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**Original Article (General Medicine)**

**Perceptions of GDM mothers and their healthcare workers on postpartum physical activity to attenuate progression of GDM to T2DM: A Qualitative Study**

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## **Abstract**

Background: Mothers with a history of GDM have a high risk of progressing to Type 2 Diabetes Mellitus (T2DM) in their future lives. This progression can be attenuated by appropriate lifestyle interventions. Aim of this study was to understand the perceptions of mothers with GDM and their healthcare workers regarding postpartum physical activities in view to design a lifestyle intervention programme.

Methods: This qualitative study was conducted in three selected districts of Sri Lanka. Six focus group discussions with thirty antenatal mothers with a history of GDM in a previous pregnancy and six in-depth interviews with three postnatal nurses and three field midwives caring for postpartum mothers were conducted to explore their perception on postpartum physical exercises. Framework analysis was used to analyse the data. The transcripts were analysed using a Microsoft matrix and themes were generated.

Results: Altogether eight themes related to physical exercises were emerged from both groups of participants. Two themes, 'Myths regarding postpartum physical activity' and 'Lack of awareness of the importance of postpartum physical activity' emerged from both groups of participants. Three themes, 'Time pressure', 'Stigma' and 'Child demands' emerged only from mothers while the three themes, 'Traditional and cultural beliefs', 'Lack of influence from health care workers' and 'Lack of motivation' emerged solely from healthcare workers.

Conclusions : The findings, especially the facilitators and barriers deserve the attention of the health policy makers when designing appropriate interventions to enhance postpartum physical exercises in order to attenuate the development of T2DM in GDM mothers.

## **Keywords**

Gestational Diabetes Mellitus, Physical exercises, Postpartum mothers, Healthcare workers, Perception

## **Financial Support and Sponsorship:**

Nil

## **Conflict of Interest**

There are no Conflict of Interest

## **Patient Consent Declaration**

Patient's consent not required as there are no patients in this study.

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# Perceptions of GDM mothers and their healthcare workers on postpartum physical activity to attenuate progression of GDM to T2DM: A Qualitative Study

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## INTRODUCTION

The prevalence of Gestational Diabetes Mellitus (GDM) has increased dramatically within the last decade with high values observed in the Asian continent.<sup>1</sup> Compared to normoglycemics, women with GDM have a higher risk of developing type II Diabetes Mellitus (T2DM)<sup>2</sup>, metabolic syndrome<sup>3</sup> and recurrence of GDM in subsequent pregnancies.<sup>4</sup>

Lifestyle interventions delay or prevent the development of T2DM by one-sixth in women with prior GDM<sup>5</sup> and early, effective interventions are considered essential.<sup>6</sup> Physical activity improves insulin sensitivity and glucose homeostasis as a whole<sup>7</sup> and deemed safe for postpartum women as they do not negatively affect lactation.<sup>8</sup> However, postpartum women often face issues such as maternal fatigue, overwhelming childcare demands, lack of assistance with childcare and insufficient time<sup>9,10</sup> as only some women receive adequate social support.<sup>9</sup> Understanding the barriers specific to these women and ways to overcome them are important when suggesting lifestyle intervention strategies to this distinct group.

South Asians have a unique culture, which may not be comparable with other regions of the world. Therefore, this study was planned to explore the perceptions of GDM mothers and their healthcare workers regarding postpartum physical activity in order to attenuate the progression to T2DM in GDM women.

## MATERIALS AND METHODS

### Study design and settings

This community based, qualitative study was carried out in selected medical officer of health (MOH) areas in three districts of Sri Lanka. A series of focus group discussions (FGDs) and in-depth interviews (IDIs) were conducted.

## Participants

Thirty volunteering antenatal mothers with a history of GDM in a previous pregnancy were selected purposefully for FGDs since the outcome of this study was to understand the facilitators and barriers for physical activity with a view to develop a unique lifestyle intervention programme for mothers with a history of GDM. The participants of IDIs were three public health midwives and three postnatal nurses-in charge with at least 3 years' experience in maternal and well-baby clinics or in postnatal wards.

## Data collection

Two separate semi-structured guides prepared by the research team were used to facilitate the FGDs and IDIs. Six FGDs were carried out with 4-6 mothers in each group and IDIs were conducted individually with the healthcare workers for 30 – 60 minutes until no new information was generated. All sessions were audio recorded and transcribed verbatim. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka. (52/14). Informed written consent was taken from all participants before starting data collection.

## Analysis of data

The framework approach, which comes under the broad family of thematic analysis was used for data analysis.<sup>11</sup> Members of the research team read the transcripts of FGDs and IDIs while listening to the audio recordings simultaneously. This was followed by data cleaning. After familiarizing with the transcripts and audio recorded interviews, the common and uncommon code categories were identified. The data in the 12 transcripts (6 of FGDs and 6 of IDIs) were independently coded by two coders to minimize potential bias. Differences identified were reviewed and resolved. The

process was carried out until no new codes were generated. Once all data had been coded using the analytical framework, the data were extracted from the transcripts and summarized in Microsoft Excel in a matrix comprised of one row per participant and one column per code. Finally, the matrix was revised and themes were generated.

## RESULTS

A total of thirty-six subjects (30 antenatal mothers for FGDs and 6 healthcare workers for IDIs) participated in the study. Most mothers (80%) were aged below 35 years. Eight mothers had completed secondary education while only 2 had tertiary educational qualifications. All mothers were either in their second or third pregnancy and had a past history of GDM.

Perceptions regarding physical activity during the postpartum period

Eight themes were emerged from semi-structured FGDs and IDIs. Two themes namely, 'myths regarding postpartum physical activity' and 'lack of awareness of the importance of postpartum physical activity' emerged from both groups of participants while the themes, 'time pressure', 'stigma' and 'child demands' emerged only from the discussions with mothers. 'Traditional and cultural beliefs', 'lack of influence from healthcare workers' and 'lack of motivation' surfaced solely from in-depth interviews with healthcare workers.

Table 1. Themes emerged from both groups with a few quotes to support them

Table 2. Themes emerged exclusively from mothers with a few quotes to support them

Table 3. Themes emerged exclusively from healthcare worker with a few quotes to support them

## DISCUSSION

Physical activity plays a significant role in attenuating the development of T2DM in mothers with a history of GDM. This qualitative phenomenological study was carried out to explore the views and past experiences of antenatal mothers with a history of GDM and of a selected group of primary healthcare workers caring for the mothers regarding postpartum physical activity patterns, their attitudes, beliefs and barriers related to physical activity during the postpartum period.

Sri Lanka is an island in South Asia which has a unique culture with traditional beliefs and practices. The cultural beliefs seem to influence in shaping the activity patterns and behaviour of mothers during the postpartum period. As reported in a previous study, majority of women in the South Asian region do not have the authority to take decisions regarding their lives and in some circumstances their health is not considered important by their family members.<sup>12</sup> As shown in the results, majority of postpartum mothers do not get an opportunity to engage in any type of physical activity including physical exercises as they are considered to be weak, fragile and vulnerable to health issues. The focus is on imposing restrictions on the movements of a woman after giving birth to a child. It appears that cultural beliefs influencing the behaviour of postpartum women are not confined to the Asian continent. A qualitative study conducted in Britain<sup>10</sup> has reported physical activity restrictions to postpartum women due to cultural norms. Nevertheless, as reported in the literature, the purpose of this repression is mostly to help the mother in building back her previous strength.<sup>13</sup> Though it is reported that the support from the partner and the society are important to direct them towards healthy physical activity behaviour,<sup>9,10</sup> unfortunately due to this undue reliance on social and cultural norms, women do not get much support to engage in physical exercises as per the recommendations.

Similar to previous studies,<sup>14,15</sup> our women also showed a keen interest to know about the future diabetes risk and preventive strategies. It is reported that perception of risk promotes behavior change of postpartum mothers after GDM.<sup>16</sup> Hence, this interest could be used to introduce new lifestyle intervention programmes. Nevertheless, Saligheh and co-researchers (2016)<sup>9</sup> have reported that though mothers are aware about the benefits of physical activity, they give low priority to it due to responsibilities of motherhood, lack of energy, feeling of exhaustion and time restrictions. Therefore, to increase the compliance of mothers to achieve optimal outcomes from lifestyle modification programmes, it is important that these barriers are studied thoroughly and addressed appropriately.

Healthcare workers in the present study believed that they lack the necessary knowledge regarding postpartum physical activities for GDM mothers to provide them with sound professional advice. Since healthcare workers play a crucial role in assisting and educating women regarding perinatal care, insufficient knowledge in the area of physical activity recommendations could be the root cause for the lack of reinforcement by them. As reported before, healthcare workers not only in Sri Lanka,<sup>17</sup> but in other countries like India<sup>18</sup> and Bangladesh<sup>14</sup> do not have an optimum knowledge about the prevention and control of diabetes, in general.

As perceived by the mothers, stigma is another major inhibitory factor for physical exercises during the postpartum period. Though some mothers were willing to engage in physical exercises, they expressed their concerns about criticisms from the family and the community. Most felt uncomfortable to engage in exercises due to this social stigma. Since lack of awareness of the wider society may be the prime factor for this stigma, it is important to address this matter by a holistic approach. Lack of motivation is another theme which emerged from IDIs. Although mothers have several reasons to motivate them to follow healthy behaviours during pregnancy,

they do not have both intrinsic and extrinsic motivations after the delivery of the baby. One reason for decreased motivation may be the lack of awareness of both GDM mothers and their family members regarding the future diabetes risk. Thus, as Tewari et al, (2020)<sup>11</sup> has suggested, a better knowledge about GDM and T2DM may motivate the mothers to maintain healthy lifestyles.

Time pressure is a universal barrier for being physically active during the postpartum period. According to the ideas of mothers, time is a limited resource especially due to child care responsibilities.<sup>13</sup> Based on FGDs, the present study also identified child care demands as a major barrier healthy behaviors of mothers.

Exploration of barriers for physical activity has surfaced that traditional and cultural beliefs are major inhibitors to change the current practices. Women, especially in Asian part of the world adhere to the societal norms and are unwilling to give up traditional beliefs and practices. In a previous investigation, we have reported how cultural norms affect the diet of postpartum mothers<sup>19</sup> highlighting the importance of considering these factors when designing lifestyle intervention programmes. The beliefs of mothers on traditional practices cannot be ignored when designing interventions, if optimum compliance is targeted.

The motherhood is a challenge and a novel experience for women. Therefore, with the new responsibilities, a unique set of barriers have emerged. Home based intervention programmes were suggested by previous studies<sup>20</sup> due to lack of time and transportation difficulties.<sup>10,11</sup> High social support, especially from the husband,<sup>11,12</sup> self-efficacy and regular follow up<sup>11</sup> were identified as facilitating factors which enhance the woman's capacity to maintain a healthy lifestyle.

Community nurses play an important role in facilitating health behaviors in GDM mothers to prevent complications, especially the progression of GDM to T2DM. Promoting physical exercises

in postpartum women is a challenge for healthcare workers as the postpartum period is a unique phase of a woman's life. The findings of this study are expected to create a platform to plan and implement a culturally accepted, scientifically sound and user-friendly exercise protocol for postpartum mothers.

## CONCLUSIONS

Myths regarding postpartum physical exercises and lack of awareness of the importance of postpartum physical exercises were identified by both the mothers and healthcare workers as major drawbacks for engaging in physical exercises during the postpartum period. Mothers have emphasized time pressure, stigma and child care demands as other common barriers for postpartum physical exercises while healthcare workers perceived traditional and cultural beliefs, lack of influence from healthcare workers per se and lack of motivation as barriers. These findings deserve the attention of health policy makers with respect to designing appropriate interventions to introduce postpartum physical exercises and enhance compliance of mothers in order to attenuate the progression of GDM to T2DM.

Conflicts of Interest-none

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Table 1. Themes emerged from both groups with a few quotes to support them

Themes	Mothers	Healthcare workers
Myths regarding postpartum physical activity	<i>“No, I am not comfortable to do exercises after the delivery. I have heard that exercises can affect the episiotomy site”</i>	<i>“Even I believe that postpartum mothers should keep away from exercises till the uterus comes back to the correct position”</i>
Lack of awareness of the importance of postpartum physical activity	<i>“Why is it important to do exercises? I never exercised after my first delivery and nobody has advised me on it either”</i>	<i>“In my experience, none of the mothers nor their closest family members can understand the importance of being active during the postpartum period. They think that mothers need only nutritious food and rest to produce more milk”</i>

Table 2. Themes emerged exclusively from mothers with a few quotes to support them

Themes	Mothers
Stigma	<i>“How can I do exercises? My in-laws will not understand and hence they will laugh at me. The neighbors will take it as a joke. They will not tolerate it especially as my husband is abroad”</i>
Child demands	<i>“The first few months after the second delivery was very tough for me. I felt exhausted the whole day! In addition to caring for the newborn, I had to shower love and care to the elder child as well”</i>

Table 3: Themes emerged exclusively from healthcare worker with a few quotes to support them

Themes	Healthcare workers
Traditional and cultural beliefs	<p><i>“According to the Sri Lankan culture, the new mother goes to her parental home with the baby just after the delivery. The grandmother attends to all activities not allowing the new mother to exert herself too much”</i></p>
Lack of influence from healthcare workers	<p><i>“When we visit the mothers in their homes after the delivery, our attention is mainly focused on the well-being of the newborn. We do not give these mothers enough guidance regarding exercises. I am not even aware of the guidelines for follow up of mothers with GDM. Although we conduct many antenatal clinics, we do not stress the importance of postpartum care”</i></p>
Lack of motivation	<p><i>“Until the delivery, mothers are enthusiastic to listen to healthcare advice as they are keen to have healthy babies. Once the baby is born, they don’t have the motivation to listen to us. I usually ask them to walk at least 10 minutes per day but they ask me why have they to do it when the sugar levels are normal. Even the family members think the same way and do not motivate the mothers for healthy</i></p>

*practices. To be honest, even we do not stress the importance of exercises adequately”*

