

REVIEW ARTICLE

Perceptions and experiences of women with a history of gestational diabetes mellitus: A qualitative evidence synthesis

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Abstract

Gestational Diabetes Mellitus (GDM) is strongly associated with the future risk of type 2 diabetes mellitus (T2DM). Women with GDM have a 10 times higher risk than women without GDM over a 10-year follow-up period. The objective of this review is to synthesise the existing evidence regarding women's views and experiences of the emotional and practical impact of GDM and its implications for diabetes prevention. Findings will be used to inform the design of interventions to prevent or delay T2DM. A systematic review of qualitative studies was conducted searching PubMed, MEDLINE, Science Direct, Scopus, and PsycINFO, from 2010 to 2021. Studies were eligible if they addressed how women's experiences and perceptions of GDM influenced women's adherence to postpartum follow-up and lifestyle interventions. The Social-Ecological Model guided the data analysis including five levels of influence specific to health behaviour: intrapersonal factors, interpersonal factors, health system organisational factors, public policy and environmental factors, and community factors. We included 31 articles after screening 22 943 citations and 51 full texts. We found that women's role as mother and caregiver is competing with one's own health priority resulting in poor postpartum screening and poor management of eating and physical activity behaviours. A supportive environment including partners, family, peers and health professionals is essential for lifestyle changes. Other environmental factors such as limited financial means or lack of health education were also barriers to adopting a healthy lifestyle. Many factors hinder T2DM postpartum screening and healthy lifestyle behaviours after GDM, yet the postpartum period is an opportunity to improve access to diabetes prevention, care and education. Women's experiences and needs should be considered when designing strategies and interventions to promote healthier lifestyles in this population. (*Afr J Reprod Health* 2023; 27 [5s]: 96-109).

Keywords: Gestational diabetes mellitus, women

Résumé

Le diabète sucré gestationnel (DG) est fortement associé au risque futur de diabète sucré de type 2 (DT2). Les femmes atteintes de DG ont un risque 10 fois plus élevé que les femmes sans DG sur une période de suivi de 10 ans. L'objectif de cette revue est de synthétiser les preuves existantes concernant les points de vue et les expériences des femmes sur l'impact émotionnel et pratique du DG et ses implications pour la prévention du diabète. Les résultats seront utilisés pour éclairer la conception des interventions visant à prévenir ou à retarder le DT2. Une revue systématique des études qualitatives a été menée en recherchant PubMed, MEDLINE, Science Direct, Scopus et PsycINFO, de 2010 à 2021. Les études étaient éligibles si elles abordaient la manière dont les expériences et les perceptions des femmes sur le DG influençaient l'adhésion des femmes au suivi post-partum et aux interventions sur le mode de vie. Le modèle socio-écologique a guidé l'analyse des données en incluant cinq niveaux d'influence propres aux comportements de santé : les facteurs intrapersonnels, les facteurs interpersonnels, les facteurs organisationnels du système de santé, les politiques publiques et les facteurs environnementaux, et les facteurs communautaires. Nous avons inclus 31 articles après sélection de 22 943 citations et 51 textes intégraux. Nous avons constaté que le rôle des femmes en tant que mère et soignante est en concurrence avec leurs propres priorités en matière de santé, ce qui entraîne un mauvais dépistage post-partum et une mauvaise gestion des comportements alimentaires et d'activité physique. Un environnement favorable comprenant des partenaires, la famille, des pairs et des professionnels de la santé est essentiel pour les changements de style de vie. D'autres facteurs environnementaux tels que des moyens financiers limités ou le manque d'éducation sanitaire constituaient également des obstacles à l'adoption d'un mode de vie sain. De nombreux facteurs entravent le dépistage post-partum du DT2 et les comportements de mode de vie sains après le DG, mais la période post-partum est une opportunité d'améliorer l'accès à la prévention, aux soins et à

Mots-clés: Diabète sucré gestationnel, femmes

Introduction

Diabetes is a major health problem that has reached alarming levels^{1,2}. Among the most common health risks is gestational diabetes mellitus (GDM), defined as “glucose intolerance or hyperglycaemia with onset or first recognition during pregnancy”³. GDM, if not diagnosed and controlled, has serious maternal and neonatal adverse outcomes, including increased risk of miscarriage, macrosomia, complications around delivery, and stillbirth^{2,4-6}. The global prevalence of gestational diabetes is 14.0%, varying from 7.1% in North America and Caribbean to 27.6% in North Africa and Middle East⁷. An estimated 15.8% (20.4 million) of live births were affected by hyperglycaemia in pregnancy in 2019⁸. The hyperglycaemic intrauterine environment as exemplified in complicated GDM pregnancies may fuel the epidemic of type 2 diabetes^{9,10}. Women with prior GDM had substantially increased risk of diabetes^{11,12}. In addition, GDM is associated with reduced psychosocial well-being and postpartum depression^{13,14}.

Intensive lifestyle intervention involving weight loss through diet and increased physical activity can reduce the risk of type 2 diabetes by 90%¹⁵. In this regard, the postnatal period is crucial to initiate early preventive management of mother and child who are at increased risk of obesity, metabolic syndrome, diabetes, hypertension and cardiovascular disorders^{4,16}.

To address this issue, it is important to understand the barriers from the patient's point of view. The synthesis of qualitative studies can identify research gaps, and provide evidence for the development, implementation and evaluation of health interventions across different contexts^{17,18}. Multiple studies have considered the impact of a diagnosis of GDM, with a focus on T2D postpartum screening, breastfeeding, facilitators, and barriers to healthy lifestyle adoption. However, a systematic review on the emotional impact, perceptions, experiences, and knowledge of women diagnosed with gestational diabetes as a comprehensive

postpartum experience is lacking. This qualitative review aims to synthesise the existing evidence regarding women's views and experiences of the emotional and practical impact of GDM and its implications for diabetes prevention.

Methods

Design

This review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Statement (PRISMA)¹⁹ and the Enhancing Transparency in Reporting the Synthesis of Qualitative Research statement²⁰. It has been registered in the international database of prospectively registered systematic review (PROSPERO CRD42021286907).

Data sources

We searched the electronic databases PubMed, MEDLINE, Science direct, Scopus and PsycINFO. We included studies from 2010 to 2021.

The search strategy was developed using a combination of Medical Subject Headings terms centred around three key areas: i) gestational diabetes mellitus ii) postpartum period and iii) women's experiences and perceptions. The different search strategies used in each database are shown in **Error! Reference source not found.** Reference lists of included studies were searched for additional studies.

Study selection

Eligible studies were those providing qualitative data on how experiences and perceptions of women who have experienced GDM influenced women's adherence to follow up during the postpartum period and acceptance of lifestyle interventions to prevent T2DM. We restricted the search to French and English languages because these are the languages spoken by the reviewers. No restrictions have been placed on the country. Studies were

Table 5: Databases and search terms are used to identify literature for review

Database	Search terms	Number of articles
PubMed	((((((((((((((Pregnancy-induced diabetes [MeSH Terms]) OR (Gestational diabetes mellitus [MeSH Terms]) OR (Type III diabetes [MeSH Terms]) AND (Perceptions [MeSH Terms]) OR (understandings [MeSH Terms]) OR (sensations [MeSH Terms]) OR (ideas [MeSH Terms]) OR (opinions [MeSH Terms]) OR (awareness [MeSH Terms]) OR (attitudes, health [MeSH Terms]) AND (life experiences [MeSH Terms]) OR (Practices [MeSH Terms]) OR (views [MeSH Terms]) OR (knowledges [MeSH Terms]) AND (postpartum period [MeSH Terms]) OR (care, postnatal [MeSH Terms]) OR (puerperium [MeSH Terms])	3,404 results
MEDLINE	Search: (((gestational diabetes mellitus) AND (Postpartum)) AND (women's perceptions)) OR (women's experiences)	1,509 results
ScienceDirect	"gestational diabetes mellitus" OR "gestational diabetes" AND "perception" OR "sensation" OR "judgment" "experience" AND "women" AND "postpartum" OR "postnatal"	33,506 results
Scopus	(TITLE-ABS-KEY ("gestational diabetes mellitus") OR TITLE-ABS-KEY ("gestational diabetes") AND TITLE-ABS-KEY ("perceptions") OR TITLE-ABS-KEY ("sensations") OR TITLE-ABS-KEY ("judgments") AND TITLE-ABS-KEY ("experiences") OR TITLE-ABS-KEY ("practices") AND TITLE-ABS-KEY ("postpartum") OR TITLE-ABS-KEY ("postnatal") AND TITLE-ABS-KEY ("women")) AND DOCTYPE (ar OR re) AND PUBYEAR > 2009 AND PUBYEAR <2022.	30 results
PsycINFO	"gestational diabetes mellitus" OR Any Field: "gestational diabetes" AND Any Field: "perception" OR Any Field: "sensation" OR Any Field: "judgment" OR Any Field: "experience" AND Any Field: "women*" AND Any Field: "postpartum" OR Any Field: "postnatal" AND Year: 2010 To 2021	19 results
Filter	In the last 10 years: 2010 To 2021	
Limiters:	Observational studies, systematic reviews	
	Total	38 468

excluded if their primary aim was on diagnosis or management of GDM adverse outcomes during postpartum rather than women's experiences and perceptions. We also excluded studies that only examined pre-gestational diabetes whether type 1 or type 2 diabetes, studies where specific information on women with GDM was not available, studies exploring healthcare providers' experiences and perceptions and not women's, and abstracts, letters, editorials and commentaries.

Data collection process

After deduplication, two reviewers screened the titles and abstracts of retrieved references. Afterwards, the full text papers of those citations of interest were read, considering the inclusion and exclusion criteria to select those suitable for inclusion. This process was carried out by two reviewers (SEO and SA) independently, who periodically met to discuss their results, consulting a third reviewer only if there was disagreement.

Quality assessment

The two reviewers independently assessed the quality of each study using the Critical Appraisal

Skills Programme (CASP)²¹. No studies were excluded based on quality.

Data extraction

Qualitative data were extracted from the manuscripts included in the review using the JBI SUMARI standardised data extraction tools²². Information about the authors, year of publication, country, objective, design/methodological basis, sample, techniques/methods for information collection, data analysis methods/techniques, and specific details about the populations are presented in Supplementary Table 1.

Patient and public involvement statement

Patients and the public were not involved in this study.

Data synthesis

Given our prospects for developing Qualitative Evidence Synthesis (QES) to inform public health policy and practice, particularly for prevention

programs that require an understanding of the factors that influence human behaviour, the Social-Ecological Model (SEM) guided the analysis of the data and the structuring of recommendations. The SEM, as a framework for promoting health-related behavioural change²³, identifies five “levels” of contextual influences on human behaviour: 1) Intrapersonal/individual factors such as knowledge, attitudes, beliefs, and personality, 2) Interpersonal factors, such as interactions with other people, which can provide social support or create barriers to interpersonal growth, 3) Institutional and organizational factors, including the rules, regulations, policies, and informal structures, 4) Community factors, such as formal or informal social norms that exist among individuals, groups, or organizations, 5) Public policy factors, including policies and laws that regulate or support health actions and practices for disease prevention including early detection, control, and management.

The data analysis was carried out through the thematic synthesis as described by Thomas and Harden²⁴. After carefully reading and rereading each primary study, text or table labelled as “Results”, the data were first categorised and then codes were developed within these categories. Themes were defined based on the SEM five levels. Illustrative quotations from the original studies are reported alongside the analytical themes to allow appreciation of the primary data (Supplementary Table 2). The whole process was developed by the two reviewers (SEO and SA), and in case of non-agreement, a third author (BA) acted as a mediator.

Results

After removing duplicates, we screened 22 943 citations and reviewed 51 full texts as shown in Figure 1. All the 31 included studies were written in English, which together represent the views of 1 107 postpartum women from diverse ethnicities and backgrounds.

Most studies (9/10) were conducted in high-income countries. Studies that specified the timing of data collection were carried out from 3 months to 10 years after the affected pregnancy, women were between 18 and 50 years old. All applied qualitative methods, with clear aims, results and implications. Mixed methods studies were included for the qualitative data analysis. The

findings are reported according to the five SEM levels of contextual influences on human behaviour described above.

Intrapersonal factors

Psychological vulnerability

Psychological health problems emerged as a factor strongly influencing negatively health-seeking behaviour for postpartum screening. Having GDM led to feelings of fear, worry, anxiety and stress during pregnancy^{25–33}. The experience of GDM during pregnancy was so traumatic that it prevented them from returning for a postpartum blood glucose test^{31,34,35}. Psychological factors emerged as the main barriers to their attendance at postpartum visits^{25,29,35–38}. Lack of motivation, shame, stress and being too tired and overwhelmed to access services were the most common feelings during the postpartum period^{25,28,30,32,33,35,38–42}.

Several studies reported that women were concerned about their infants’ health after birth. Breastfeeding was affected by infant health problems such as admission to the neonatal unit, and problems such as hypoglycaemia and infant weight loss were often treated by formula feeding. The separation of women from their babies contributed to their feelings of uncertainty and distress^{34,43,44}.

Lack of knowledge and understanding

Lack of knowledge about the health consequences of pregnancy complications, follow-up screening and continued lifestyle changes were barriers for postpartum women. Several reasons were cited, such as inappropriate information and timing during pregnancy or just after delivery, inadequate communication and education messages, lack of clear information and non-personalised information were mentioned^{25–28,31,38,42,45,46} and even a lack of knowledge among health professionals^{27,28,31–33,36,39,42–44,47–51}. Finding highlighted the lack of emphasis on follow-up lifestyle advice^{52,53}. Physical activity was not mentioned or emphasised by healthcare providers^{25,28,54}. The dietary advice they received was considered culturally irrelevant^{34,48}. Even informed, women had a limited understanding of how recommended behaviour change could have a positive impact on T2DM risk^{27,30,31,34,38–40,42,46,55}.

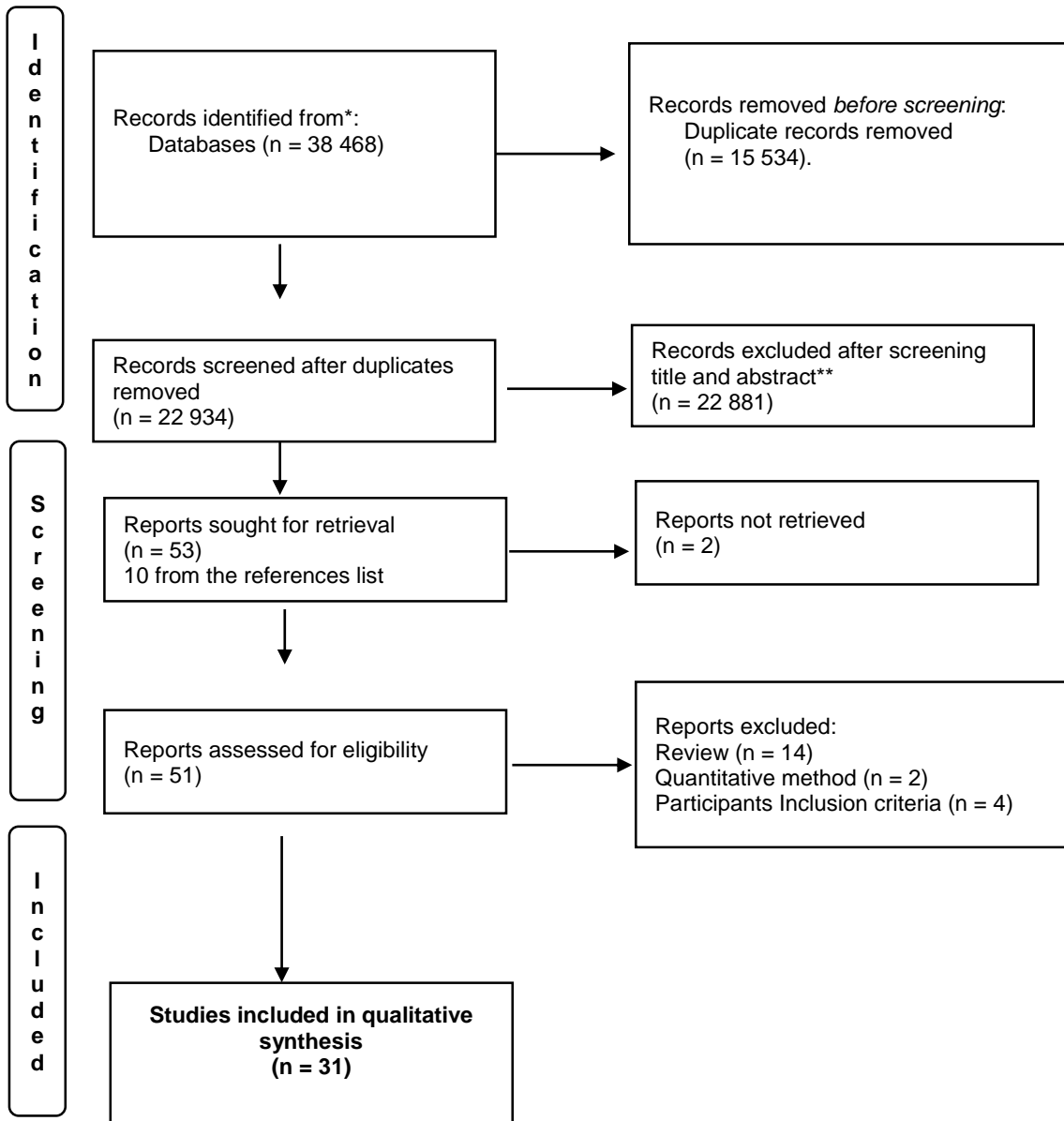


Figure 1: PRISMA flow chart for study selection

Participants often felt that healthcare providers did not understand them^{25,34,55}. While women rely on healthcare providers as their primary source of information, it was suggested that during the diagnostic consultation, providers should be sensitive to the emotions women may be feeling^{25,31}.

Constraints associated with the maternal role

Almost all studies highlighted the challenges women face in managing a condition such as GDM

in the postpartum period when their day-to-day experiences change dramatically with the role and responsibilities of motherhood^{27,28,30,32,33,35-37,39-41,44,47-49,51,52}. Once the motivations for pregnancy had passed, caring for one’s health after birth was not a priority for some women, especially in the face of many new challenges of “competing priorities”^{25,26,29,35-38,42,52,55}.

Women discussed the challenges of caring for their babies and the impact of these challenges on their sense of identity as a mother and their sense of failure as a ‘good’^{25,33,53}. Most mothers attributed

carbohydrate restriction to reduced breast milk production, lack of energy, and gastritis^{25,39}. Women usually choose to plan their activities around the needs of their families, not the healthcare system demands^{49,54}.

Perceived risk of diabetes

GDM is perceived as an all-or-nothing condition^{35,47}. On the one hand, women are relieved that GDM is a short-term problem; the birth of their babies marks the end of GDM-related concerns and a “back to normal life”^{33,46,53}. Concern for the health of the baby during pregnancy was reported as an important motivating factor for adherence to prescribed medication^{25,29,32–35,37,54}.

Other women had a low perception of the risk of T2DM as not being an immediate risk, and others saw a future with diabetes as “inevitable” or the denial of risk “doesn’t apply to her”^{29,30,37–39,42,46,47,49,52}. On the other hand, the diagnosis of GDM was seen as a ‘wake-up call’ and an opportunity to initiate self-care. when the focus is on health and motivation to adopt healthy behaviours is increased^{28,40–42,47,51}. Women attributed the perceived risk for T2DM to family history, health behaviours, GDM and complications during pregnancies, and being overweight^{29,33,36,40,48,50}. When mothers were aware of their increased risk of developing T2DM, they were more likely to return for screening^{36,55}. When a woman has an underlying increased risk, a consistent recommendation from her healthcare provider for follow-up testing is influential⁵³. Fear of diabetes and the consequences of T2DM was reported as a barrier to post-partum screening^{35,38,49,50,55}.

Intrinsic motivators

Women’s ability to identify the benefits of a healthy lifestyle including weight loss, improved health and prevention of recurrence of pregnancy complications, staying healthy to care for children and being a “role model” for children facilitated engagement^{25,26,28,29,32,33,36,40,47,48,53}. Maintaining a healthy, functional and beautiful body was also mentioned as an intrinsic factor as was self-discipline and being organized²⁹.

Often, investigating alternative options, beyond those recommended by health

professionals, included awareness of lifestyle changes, self-care, self-education, and self-help^{29,33,43,46,47}. Low self-esteem, feeling of inadequacy, and failure to self-regulate were described as barriers^{32,38,47,49}.

Interpersonal factors

Partner, family and peer support

Social support from partners, family members and friends was highlighted as particularly important^{25–29,32,33,37,41,43,55}. In the early stages when attachment to the infant was the strongest, women referred mostly to support in terms of the availability of family care to enable them to engage in physical activities. Their partner's attitude to the risks of women trying to make long-term lifestyle changes was also influential, indicating the need to raise awareness of diabetes risk and to involve them in diabetes prevention. Studies have pointed out that after childbirth, maintaining a healthy lifestyle becomes less of a priority for the whole family^{32,39}.

Separation from close relatives for immigrant women was a barrier to preventing the development of T2D⁴⁸. Several mothers preferred a support network that encouraged them to return for post-partum screening^{25,55}. The availability of child care that was safe and familiar was the most common facilitator^{26,33,35,36,38,40,49,50,55}.

Healthcare providers' (HPs') support

The study's findings highlighted women’s appreciation for the compassion and support they received from healthcare providers during their pregnancy^{25,37,42,44,52}. Consequently, there was a sense of disappointment and isolation, when women perceived a lack of support from HPs^{25,26,28,30,36,37,42–44,55}. This often occurred in the postnatal period, when expectations of postpartum care were high. There was resentment towards some healthcare providers because of their judgmental and blaming attitudes^{25,27,34,41}.

Institutional and organizational factors

Logistical and financial challenges

Lifestyle changes were often described as “challenging” and “difficult”. Limited resources and finances to afford healthy foods, gym

memberships, childcare and suitable equipment for physical activities (e.g. baby carriers and strollers), obstacles at work and time-related factors were barriers to adopting a healthy lifestyle^{25–27,32,33,36–39,42,48,49,52}. Financial problems were another issue, including insurance-related problems such as the lack of insurance and expiry of insurance^{39,49,53,54}.

Oral glucose tolerance test (OGTT) convenience

Most studies reported the difficulty to perform the recommended test (OGTT), and aversion to the screening procedure^{33,38,39,41,48–52,55}. OGTT was a barrier for women because it is unpleasant, time-consuming and conflicting with childcare. Many participants preferred using self-testing and combining OGTT with other postpartum checks for convenience^{50,53–55}. The convenience of the time and place of testing was seen as an encouraging factor. Accommodation of the premises with facilities including a "separate room to facilitate breastfeeding, toys for children, and nappy changes in screening centres can also encourage participation in screening. Other environmental barriers include a lack of access to appropriate exercise facilities programmes and equipment for postpartum women, such as postnatal classes that can accommodate infants, and access to gyms with childcare facilities³⁶.

Community factors

Due to the central role of food and customs in social post-partum gatherings in many cultures, social roles and cultural expectations appeared to be an underlying and recurring theme that influenced participants' ability to adopt and maintain a healthy lifestyle. A high-carbohydrate diet and consumption of sugary drinks and fatty meat are seen as part of a 'normal' diet and as part of cultural or community identity. Therefore, changing diet was a major adaptation for some women, as it required a departure from the social norm^{25,28,29,39}. The social stigma associated with diabetes in society leads women to hide their diagnosis from families and friends, resulting in increased social isolation, loneliness and depression^{28,34,38}.

Studies have highlighted the social support needs of women. Women expressed a desire for a peer network to support them in their lifestyle

interventions; they would benefit most from the involvement of other mums^{27,30,36,38,41,43}.

Health system organizational factors

GDM postnatal care

Studies indicate that the health system is losing the opportunity to implement a higher level of follow-up to facilitate and support a healthy lifestyle in women with previous GDM. Most women mentioned a lack of follow-up and a feeling of abandonment in the postpartum period^{27,28,30–35,37,40,42,44,46,49,53}. Mothers' perception that postpartum screening for T2DM was mandatory was critical to their adherence to the test^{30,55}. The lifestyle intervention programme must include the partner and family⁴¹.

Forgetting to attend postpartum diabetes screening was a reported barrier and women indicated that a reminder system could facilitate attendance and sustainability of healthy behaviours^{28,29,33,35–38,41,44,50–52}. Women suggested that group meetings and/or GDM support meetings that continue for many years after pregnancy are other potential facilitators of a healthy postpartum lifestyle^{30,33,37,41,45}. Studies have reported fragmented care between hospital-based perinatal care for complicated pregnancies and primary care within many health systems, leading to role confusion about screening and prevention support after postpartum visits^{28,31,32,35,37,38,44,51,52,54}.

Women reported that they considered GDM follow-up and screening to be part of routine preventive primary care and that it was more convenient to group scheduled screening appointments with other postpartum consultations (child vaccination or family planning)^{53–55,35,38}.

Health education

Women reported that their information needs were not adequately met when HPs explained their diagnosis in an overly technical manner or used unfamiliar jargon^{27,28,31,33,43,49}. Studies have reported conflicting messages from providers and other social relationships, as well as poor communication between women and healthcare professionals about GDM^{27,31–33,38,40,45,47,49,51}. The antenatal care provider did not insist on postpartum blood glucose testing^{28,38,45,46,49–51,55}.

According to the studies, women expressed a preference for more specific advice on meals and activities they could incorporate into their daily lives^{28,32,33,36}. Consistent educational messages for the postpartum period, an appropriate time for the lifestyle education session and culturally specific information are facilitators^{26,28,29,32,37,41,46,52,53}. Nutritional education was believed to be a particularly helpful, including lists of healthy foods to add to the diet, shopping tutorials, learning how to prepare healthy foods quickly, and collaboration with a nutritionist/healthy lifestyle facilitators^{27,36-38,47}.

Discussion

This study provides a comprehensive analysis of how women's emotions, knowledge, experience and perceptions influenced adherence to postpartum screening and prevention behaviour. While our findings are broadly consistent with previous literature reviews, we have added more studies, data and detail by focusing more on the postpartum experience. The data analysis is based on SEM which allows us to understand and consider the complex interplay between factors that support and sustain unhealthy behaviours in women.

Adherence to recommended postpartum screening and continuation of lifestyle changes appear to be even lower and more difficult⁵⁶⁻⁵⁸. This corroborates the findings of previous literature reviews^{56,59-62}. In synthesising the qualitative data, women's mental health in the postpartum period emerged as a serious problem^{58,59,63,64}. Previous reviews have not been able to specifically examine how mental health influences behaviour⁶⁵.

Women's lives are shaped by their identity and role as mothers and caregivers. Competing priorities and unpredictable schedules make it difficult to prioritise one's own health needs resulting in poor postpartum screening and poor management of eating and physical activity behaviours. Lack of knowledge and information has been mentioned in several reviews^{58,64,66-68}. Therefore, when properly informed, women desire and intend to maintain a healthy lifestyle to prevent future diabetes.

This review showed that a supportive social environment is important for lifestyle changes and indicated that support from partners, family, peers

and health professionals is essential^{58,62}. Psychosocial well-being such as self-efficacy and social support may be important when adopting a healthy diet and physical activity habits, which corroborates the findings of previous reviews^{58,64,66,68-70}.

When it comes to sustaining lifestyle changes after childbirth, studies indicate that the intention may be present, but that many women fail to sustain their changes. This may be influenced by their lack of knowledge, their perception of future diabetes risk, and particularly by self-efficacy, self-control and social support^{58,62-64,66,67}. Social roles and cultural expectations influenced participants ability to adopt and maintain a healthy lifestyle to reduce diabetes risk. Cultural expectations around the notions of hospitality affected "creating more problems" even when family or friends intended to be helpful^{58,63,64}.

The decreasing focus on gestational diabetes after childbirth seems to confuse women, and the experience of abandonment, fragmentation and poor coordination applies not only to services but also to the care provided by HP after delivery⁶⁷. Factors that facilitate return to follow-up appointments are childcare, the opportunity to discuss family planning, and the possibility of a general check-up^{64,68}. Studies also show that automated postpartum discharge screening orders, notifications to providers, and telephone and email reminder messages can improve postpartum screening rates⁷¹. Most studies have focused on the challenges associated with postpartum screening, highlighting the lack of convenience of the OGTT test as a barrier to screening for GDM^{62,66}.

Environmental factors, such as limited financial means to purchase healthy foods, appropriate exercise facilities, childcare and equipment suitable for physical activities, were barriers to adopting a healthy lifestyle, whereas having sufficient financial means facilitated physical activity^{63,68,71}. Other environmental barriers, such as lack of access to support group programmes, contributed to the difficulty for these women to maintain lifestyle changes, indicating the need for community-based interventions⁶⁸.

Strengths and limitations

One of the strengths of this study is its comprehensive qualitative synthesis focusing on

the views of women with a history of GDM on access to postpartum screening and healthy living. As a multidisciplinary team, we conducted a comprehensive literature search and thematic synthesis to identify recurring themes in the studies. Comparing coding between authors, discussing results and reaching a consensus was a robust approach to improve the credibility of results. The use of SEM allowed a more representative understanding of the factors that support and maintain unhealthy behaviours for up to 10 years after childbirth. We observed diverse perspectives and a wide variety between and within the study populations (such as ethnicity, social norms, other children and family members). Although the studies were of good quality. The quality affected the synthesis results and recommendations.

The study also has some limitations. We did not distinguish between time points but collated studies that collected data within 10 years after delivery, so we could not synthesise change over time. In addition, most of the data came from high-income countries, which means that we did not consider some maternity experiences in low-income countries, although the populations were of different origins and ethnicities.

We did not have access to the primary data. Therefore, the analysis of the data depended on how the authors of the studies interpreted and reported their data. The authors rarely considered their role as researchers adequately, which could have led to bias in the formation and evaluation of the research questions and social desirability bias among the respondents. Furthermore, although we did not influence the participants or original analyses, our analysis was inevitably affected by our preconceptions. In recognition of this, we used the SEM as a coding framework from the study findings so as not to impose a framework from our review question. We used structured checklists, and all authors discussed the themes and findings.

Policy and health system implications (call for action)

The postpartum period represents a critical window of opportunity to initiate prevention interventions aimed at improving healthy lifestyle behaviour following pregnancies complicated by GDM. Therefore, it is imperative to address barriers to

postpartum follow-up and lifestyle modifications. Efforts at multiple levels are needed, as we propose in the following recommendations:

Optimising postpartum care for women with GDM

The establishment of protocols and clinical guidelines for postpartum care for GDM within the health system is essential. Integration and coordination between healthcare providers at different levels of care through a patient-centred model of care that focuses on preventive care and coordination should be encouraged. This requires that healthcare providers develop good communication skills and respond effectively to patients' needs.

Postpartum care should include psychosocial assessment and support for self-care. Behaviour change interventions should assess and consider incorporating psychosocial well-being into their components and focus on self-efficacy and/or social support, as both are associated with adherence to diet and physical activity.

Support for breastfeeding Women with diabetes should be supported in their attempts to breastfeed because of the immediate nutritional and immunological benefits of breastfeeding for the baby.

Arrange postpartum follow-up visits with child immunization and family planning consultations. The immunization programme and family planning services remain opportunities for follow-up counselling and testing.

Health educational program. It is crucial to educate women and the community about risk prevention associated with GDM. The nutrition education programme should be individualized (nutrition plan) and culturally sensitive with adapted educational materials. Women's partners could be included in the post-partum visits and nutrition education programme, as social support for women with GDM who need to make lifestyle changes.

Test convenience. OGTT is recommended over HbA1c at 4-12-weeks postpartum. The convenience of testing times and locations must be considered. The proposal to move the postpartum test from the laboratory to the home is worth exploring.

Our findings add to the body of evidence that reminder technology-based interventions can be

effective in increasing participation in recommended follow-up screening.

Community-based intervention

Moving from a clinical model of care to a community-based model of prevention requires a comprehensive approach to community engagement. We found that after childbirth, women wanted to participate in local community-based exercise groups for mothers and young children or to have an exercise buddy.

Affordability of healthy diets

Financial barriers to healthy eating have emerged in different national contexts. Government can implement measures to make healthy, equitable and sustainable diets more affordable. *Encourage the purchase and consumption of recommended diets*, by making unhealthy foods relatively more expensive than healthy foods. Promoting and discounting healthy, rather than unhealthy, foods and beverages can also encourage their purchase.

Conclusion

This systematic review has shown that the experience of GDM diagnosis is multidimensional and highly contextual. The postpartum period is an opportunity to improve lifestyle and diabetes prevention. However, this must be managed alongside the potential harms of a GDM diagnosis such as negative psychological impact and social isolation. Difficulties with attendance and a focus on family may affect women's ability to attend blood glucose tests and adopt a healthy lifestyle behaviour in the long term. Concern about the risk of developing diabetes and healthcare experiences may increase or limit screening intentions. Along with optimising postpartum care, a woman-centred approach, effective individualized gestational diabetes education, community and technology-based interventions, and the affordability of a healthy diet can reduce barriers to screening and enable early prevention of postpartum diabetes and improve long-term outcomes for mothers and their children.

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Competing interests

None declared.

Data availability statement

Data are available upon reasonable request. The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Ethics statements

This study does not involve human participants and ethical approval was not required.

Author contributions

All authors participated in the design of the study. The whole systematic review process was developed by the two reviewers (SEO ad SA), and in case of non-agreement, a third author (BA) acted as a mediator. All authors participated in the analysis and interpretation of the data by reviewing later versions of the manuscript. All authors read and approved the final manuscript.

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