considered necessary for developing a home care program is the culturalization of home care services. The results of Shahriari *et al*'s study are in line with the present study. Acculturation is mentioned as one of the basic infrastructures for home care services. To acculturation, information should be provided by the media and health education. Hospital offices should introduce home care centers and provide information about the type of home care services and approved tariffs[25]. In a study, cultural problems, the spread of superstitions in society and the media's inattention to this issue were mentioned as the factors of reducing the quality of care and increasing the mortality of mothers[16].

The participants' statements indicate that portable medical devices and equipment are needed to provide care at home. In many studies in line with our study, means and equipment are listed among the necessary infrastructures for the home care program. Failure to provide the necessary tools and equipment causes challenges in providing care at home. In many studies, shortage of resources and equipment, and suitable and available means of transportation have been pointed out as challenges for home care and providing quality services[16,25–27].

Home visitors (care providers) must have an ID card, obtain a license (permit) and wear appropriate clothing for their profession to be easily identified by the client. In Heydari *et al*'s study, one of the obstacles to providing home care was the lack of safety and security for care providers and families. The participants stated that care providers enter their personal space without prior planning[5]. The participants in Mohammadi *et al*'s study stated that the reason for not accepting care at home was the reluctance of the spouse and family members to allow strangers to enter their private space[28].

It turned out in this study that human resources are one of the fundamental components of the infrastructure of the home care program. Workload, lack of trained human resources and qualified staff, low salary, and job insecurity of manpower have been considered as challenges of home care[5,16,25].

Receiving care at home requires arrangements such as proper timing for providing home care and preparing the environment. Providing health care in the natural environment of the home to the person makes the person more control over their life status while receiving safe and supervised health care. Also, with the training provided at home, pregnant women learn to reduce behaviours that

cause preterm birth and modify their lifestyle, also observed that home visits minimize the number of days of hospitalization[7].

One of the strengths of this article was the qualitative design of the study and purposeful sampling with maximum diversity to obtain comprehensive information. Another strength of the study is the subject of the study and the issue of home care in the field of midwifery, pregnancy and childbirth, the provision of midwifery services at home has been neglected in Iran. One of the limitations of the study was providing suitable conditions for interviewing high-risk pregnant women, so we tried to interview high-risk pregnant women who have more stable conditions.

In conclusion, high-risk pregnancy affects various aspects of the lives of high-risk pregnant women and their families. Creating the necessary conditions for providing care at home plays a critical role in supporting high-risk pregnant women and removing related obstacles to receiving prenatal care in person. It will be especially beneficial for high-risk pregnant women in low-income areas.

Conflict of interest statement

Authors declare no conflict of interest.

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Authors' contributions

Masoumeh Sayahi carried out study design, data acquisition (interview with participants), data analysis and interpretation, and wrote the article. Shahrbanoo Salehin contributed to the study design, data interpretation, supervising and editing the article. Mehrnoosh Zakerkish contributed to data interpretation, supervising and editing the article. Afsaneh Keramat contributed to study design, supervising and data interpretation. Shahrbanoo Goli contributed to study design and data analysis.

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References

- [1] Sylvie YT, Mariette KK, Pichou KT, de Dieu TKJ, Blaise IK, Michel KN. Prevalence and factors associated with high-risk pregnancies in Lubumbashi, Democratic Republic of Congo. *Open Access Library J* 2017; **4**(12): 1-8.
- [2] Hafez S, Dorgham L, Sayed S. Profile of high risk pregnancy among Saudi women in Taif-KSA. *World J Medical Sci* 2014; **11**(1): 90-97.
- [3] Moosazadeh M, Naghibi SA, Khosravi S, Afshari M, Afsargharehbagh R. Outcomes of high-risk pregnancies in Northern Iran: Multivariate logistic regression model. *Iran J Health Sci* 2015; **3**(4): 40-46.
- [4] Issel LM, Forrestal SG, Slaughter J, Wiencrot A, Handler A. A review of prenatal home-visiting effectiveness for improving birth outcomes. *JOGNN* 2011; **40**(2): 157-165.
- [5] Heydari H, Shahsavari H, Hazini A, Nasrabadi AN. Exploring the barriers of home care services in Iran: A qualitative study. *Scientifica (Cairo)* 2016; **2016**: 2056470. doi: 10.1155/2016/2056470.
- [6] Han L, Ma Y, Wei S, Tian J, Yang X, Shen X, et al. Are home visits an effective method for diabetes management? A quantitative systematic review and meta-analysis. *J Diabetes Investig* 2017; **8**(5): 701-708.
- [7] Rastegari Z, Yarmohammadian MH, Mohammadi F, Kohan S. A comprehensive home-care program for health promotion of mothers with preeclampsia: Protocol for a mixed method study. *Reprod Health* 2019; **16**: 1-6.
- [8] Nobahar M. Experiences of the hemodialysis patients and medical staff personnel about regarding of nursing care: A content analysis. *JQRHS* 2016; **5**(4): 472-483.
- [9] Saunders B, Sim J, Kingstone T, Baker S, Waterfield J, Bartlam B, et al. Saturation in qualitative research: Exploring its conceptualization and operationalization. *Qual Quant* 2018; **52**(4): 1893-1907. doi: 10.1007/s11135-017-0574-8.
- [10] O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: A synthesis of recommendations. *Academic medicine* 2014; **89**(9): 1245-1251.
- [11] Lindgren BM, Lundman B, Graneheim UH. Abstraction and interpretation during the qualitative content analysis process. *IJNS* 2020; **108**: 103632.
- [12] Ilmaz B, Oskay Ü. A current view of care of high risk pregnancy. *Bezmialem Sci* 2021; **9**(1): 112.
- [13] Khalesi N, Anjom FS, Rezaeiezadeh G, Farahani Z. Evaluation of parents' awareness and knowledge about problems and issues related to their premature infants in an Iranian hospital. *Open J Nursing* 2015; **5**(05): 465.
- [14] Mengistie B, Ayele S, Tsehaye W, Mazengia A, Wolde M. Assessment of knowledge and attitude of pregnant women towards antenatal ultrasound in University of Gondar comprehensive specialized hospital at antenatal care clinic, Northwest Ethiopia. *PLoS One* 2023; **18**(11): e0292496.
- [15] Eni-Olorunda T, Akinbode OO, Akinbode AO. Knowledge and attitude of mothers on risk factors influencing pregnancy outcomes in Abeokuta South Local Government Area, Ogun State. *Eur Sci J* 2015; **11**(11): 313-324.
- [16] Zanganeh Baygi M, Peyvand M. Explaining the experiences of common causes of death among pregnant mothers in the least privileged province of the country (a qualitative study). *J North Khorasan Univ Med Sci* 2023; **15**(2): 31-39.
- [17] Isaacs NZ, Andipatin MG. A systematic review regarding women's emotional and psychological experiences of high-risk pregnancies. *BMC Psychol* 2020; **8**: 1-11.
- [18] Williamson SP, Moffitt RL, Broadbent J, Neumann DL, Hamblin PS. Coping, wellbeing, and psychopathology during high-risk pregnancy: A systematic review. *Midwifery* 2023; **116**: 103556.
- [19] Janighorban M, Heidari Z, Dadkhah A, Mohammadi F. Women's needs on bed rest during high-risk pregnancy and postpartum period: A qualitative study. *JMRH* 2018; **6**(3). doi: 10.22038/jmrh.2018.28162.1304.
- [20] Rajbanshi S, Norhayati MN, Nik Hazlina NH. High-risk pregnancies and their association with severe maternal morbidity in Nepal: A prospective cohort study. *PLoS One* 2020; **15**(12): e0244072.
- [21] Rahimi F, Islami F, Kahangi MM. Effects of prenatal education on maternal and neonatal outcomes in high risk pregnant women. *Pajouhan Sci J* 2018; **16**(3): 48-57.
- [22] Souza BFd, Marski BdSL, Bonelli MA, Ruiz MT, Wernet M. Solicitude in home visit of nurses in high-risk prenatal care: An experience report. *Escola Anna Nery* 2022; **26**: e20210328. doi: 10.1590/2177-9465-EAN-2021-0328.
- [23] Amick H. Strategies for managing high-risk pregnancies. *Crit Care Obst Gyne* 2023; **9**(5): 131.
- [24] Oliveira DDC, Mandú ENT. Women with high-risk pregnancy: Experiences and perceptions of needs and care. *Escola Anna Nery* 2015; **19**: 93-101.
- [25] Shahriari M, Nia DH, Kalij F, Hashemi MS. Challenges of home care: A qualitative study. *BMC Nursing* 2024; **23**(1): 215.
- [26] Mohammadi S, Shojaei K, Maraghi E, Motaghi Z. Care providers' perspectives on quality prenatal care in high-risk pregnancies: A qualitative study. *IJCBNM* 2023; **11**(2): 122.
- [27] Rajabi M. Challenges of home care in Iran: A focus on the functions of the health system. *IJCBNM* 2023; **11**(3): 222-223.
- [28] Mohammadi F, Kohan S, Yarmohammadian M, Savabi-Esfahani M, Rastegari Z. Exploring potential achievements and barriers to provide homecare for women with preeclampsia: A qualitative study. *IJCBNM* 2022; **10**(1): 30.