Original Article

Weight Management Challenges in Nulliparous Women Being Overweight or Obese Due to Pregnancy: A Qualitative Study

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Abstract

Background: Getting overweight after pregnancy is a common phenomenon and getting back to pre-pregnancy weight in the postpartum period is a major concern for mothers. This study aimed to explain the challenges in performing post-pregnancy weight-management behaviors in nulliparous women being overweight and obese due to pregnancy.

Methods: The present qualitative study was conducted with the conventional qualitative content analysis method based on Granheim and Landman's approach from October to December in 2021. In this study, participants were 15 women who referred to comprehensive health service centers in Tehran, Iran; they were purposefully selected according to the inclusion criteria. Data were collected through individual, in-depth, and semi-structured face-to-face interviews and simultaneously analyzed using the MAXQ Data version 10 software.

Results: The mean age of the participants was 25.93±3.21 years. Data analysis resulted in three main categories: 1) failure to adhere to calorie-restricted diets, 2) inability to engage in physical activity, and 3) lack of adequate social support.

Conclusion: Women with obesity due to pregnancy face many challenges to improve their weight-control behaviors. As such, improving healthy behaviors not only requires relevant stakeholders' commitment, but also demands women, their families and communities' intention to engage in healthy behaviors.

Keywords: Obesity, Overweight, Barriers, Pregnant women, Qualitative research

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Introduction

Obesity is one of the major health threats and the most prevalent diseases in many societies.[1, 2] However, nearly all developing and developed countries are facing the obesity epidemic.[1] Over the past two decades, the prevalence of obesity has nearly tripled in developing countries due to changes in lifestyle.[2] In 2018, 11% of men and 15% of women aged 18 and above worldwide were obese according to body mass index (BMI); in the United States, the prevalence of obesity in women (11.5%) was higher than in men (6.9%).[3, 4] Recently, obesity has risen to 24.1% in Iranian women, a serious health concern.[2]

Pregnancy has been identified as a period of risk for excessive weight gain leading to long-term weight retention and maternal obesity which makes women's bodies vulnerable in the long term.[5-7] Thus, it is considered to be one of the causes of maternal and infant mortality reported as a health indicator and many women find it difficult to lose the gained weight after giving birth.[8] Obesity in women is mainly related to intra-abdominal or upper body fat. Central fat deposition increases the risk of obesity-related diseases.[9] Being overweight or obese during pregnancy can lead to complications in the postpartum period, such as persistent obesity, diabetes, and high blood pressure.[10] Moreover, it can adversely affect the quality of life and increase the rate of psychiatric and physical disorders.[11] Obesity exerts an enormous economic burden on increasing the health care costs, reducing productivity, increasing disabilities, and reducing healthy life expectancy in the life cycle, especially after pregnancy. Also, it can result in adverse consequences for subsequent pregnancies such as preeclampsia, gestational diabetes mellitus, cesarean section, stillbirth, etc.[12] Most women get their pre-pregnancy weight level at 6 months postpartum,[13] but still an average of 20% of the women retain ≥5 kg.[14] Not reaching pre-pregnancy weight makes women obese in the next pregnancies, and this process will be continued.[15]

The Community Child Health Network found, in 2015, that nearly 75% of women weigh more one year after having a baby than they were before becoming pregnant.[16] A study on Iranian women at the end of the sixth month after pregnancy in 2017 showed that 83.5% of women had not reached their pre-pregnancy weight, and 45.5% of them were significantly overweight about 5 kg or more.[17]

Over the past decade, multiple factors, especially post-pregnancy lifestyle, have played a key role in the development of overweight and obesity.[18] There are barriers to improving optimal maternal health, getting back to pre-pregnancy weight, and preventing postpartum weight retention. In other words, what works at other life stages may not necessarily work here owing to certain barriers to weight management encountered in the post-pregnancy period.[19]

Various studies have been conducted in the field of women's obesity after pregnancy, each of which has investigated a part of it from one aspect, but the scattered results obtained cannot alone be the solution to this important category.[20-22] Aspects such as nutrition and physical activity of women have been more focused. Providing any health services appropriate to this group of clients requires knowing and revealing health beliefs, values and beliefs, which raises the need for qualitative research to obtain information about weight control behaviors in women after pregnancy.

Mothers' awareness of perceived barriers in such a situation will show what concerns they have, and in fact, by deeply studying these experiences and clarifying their obvious and hidden angles, it is possible to diagnose these experiences and design more effective interventions. Qualitative research, as an exploratory approach, lays the ground for conducting more in-depth studies on various aspects of the topic.[23] Given the fact that there is cultural sensitivity in obesity and conscious care of mental injuries in different societies, it is necessary to study and find out the barriers and challenges that make women unable to lose weight. Since in quantitative

research hidden and unknown dimensions of this problem can rarely be achieved in some studies, this qualitative study aimed to explain the challenges in performing post-pregnancy weight-management behaviors in nulliparous women being overweight and obese due to pregnancy.

Materials and Methods

This study was conducted with a qualitative research approach and conventional content analysis method in Tehran, Iran from October to December 2021. Participants consisted of mothers with overweight or obesity one year after giving birth who referred to comprehensive health care centers in the south of Tehran and were selected using purposive sampling. Inclusion criteria were the first pregnancy experience, no history of abortion, and no mental disorders and psychotropic drug use. Also, women with the following criteria were included in the study: having BMI <25 kg/m^2 before and at the first visit at the beginning (5-8 weeks) of pregnancy (according to the Institute of Medicine guidelines), a BMI of 25–29/9 kg/m^2 (being overweight) and BMI≥30 kg/m^2 (obesity) in the 12th month after pregnancy, women between the ages of 18 and 45 whose knowledge and experience could be used, a normal pregnancy and delivery at 38 to 42 weeks of gestation, a healthy and normal-weight (2500-<4000 gr) child at birth, willingness to take part in the study, and ability to share their experiences with obesity. The exclusion criterion in the study were dissatisfaction to continue the study.

Data collection continued in comprehensive health service centers once the study proposal was approved by the ethics committee of Tehran University of Medical Sciences. Data were collected using individual and semi-structured interviews. Sampling was purposeful according to the inclusion criteria. Individuals were selected who could share different experiences about the study. The interview was done by setting an appointment and the place of the interview was chosen according to the opinion of participants. Two methods were used to listen deeply to the participants, record and take notes for non-verbal messages such as silence and laughter with the permission of the person. Interviews with each participant lasted 50±10 minutes. The interview guide included open-ended questions such as: "What were the challenges of weight loss in the period after pregnancy?" and "What were the barriers of weight loss in the period after pregnancy?" Accordingly, besides the main interview questions, probing questions were asked to obtain a better understanding of the participants' narratives. Examples of these questions were "What do you mean by this?", "Why?", and "How?" The interview guide was developed by the authors to address the research question. At the end of the interviews, the interviewees were asked about any non-addressed points, informed about the potential need for more interviews, and requested to allow the interviewer to contact them in case of any possible questions about their experiences. The interviews continued until data saturation was achieved, i.e., no new information was obtained from the data and all aspects of the data were adequately developed.

All interviews were conducted in a private room, and the interviewees felt free to talk about their experiences and feelings about obesity and its management in the post-pregnancy period. The interviewer's observations were also recorded in a diary during and after each interview. All interviews were conducted by one of the researchers. The interviews were recorded using an audio recorder and immediately transcribed verbatim by one of the researchers manually. To protect the data of the recorded interviews, the corresponding author kept the interview files in an encrypted format.

In the present study, purposive sampling was used, and the codes and categories were developed. A total of 15 overweight and obese mothers were included in this study. Data were analyzed based on the conventional content analysis approach and

the proposed method proposed by Lundman and Graneheim who suggested five steps for qualitative data analysis.[24] In the first step, the text was transcribed immediately after each interview. In the next step, the text of the interview was reviewed to gain a general understanding and in the third step, the whole text of each interview was considered as a unit of analysis. Then, the semantic units were identified, and the data management was done using MAXQDA software version 10. In the fourth step, based on the constant comparison of similarities, differences and proportions, the codes showing a single subject were placed in a category. In the last step, the hidden content in the data was introduced as the main category by comparing the sub-categories with each other (Table 1).

In the present study, the accuracy of the study data was examined through four criteria created by Guba and Lincoln including credibility, dependability, confirmability, and transferability.[23] Credibility was ensured by establishing appropriate rapport and close interaction with the participants. Interview transcripts were handed to the participants and their comments were applied. In addition to prolonged engagement with the data, a colleague reviewed all the research steps, and his comments were applied. Maximum variation was observed when selecting the participants. To ensure dependability, all the study steps were reviewed and examined by the research team by exchanging ideas. As an external check, comments of a faculty member familiar with qualitative research and women health were also applied in all steps, and the results were confirmed. As to confirmability, the study steps were documented and made available as a reference for future research. As to transferability, all steps were described in detail, so that the findings could be generalized to other populations with similar characteristics.

The study proposal was approved by the ethics committee of Tehran University of Medical Sciences, Tehran, Iran (Code: IR.TUMS.FNM.REC.1397.198). A written informed consent was obtained from all

Table 1: Sub sub-categories, subcategories, categories extracted from the data

Sub sub-categories	Sub-category	Main- category
Accompanying the spouse affects the diet	Social influences on nutrition	Failure to adhere to calorie-restricted diets
Being encouraged to eat nutritious food from family member		
Unhealthy food due to working		
Taking care of the baby		
Inability to do nutritionist recommendations		
Eating too much due to being concerned about its effect on breastfeeding	Limitations of dietary modification	
Prevent health personnel from dieting for breastfeeding		
Eating behavior affected by financial problems		
Physical problems	Personal restriction	Inability to engage in physical activity
High workload		
Financial problems		
Decreased mobility due to Covid-19 restrictions	Environmental restriction	
Lack of sports facilities		
Need a companion in weight management	Need for support from others	Lack of adequate social support
Lack of family support		
Lack of spouse support to deal with obesity		
No focus on maternal weight after pregnancy	Need for support from health providers	
No dietary counseling in health cares		
Need training to lose weight		

subjects after receiving an explanation of the study by one of the researchers. Permission was also obtained to record the interviews with an audio recorder. Ethical principles related to the confidentiality of the participants' information and having the right of participants to withdraw from the study at any time were also considered without any consequences.

Results

Fifteen nulliparous women with a mean age of 25.93±3.21 participated in the study. Table 2 shows the demographic characteristics of the participants. After analyzing the data, 565 primary codes, 19 sub subcategories, 6 subcategories, and three categories were developed: Failure to adhere calorie-restricted diets (social influences on nutrition, limitations of dietary modification), 2) Inability to engage in physical activity (personal restriction, environmental restriction), and 3) Lack of adequate social support (need for support from others, need for support from health providers) (Table 1).

1. Failure to Adhere to Calorie-restricted Diet

The participants reported various causes to failure of adherence to calorie-restricted diets, which were further elaborated under the following sub-categories:

1.a. Social Influences on Nutrition

According to the participants, meal planning based on the husbands' opinions is the top priority or they have to accompany their husbands. One of the participant said: *"My husband tends to eat rice; if he liked salad, well, it would be better for me." (P1)*

Mothers constantly received dietary advice, especially about traditional food from family members and encouragement to eat more. A mother said: *"My family members make nutritious food for me. They encourage*

Table 2: Demographic Characteristics of the Participants

Participant Number	Age (Year)	Types of childbirth	Employee	Education	Current Weight (Kg)	Height (Cm)	Current BMI (Kg/m^2)	Pre-Pregnancy BMI (Kg/m^2)
P1	28	Vaginal delivery	Yes	Bachelor's degree	72	164.50	26.31	23.70
P2	25	C section	No	Diploma	78	167	28	23.38
P3	37	C section	No	Bachelor's degree	69	163	26	21.88
P4	30	Vaginal delivery	Yes	Bachelor's degree	71	146.50	35.42	24.52
P5	33	C section	No	Diploma	85	161	32.80	24.90
P6	32	C section	No	Bachelor's degree	60	146	28.10	23.94
P7	28	C section	Yes	Diploma and student	94	163	35.37	24.83
P8	20	C section	Yes	Associate Degree	106	160	41.40	24.98
P9	18	Vaginal delivery	No	Middle School degree	119	169	41.66	23.87
P10	20	Vaginal delivery	Yes	Bachelor's degree	70	154	29.50	24.42
P11	21	Vaginal delivery	Yes	Master's degree	70	163	26.34	24.52
P12	23	C section	Yes	PhD in Reproductive Health	69	161	26.60	23.68
P13	22	Vaginal delivery	No	Undergraduate student	71	159	28.04	24.91
P14	25	C section	Yes	Bachelor's degree	86	157	35.90	21.54
P15	18	Vaginal delivery	No	Diploma	65	155	27.10	20.83

me to eat a lot (laughing). My parents-in-law want me to eat more to be strong and have a fat baby." (P11)

Working mothers found going back to work after maternity leave difficult. They said being with the colleagues makes them accompany the colleagues and eat, regardless of food. *"I'm busy with work, and I'm always in a hurry to cook, so I can't make time for salad." (P7)*

According to Mothers, taking care of children was very time-consuming. A respondent mentioned: *"I do not have enough time because we usually spend time with children." (P12)*

1.b. Limitations of Dietary Modification

Mothers who were visited by nutritionists to lose weight could not do their recommendations due to high cost and time shortage. A mother stated: *"I went to nutrition counseling once, but I couldn't do the things I had been said due to being busy and their difficult diet. It can be expensive." (P1)*

Breastfeeding moms insisted on eating more to increase their milk supply and provide their child's nutrition. They also believed that eating less would be harmful to their milk and eventually their baby. Two participants said: *"I'm always obsessed with eating different foods to increase my milk supply. My priority is my baby."(P11). "I don't care about myself and the body image; my child's health is more important. Why? Because I am responsible for it. Breastfeeding should be complete." (P6)*

2. Inability to Engage in Physical Activity

According to the participants, personal and environmental restrictions were challenging for engaging in physical activity.

2.a. Personal Restrictions

Mobility has decreased due to physical problems caused by pregnancy. A mother said:

"Since I had a cesarean section, I've had abdominal pain. Therefore, I could not do any activity at all. That's why I didn't follow it. (P10). High workload was mentioned as another personal restriction: *"I do not have any daily activity. I'm always busy cleaning the house and checking up on the child. I do not have enough time to go for a walk or do exercise." (P7)*

Financial problems were considered as the main barrier to access to sports facilities: *"Sometimes I decide to go to the gym, but our neighbor has registered and the cost of going to the gym is too high and our income is not enough." (P6)*

2.b. Environmental Restrictions

Some participants said that Covid-19 played an important role in gaining weight and adversely affected the mobility in families, including women after pregnancy. *"After work, we can go for a walk in a park near us. We may use such facilities, but now it is not possible because of Covid-19." (P3)*

The participants noted that the lack of sport facilities and long distances limited their ability to engage in physical activity. A respondent said: *"There are not enough facilities near us. If I were in another area with enough facilities, I might have used it better" (P6).*

3. Lack of Adequate Social Support

Participants said that they needed social support for the management of weight. This main category was captured under the following sub-categories:

3.a. Need for Support from Others

They found it useful to have a friend with similar circumstances or communicate with people with similar circumstances. A mother stated: *"I really want to have a friend who is also obsessed with her overweight. I want her to ask me to come earlier in the morning to go for a walk before work." (P8)*

Husbands' support was thought to essential in most cases. *"In my opinion, being accompanied by husband can be helpful."(P3) "I really want my husband to support me alone while I'm exercising." (P11)*

3.b. Need for Support from Health Providers

Mothers also talked about the lack of attention from health providers in maternal weight management. They need the training to lose weight in health centers. They said: *"Although the focus is on the mother and the health of the fetus during pregnancy, the mother is ignored after delivery. They do not receive dietary counseling." (P8). "No one paid attention to me for education. Only the child is the center of attention." (P15)*

Discussion

This study aimed to explain the challenges in performing post-pregnancy weight-management behaviors in nulliparous women being overweight and obese due to pregnancy. Our findings showed that mothers could gain weight in the postpartum period. Giving birth is a life-changing experience for women, and the challenge of weight management in major physiological, psychological, and social changes should not be underestimated.[20]

Nutrition plays a significant role in maintaining health and preventing diseases. Postpartum feeding changes play a role in gaining weight at this stage of life because women find more barriers to healthy eating, which can put them at greater risk of overweight or obesity. Researchers in a study on eating behavior in the postpartum period found that nutrition was not an important issue for a woman with obesity. There is no limitation to return to old eating behaviors that have been developed in pregnancy. There is feeling of loneliness and helplessness during postpartum, which strongly affect the eating behavior of women.[21] On the other hand, some women do not find losing weight necessary, due to lack of motivation.[22] Our findings showed that most participants paid more attention to their diet for appropriate breastfeeding and having a healthy child. In a study by Coe et al., the participants believed that being a mother could lead to distraction from their diet.[24] Postpartum period provides an opportunity to develop long-term changes in eating behaviors and mental health of these women during that period. Healthcare teams need to be restructured to provide more focused follow-up care for women with obesity during the postnatal period in terms of their physical and emotional health.[21]

The next obstacle for mothers to improve their nutrition was their family and other people who did not allow the mother to go on a diet. They raised one of the most important obstacles in the women's lives. They had to have the same diet as the family. They mentioned the lack of support from their families about eating healthy meals. The mother was advised by families to be patient and lose weight after breastfeeding. In one study, behavior change interventions showed that family members could support or hinder behavior change.[25] The results of a study showed the importance of familial involvement with the postpartum routine. The constant presence of mothers and mothers-in-law supports a more balanced diet since they often help with the preparation of healthier foods.[21]

Working women faced more challenges after maternity leave. According to a research, obesity rates increased among female workers with longer working hours and those who work at night or in shifts.[26] Some women strongly believed that not trying to lose weight and improving their diet was due to being concerned about hurting the child. Mothers who had low birth weight babies disagreed on changing the diet to lose weight.[15] A study showed that a lower diet quality in women 12 months after childbirth may indicate increased pressures, balancing childrearing and return to work responsibilities. This underlines the need to support women.[27]

Women who visited a nutritionist to lose weight stopped the diet since they found that diet ineffective and time consuming. Of course, the most important reason was inability to afford the diet. The most important point was being prevented from dieting by health personnel and going on breastfeeding while health centers play an important role

in guiding and following up this problem in women with obesity. The study indicated that the food and health care that women with obesity assumed during pregnancy were abandoned in the postpartum period by the healthcare team.[28] Also, in this study, the participants reported that the health professionals did not accompany them to lose weight after delivery.

Based on our findings, some factors including physical problems, cost, and Coronavirus pandemic were considered the most important factors in reducing mobility. According to the participants, fatigue, lack of energy, physical limitations, and insufficient time after giving birth were the most common barriers to exercise. A study confirms our findings, showing that the total amount of physical activity during pregnancy was more than postpartum. Pregnancy and postpartum promote a sedentary lifestyle.[29] Also, participants believed that the neighborhood and a home with limited space could limit doing exercise. The most important obstacle was the financial status. Women do not care about their weight and may look for the simplest and inexpensive exercises due to economic conditions. According to the results of the reviewed studies, a statistically significant relationship was observed between the individuals' socioeconomic status and postpartum weight retention.[30]

All participants spent the most time at home due to COVID-19-related restrictions and fear. In the current study, the participants said that the coronavirus pandemic and its restrictions affected walking, exercising and swimming, and women could not use the sport facilities outside home. A study on obesity, eating behaviors, and physical activity in adults during Corona pandemic showed that people experienced some changes in weight management behaviors during the lockdown period. They faced more barriers in managing their weight than before. For example, 56% of more frequent and snack use and a 40% reduction in exercise and physical activity were reported.[31]

Some participants did not have enough time to exercise, and some had difficulties going to the gym. According to studies, common barriers to exercise were children and time constraints.[32] Based on the findings of a study, being too busy with caring the child, mothers could not manage to focus on their diet.[33] Taking care of the child, managing home as well as working outside home can lead to changing priorities. Therefore, they put self-caring, including finding time to eat well and engaging in exercise at the bottom of their schedule.[19] Nurses can encourage new mothers to find a walking partner, especially another new mother or a friend, to help them continue their physical activity. This increases motivation and consistency in more physical activity during the first year after giving birth. Raising awareness and providing some free exercise sessions for women can be useful. Mothers found having a partner to deal with obesity useful. According to a study, scheduling the walk and having a walking partner were the factors that could facilitate walking for physical activity.[32] Evidence showed that one of the barriers to losing weight was having an unsupportive partner.[34] A study showed that some women lacked access to supportive resources about postpartum physical activity and decreased their physical activity pursuit after negative personal physical or childcare experiences.[35] Healthcare providers, nurses, and nutritionists were considered to be important sources of information in this period.

A systematic review study described the barriers and facilitators to a healthy lifestyle in the first 2 years postpartum. They identified barriers and facilitators related to opportunity (e.g., social support from partners, family, friends, and healthcare providers; childcare needs).[36] According to the results of a study in an attempt to adjust to the changes in the postpartum period, in addition to their efforts to improve the situation, women need to be supported by their husbands, family members and acquaintances, healthcare team, and society in different dimensions.[37]

The strength of this study is the in-depth and detailed review of weight loss challenges after pregnancy. Since the outbreak of the Covid-19 pandemic and its related restrictions, people have tended to spend more time at home without physical activity. Besides, different levels of obesity were not considered.

Conclusion

Our findings show that women with obesity due to pregnancy face many challenges to improve their weight-control behaviors. Postpartum constraints are different from prenatal ones in individual and social aspects, including environmental constraints and health conditions, and health care. It is recommended that motivational and support programs should be developed for all involved people, including the mother herself, her family, and health personnel. As such, improving healthy behaviors not only requires relevant stakeholders' commitment, but also demands women, their families and communities' intention to engage in healthy behaviors.

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