Determinants of Facilitators, Barriers and Structural Factors on the Behavior to Physical Activity and Interventional Framework among Nulliparous Pregnant Women: A Qualitative Study Using Maxqda

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Abstract

Background

The goal of this study was to recognize facilitators, barriers, and structural influences on behavior of physical activity among pregnant women.

Methods

Data analyses were done from 30 pregnant women (second and third trimester) and four of provider who were employed for this study (2020). Participants were answered to open-ended questions relating to the obstacles that deprived them of physical activity during pregnancy.

Results

The barrier factors consist of lack of sufficient information about the advantages of physical activity, lack of suitable place, lack of access to economically and affordable classes. Social norms are pertinent to subjective norms and motivators. Facilitating factors included using the E-learning to educate pregnant women and awareness of the existence of sport classes.

Conclusion

It is essential to comprehend why pregnant women meet obstacles for physical activity. Many of issues were raised: the need of sufficient information on the advantages of physical activity, the role of nurtures factors that need to be motivated in physical activity. Need for consultation to investigate structural problems in the community to provide facilities for pregnant women.

Background

The period of pregnancy is a unique term in a woman and her unborn baby's lifecycle, and, significantly, maternal health is the priority in this period (World Health Organization 2010). There is an evidence base that exercise plays a significant role in preventing diseases, for example, kind of cancers, type 2 diabetes, obesity, and hypertension (Warburton et al., 2006). Physical activity during pregnancy has further advantages like as a reduced risk of gestational Overweight, pre-eclampsia, and diabetes mellitus due to pregnancy (Dempsey et al., 2003). This might be important and essential for pregnant women that live in low- and middle- income countries (LMICs) that low socioeconomic status (SES) in a transitioning surround as a risk factor has been announced for the prevalence of weight gain pregnancy, lack of activity, defects in glucose intolerance and GDM (Kieffer et al., 2002; Shisana, 2015). As well as,, it is recommended that in lack of pregnancy side effects, according to instructions, participants need to acquire 30 minutes or more time of being activated, and it is better in the whole week (Artal, 2003; Artal & O'Toole, 2003). The American College of Obstetrics and Gynecology (ACOG) introduced that pregnant women occupation for 30 min of doing exercise at least five days per week (ACOG Committee Obstetric Practice, 2002). In a regular diet, doing exercise in pregnancy retains as an ordinary, effectual development to improve mother and infant health outcomes (Artal et al., 2007; Sui et al., 2011). Nevertheless, some pregnant women become visible to conform to these instructions (Nascimento et al., 2012). Meanwhile, the study in developing countries showed that 70% of pregnant women did not have any physical activity (Esmaelzadeh et al., 2008). Being active during pregnancy is kind of the most important factors influencing the quality of life of this population. It is significantly specified that measurements and outcomes of QOL (quality of life) provide essential data to explain the safety situation in different

populations of pregnant women (Ghafoori et al., 2013). Because of attention why a fundamental relation of the pregnant women do not take part in arranged having activity in pregnancy, investigators require to search barriers, facilitators, and structural factors that participant comprehend to prevent them from doing exercise during their pregnancy. There are a lot of several assessments of physical activity development and interventions in the US state, Canada, and the countries of the Pacific (De Bourdeaudhuij et al., 2011). One of this research found that pregnant women diminished their physical activity because of physical restrictions, feel of low motivation and goal, or a sense of danger about the activity (Clarke & Gross, 2004). Other research noticed as if the important reason for being activity in pregnancy were for fit body in pregnant women. One of another study received that arrange and regular activities in pregnancy may in pregnant women decrease the dangerous of cesarean section operation (Rajabi et al., 2018). The large number of cesarean sections that happen in every country may be correlated to educational, physical, economic, and occupational factors. The multiple dimensions consist of cultural, social, and physical measures. Later, he notices genetic factors, psychological and other behavioral patterns are the individual index that interacts with impressive environmental dimensions of health. Throughout, there is no doubt the identification of physical activity. Barrier factors during pregnancy could be a good guide in reviewing ways to effect on pregnant women for doing the physical activity. The purpose of this study was to determine the factors affecting lack of physical activity in pregnancy. Semi structure questions were exerted to recognize the barrier factors and contained “What causes prevent you from exercising during pregnancy, which is the most powerful ones?" and "do you think the lack of facilities can be effective in lack of exercise?" The facilitators included, “What is the main reason that keeps you from being more active while you are pregnant?". The structural influences consist of "what factors do you think motivate you to exercise? (e.g., self- efficiency), interpersonal relationship /social (e.g., subjective norms). The systemic environment in the community (e.g., easy access to services and facilities) factors. like the PEN-3 cultural model has been effective in orienting former investigator into the comprehension factors affecting physical activity in the universal crowd (Abuwalla et al., 2017), It can be appropriate to using like a functional pattern in other groups which are high risk like the nulliparous women. Thus, this study aims to recognize facilitators, barriers, and structural factors that influences to being activity among pregnant women who have nothing to meet the guidelines to do physical activity in pregnancy. However, it was hypothesized that facilitators, barriers, and structural effects on exercise during pregnancy follow the structures of the PEN-3 cultural model (i.e., perceptual, enabling, and nurtures factors), so data of the research is necessary for help the development a program about physical activity interventions amongst pregnant women.

Methods

Theoretical Framework

The study was framed by a theoretical approach based on the PEN-3 cultural model. This model provided an opportunity of the assumptive pathway among perceptual, enabling, nurture factors, and being active within the setting of a participant's day to daily life. This model was also considered by exploring how cultural setting health, confidence and functions, also how social and family systems create an acute role in enabling health promotion behaviors and health subsequences (Neergaard et al., 2009). A methodical framework, like the PEN-3 cultural model, concentrates on culture in health promotion behaviors, and completes relevant factors in the development of educational interventions. This model was significantly used as an instrument for analysis, to investigate within context and data until saturate, describe, and determine an issue. Data collection happened from January to June 2020.

Participants

Thirty pregnant women of participants were selected for interviews in this study. The sample involved (i) any woman with a healthy and first pregnancy, (ii) a measured body mass index (BMI) at noting (in the two and three trimesters of pregnancy) equal or higher than to 25 kg/m2 (i.e., Overweight or obese), (iii) adequate talk and written Persian, (iv) nulliparous (no previous children) and (v) older than 18 and less than 40 yrs. The middle age average was selected to accommodate the first researcher's age, and it was accepted between the investigator and participants involved in this study could significantly affect the tranquility of the in-depth discussions and observation of pregnant women. The investigators compared to the participants (pregnant women) who were all yellow) and the experience of participants were conveniently sharing, the issues negotiated and discussed, and the area of confidence increased among the nulliparous women and the researcher. Setting a date with the women several times per week helped instate agreement and address the nulliparous pregnant women's anxieties. The sampling method was confined to focus on nulliparous pregnant women as a targeted group while permitting for diversity point of view in experiences. This situation would allow the vision into why physical activity decline or disappear during pregnancy. Pregnant women with pregnancy problems such as hypertension and heart disease were significantly deprived of the study to hypothesize that pregnancy may lead to complications. This information was attainable at the time of registration the participants, and after that, the physical activity levels of nulliparous pregnant women in this group were precisely checked for analysis because the study was about women who did not have any physical activity. The characteristics of the women who participated in this study are shown in Table 1.

Recruitment

Following singleton pregnancy was visited, recruited, and their information analyzed and when the researchers agreed that saturation of analysis had been earned, then the employment of participants finished. Based on the above of our design in this study, we wanted to recruit up to 20 participants until data saturation was earned; these participants were selected to visit them frequently to extract their experiences of in-depth interviews. At the same time, two participants of pregnant women had announced that they were appealing to collaborate for recruitment for the future. According to our criteria for gathering samples, 42 pregnant women were eligible to participate in this interview, but were not called all eligible participants. In the following, of 42 participants were called, 12 of them could not be available because of changed their phone numbers, rejected calls, or lose to respond after three messages. The rest of the 30 pregnant women who were successfully called all agreed to participate in this in-depth interview. When data saturation was completed between 30 participants, the resting of women with the first pregnancy that was eligible for this study was not interviewed.

Participant characteristics. The average of definitive 30 participants was with a BMI of 30 (range 21–52). Eighteen pregnant women had graduated from university or higher, and four of them were employed. Additional specifications and characteristics of the participants in this study is shown in Table 1.

Design. The method chosen for this study was the qualitative methodology, and we used an in-depth approach to researching the skills and experiences of participants in this study. The researchers used a descriptive approach. This approach is appropriate for attaining experiences and includes a description of pregnant women (Neergaard et al., 2009). 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 allow speaking about topics to get to the point of view that may not be talked concerning in one-to-one situations such as a qualitative study and focus group. In this study in the interview, participants of pregnant women that are persuaded to discuss with researchers: Demanding questions, collecting information, and in-depth interviewing between pregnant women and researcher (Kitzinger, 1995). Furthermore, In-depth interviews are exclusively valuable as expanding health education and health promotion developments, interventions, and contents (Ussher et al., 2015).

In-depth interview participating researchers

Sending an invitation from the study's principal researcher, all four researchers engaged in the survey to participate in an in-depth interview. The three investigators consisted of three midwives (researchers 1, 2, 3) with the great experience of support for physical activity during pregnancy, and one of them that was a psychologist (researcher 4) did not any previous experience of creating this support. These four researchers had been recruited to work for this study via searching in the health centers. All of the investigators were educated in the health centers for this research about physical activity during pregnancy.

Ethics

The Research Ethics Committee approved the research of this study.

Consent

All pregnant women in this in-depth interview were informed about participating in the survey and gave written informed consent for the study.

Topic guide and procedure

The data for this qualitative study was collected and analyzed after themes appear in the in-depth interview; therefore, it can be explored in later cases (Moore et al., 2015). All of the in-depth interviews were guided, with the four researchers and participants talked about their point of view about 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 in this research. This topic focused on services and perceptual and conceptual factors (such as knowledge, attitude about physical activity in pregnancy), and participants' communication factors (for example, social networks). The average session of in-depth interviews lasted close to 85 min that was audio-recorded and transcribed verbatim. Topics discussed included perceptual, enabling, nurturing factors, physical activity intervention, and study implementation. The study's subject was guided by a leader who did not become a participant or share his point of view in the discussion and just took notes of the speeches of participants to supply and provide information for the finalist analysis. Communication with pregnant women, according to the environment (health centers) and psychosocial perspective of the pregnant women lives that could have seeming attendance to meeting (Mays & Pope, 2000; Strauss & Corbin, 1998).

A qualitative researcher simplified the other in-depth interview. Furthermore, this person not known to participants in the discussion and not interference in the study, with a leader that taking reviews and notes of the participants. All of the interviews were written, recorded, and transcribed during the conversation. Then these sessions were guided by a semi-structured interview between participant and researcher. The initial semi-structured questions for discussion were developed to make focused, and rapport on facilities and enabling factors. The semi-structured interview consists of items such as "What factors do you think lead not to do exercise? Can you talk me through your experience in this field? What factors you think can help in exercise? Do you explain the possibilities to exercise your pregnancy?" Currency questions concentrated on perception, thoughts of the interviewees, and social media.

One session of the interview concentrated on midwife's experiences about physical activity in pregnant women during pregnancy, focusing on their perceptions and attitudes about physical activity and sports. Within this discussion and interview, many questions consist of the appendix: "What are the motivating factors for attending physical activity classes during pregnancy? In this case, open-ended questions were chosen for the interview. All of the meetings were

audio-recorded. Thirty pregnant women agreed and participated in this interview. More than 80 hours of observation data collection of pregnant women who participated in this in-depth interview were done, and all of the data collection as field notes were transcribed and recorded verbatim. In this study, the first author, a qualitatively trained researcher, monitored and checked all of the observational data collection, conducted and guided by the second author and the superior and commander author, supervised all steps.

Data collection and analysis

In this study, semi-structured and in-depth interviews were used to do accurate exploration of pregnant women's experiences and opinions using a flexible and responsive approach (Ritchie et al., 2014). Data analysis was using a framework approach to describe and explore the original data in relation to the PEN-3 approach (Ritchie et al., 2014). All of the observation data collection during sessions were recorded and transcribed, then all the field notes typed from handwritten papers in the computer, and then all raw data analyzed, putting MAXQDA software. Codes were sorted and extracted from participants' comments and their states. The participants' quotations were classified into the broader themes after that themes were unified or changed in a suitable form if needed. The interview and data collection continued until saturation current had happened. For the first time, the data analysis was guided by the first author. Because of the modality of the research was embedded, using the various coders was not significant. However, to earn rigor and ensure of this work, the data analysis was argumentative and continuously revised by the second author, a researcher with the high qualitative experience, and superior author, and at the end consensus over themes compromised and reach. The emerged items of the raw data were classified into barriers and facilities factors to do physical activity in pregnancy. All 30 participants of pregnant women for member checking were called, and then data obtained were changed and refined. Finally, the team arranged codes to phrases; after that, analog codes were transpired into sub-themes, and in the following sub-themes emerged to earn principle themes.

The principal themes were then refined and changed through discussions in the interviews to certify that they accurately show the primary data, and it was what the pregnant women mentioned in the sessions. Finally, the process of the investigator permitted doing the internal validity of the study (Denzin, 1978). To simplify data analysis, has used the qualitative MAXQDA software; Version 12, 2018). 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 (Clark, 2003).

Results

We noticed that data saturation was earned and three extracted themes relevant to the difficulties encountered about physical activity during pregnancy, which based on PEN-3 cultural model. They were: (1) facilities factors, (2) barriers factors (3), and structural factors, which are shown in Table 2.

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, which are shown in Table 3 that are involved:

Socio-cultural factors. Subjective norms make to diminish opportunities for doing physical activity behavior. Pregnant women infrequently reported that exercise during pregnancy and were scarcely seen by the investigators that they were exercising with other people, but found that their husbands' attend in pregnancy classes encouraged them to do physical activity. Of the 30 participants in interview, 28 said they would like to participate in exercise classes with

other pregnant women. Of the 30 participants, 21 mentioned a lack of exercise facilities for pregnant women, such as a lack of fitness classes. Within follow-up periods, six pregnant women on trial did not agree with this subject that the presence of other men 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 permit me to do that, he thinks it is dangerous for our baby!
(Mahdis, the late twenties)

Participants were asked whom they consulted about physical activity during pregnancy, and most pregnant women reporting that they try to consult their doctor for regular exercise during pregnancy. Some of them are reportedly banned from exercising with other women and their families because they thought exercise was dangerous during pregnancy (Elina, the early thirties). Many participants stated that the lack of a social culture indicates that these pregnant 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.
(Samira, mid-twenties)

When asked during frequent visits, some participants confirmed this idea. One of these pregnant women strongly disagreed with this idea. This is the main effect of encouraging them to be active during pregnancy. Among the 12 women who explained that pregnant women were encouraged to exercise, eight did not. A small number of participants said that if they had a kind spouse who could encourage them to attend or take classes, they would probably do physical activity. The opposite sex roles also confined pregnant women’s chances of being active to have social accountability during pregnancy. Several participants had not confirmed on behalf of their extended family, whereas few did.

Socioeconomic factors. Socioeconomic factors do not allow participants to take part freely in exercise classes during pregnancy. Within interviews of these women, they reported a variety of socioeconomic restrictions. First, several women said that there is no proper place to do exercise. Several participants noted that homes are small and not suitable for physical activity. Some women said that being active at home and doing activities such as washing, cleaning is enough as an exercise in their pregnancy. Throughout follow up sessions, participants reported that it was not likely to do physical activity in their homes because they lived in small apartment houses. Pregnant women as well as stated that they do not have the necessary facilities for exercise at home. For example, one of the pregnant women described:

I prefer to select a sports class that is not expensive that I could have a private trainer. If physical activity classes were held for pregnant women in health centers or were given free cards to participate in exercise classes, they would use more...
(Lale, mid-thirties)

One participant described the physical inactivity during her pregnancy:

"The city is very crowded, and everywhere in the city is built houses, and there is not even the right place to walk for pregnant women, especially with this polluted air … no… in this daytime is no way! It is a place, not for walking!"

(Faride, mid-thirties)

One pregnant woman commented: *"I do not have to pay for my diet, but if I want to attend pregnancy classes, I have to pay." Because of this, I think it is better than having a gym for health. Isn't expensive, so I think, the diet has more effectiveness than physical activity."*

(Kati, the late twenties)

During the participant sessions, 18 women spoke of their spouse's economic situation and claimed that they were not allowed to attend exercise classes because of their financial problems, and they did not get awareness about free sports classes for participating. This means that health care providers must provide all information about the existence of these classes to pregnant women, as well as social networks, and media must inform them that pregnancy exercise classes for women who have financial problems are free.

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 having mobility, dancing, walking, and jobs that need activity at home. However, some women did encounter structural problems (Husband's opposition or family, affordable classes) that enabled them to attend classes or doing mobility. It seems outdoor is not a suitable place and facilities for pregnant women. For one of the participants, walking was 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."*

(Mina, mid-thirties)

Individual factors. Many women were upset that they did not have any knowledge of conducting exercise classes for pregnant women in hospitals or health centers. This lack of awareness of women 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. A few women said that if we participate in affordable classes, there is no competent and ethical education. Furthermore, opportunities for pregnant women is limited in developing countries

Mother's health, not the primary motivation for doing exercise during pregnancy and this is not the right motivation for them to participate in the exercise.

One woman summarized this and said, *"I'd rather eat less than exercise and get tired, but if it doesn't work, it's too hard and bad because of my body condition and it's not good at all."*

(Saral, mid-twenties)

However, few pregnant women said that during pregnancy, if they feel the risk of having pregnancy-induced diabetes due to a history of familial or high blood pressure, which seriously danger their fetal deaths, they try to participate in exercise classes. One woman described:

"My baby's health is more important than myself, but I am apprehensive about diabetes and hypertension due to my obesity in pregnancy, and I prefer to exercise for my health. Things just happen…"

(Fereshte, mid-twenties)

One woman commented, *"Previously, women had a lot of activity and therefore were easier to give birth or had any problems, but with the advancement of technology, nobody cares about this issue."* She kept on and asserted that the old opinion and belief confined the culture.

(Fateme, the late Thirties)

Many women believed that if they could control their weight through healthy nutrition, they would no longer need to exercise. One pregnant woman commented:

"I always had my health rights before pregnancy, and I was very active in physical activity, but now due to my baby not being injured, I prefer to take a diet and do not let the illness come to me to have a more comfortable delivery."

(Azita, mid-thirties)

The belief in pregnant women that having healthy eating is more comfortable and more effective than doing physical activity during pregnancy is a reflection of health professional's role in increasing women's awareness and cultural poverty in this community.

One woman explained:

"In my idea that everything is depended on the nutritional health. If pregnant women regard and take care of their diet, I am sure that they do not get overweight and obesity and no longer need to exercise."

Another woman described that *"Maintaining a healthy diet avoids exercise during pregnancy and reduce the risk of harm to the baby."*

(Sedige, mid-thirties).

Almost most of the women who participated in the interview agreed with this opinion that the diet of healthy food would reduce the need for physical activity in pregnancy. Just seven pregnant women recognized being fitness as the first motivation to do exercise in pregnancy.

One woman explained:

"Whenever I go to my doctor's or healthcare provider's visit, she never advises me to" exercise for my health.

(Kiana, mid-twenties)

Therefore, most women thought of physical activity as fitness and did not know what benefits to exercise during pregnancy. For instance, a participant reported attending in a free counseling class: "*Nutrition Advisor recommended me that I could lose more than 10 pounds if I remained on a severely diet."*

(Rosha, the late twenties)

While being activity in pregnancy was introduced as one of the weight loss methods, many pregnant women believed that having healthy nutrition is a likely alternative to have physical activity in this period.

Facilitators

During the interviews and meetings held with pregnant women, several factors were extracted as facilitating factors that we will refer to them. These facilitators were removed 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 among women's speeches on other issues.

Nurture factors. Nurture factors & support are the factors to do physical activity during pregnancy. In physical activity classes, it seemed that pregnant women know other women, and connecting was the most critical problem of the social system. 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]"*

(Junos, the late twenties)

Awareness of free class was suggested as an essential motivator for presence in the sports class. Some women said that being a free class for participating is very important in this social-economic situation. As Sima went on to summarize, *"Stolen water is sweet" [Laughs]*. She explained: *"Since I got pregnant, I lost my job, and my husband's income is not high; therefore, it is motivational for me to participate in these classes."*

(Maryam, the late twenties, no children)

Electronic communication via a group consists of pregnant women in the same physical activity class that make stronger this social motivation. Electronic communication is formed of mass media application that was generally used by the pregnant women group, and its traditional was used in a similar method of services of text messages to motivate pregnant women to do physical activity in pregnancy and entered into the group with the exchange messages in a usual forum. One of the pregnant participants described a Telegram group:

I am encouraged by my friends, because umm ... My friends in my group are invited to do physical activity during pregnancy, and when I get bored, I go to social media and talk with my friends. I get excited. The group [...] encourages you to feel as satisfied as to do physical activity with them.
(Raziye, the late thirties)

It seems that there is a direct and secure link between virtual networks and the motivation of pregnant women to attend and encourage them to exercise classes.

When health was not offered as the primary motivation for exercise during pregnancy, pregnant women tended to go to gym classes because of their new relationship with other pregnant women. Women talked about experiencing reduced back pain during pregnancy, reduced ankle and knee ache, and more Joy and peace and increased cardio output. One of the pregnant women commented: *"Before my pregnancy I had depression and when I became pregnant unintentionally, my wife and family were very worried about the deterioration of my condition […] Until one of my friends advised me to take part in pregnancy exercises classes, after a few sessions, I am feeling very well In terms of mentally and physically, and I do not use other depressions pills–! [Laughs]. "*

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."

(Sogand, the late thirties)

Some participants said dancing and stretching movement is a good alternative rather than physical activity in pregnancy; there is no need to spend time or money outdoors. They did describe dancing does not require space or

individual facilities or pay cash, and they saw kind of dancing as fun. One woman commented: "*I think dancing and aerobic instead of exercising is much better. I do not like to do slow movements.*"

(Shaya, mid-twenties)

Organizational Factors. Some pregnant women mentioned that working out of home regards as physical activity in response to whether they are exercising or not. For example, one of the pregnant women reported using while working. She described:

I work in a hospital as a nurse. My work requires much energy, and I am always moving, and it is a kind of physical activity, especially during pregnancy. I do not like to do more activities after leaving work because I'm afraid it will be dangerous for my baby.
(Rahil, the late twenties)

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 the time of 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 to there every day. Like… about ten minutes.*"

(Zahra, mid-thirties)

Nazanin, who worked at an office, described, *"Due to pregnancy, someone does not let me work at home, but I always try to be active."*

(Nazanin, the late twenties)

Another woman described, "*Exercising at a gym class near her workplace, which costs $10 per week. Another woman described close to my workplace, due to my pregnancy situation and economic problems, I found the gym class that is also affordable for me."* Therefore, the cost of pregnancy classes is a significant barrier to pregnancy. The result of these item are shown in Table 4. The relationship between themes and subthemes about physical activity in pregnant women is shown in Fig. 1

(Raziye, the late thirties)

Discussion

This qualitative study explored barriers**,** facilitators, structural influences, and possible stimuli during pregnancy. At the first, subjective norms represented to constrain pregnant women from being active and participating in exercise classes. By accepting the PEN-3 approach, we have been able to extract a range of barriers**,** facilitators, structural influences that effect on pregnant women's intentions to be active during pregnancy. In order to try for neutrality and objectivity in this research it is necessary to show how bias may effect into the study and therefore threaten validity (Ritchie et al., 2014). The interviewer at the start of each interview distanced from the role of the 'expert'. They confirmed she was only interested in participant's own perceptions and beliefs, also stressing there were no right or wrong answers during their interview.

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 in pregnancy. Most pregnant women stated that they were encouraged to exercise only in the presence of pregnant women, but few mentioned the need to be with their husbands. Employed women had limited time to exercise, and some had financial difficulties attending sports classes. Second, women with a first pregnancy faced with a diversity of obstacles that related to socioeconomic situations. Pregnant women that live in a house with the deep space limited to have opportunities to do housing exercise and participation in sport classes were imagined, it would be expensive by women with low income, especially with the recent sanctions. Interestingly, spouses and extended family members are described as barriers to exercise in pregnant women, indicating the power of cultural influence in developing countries and thus show the need to increase awareness of health literacy in society. Finally, some women described that recommendations of friends, husbands, and physicians to take physical activity in pregnancy are very useful. Few pregnant women bolded the advantage of weight-loss on other health concerns, also they were more concerned about the health of their baby, and this shows the need to raise awareness in women at the community level. Some participants described that regarding healthy nutrition during their pregnancy as a kind and suitable replacement for being active in this period. At the beginning of the study, it was not imagined that the pregnant women, who had a whole problem, were inactive in terms of physically. According to these results for pregnant women, many factors seemed to motivated physical activity during pregnancy. First, social support and nurtures, which is very useful in developing countries, presented further motivation for consistently. Second, many pregnant women in sport classes offer facilities that lead to the equipping the class and thus increase the likelihood of physical activity.

As the interviews were extracted, many pregnant women that have financial difficulties are looking for low-cost classes. Third, the issue of health as a primary motivation was scarcely discussed for doing physical activity in this period. Participants discussed unwilling to attend pregnancy exercise classes; for instance, talk about fitness, which was the essential and primary motivation in this group. Although the findings of this qualitative study about facilitators and barriers and structural effects around physical activity during pregnancy are available in developing countries, but as well as prominent elaborations that may be more bolded in scary resourced bases are yet missing in which qualitative studies about exercise (Cargo & Mercer, 2008; Jeffery et al., 2003). Some studies have shown that fitness and preventing overweight during pregnancy have a strong motivation to exercise in pregnancy (Eysenbach, 2000; Symons Downs & Hausenblas, 2004).

Although many pregnant women have suggested, they prefer dieting to prevent weight gain than exercise during pregnancy. The scientific evidence of their experience shows that physical activity represents to be necessary for dramatic weight loss (Moeini et al., 2010; Tahei & Irandost, 2017). 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 (Jeffery et al., 2003). This suggests that women are more likely to consider their baby's health than their weight loss and fitness during pregnancy. This point of view may show the absence of physical activity for weight gain in developing countries. Although there is evidence, which reports pregnancy overweight is accommodation with detrimental results and side effects for pregnant women or their infant (Eysenbach, 2000). Thus, it is necessary to design other approaches to weight loss and exercise interventions during pregnancy.

In our study, mentioned for subjective norms support (nurture factors) from their gender female and physicians. Some pregnant women, although, demonstrated mentioned to their husbands as a remarkable obstacle to maintained activity in pregnancy. Conducting classes for pregnant women with the presence of their spouses may be practical and advantageous at decreasing the social dissociation of many pregnant women.

Economic community-based physical activity classes, sanctions, and being away from sports classes from the resident place can show many of the barriers factors to have physical activity in pregnancy. Detention how to create a plan to free exercise classes for pregnant women and increasing facilities in classes and to increase the number of sports classes to reduce distance could be a way to create opportunities for access to affordable, exercise facilities. Social support was shown as an obstacle to be active in first pregnant women (Eyler et al., 1998). More financial and time aspects relate to women who are unemployed or whom their husbands have low incomes (Eyler et al., 1998). One of the problems encountered by many women is the ability to perform the exercise in pregnancy and that women's awareness of opportunities was deficient. This reflects the full role of physicians, midwives, and healthcare providers in informing them. In previous studies, the part of health provider cares is mentioned as those who can provide useful advice and information to pregnant women about physical activity and a healthy diet (Ringdahl, 2006). In other studies, it has been shown that many employed women, who do not have enough time to be active, have stated that the same work they do at work is enough to exercise pregnancy (Eyler et al., 1998). In developing countries, many women, due to air pollution and traffic problems, cannot participate in pregnancy classes (Ringdahl, 2006; Trost et al., 2002). The critical issue raised by participants in this study is the lack of interest of pregnant women for pregnancy exercise, which they assume that it can be lead to irreparable harm to their babies, and therefore they do not want to attend in these courses. Therefore, more of them preferred to control their weight by diet. These findings may be impressed by the results that pregnant women have received of the conflicting messages during this period.

Strengths and limitations

This study contains valuable findings. For example, trying to improve the facilities and society structures will help politicians to increase physical activity in pregnant women during pregnancy. This study also faced many restrictions. In-depth interviews with pregnant women interviewees were faced with 30 women in this research. Participants who did not participate in this interview may not have been the free time or did not like to participate in the interviewee; for instance, various ways can be related to the study-specific objectives that pregnant women did not interested in participating in this study. This study specifically concentrated first on pregnant women, but the research did about male and physician's attitudes, perceptions, nurtures, enables, and behaviors can help to determine physical inactivity in pregnancy. Besides, not all of the investigators in the first interview participated in the second in-depth interview. The first restriction in this study was to include pregnant women ages 18–38. However, older participants who have now become larger may have very different experiences and may face with several obstacles and retain another perception. In addition, girls who are in puberty mostly spend less time on physical activity. Unfortunately, we do not have access to this group range of the Health Centre (Unwin et al., 2015). However, we excluded older and teenage women due to our hypothesis the age- gaps in participants would impress the calm of discussions. This study was too confined to first pregnant women with physical inactivity during pregnancy, research the effective factors among them, potentially future exercise developments and interventions for this group. This qualitative study's evaluation results may be transmissible to other researchers to care settings in first pregnant women in other countries. However, these findings may not be relevant to first pregnant women outside country and have different conditions and situations.

Conclusions

The findings of this qualitative study suggest that facilities, barriers and structural factors ns are the essential determinant factors about physical activity during pregnancy. By Using the PEN-3, cultural model approach can be obtained various factors that affect the behavioral goals of pregnant women. More health measure interventions

could concentrate on training pregnant women's support to increase motivation to do physical activity. In addition, by conducting appropriate political lobbying, you can increase the free or at least affordable and accessible physical activity classes. This study has a good effect on quality of life of nulliparous women and lead to a healthier baby's birth. On the other way, they will involve their husbands in this study and affect them to increase physical activity. Furthermore, future studies can inspiration from the data gathered about lack of physical activity during pregnancy.

Abbreviations

LMICs: Low- and middle- income countries; SES: Socioeconomic status; GDM: Gestational diabetes mellitus; ACOG: American college of obstetrics and gynecology; QOL: quality of life; WHO: World Health Organization

Declarations

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Authors’ contributions

LK comprehended the trial, completed the collection, categorized, and coding the data. SR presented supervise during data collection and collaborated to temporary and interpretation final data and edition transcription. SHN performed manage during the development of the study and data gathering, participated in the analysis of the data, prepared the draft, and edited the repetitive draft. All researchers read, concluded, and approved the final draft.

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Availability of data and materials

All data generated during the process of this research are included in this article.

Ethics approval and consent to participate

The Research Ethics Committee approved the research of this study. All pregnant women in this in-depth interview were informed about participating in the survey and gave written informed consent for the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing.

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Tables

Table 1. Participant characteristics (n = 30).

General	
Average Age	30 years (18-38)
Average BMI	30 (21-51)
Gestation (wk.)	26±3
Pre-pregnancy body mass (kg)	65±12
Education	
Secondary school completed	8
Technical/secretarial after secondary school	16
College/university completed	15
Post graduate degree	1
Occupation	
Routine/manual	5
Intermediate	8
Professional	9
Not in employment	18

Table 2. The theme and sub-themes of the facilitator factors.

Codes	Sub-Themes	Themes
The role of Physician 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 Virtual network	Communication	Nurture Factors
The role of the husband to motivate to do physical activity during pregnancy The purpose of friends to support the woman The critical role of the family to motivate pregnant women	Support from others	

Table 3. The theme and sub-Themes of the barrier factors.

Codes		Sub-Themes	Themes
Attendance of the spouse as a companion in participating in pregnancy sports classes		Participate in pregnancy class with a companion	Socio-cultural factors
Society believes that exercise is dangerous during pregnancy and harm to the fetus.		Social beliefs	
Lack of support from the family's motivation to do physical activity during pregnancy.			
		Culture of poverty	
Low income to participate in the classes.		Financial problems	Socioeconomic factors
Overweight and heaviness in pregnancy	Physiological Condition	Physical Dimension	individual factors
Difficulty exercising during pregnancy	Pathological Condition		
Believing that exercise is not useful during pregnancy.	Attitude	Psycho-emotional Dimension	
Compliance with the disease	Primary and Secondary Reactions		
	Thinking negative	Spiritual Dimension	

Table 4. The theme and Sub-Themes of the Structural factors.

Codes	Sub-Themes	Themes
Lack of sported space to participate in classes Lack of sports place to participate in classes	Equipment	Environmental factors
Lack of professional staff in health-treatment centers Lack of sufficient information among health center staff	Possibilities in health centers	Organizational Factors

Figures

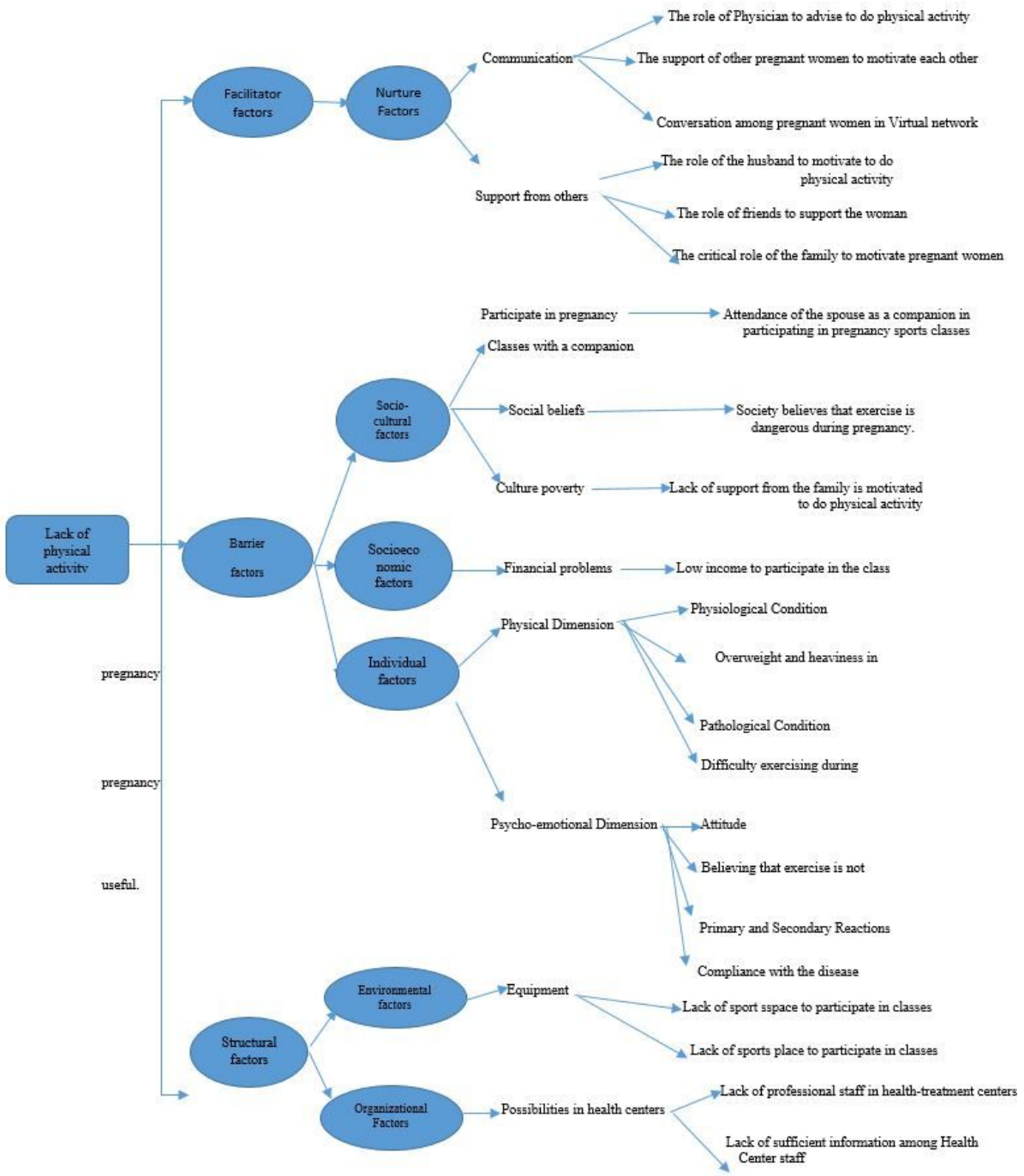

Figure 1

Relationship between themes and subthemes about physical activity in pregnant women.