

Factors Influencing Adherence to Dietary Interventions Among Patients with Gestational Diabetes Mellitus in China: A Qualitative Study Based on the COM-B Model

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Objective: Gestational diabetes mellitus (GDM) is a frequent complication during pregnancy, which can cause many adverse effects on mother and baby. Although existing literatures have found that patients with gestational diabetes can benefit from adhering to dietary interventions, many pregnant women exhibit low dietary intervention compliance, leading to unsatisfactory blood glucose control. The qualitative research study aimed to identify the influencing factors of dietary intervention compliance among pregnant women with GDM using the capability, opportunity, motivation, and behavior (COM-B) model.

Methods: Pregnant women with gestational diabetes who received regular antenatal care were purposefully recruited from the obstetric clinic of a tertiary general hospital in Beijing, China. The face-to-face semi-structured interviews were used to collect data; Guided by the COM-B model, the directed content analysis was used to analyze data.

Results: Nineteen women from a great variety of socio-demographic backgrounds participated in this study. The average age of the participants was 32.26±4.58 years, the average gestational age of them was 36.03±1.75 weeks. 73.69% of them have a bachelor's degree or above in education level, 68.42% of participants were primipara. 52.63% of them had a normal weight, 26.32% were obesity, 15.79% were overweight, only 5.26% were underweight. In total, more than 80% of participants had no history of GDM in prior pregnancy or a family history of type 2 diabetes (T2DM), and 42.11% of participants received insulin treatment. Eight themes (6 barriers and 2 facilitators) were mapped onto the COM-B model representing influencing factors of dietary intervention compliance among GDM pregnant women. The facilitators included high trust in professional support and a positive perception of dietary management benefits. The barriers were lack of pregnancy nutritional knowledge, insufficient knowledge and skills in dietary management, limited support from family members, low disease risk perception, negative experiences with dietary interventions, and low self-efficacy in dietary management. The results will provide basis and reference for the development of diet intervention for pregnant women with gestational diabetes.

Conclusion: Our findings underscore the importance for healthcare professionals to strengthen support and guidance of dietary behavior for patients with gestational diabetes in China. Additionally, our findings highlight the need for clinical healthcare professionals to take measures that strengthen the self-efficacy and involve family members in supporting dietary modifications in China.

Keywords: COM-B model, dietary intervention, adherence, gestational diabetes mellitus, qualitative study

Introduction

Gestational diabetes mellitus (GDM) is defined as glucose tolerance abnormalities of varying degrees that occur or are first recognized during pregnancy.¹ According to the 10th Diabetes Atlas of the International Diabetes Federation (IDF), nearly 16.7% of women worldwide suffer from gestational hyperglycemia during pregnancy, and 80.3% of these cases attributed to GDM.² In mainland China, the incidence of GDM has been shown to be as high as 14.8%.³ With the implementation of revised birth policies and advancing age of childbearing, the incidence of GDM continues to rise annually.⁴

GDM can cause short- and long-term negative impacts for both the mother and the baby.^{5,6} The rising prevalence of GDM has imposed significant socio-economic and health burdens on both the country and individuals in China. A previous research showed that pregnant women with gestational diabetes spent an average of ¥6677.37 more on pregnancy and delivery than those without gestational diabetes in 2015.⁷ With the comprehensive implementation of the “two-child policy” in 2015 and the “three-child policy” in 2021 in China, the subsequent rise in the incidence of GDM has exerted a huge burden on healthcare system.⁸ Hence, it is of great significance to attach importance to the prevention and management of gestational diabetes.

Lifestyle interventions, including diet modulation and increased exercise are cornerstone therapies for GDM to control blood sugar and prevention complications. It has been reported that approximately 70–85% of patients with gestational diabetes can improve blood glucose with lifestyle intervention alone.⁹ And dietary intervention can normalize maternal blood glucose levels in most women with GDM through enhancing insulin sensitivity without the need for hypoglycemic drugs.¹⁰ Furthermore, strict adherence to food-related recommendations was associated with reduced use of hypoglycemic drugs.¹¹ Unfortunately, dietary intervention compliance in patients with gestational diabetes remains unsatisfactory both domestically and internationally.^{11–13} A cohort study investigating the compliance of dietary intervention shown that 33.2% of women with GDM had low dietary compliance in New Zealand.¹¹ Similarly, Liu YY et al demonstrated that dietary compliance among pregnant women with GDM in China is generally at a moderate to low level.¹² Common barriers included lack of knowledge and skills in dietary management, lack of tailored dietary plans, relationships with healthcare professionals, and obstacles related to family and working status.^{14–16}

In China, a cross-sectional survey on influencing factors of dietary compliance in pregnant women with GDM failed to give deeper understanding of the perspectives and experiences from the population to identify potential barriers to behavioral change interventions.¹⁷ Given these findings, it is essential to examine the real experiences of patients with GDM regarding dietary interventions and to explore the factors that influence dietary adherence, thereby informing targeted dietary interventions aimed at optimizing evidence-based practice in dietary management. Qualitative research based on theoretical guidance can help address these issues.

The Capability, Opportunity, and Motivation Behavior (COM-B) model is a behavior change theory proposed in 2011 by Michie et al,¹⁸ which provides a framework to explain the influencing factors of behavior change and a basis for the design behavior intervention.¹⁸ Therefore, this theoretical framework has been applied to many clinical diseases.^{19–21} but it has not yet been applied to dietary intervention of women with gestational diabetes in Chinese population. The present study focused on using the COM-B model to identify facilitators and barriers to dietary intervention adherence from the perspective of pregnant women with GDM and provided a foundation for the development of targeted dietary intervention strategies.

Methods

Study Design

We employed the purposive sampling method with maximum variation including ages, parity, educational level, gestational age, and pre-pregnancy weight status and so on. Data were collected using face-to-face semi-structured interviews with pregnant women with GDM. Guided by the COM-B model, the directed content analysis was used to analyze data. The study received review and approval from the Ethics Committee of Civil Aviation General Hospital (2024-L-K-76).

Participants

Eligible participants who received regular antenatal care between June 2024 and October 2024 were recruited from the obstetrics clinic of a tertiary general hospital in Beijing, China. Inclusion criteria of participants: 1) Diagnosis of gestational diabetes according to the 75 g oral glucose tolerance test (OGTT).²² 2) Receiving regular prenatal examinations at the obstetrics clinic. 3) Having good language expression and communication skills. 4) Voluntarily participate in this study and sign the informed consent form.

Exclusion criteria: Participants were excluded if they had multiple pregnancies, severe complications or comorbidities, a diagnosed mental illness, or declined audio recording. The sample size was determined based on data saturation, with two additional interviews conducted after saturation was reached to ensure comprehensive data collection. A total of 19 women with gestational diabetes participated in the interviews, and were numbered P1~P19 in the order of the interview. The general socio-demographic characteristics of the participants were presented in [Table 1](#).

Table 1 Socio-Demographic Characteristics of Study Participants (n=19)

Variables	
Age, (Mean±SD) years	32.26±4.58
Gestational age,(Mean±SD) weeks	36.03±1.75
Level of Education	
Master's degree, n (%)	5 (26.32%)
Bachelor's degree, n (%)	9 (47.37%)
College degree, n (%)	3 (15.79%)
High school, n (%)	1 (5.26%)
Middle school, n (%)	1 (5.26%)
Employment status	
Employed professional, n (%)	15 (78.94%)
Self-employed, n (%)	2 (10.53%)
Not employed, n (%)	2 (10.53%)
Parity	
Primipara, n (%)	13 (68.42%)
Multipara, n (%)	6 (31.58%)
Pre-pregnancy BMI [†]	
Obesity, n (%)	5 (26.32%)
Overweight, n (%)	3 (15.79%)
Normal weight, n (%)	10 (52.63%)
Underweight, n (%)	1 (5.26%)
History of GDM in a prior pregnancy ^{**}	
Yes, n (%)	2 (10.53%)
No, n (%)	17 (89.47%)
Family history of T2DM ^{***}	
Yes, n (%)	3 (15.79%)
No, n (%)	16 (84.21%)
Insulin treatment	
Yes, n (%)	8 (42.11%)
No, n (%)	11 (57.89%)

Notes: [†]BMI: Body Mass Index; BMI was categorized as Underweight (BMI<18.5kg/m²), Normal weight (18.5 kg/m²≤BMI<24.0 kg/m²), Overweight (24.0 kg/m²≤BMI<28.0 kg/m²) and Obesity (BMI≥28.0 kg/m²). ^{**}GDM: Gestational Diabetes Mellitus ^{***}T2DM: Type 2 Diabetes Mellitus.

Development of the Interview Outline

Guided by the COM-B model, the preliminary version formulated through literature review, group discussions, experts consultation and subsequently refined following pre-interviews with two pregnant women diagnosed with GDM, the final interview outline included the following questions:

(1) Can you describe your dietary pattern before pregnancy, including dietary structure and eating habits? (2) What changes have been made to your dietary pattern since becoming pregnant? (3) What factors or considerations influence these changes? (4) What are your perspectives on dietary interventions for women with GDM? (5) To what extent do you adhere to the dietary plan? (6) What aspects were followed, and what aspects were not? (7) What factors facilitate adherence to the dietary intervention plan? (8) What factors pose challenges to adherence? (9) How do you address these challenges? (10) What forms of support or assistance have you received while following the dietary intervention plan? (11) What are your thoughts and expectations regarding the current dietary intervention plan?

Data Collection

Face-to-face semi-structured interviews were used to collect data. To ensure consistency in the interview process, the interviewer underwent training in qualitative research methods. Prior to each interview, participants were contacted to confirm the time and location. A quiet and private outpatient education room was selected as the interview venue to maintain confidentiality and provide a comfortable setting.

Before the interview commenced, participants were given a detailed explanation of the purpose of the study, along with an overview of the interview content and methodology. Trust was established through this process and written informed consent was obtained. Participants were informed that they could withdraw at any time during the interview without any consequences. Strict confidentiality principles were followed throughout the study. With participant consent, the entire interview was recorded.

The sequence and phrasing of questions were adjusted flexibly based on the responses of the participants, while leading or indicative language was avoided to ensure unbiased data collection. Participants were encouraged to express their experiences and perspectives openly. The interviewer actively listened, posed follow-up questions when necessary, observed and recorded the nonverbal behaviors such as body movements, facial expressions, and tone of voice. Additionally, clarifications were provided when participants raised questions.

Each interview lasted between 20 to 40 minutes. No participants withdrew from the study or declined to answer any questions during the interviews.

Data Analysis

Following each interview, the audio recordings were repeatedly reviewed and transcribed into textual data within 24 hours. During the transcription process, the emotions, tone of voice, and notable actions of the participants were documented to enhance the contextual understanding of the data. Directed content analysis was used to analyze the data,²³ following a structured approach: define analysis units, and use sentences that reflect the influencing factors of patients' dietary compliance as the minimum unit segmentation points to form analysis units; Immerse oneself in raw materials, repeatedly review interview transcripts, and highlight content closely related to the research question; The COM-B model was used as a framework to determine the categories of analysis units; Annotate the main concepts in the materials, encode and classify the content, and classify similar codes into corresponding categories to form themes and sub themes; Interpretation and analysis of results, forming a connection between data and results, and identifying corresponding excerpt examples from the data.

Results

Study Participant Characteristics

A total of 19 participants were interviewed. The average age of the participants was 32.26 ± 4.58 years, the average gestational age of them was 36.03 ± 1.75 weeks. 73.69% of them have a bachelor's degree or above in education level, 68.42% of participants were primipara. 52.63% of them had a normal weight, 26.32% were obese, 15.79% were overweight, only 5.26%

were underweight. In total, more than 80% of participants had no history of GDM or a family history of type 2 diabetes (T2DM), and 42.11% of participants received insulin treatment. [Table 1](#) presents the characteristics of the participants.

Capability Factors

Lack of Correct Pregnancy Nutritional Knowledge

Pregnant women with GDM commonly lack correct knowledge of prenatal nutrition, including nutritional imbalance and excessive weight gain in early pregnancy, which increases the risk of developing GDM and creates a barrier to dietary interventions in second-and-third trimester. Below are some participant statements:

- P1: For women like me who paid little attention to correct prenatal nutrition before undergoing OGTT, adhering to dietary recommendations during this period has been particularly challenging.
- P7: Before the OGTT, I rarely eat rice or noodles, and I also eat less meat. When I felt hungry, I would eat a peach or a banana, frequently treating fruit as a meal. I assumed this was a healthy way to eat.
- P9: I do not have a family history of diabetes and have always been relatively slim. Upon reflection, it is true that I drank too much congee during early pregnancy and always drank various freshly squeezed fruit juices. I also ate a lot of fruits.
- P14: Cherries had just come into season, and I could eat over 1 jin (500 grams) per day. It was not only cherries but also other types of fruits. Since my GDM diagnosis, my weight has only increased by one jin, whereas during the ten weeks between the 12th and 22nd weeks of pregnancy, I gained 15 jin.

Insufficient Knowledge and Skills in Dietary Management

Women with GDM generally reported having little knowledge about GDM before undergoing the OGTT. Following diagnosis, a lack of adequate knowledge and skills related to dietary management was commonly noted, making it challenging to adopt and adhere to dietary plan within a short period. This knowledge gap negatively impacted dietary adherence.

Participant statements depict these challenges:

- P2: Initially, my urine test revealed ketones at 1+. The doctor advised me to incorporate additional meals, but I sometimes followed this recommendation, sometimes didn't. At that time, I did not listen much to the doctor's advice. Later, when I was hospitalized, I realized the importance of having separate and additional meals.
- P7: During the first two weeks of blood glucose control, I avoided staple foods almost entirely. I assumed that eliminating staple foods would help maintain optimal blood glucose levels. However, after two weeks, a urine test revealed excessive dietary restriction, and the doctor informed me that this was inappropriate. I also frequently experienced abdominal cramps during this period.
- P9: When I was first diagnosed, I experienced significant anxiety. At that time, I was consuming insufficient amounts of staple foods and often skipped snacks between meals, which led to the detection of ketone in my urine.

Opportunity Factors

High Trust in Professional Support

Pregnant women with GDM generally regarded the dietary plans provided by healthcare professionals as a reliable source of information. The informational support and professional guidance offered by medical teams were identified as key factors in facilitating adherence to dietary management.

Below are some participant statements:

- P1: During each prenatal check-up, I present my blood glucose readings, ultrasound reports, and diet diary to the doctor. When my glucose levels are well-controlled, I receive encouragement. If adjustments are needed, the doctor provides professional recommendations. Observing improvements in my blood glucose levels and fetal growth makes it easier to stay committed to the dietary plan.
- P3: During my consultation at the nutrition clinic, the doctor showed me a food model, which gave me a clear impression of how to control the amount of various foods and greatly helped me control my diet.
- P13: I believe it is important to follow the guidance of doctors and nurses, as online information should only be used as a reference.
- P18: Mutual trust is fundamental. Since I lack expertise in this area, professional matters should be handled by professionals.

Limited Support From Family

Some respondents reported receiving support from family members in terms of supervision and companionship during the process of adjusting their diet. However, due to the low awareness of disease and limited knowledge and skills in dietary management among most family members, the support from their families is limited.

Below are some participant statements:

- P5: My husband has been my greatest support, he often supervises me at the dinner table (smiling).
- P12: Now, the entire family adjusts their meals around me, if a particular food is suitable for me, everyone eats the same.
- P2: The older adult family members do not fully understand the condition. They believe that pregnancy should not be overly complicated and constantly worry that I am not getting enough nutrition, often encouraging me to eat more.
- P7: My husband prepares meals at home, but he and the children do not like whole grains. Since he finds it inconvenient to cook separately for me, dietary control is not always well maintained.
- P13: When I was first diagnosed with GDM, my in-laws did not consider it a serious issue and continued eating as usual. My husband and I repeatedly explained the risks associated with the condition, and gradually, they began to realize its risk.

Motivation Factors

Low Disease Risk Perception

Awareness of the health risks associated with GDM influenced the attitudes of participants toward dietary management. Many participants reported that understanding the potential impact of GDM, particularly on fetal health, led to a more proactive approach to dietary adherence, resulting in greater compliance. However, some participants exhibited a low perception of disease risk, particularly regarding long-term complications, which negatively affected adherence to dietary recommendations.

Below are some participant statements:

- P8: To avoid failed finger-prick blood glucose tests and to reduce the risks of intrauterine hypoxia, fetal deformities, preterm birth, and metabolic syndrome, I remained committed to dietary control.
- P11: I have researched the condition and learned that if blood glucose is not well-controlled, gestational diabetes may progress to diabetes or increase the likelihood of developing it later in life, particularly in one's forties or fifties. Therefore, it is not just about dietary management during pregnancy, I will need to continue manage it after childbirth.
- P2: Only my third value (2-hour postprandial blood glucose) was 0.03 above the threshold, which does not seem very serious. I do not think strict dietary control is necessary.
- P7: Gestational diabetes simply means slightly elevated blood glucose during pregnancy, but it resolves after delivery.
- P18: Dietary control is only necessary for a short period—one or two months. After giving birth, I can resume my usual eating habits.

Negative Experiences Related to Dietary Management

Many pregnant women with GDM reported experiencing feelings of discouragement, anxiety, or irritability during dietary management, particularly when blood glucose levels were difficult to control or when dietary restrictions were challenging to maintain. Some participants noted that acquiring disease-related knowledge and mastering dietary management skills helped alleviate negative emotions over time. However, others described increased psychological distress due to the burden of dietary control, which negatively impacted their motivation in adhering to it.

Participant statements depict these challenges:

- P8: Managing my diet is quite troublesome. I need to incorporate whole grains, but my family prefers refined grains, so meals have to be prepared separately for me. On top of that, portion calculations for each meal make it even more complicated—it is too much of a hassle!
- P11: I initially thought pregnancy would be a joyful experience where I could eat whatever I wanted, but after being diagnosed with GDM, that happiness disappeared.
- P14: Before having dietary restrictions, I did not think much about certain foods. However, now that I cannot have them, I suddenly crave them. Resisting external temptations requires a great deal of willpower, and I have gone through a mentally challenging adjustment period.

Positive Perception of the Benefits of Dietary Management

Some participants reported that implementing dietary plans and experiencing the associated benefits, such as improved blood glucose levels, appropriate weight management, and a positive disease management experience, reinforced their motivation for dietary adherence. These perceived benefits contributed to a more proactive approach to dietary management.

Below are some participant statements:

- P1: I believe that controlling blood glucose has significant benefits. If I had not adhered to dietary management, my weight would have increased even more.
- P9: Being diagnosed with gestational diabetes has actually been beneficial because it has made my diet more structured. Managing gestational diabetes requires dividing three meals into six, with designated times for main meals and snacks. Following this schedule has made my lifestyle and sleep patterns more consistent. I no longer stay up late, and people around me have noticed improvements in my skin. I also feel much happier.
- P17: I have been following the dietary recommendations provided by my doctor, and during each prenatal check-up, all my indicators have remained within the normal range. I intend to continue this dietary control not only during pregnancy but also after giving birth.

Low Self-Efficacy in Dietary Management

Some women with GDM reported experiencing a sense of incapacity and a lack of confidence when faced with the challenges of dietary adjustment. This low self-efficacy in dietary management negatively impacted their adherence to dietary recommendations.

Below are some participant statements:

- P4: I no longer know how to eat properly (crying). If I eat too much, my blood glucose levels increase, but if I eat too little, ketones appear. Every time I visit the hospital, I feel anxious and worried that something might be wrong.
- P7: The doctor informed me that if I fail to control my diet, insulin therapy will be required. My husband and I are choosing a relaxed approach—if insulin becomes necessary, then so be it. There seems to be no other option.
- P11: I feel mentally sluggish these days. I frequently forget to have snacks and struggle to control portion sizes. At this point, I have just resigned myself to it.

Discussion

Optimizing Nutrition Education During Pregnancy to Strengthen Dietary Management Knowledge, Skills, and Competence in Women with GDM

Previous research has shown that inadequate pregnancy nutrition knowledge is a key challenge to follow the dietary recommendations in pregnant women.²⁴ The findings in our study similarly indicate that most women with gestational diabetes exhibit limited pregnancy nutritional knowledge and are lack of awareness of maintaining appropriate weight gain during pregnancy. This dietary behavior may be influenced by traditional beliefs in China, such as “one person eats for two during pregnancy”, “eating more fruits is better”, or “eating more fruits can make the baby’s skin white”. The results further indicate that, particularly in the early stages of dietary modifications after diagnosing GDM, most women with GDM have limited awareness of the condition and insufficient knowledge and skills in dietary management. This finding aligns with reports from women with GDM in Canada, who also identified lack of knowledge and skills as a barrier to following dietary advice.¹⁴ This lack of understanding frequently leads to non-adherence to evidence-based dietary control methods. To address these challenges, healthcare professionals must help pregnant women abandon unscientific traditional beliefs and provide reliable and accurate information about dietary management of GDM. A multimodal approach, including online and offline prenatal education sessions, brochures, and digital platforms such as WeChat official accounts, can be used to deliver comprehensive health education. Key topics should include dietary principles during pregnancy, recommended nutrient intake at different gestational stages, and appropriate weight gain guidelines. Such educational interventions can help correct misconceptions, promote awareness of healthy weight management, and reduce the risk of GDM.

Furthermore, strengthening multidisciplinary collaboration among obstetricians, endocrinologists, and nutritionists with expertise in GDM management is essential. Personalized nutritional guidance should be provided based on factors such as pre-pregnancy BMI, blood glucose levels, dietary habits, personal preferences, and socioeconomic status.²⁵ These nutritional plans should be continuously adapted in response to self-monitored blood glucose levels, appetite, weight gain patterns, as well as individual preferences, occupational demands, daily routines, and physical activity levels.¹⁰

Additionally, the frequency of prenatal nutritional consultations should be increased to ensure ongoing supervision and guidance on dietary implementation. Regular monitoring and professional support can facilitate adherence to a well-balanced and scientifically informed diet, ultimately enhancing dietary management capabilities among women with GDM.

Strengthening Social Support Networks and Family Support to Improve Dietary Adherence in Women with GDM

The findings of this study indicate that informational support and professional guidance from healthcare providers, as well as family support, are key factors of dietary compliance among patients with gestational diabetes. The research conducted by Zhang Xin et al demonstrated that in the early stages following a GDM diagnosis, women have a strong need for decision-making support and rely heavily on the information provided by healthcare professionals.²⁶ To enhance dietary adherence, healthcare providers should continually advance their specialized knowledge and skills to address the individualized needs of women with GDM and must ensure the provision of adequate knowledge education when diagnosed with GDM.²⁷ Additionally, the majority of women in this study reported limited family support for dietary change. Furthermore, several participants in the study reported struggling to persuade the family to adjust dietary patterns. This finding is consistent with the previous study.²¹ It is well known that feeling supported by family, especially by their husbands, is a strong incentive.²⁸ Therefore, the early involvement of spouses or other family members in dietary management should be encouraged. Family members can be invited to participate in activities such as prenatal education sessions or GDM day clinics, which not only enhance emotional support within the family but also improve their understanding of the condition and their ability to assist with dietary management. Strengthening family-based support can further facilitate adherence to dietary recommendations.

Moreover, consideration should be given to the broader social support systems available to women with GDM. Establishing communication platforms, such as WeChat support groups, helps expand social support networks, enabling access to more comprehensive information and additional external support. These measures contribute to a more structured and multifaceted social support model, ultimately improving dietary management outcomes in women with GDM.

Enhancing Risk Perception, Strengthening Psychological Support, and Improving the Dietary Management Experience in Women with GDM

From existing research, we discovered that perception of disease risk, particularly concerns regarding fetal health, plays a significant role in promoting the adoption of healthier lifestyles among women with GDM.^{29,30} The findings of this study similarly indicate that a heightened awareness of disease-related risks serves as a facilitating factor for dietary adherence. However, some women with GDM exhibit limited awareness of disease risks, particularly concerning the long-term complications of the condition, which negatively impacts dietary compliance.

Furthermore, the results indicate that women with GDM experience various negative emotions and challenges in psychological adjustment while managing the condition and adhering to dietary recommendations, ultimately affecting their dietary adherence. From prior research, we discovered that women with GDM are more susceptible to negative emotions such as anxiety and depression, and they often encounter multiple sources of psychological distress.^{31,32}

To address these challenges, healthcare professionals should guide women with GDM toward an objective understanding of disease risks, with particular attention to those with low-risk awareness. Identifying underlying care needs and implementing targeted interventions helps enhance risk perception and improve adherence to dietary management.

When necessary, psychological support strategies, including breathing exercises, meditation, and mindfulness-based interventions, should be incorporated to promote mental well-being, alleviate negative emotions, improve the overall experience of dietary management, and enhance adherence to dietary recommendations.³³

Enhancing Awareness of Dietary Management Benefits, Strengthening Self-Efficacy, and Promoting Dietary Compliance in Women with GDM

The findings of this study indicate that recognizing the excellent perception of dietary management encourages patients with gestational diabetes to adopt healthier eating behaviors and even sustain these practices in postpartum health management. This perception serves as a key motivating factor for adherence to dietary recommendations and supports long-term dietary compliance. These findings are echoed in other qualitative studies in China.³⁴ Thus, healthcare professionals should assess and enhance the good perception of dietary management for patients, emphasizing the need to establish healthy eating habits not only during pregnancy but also after childbirth.¹⁵ Moreover, the implementation of structured and standardized postpartum follow-up programs should be prioritized to strengthen self-management skills, sustain long-term dietary adherence, and mitigate the risk of long-term complications.

Additionally, the study highlights that some women with GDM encounter difficulties in coping with dietary modifications and exhibit low self-efficacy, which negatively impacts dietary adherence. Findings from previous research suggest that self-efficacy has a direct positive influence on decision-making behaviors in patients with gestational diabetes,³⁵ and the higher the self-efficacy and disease knowledge level of GDM patients, the greater the possibility of achieving higher levels of GDM self-management.³⁶

Concurrently, healthcare professionals should adopt evidence-based interventions to enhance self-efficacy of dietary management,^{37–39} build confidence in dietary management, and reinforce motivation for adherence to dietary recommendations.

Strengths and Limitations

Purposive sampling in the study was used to recruit participants with diverse ages, parity, educational levels, occupations, prior histories of GDM, family histories of T2DM, and insulin treatment status (yes/no), enabling the exploration of richer themes. Additionally, the study's strengths included its use of the COM-B model as a robust theoretical framework and its qualitative methodology, which provides rich, patient-centered insights.

However, this study has certain limitations. This study exclusively examines dietary adherence from the perspectives of pregnant women with GDM. Enhancing adherence to dietary recommendations in this population requires a collaborative effort involving family members, healthcare providers, and the broader community. The objective of future research should be to examine dietary adherence determinants from multiple perspectives and levels of influence to inform the development of a comprehensive dietary management framework for patients with gestational diabetes. Notwithstanding, our findings can serve as a reference and basis for subsequent intervention studies for this population.

Conclusion

This study applied the COM-B model to improve our understanding of barriers and enabling factors in the dietary management of pregnant women with GDM. The study identified a range of factors related to capability, opportunity, and motivation, consistent with the existing literature. Our findings highlight the need for health services to improve support and education for GDM pregnant women in China. Additionally, our findings emphasize the need for clinical healthcare professionals to take effective measures that improve the self-efficacy and involve family members in supporting dietary modifications among women with GDM. To reduce the short-term and long-term harm of GDM, dietary interventions need to address their capability, opportunity, and motivation of patients with gestational diabetes for making dietary modifications not only pregnancy but also after delivery.

Abbreviations

GDM, gestational diabetes mellitus; COM-B, capability opportunity and motivation-behavior; OGTT, oral glucose tolerance test; T2DM, type 2 diabetes mellitus.

Data Sharing Statement

All data generated or analysed during this study are included in the study. Further enquiries can contact the corresponding author.

Ethics Approval and Consent to Participate

The study received review and approval from the Ethics Committee of the Civil Aviation General Hospital (2024-L-K-76). Each participant voluntarily signed the written informed consent form.

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Disclosure

The authors declare that they have no competing interests.

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