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Determine Facilitators, Barriers, and Structural Factors of Physical Activity in Nulliparous Pregnant Women: A Qualitative Study Using Maxqda

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ABSTRACT

Aims There is evidence that physical activity plays an essential role in preventing illnesses during pregnancy. This study aimed to determine facilitators, barriers, and structural factors of physical activity in nulliparous pregnant women: A qualitative study using Maxqda.

Participants & Methods This qualitative study was conducted from January to June 2020 in nulliparous pregnant women. Forty participants selected randomly from the Pounak Health Center of Tehran City, Iran, answered open-ended questions about the obstacles that deprived them of physical activity during pregnancy. Data were analyzed by MAXQDA 12 software.

Findings According to the results, 620 primary codes, 42 secondary codes, 11 sub-themes, and 6 themes were extracted. These themes were divided into the PEN-3 categories; facilitators, barriers, and structural factors. The nurture factors as facilitators had communication and support from others as sub-themes. Barriers consisted of socio-cultural (participate in pregnancy loss with a companion; social beliefs; culture of poverty), socioeconomic (financial problems), individual factors (physical, psycho-emotional, and spiritual dimensions), and structural factors consisting of environmental (equipment) and organizational (possibilities in health centers) factors.

Conclusion It is essential to comprehend why pregnant women face obstacles to physical activity. Many issues are proposed: the need for enough information on the advantages of physical activity and the role of nurturing factors that need to be motivated to physical activity. Therefore, its a need to investigate structural problems in the community to provide facilities for pregnant women to have physical activity during pregnancy.

Keywords Pregnancy; Physical Activity; Health Status

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Introduction

Exercising can have beneficial effects on maternal and fetal health [1]. Some of these beneficial effects include reduced HTN, eclampsia, and preeclampsia. Regular exercise in the first 20 weeks of pregnancy reduces the risk of preeclampsia by 34% [2, 3]. Exercising prevents deep vein thrombosis by speeding up blood flow to the lower limbs and preventing them from stopping [4]. Proper and adequate physical activity during pregnancy has a significant impact on maternal health and fetal growth [5]. It has been shown that physical activity affects prenatal outcomes. However, physical activity parameters such as type, severity, and length of pregnancy may vary [6, 7]. Research suggests that nulliparous women who exercised at least 3 times per week during pregnancy and performed 30 minutes of aerobic exercise per week experienced less overweight, had shorter pregnancies, and had lighter neonates (6 and 7). One of the common misbeliefs about pregnancy is that physical activity and exercise during pregnancy are problematic and rest is the best solution [8, 9]. However, it should be noted that if the principles of scientific exercise are observed, it will be very valuable during pregnancy. The aim of physical activity during pregnancy is to maintain or increase physical fitness (not to increase athletic abilities) [10]. Physical fitness allows pregnant women to perform a variety of daily family, work, and leisure activities. Thus, the risk of physical diseases caused by inactivity also decreases [11, 12]. Exercise reduces the severity of pain even during labor and improves heart and lung function [13, 14].

Many researchers have found that exercise during pregnancy is associated with improved quality of life, reduced depression, increased self-confidence and a positive body image, weight control during pregnancy, and reduced pain [15]. Previous studies have indicated that women who gave birth had lower activity and mobility compared to women of the same age who did not experience pregnancy [16-18]. Lack of mobility and physical activity during pregnancy increases the risk of placenta previa, diabetes, hypertension, cesarean section, etc. in women [19, 20]. A meta-analysis in 2015 indicated that regular exercise during pregnancy was associated with an increased likelihood of normal delivery [21, 22]. Studies have shown that following a proper exercise program during pregnancy promotes maternal health and does not harm the fetus's growth, but most women do not have adequate physical activity during pregnancy [23]. Nowadays, the level of training required according to standard pregnancy care programs is not optimal in Iran [24]. Although many studies indicate the beneficial effects of physical activity on mother and fetus, about 60% of pregnant women eliminate their physical activity during pregnancy [25]. People who have limited time, such as employees and managers, experts, engineers, and staff, and who do not have access to good educators due to geographical problems, such as residents of small or remote cities, can make the most use of e-learning opportunities. Studies have indicated that virtual academic education will be a successful and efficient system if the educational content is formulated and evaluated properly [26]. Although there is adequate awareness of the physiological manifestations of exercise during pregnancy, there is still No. comprehensive understanding of the effects of exercise with different intensities and different durations during pregnancy on the mother and fetus. Hence, the present study aims at evaluating the effect of e-learning programs on increasing physical activity in pregnant women.

The pregnancy period is a unique term for a woman, and her unborn baby's life cycle and maternal health are the priority in this period [1]. There is evidence base that exercise plays a significant role in preventing diseases, such as cancers, type 2 diabetes, obesity, and hypertension [2]. Physical activity during pregnancy has further advantages like a reduced risk of gestational Overweight, pre-eclampsia, and diabetes mellitus due to pregnancy [3]. This may be important for pregnant women living in low- and middle-income countries (LMICs) because socioeconomic status (SES) is a risk factor that leads to the prevalence of weight gain, lack of activity, impaired glucose intolerance, and gestational diabetes mellitus [4]. According to instructions, it is also recommended that participants need to do exercise for 30 minutes or more, and it is better throughout the week [5, 6]. The American College of Obstetrics and Gynecology (ACOG) introduced that pregnant women must have physical activity for a minimum of 30 min in 5 days per week [7]. Besides dieting, being active during pregnancy maintains promise as a natural, impressive intervention to make infant and maternal safety consequences [8, 9]. One of the approaches to increasing physical activity for a lifetime is to use theoretical research to recognize the influences of physical activity on pregnancy theoretically. The lack of success in many exercise promotion endeavors may be due to the lack of recognition of theory-based determinants of health [12]. PEN-3 cultural model is a theory that has been exerted in a study of physical activity determinants in pregnant women [9]. The PEN-3 cultural model has effectively guided researchers to recognize various affecting factors of health issues [7], and it can be appropriate to use this model as a functional pattern in nulliparous women.

However, some pregnant women seem to follow the guidelines [10]. Meanwhile, the study in developing countries showed that 70% of pregnant women did not have any physical activity [11]. Having activity is

one of the substantial factors affecting the quality of life. It is currently increasingly identified that the assessment and consideration of life quality make essential data connected with various groups' health situations [12]. Because pregnant women are not regularly active, researchers should look for barriers, facilitators, and structural factors that prevent exercise during pregnancy. There are many assessments of the development of physical activity and interventions in the United States, Canada, and the Pacific [13]. One study found that pregnant women reduced physical activity due to physical limitations, low motivation, and goals, or a sense of danger about the activity [14]. Other research has shown that a fundamental reason for activity during pregnancy is the pregnant women's proper body. Another study that performs regular pregnancy activities may reduce cesarean section [15].

Barrier factors during pregnancy could help review ways to affect pregnant women for doing physical activity. Thus, this study aimed to recognize facilitators, barriers, and structural factors that influence activity among pregnant women who do not meet the guidelines for physical activity during pregnancy.

Participants and Methods

The study was designed with a theoretical approach based on the PEN-3 cultural model. This model created an opportunity to identify determinant factors that prevent physical activity during pregnancy. This model was also considered by exploring how cultural and social systems create a critical role in health subsequence [16]. The PEN-3 cultural model is a methodical framework that concentrates on culture and educational interventions in health promotion behaviors. This model was used as an instrument to investigate within context and data saturate, analyze, describe, and determine an issue. Data collection happened from January to June 2020. The pregnant women were eligible according to the following criteria; the participants involved (i) any woman not having background disease (hypertension, pre-eclampsia, eclampsia, heart disease, placenta previa, placenta accrete, etc.), (ii) the measured body mass index (BMI) pre-pregnancy equal or higher than 25 (i.e., Overweight or obese), (iii) being able to speak and write in Persian, (iv) nulliparous (first pregnancy) and (v) older than 18 and less than 40 yrs. After calling the participants, 10 could not be available because they had changed their phone numbers, rejected calls, or lost to response after three messages. The rest pregnant women who were successfully called all agreed to participate. The study aims were explained to the participants, and all signed the written informed consent. They were promised data confidentiality and allowed to stop participating at any time they require. Exclusion criteria involved full authority for pregnant women to leave the study at any time and cause sickness or dangerous diseases during pregnancy such as placenta previa, hypertension, preeclampsia, and eclampsia.

The selected method was the qualitative methodology, and we used an in-depth approach to researching the experiences of participants in this study. In-depth interviews were selected because this study is among a group of specific pregnant women who contributed their experiences with researchers. This method is too good to speak about topics to get comments that may not be discussed in one-to-one situations such as qualitative and focus groups. In this study, in the interview, pregnant women are persuaded to discuss with researchers: Demanding questions, collecting information, and in-depth interviewing between pregnant women and researchers [17]. Furthermore, In-depth interviews are valuable for health education and health promotion developments, interventions, and content [18].

All pregnant women were informed about participating in the research and gave written informed consent for the study. The qualitative data were collected and analyzed after themes appear in the in-depth interview; therefore, it can be explored in later cases [19]. All the in-depth interviews were guided, with the four researchers and participants talking about their views on physical activity during pregnancy. The in-depth interview was conducted during the study (January 2020), then these investigators could report on subjects while the discussions were implemented. At the in-depth interview, the subject guide with semi-structured questions and answers was compiled to comprehend the investigators' perspectives. This topic focused on services and perceptual and conceptual factors (such as knowledge, and attitude about physical activity in pregnancy), and participants' communication factors (social networks).

A stage explores the facilitators, barriers, and structural factors that affect physical activity in nulliparous pregnant women. Data collection was carried out using constant comparison methods with a triangulation method including semi-structured interviews. The triangulation method increases the study's understanding and validity of aspects of physical activity [19]. The tape solution together with paper systems was used to manage and find the codes. The researchers used an individual semi-structured in-depth interview with nulliparous pregnant women. In the study, open-ended questions were employed. Concepts, themes, and their properties and dimensions were identified. Initially, each recording was listened to in terms of its general content. Following open coding was used to 'fracture' the data or break it down into meaningful phrases, words, or sentences. These

were subsequently grouped into sub-categories and categories. Selective coding was used to integrate the data to reach a 'central category', explaining the main theme of the research. Therefore all of the categories developed from the interviews and open-ended questions; then results are reported together. Data coding was cross-checked by an independent researcher.

All the collected data during sessions were recorded and transcribed, then all the field notes were typed from handwritten papers in the computer, and then all raw data were analyzed, and put in MAXQDA software. Codes were sorted and extracted from participants' comments and their states. The participants' quotations were classified into broader themes; after that, themes were unified or changed in a suitable form if needed. The interview and data collection continued until saturation had happened.

The qualitative MAXQDA software (Version 12, 2018) was used to simplify data analysis. Themes have been explained by selected quotes that were anonymized. The qualitative data were reported, and in the end, these are adapted and sorted with RATS (Relevance, Appropriateness, Transparency, and Soundness) guidance [20].

Findings

The mean age of participants was 30.0±0.0years (ranging from 18-38) with a BMI (pre-pregnancy) of 25.0±0.0kg/m^2 (ranging from 21-51). also, the mean gestational age (week) and pre-pregnancy body mass (kg) were 26.0±3.0 and 65.0±12.0, respectively. Additional specifications and characteristics of the participants in this study are shown in Table 1.

Table 1) Participant characteristics (n = 30)

Characteristics	N (%)
Education	
Secondary school completed	3 (10)
Technical/secretarial after secondary school	8 (26)
College/university completed	18 (60)
Postgraduate degree	1 (4)
Occupation	
Routine/Manual	4 (14)
Intermediate	12 (40)
Professional	9 (30)
Not in employment	5 (16)

The PEN-3 cultural model was presented to analyze the collected data derived from semi-structured interviews with experts in three stages of the thematic analysis process, including descriptive coding, interpretive coding, and integration through comprehensive themes of analysis and conceptual model of educational intervention of factors affecting physical activity. In the first stage, the researcher descriptively coded the interview. In this stage, the interviews were performed in order by a competent and skilled person, and concepts and descriptive coding of interviews with pregnant women were extracted (Table 2).

Table 2) Descriptive codes and the number of their referrals

Descriptive codes	Concepts
Time management	Lack of priority of time for housewives
Access	Hard access to places that are suitable for pregnancy exercise Concerned about commuting to classrooms Lack of a place near the house for exercising prevents physical activity Lack of suitable route for pregnancy classes
Physical	Pregnancy food cravings in the first months of pregnancy prevent exercising Not exercising in the first weeks of pregnancy Fear of infectious diseases in sports class Prohibition of exercise in high-risk pregnancy Nausea prevents exercising
Economic	Economic problems in the family
Appropriate facilities	Multiple places for participating in pregnancy classes Space and facilities for sports centers Lack of appropriate space for walking prevents doing physical activity Access to educational CDs at home
Social attitude	An attitude of the family toward exercising
Personal attitude	Belief in exercise only for normal delivery Belief in a normal delivery with exercising
Awareness	Awareness of pregnant women about pregnancy exercises Awareness of pregnant women about correctly doing exercise Proper awareness about exercise even for cesarean section Awareness of pregnant women of the conditions that enhance pregnancy exercise Awareness of pregnant women about the reason for not exercising Awareness of pregnant women about exercise at a walking level Awareness of pregnant women about exercise type in pregnancy Awareness of the family about pregnancy exercises
Communication media	The role of media in informing about pregnancy exercise Informing hospitals and physicians about pregnancy exercises Informing education organizations about pregnancy sports
Support of others	The role of friends in pregnancy exercises The role of the family in pregnancy exercises

In the second stage of the thematic analysis process implemented in this study, interpretive codes were created by continuous and repeated comparisons of the descriptive codes produced in the previous stage. To produce interpretive codes, several descriptive codes were collected under one umbrella of interpretive codes and formed (Table 3).

In the third stage of the thematic analysis process, the themes formed in the interviews were integrated under the comprehensive themes and the network of comprehensive thematic themes "Factors affecting physical activity based on the PEN-3 cultural model" was formed.

We noticed that data saturation was earned and

three extracted themes relevant to the difficulties encountered with physical activity during pregnancy, based on the PEN-3 cultural model. They were: facilities factors, barriers factors, and structural factors, which are shown in Table 3.

Barriers factors

Barriers factors are specified into three categories: individual factors, social and socioeconomic factors that have been identified as barriers factors to lack of physical activity in pregnant women that are involved:

Socio-cultural factors. Subjective norms make to decrease opportunities for doing physical activity behavior. Pregnant women infrequently reported exercise during pregnancy. Furthermore, 28 participants mentioned the lack of exercise facilities for pregnant women, such as fitness classes. Within follow-up periods, six women in the study did not agree with men's presence in their pregnant women's exercise classes.

"My husband and I practically talk about physical activity during pregnancy every day as I like to do exercise, but my husband does not allow me to do that ,he thinks it is dangerous for our baby!" (Participant No. 9, the late twenties)

Participants were asked whom they consulted about physical activity, and most of them (86%) reported that they try to consult with their doctor for regular exercise. Some of them are reportedly banned from exercising with other women and their families because they thought exercise was dangerous in this period (Elina, the early thirties). Many participants stated that the lack of a social culture indicates that the women often did not support each other.

"It is hard to explain, but I think that in this country, the culture of pregnant women's sports is still absent, and many families are not allowed to exercise because they have misinformation about it." (Participant No. 5, mid-twenties)

Most women, who do not have enough money or time to attend classes, try to be active. Several of these participants described a diversity of main strategies, including mobility, dancing, walking, and jobs that need activity at home. However, some women (46%) did encounter structural problems (Husbands' opposition or family, affordable classes) that confined them to attend classes or mobility. It seems outdoors is not a suitable place for pregnant women. For one of the participants, walking was a comfortable form of physical activity because of financial constraints. She described "*walking to the shopping center and reported: Instead of sitting in the car for a long time, I prefer only to walk."* (Participant No. 18, mid-thirties)

Individual factors

Many women (56%) said they did not know how to attend sports in hospitals or health centers. This lack of awareness can be due to the neglect of healthcare personnel who do not inform women at the time of their visit or may have weaknesses in educational or social media. In the following, 42% of women said there is No. ethical education if we participate in affordable classes. Furthermore, opportunities for pregnant women are limited in developing countries. Mother's health is not the primary motivation for exercising during pregnancy. One woman summer. used this and said, *"I would rather eat less than exercise and get tired, but if it does not work, it is too hard and bad because of my body condition, and it is not good at all."* (Participant No. 23, mid-twenties)

While being active during pregnancy was introduced as one of the weight loss methods, many pregnant women (82.5%) believed that having healthy nutrition is likely to have physical activity during this period.

Facilitators

During the interviews with pregnant women, several factors were extracted as facilitating factors that we will refer to them. These facilitators were extracted from the follow-up interview while answering questions such as "What factors in your pregnancy can help you to do exercise?" Some responses have been extracted from women's speeches on other issues.

Nurture factors. Nurture factors & support are the factors to do physical activity during pregnancy. It seemed that pregnant women meet others in classes, and connecting was the most critical social system problem. One of the women who attended the exercise classes described her reasons*: "When I came to the health center for pregnancy care, I saw that other pregnant women talked about exercise classes and became curious and took the address from them. […laughs] This does not seem convenient … At first! [Silence]"* (Participant No. 14, the late twenties)

Structural factors

Environmental factor. "I provided the device for myself at home, and I do not like to get out of the house due to air pollution, and I try to exercise at home so that we do not face any problems because of the pregnancy situation. –However, I do not like to do that for a long time." (Participant No. 2, the late thirties)

Employed women with sedentary and non-mobile jobs said they would like to be active and have the opportunity to exercise.

For example, Zahra explained how to try to make time for her chief to have opportunities for walking all over her daytime: "*for instance, if I have No. time to do physical activity at my desk, I am trying to walk around in my workplace […] my office is so far of my work and walk there every day. Like… about ten minutes."* (Participant No. 28, mid-thirties).

Table 3) Interpretive codes and descriptive codes

Descriptive codes of interpretive codes	Interpretive codes
Enabling factors	Time Management
	Access
	Physical factors
	Economic factors
	Appropriate facilities
Perception factors	Awareness of pregnant women about pregnancy exercise
	Awareness of pregnant women about doing proper exercise
	Awareness of pregnant women about doing proper exercise even for cesarean section
	Awareness of pregnant women to strengthen the conditions to increase pregnancy exercise
	Awareness of pregnant women about the reason for not exercising
	Awareness of pregnant women about the type of exercise in pregnancy
Nurturing factors	The role of media informing in pregnancy exercise
	Hospitals and physicians informing about pregnancy exercises
	Education organizations informing about pregnancy exercise
	Support of others
	The role of friends in pregnancy exercise
	The role of the family in pregnancy exercise

Table 4) The theme, sub-themes, and codes of the facilitators, barriers, and structural factors

Themes	Sub-Themes		Secondary Codes
Facilitators			
Nurture factors	Communication		The role of the physician is to advise to do physical activity
			The support of other pregnant women to motivate each other to do physical activity
			Conversation among pregnant women in the virtual network
	Support from others		The role of the husband is to motivate others to do physical activity during pregnancy
			The purpose of friendship is to support the woman
			The critical role of the family in motivate pregnant women
Barriers			
Socio-cultural factors	Subjective Norms		Attendance of the spouse as a companion in participating in pregnancy sports classes
			Having other women in the pregnancy class motivates me to attend pregnancy classes.
			Having a dedicated sports instructor motivates me to take pregnancy classes.
	Social beliefs		Society believes that exercise is dangerous during pregnancy and harmful to the fetus.
			Public opinion on the dangers of pregnancy exercise for the fetus.
			Lack of community approval for pregnant women to be active during pregnancy.
	Culture of poverty		Lack of support from the family's motivation to do physical activity during pregnancy.
			Weak family culture to encourage pregnant women to exercise
			Lack of correct view of the usefulness of pregnant women during pregnancy to have a healthy child.
Socioeconomic factors	Financial problems		Low income to participate in the classes.
			Expensive pregnancy exercise classes
			Lack of price stability due to economic sanctions
Individual factors	Physical Dimension	Physiological Condition	Overweight and heaviness in pregnancy
			Difficulty breathing during pregnancy
			Physiological changes in the body during pregnancy
		Pathological Condition	Difficulty exercising during pregnancy
			Physical problems due to pregnancy
			Having an underlying disease and fear of getting worse
	Psycho-emotional Dimension	Attitude	Believing that exercise is not useful during pregnancy.
			Believing that obesity does not affect fetal health.
			Believing that exercise is dangerous in pregnancy for the mother and fetus.
		Primary and Secondary Reactions	Compliance with the disease
			Inability to adapt to pregnancy changes
			Uncontrolled diseases caused by pregnancy
	Spiritual Dimension		Negative thinking
			Fear of harm to the fetus
			Stress due to lack of support from pregnant women
			Lack of confidence in having the ability to do exercise
Structural factors			
Environmental factors	Equipment		Lack of sports space to participate in classes
			Lack of sports place to participate in classes
			Lack of proper facilities in the exercise class for pregnant women
			Lack of proper placards to inform the community
Organizational factors	Possibilities in health centers		Lack of professional staff in health-treatment centers
			Lack of sufficient information among health center staff
			Lack of a specialist in health centers for training
			Lack of suitable places in health centers for holding pregnancy sports classes

Discussion

This qualitative study explored barriers**,** facilitators, structural influences, and possible stimuli during pregnancy. At first, subjective norms were represented to constrain pregnant women from being active and participating in exercise classes. By accepting the PEN-3 approach, we have extracted a range of barriers**,** facilitators, and structural influences that affect pregnant women's intentions to be active during pregnancy. For objectivity in this research, it is necessary to show how bias may affect the study and therefore threaten validity [21]. At the start of each interview, the interviewer distanced from the role of the expert.

This qualitative study explored perceptual, nurturing, and enabling factors in pregnant women. Most pregnant women described only physical activity besides other women and the majority were the same age for persuasion. A few of them referred to presence besides their husbands and spent time with employed women and financial constraints. Second, nulliparous women faced a variety of barriers related to socioeconomic status. Pregnant women living in a house with limited space thought that attending sports classes to be expensive for them .Interestingly, husbands and extended family members are described as people preventing pregnant women from exercising, indicating the power of cultural influence in developing countries and raising awareness of health literacy in the community. Finally, some women described friends, husbands, and physicians as very useful for physical activity during pregnancy. Few pregnant women were aware of the benefits of weight loss, and they were more concerned about their infant's health. Some participants reported healthy eating during pregnancy as an appropriate alternative to activity during this period .Some studies have indicated that fitness and prevention of overweight during pregnancy have greater motivation for exercise during pregnancy [27]. Women care more about their infant's health than weight loss and fitness during pregnancy. This view might indicate a lack of physical activity for weight gain in Iran. Although there is evidence to suggest that increased pregnancy is associated with being overweight, it has harmful consequences and side effects for pregnant women or their infants [27]. Thus, it is necessary to design other approaches to weight loss and exercise interventions during pregnancy. Financial and temporal aspects are mostly related to women who are unemployed or whose husbands have a low income [28]. One of the problems that many women face is their ability to exercise during pregnancy and their lack of awareness of opportunities, indicating the key role of physicians, midwives, and healthcare providers in informing them [29]. Other studies have shown that many employed women, who do not have enough time to work, stated that what they do at work is enough for their pregnancy. In Iran, many women are unable to attend pregnancy classes or use the parks to apply due to air pollution and traffic problems [29].

In this research, a topic guide and two of the researchers using a thematic framework, which provided a trustworthy and reliable context for data interpretation, confirmed validity—in the following, interviewing continued until data saturation was achieved. These experiences and points of view should be used for designing interventions to increase physical activity during pregnancy. Most pregnant women (66%) stated that they were encouraged to exercise only in the presence of other pregnant women, but few mentioned the need to be with their husbands. As the interviews were extracted, many pregnant women (66%) with financial difficulties are looking for low-cost classes. Third, health as a primary motivation was scarcely discussed for doing physical activity in this period. Participants discussed their unwillingness to attend pregnancy exercise classes; for instance ,talk about fitness, which was this group's essential and primary motivation. Although the findings of this qualitative study about facilitators and barriers and structural effects around physical activity during pregnancy are available in developing countries, as well as prominent elaborations that may be more bolded in scary resourced bases are yet missing in which qualitative studies about exercise [22, 23]. Some studies have shown that fitness and preventing overweight during pregnancy have a solid motivation to exercise [24, 25]. Although many pregnant women (64%) have suggested dieting to prevent weight gain to exercise during pregnancy. The scientific evidence of their experience shows that physical activity represents being necessary for dramatic weight loss [26]. One of the intervention studies explained that weight loss significantly happened in pregnant women who did walk almost 75 minutes per day instead of the guideline that recommended having 30 minutes of activity per day [23-27].

Conclusion

Lack of awareness and misinformation, accessibility obstacles, and economic problems are the most physical activity barriers during pregnancy. Being among other pregnant women and the physicians' recommendations are the most facilitators of physical activity during pregnancy.

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Ethical Permissions: The Research Ethics Committee approved the research of this study. In this in-depth interview, all pregnant women were informed about participating in the survey and gave written informed consent for the study.

Conflicts of Interests: This study was a part of the first author's doctoral dissertation in health education and promotion at the Faculty of Medical Sciences, Tarbiat Modares University.

Authors' Contributions: Kianfard L (First Author), Introduction Writer/Main Researcher/Discussion Writer (25%); Niknami Sh (Second Author), Methodologist (25%); Amin SHokravi F (Third Author), Statistical Analyst (25%); Rakhshanderou S (Forth Author), Assistant Researcher (25%)

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