Barriers to Postpartum Oral Glucose Tolerance Testing in Omani Women with Gestational Diabetes Mellitus

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Abstract

Recombinant human growth hormone (hGH) therapy is often challenged by poor adherence, leading to the development of long-acting growth hormone (LAGH) formulations such as somatrogon to improve compliance. The structural modification of Somatrogon may increase immunogenicity and result in anti-drug antibody (ADA) formation, potentially affecting treatment efficacy. We present a case of a 9-year-old girl with isolated growth hormone deficiency (GHD) who showed initial improvement in growth velocity and IGF-I levels following treatment with somatrogon. However, a subsequent decline in both growth parameters and biochemical markers occurred despite dose escalation and confirmed adherence. Neutralizing antibodies were suspected, though not confirmed due to the unavailability of commercial testing kit. Upon switching to daily somatropin, IGF-I level rapidly normalized and growth rate improved significantly, indicating restored responsiveness. This case illustrates a loss of efficacy with LAGH therapy potentially related to ADA development. While LAGHs offer benefits in reducing injection burden, concerns remain regarding immunogenicity and sustained clinical effectiveness.

Keywords: Growth Long acting growth hormone Somatrogon Resistance.

Introduction

Gestational diabetes mellitus (GDM) is defined as glucose intolerance first recognized during the second or third trimester of pregnancy that was not clearly overt diabetes prior to gestation, irrespective of whether treatment involves insulin or dietary modification alone, and regardless of whether the condition persists postpartum.[1] GDM is one of the most common medical complications of pregnancy, and its global prevalence is rising due to increasing maternal age, obesity, and sedentary lifestyles.[2] In the United States, the estimated prevalence of GDM is approximately 9.2%;[3] however, prevalence rates vary significantly depending on the population studied and the diagnostic criteria used. In Oman, the Ministry of Health reported a national prevalence of 9.5% in 2020,[4] whereas a local study conducted at Bawshar Polyclinic in 2016 documented a much higher prevalence of 48.5% among pregnant women.[5]

Women with a history of GDM are at substantially increased risk of developing type 2 diabetes mellitus (T2DM), metabolic syndrome, and cardiovascular diseases later in life.[6] Evidence suggests thatthe cumulative incidence of diabetes after GDM ranges from 2.6% to over 70%, depending on follow-up duration and testing methods..[6,7] Early diagnosis and intervention in this population are crucial to preventing long-term complications such as diabetic nephropathy, retinopathy, and cardiovascular morbidity.[6] Furthermore, timely postpartum screening facilitates improved management in subsequent pregnancies and enhanced health outcomes for both mother and child.[6–8]

In light of these risks, several professional bodies have established guidelines for postpartum diabetes screening. The American Diabetes Association (ADA) recommends that women with prior GDM undergo a 75-gram oral glucose tolerance test (OGTT) between 4 and 12 weeks postpartum.[9] Similarly, Oman's national maternal healthcare guidelines recommend glucose testing between 6 and 12 weeks following delivery.[10] Despite these recommendations, adherence to postpartum diabetes screening remains suboptimal globally. For example, a study in the United States found that only 37% of eligible women completed postpartum screening, with a median delay of 428 days after delivery. Even when fasting blood glucose or HbA1c testing was included, the overall compliance rate increased only to 67%.[11] A systematic review by Jones et al. (2019) reported highly variable screening rates, ranging from 5.7% to 57.9%, with a median of just 21.8%.[12]

Several factors contribute to the low uptake of postpartum screening, including lack of awareness regarding the risk of T2DM, inadequate communication from healthcare providers, prioritisation of infant care over maternal health, and logistical challenges such as transport difficulties and limited access to healthcare facilities.[13,14] Addressing these barriers is critical for reducing the long-term burden of diabetes in women with prior GDM.

In Oman, there is a paucity of research on postpartum diabetes screening. To date, no studies have specifically examined screening rates or identified barriers to testing among Omani women with a history of GDM. This knowledge gap hinders the development of context-specific interventions. Therefore, the present study aims to assess the postpartum diabetes screening rate in this population and to identify factors that impede adherence. The findings may inform stakeholder strategies to enhance screening uptake and reduce the long-term health burden of undiagnosed diabetes in this high-risk group.

Methods

A multi-centre, cross-sectional study was conducted from November 2023 to March 2024 across 12 randomly selected primary health centres in Muscat, Oman. Muscat is the most densely populated governorate in the country, accounting for 32% of the national population. It is divided into six wilayats (districts), which collectively house 29 governmental primary healthcare centres distributed according to population size.[15] The selected facilities represented a randomised sample from each wilayat within the governorate.

The study population included all pregnant women diagnosed with GDM during antenatal care visits, based on the International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria: fasting plasma glucose ≥92 mg/dL (≥5.1 mmol/L) or 2-hour plasma glucose ≥153 mg/dL (≥8.5 mmol/L) following a 75-gram OGTT.[9] Women previously diagnosed with type-1 diabetes mellitus or T2DM according to the ADA criteria were excluded.[1]

Sample size was calculated using OpenEpi based on a 95% confidence interval, 80% power, and an assumed response distribution of 50%. The minimum sample size required was 383 participants. Stratified random sampling was employed, with strata defined by the catchment population size of each health centre to ensure proportional representation.

Data were collected using a structured, interviewer-administered questionnaire adapted from a previously validated tool, with modifications to align with local sociocultural contexts.[16] The original English version was translated into Arabic following established guidelines, and its content validity and reliability were assessed through a pilot study and expert panel review.[17]

The questionnaire comprised three sections. The first section collected sociodemographic and obstetric data, including age, education level, employment status, household income, family structure (nuclear or extended), number of children, family history of T2DM, previous history of GDM, gestational age at diagnosis, and treatment approach. The second section assessed whether participants had completed the postpartum OGTT. Respondents were asked whether they (1) attended and completed the test, (2) attended but did not complete it, or (3) did not attend at all. The third section explored both actual and perceived barriers to OGTT completion. Women who had not undergone the test were asked about actual barriers, while those who had completed it were asked about perceived barriers. These included psychological distress, lack of nearby healthcare facilities, transportation challenges, inadequate explanations from healthcare providers, absence of appointment reminders, assumptions of normalised blood glucose post-delivery, discouragement from family or friends, fear of diagnosis, poor testing facility conditions, time constraints, concerns regarding test safety, and dislike of the glucose drink. Responses were recorded using a 5-point Likert scale ranging from "strongly agree" to "strongly disagree." Telephone interviews were conducted by the principal investigators and transcribed accordingly.

Data were analysed using the Statistical Package for the Social Sciences (SPSS), Version 23 (IBM Corp., Armonk, New York, USA). Descriptive statistics were used to present means and standard deviations for continuous variables and frequencies and percentages for categorical variables, while Pearson's Chi-squared (χ^2) test was used to assess associations between categorical variables. Multivariate logistic regression was conducted to identify predictors of non-attendance. A *p*-value of ≤0.05 was considered statistically significant.

Ethical approval was granted by the Ministry of Health's Research and Ethical Review Committee (MoH/CSR/22/26302). Verbal informed consent was obtained from all participants prior to the interviews. Participants were assured of the voluntary nature of their participation, their right to withdraw at any time, and the confidentiality of their responses. No personal identifiers were collected; each participant was assigned a unique study code. The study received no external funding and declares no conflicts of interest. Participants were informed that the study was conducted solely for research purposes and did not constitute medical advice.

Results

A total of 396 Omani women with GDM were recruited from 12 primary health centres across Muscat Governorate. The highest enrolments weres from Mabela (n = 88; 22.2%) and Al Nahdha (n = 81; 20.5%). North Mawaleh and Qurum Polyclinic each contributed 37 (9.3%) participants, and Bawshar Health Centre enrolled 32 (8.1%). Smaller contributions were recorded from Al Hajer (n = 31; 7.8%), Ghubra (n = 27; 6.8%), Muscat (n = 25; 6.3%), Wadi Al Kabir (n = 18; 4.5%), and Mutrah (n = 15; 3.8%). Mazare and Sefa Health Centres had the smallest enrolments, with 3 (0.8%) and 2 (0.5%) participants, respectively.

The mean age of participants was 33.0 ± 5.2 years, ranging from 20 to 46 years. Most women (n = 321; 81.1%) resided in nuclear households, while 75 (18.9%) lived in extended family settings. Approximately half had completed at least secondary education (n = 194; 49.0%), and 176 (44.4%) held higher education degrees. Employment was nearly evenly distributed, with 202 women (51.5%) unemployed and 192 (48.5%) employed. Monthly household income varied: 140 participants (35.4%) reported incomes between 300–600 OMR, 128 (32.3%) earned between 601–1000 OMR, and 111 (28.0%) earned above 1000 OMR. Only 17 participants (4.3%) reported incomes below 300 OMR.

Family size ranged from one to ten children (mean = 3.07 ± 1.51). Most participants had two to four children, with 29.0%, 27.5%, and 17.7% reporting two, three, and four children, respectively. Smaller families (11.4% with one child) and larger families (including those with eight or ten children) were less common.

Over half of the participants (n = 214; 54.0%) reported a history of GDM in a previous pregnancy. The majority (n = 281; 80.0%) were diagnosed with GDM 24 and 28 weeks of gestation. Regarding treatment, 137 women (34.6%) received oral medications, 135 (34.1%) followed dietary interventions, and 104 (26.3%) managed their condition through lifestyle modifications alone. Only 15 participants (3.8%) were treated with insulin therapy.

Despite clinical recommendations, only 110 women (27.8%) completed the postpartum OGTT. An additional 94 participants (23.7%) attended the postpartum follow-up visit but did not undergo the test. Nearly half of the sample (n = 192; 48.5%) neither attended the follow-up visit nor completed the screening.

Barriers to OGTT completion were multifaceted. Among the 286 women who did not complete the test, the most frequently reported barriers related to perceived necessity and communication. A majority (n = 204; 71.3%) stated that the importance of the test had not been explained by healthcare providers, and 191 (66.8%) reported not receiving a reminder from the health centre. A considerable number (n = 217; 75.9%) believed the test was unnecessary due to controlled glucose levels during pregnancy or perceived normalisation after delivery. Sensory discomfort also played a role, with 163 women (57.0%) reporting that the unpleasant taste of the glucose drink discouraged them from completing the test. In contrast, logistical barriers were less frequently cited. Most participants disagreed that a lack of nearby health facilities (n = 234; 81.8%) or unavailability of transportation (n = 193; 67.4%) were obstacles. Similarly, only 84 women (29.4%) agreed that the duration of the test deterred them from participating [Table 1].

Table 1: Comparison of barriers to postpartum oral glucose tolerance testing between women who completed and did not complete the test (N = 396).

Barrier	Completed OGTT (n = 110)	Did not complete OGTT (n = 286)
		n (%)

Poor mental health after delivery	62 (56.4)	113 (39.5)
No nearby health facility	38 (34.5)	52 (18.2)
No available transportation	62 (56.4)	93 (32.5)
Importance of OGTT postpartum test was not explained by doctors	47 (42.7)	204 (71.3)
No reminder from the health institute to attend the appointment	58 (52.7)	191 (66.8)
Thought it unnecessary due to controlled blood glucose during pregnancy	47 (42.7)	217 (75.9)
Relatives advised against doing the OGTT postpartum	51 (46.4)	33 (11.5)
Fear of being diagnosed with diabetes	66 (60.0)	61 (21.3)
Health centre facility in poor condition	21 (19.1)	38 (13.3)
Test takes too much time	39 (35.5)	84 (29.4)
Concern that the test may harm health	51 (46.4)	100 (35.0)
Bad taste of the OGTT Test	83 (75.5)	163 (57.0)

OGTT = oral glucose tolerance test

Psychological and social barriers showed mixed influence. While 39.5% (n = 113) of those who had not completed the test cited poor mental health, a larger proportion disagreed (n= 173; 60.5%). Fear of a diabetes diagnosis was reported by 21.3% (n = 61), but 78.7% (n = 225) did not perceive it as a deterrent. Similarly, 35.0% (n = 100) were concerned about test safety, 86.7% (n = 248) disagreed that poor facility conditions were a barrier. Social discouragement was rarely endorsed, with 88.5% (n = 253) rejecting it as a factor [Table 1].

Among those who completed the OGTT (n = 110), perceived barriers were still present. The most common included the unpleasant taste of the glucose drink (n = 83; 75.5%), fear of diagnosis (n = 66; 60.0%), transportation difficulties and postnatal mental health concerns (each n = 62; 56.4%), and lack of reminders (n = 58; 52.7%). Other reported factors included beliefs that the test could be harmful (n = 51; 46.4%), discouragement from family or friends (n = 51; 46.4%), the notion that testing was unnecessary due to prior glucose control (n = 47; 42.7%), and lack of explanation by healthcare providers (n = 47; 42.7%). Less commonly mentioned barriers were the time-consuming nature of the test (n = 39; 35.5%), lack of nearby health facilities (n = 38; 34.5%), and poor condition of the health facility (n = 21; 19.1%) [Table 1].

Preferred reminder methods included standard message (n = 277; 69.9%), followed by phone calls (n = 68; 17.2%) and WhatsApp messages (n = 49; 12.4%). Among sociodemographic variables, only the absence of a first-degree relative with diabetes was significantly associated with non-attendance ($p = 0.042$). Other factors, including age, parity, income, GDM history, and treatment modality, were not significant [Table 2].

Table 2: Multivariate binary logistic regression analysis of demographic predictors for not completing the postpartum oral glucose tolerance test (N = 396).

Variable	**β**	**Adjusted Odds Ratio**	**95% Confidence Interval**	***P*-value**
First-degree relative with diabetes?				
Yes (Reference)	-	1.000	-	-
No	1.238	3.449	1.650–7.212	0.001
History of GDM in a previous pregnancy?				
Yes (Reference)	-	1.000	-	-
No	−0.053	0.948	0.516–1.743	0.864

GDM = gestational diabetes mellitus.

Multivariate logistic regression identified several independent predictors of OGTT non-completion. Women without a first-degree diabetic relative had higher odds of missing the test (adjusted odds ratio [aOR]: 3.449; 95% confidence interval [CI]: 1.650–7.212; $p = 0.001$). Strong predictors included the belief that testing was unnecessary (aOR: 4.255; 95% CI: 2.294–7.894; $p < 0.001$), lack of provider explanation (aOR: 3.834; 95% CI: 1.941–7.573; $p < 0.001$), and discouragement from relatives (aOR: 0.286; 95% CI: 0.146–0.560; $p < 0.001$). Fear of diagnosis (aOR: 0.322; 95% CI: 0.166–0.622; $p = 0.001$) and lack of transportation (aOR: 0.364; 95% CI: 0.187–0.706; $p = 0.003$) also contributed significantly. The bad taste of the OGTT drink showed modest but significant influence (aOR: 0.479; 95% CI: 0.235–0.978; $p = 0.043$).

Other barriers—such as test duration, lack of reminders, and safety concerns—were not significantly associated with OGTT completion [Table 3]. Cumulative barrier analysis revealed a steep decline in OGTT adherence as perceived barriers increased, with non-attendance nearing 100% among women reporting eight or more barriers [Figure 1].

Table 3: Multivariate binary logistic regression analysis of barriers as independent predictors of not completing the postpartum oral glucose tolerance test.

Barriers	β	Adjusted Odds Ratio	95% Confidence interval Lower	Upper	*P*-value*
First degree relative with diabetes					
Yes (Reference)	-	1.000	-	-	-
No	1.238	3.449	1.650	7.212	0.001
Had GDM in a previous pregnancy					
Yes (Reference)	-	1.000	-	-	-
No	−0.053	0.948	0.516	1.743	0.864
Poor mental health after delivery					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	−0.028	0.972	0.499	1.896	0.934
No nearby health facility					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	−0.668	0.513	0.244	1.078	0.078
No available transportation					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	−1.012	0.364	0.187	0.706	0.003
OGTT importance not explained by doctors					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	1.344	3.834	1.941	7.573	<0.001
No reminder from health institute					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	−0.080	0.923	0.458	1.861	0.824
Thought OGTT unnecessary due to controlled blood glucose					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	1.448	4.255	2.294	7.894	<0.001
Relatives advised against doing to OGTT					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	−1.252	0.286	0.146	0.560	<0.001
Fear of being diagnosed with diabetes					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	−1.135	0.322	0.166	0.622	0.001
Poor condition of the health center facility					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	0.348	1.417	0.631	3.179	0.398
Test takes too much time					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	−0.075	0.928	0.470	1.833	0.829
Thought test may harm health					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	−0.101	0.904	0.473	1.726	0.759
Bad taste of the OGTT Test					
Disagreed/Not sure (Reference)	-	1.000	-	-	-
Agreed	−0.736	0.479	0.235	0.978	0.043

GDM = gestational diabetes mellitus; OGTT = oral glucose tolerance test.
**Statistical significance set at P <0.05.*

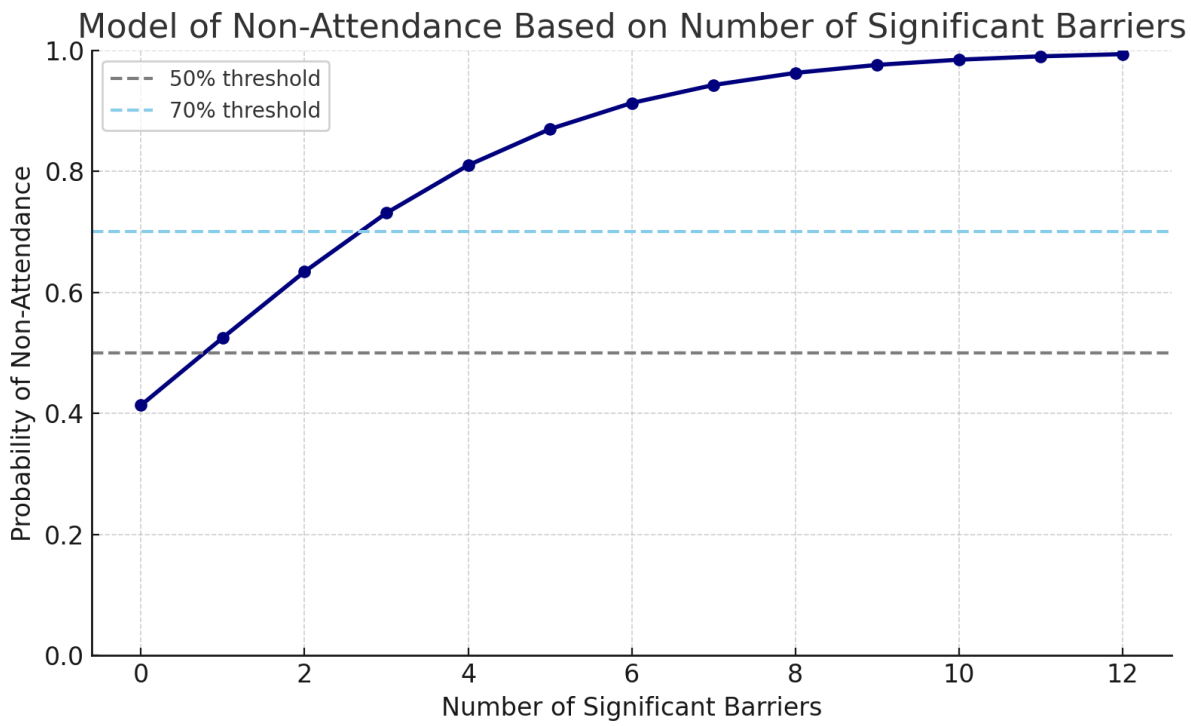

Figure 1: Impact of cumulative barriers on postpartum oral glucose tolerance test non-attendance among Omani women with GDM (N = 396).

A correlation heatmap demonstrated associations between logistical and perceptual barriers, notably between lack of nearby facilities and transportation challenges, suggesting these may be interdependent [Figure 2].

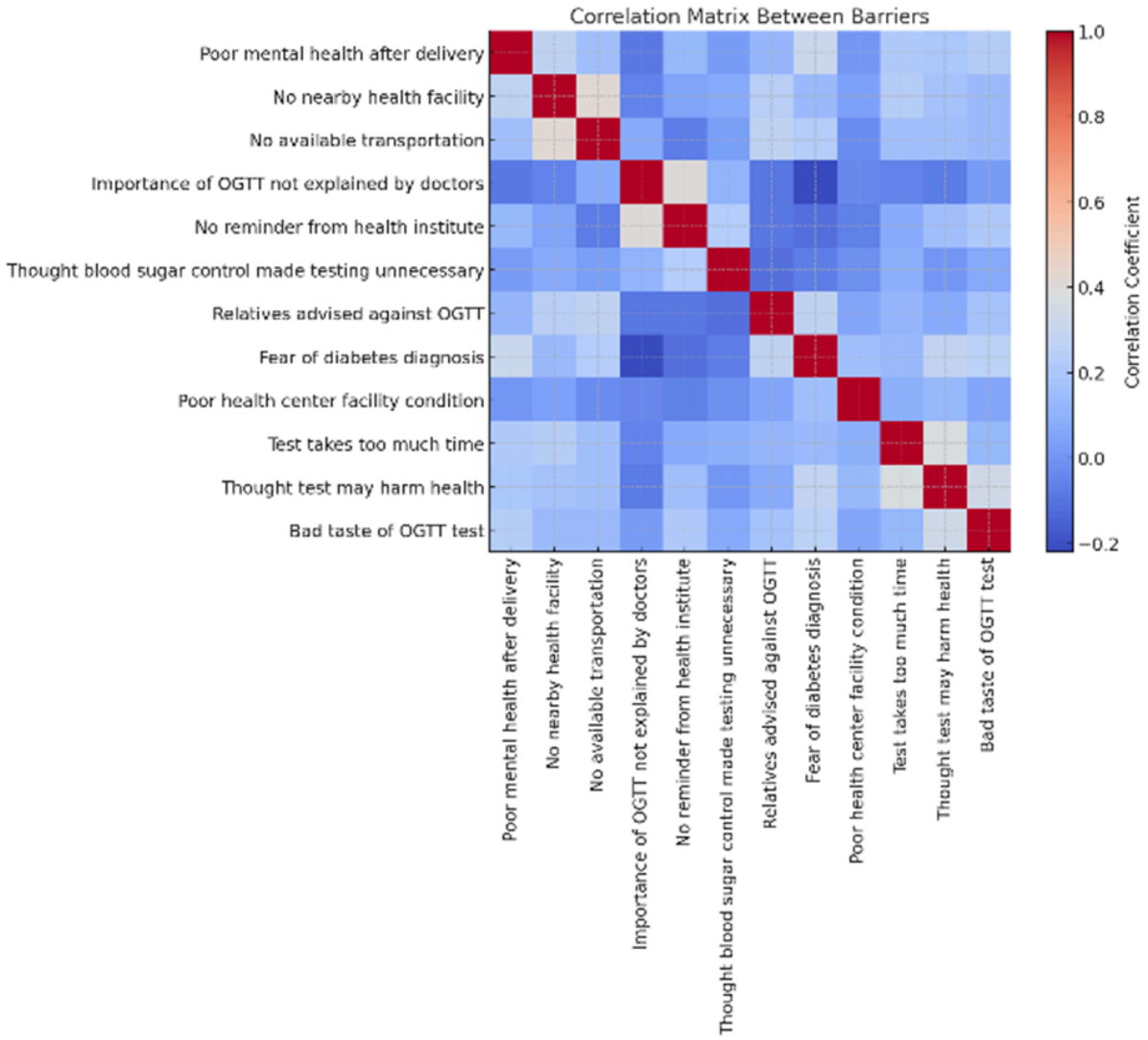

Figure 2: Correlation heatmap of logistical and psychological barriers to postpartum OGTT among Omani women with GDM (N=396).

Discussion

This study revealed a critically low postpartum OGTT completion rate of 27.8% among Omani women with prior GDM, despite national and international screening recommendations.[9,10] This aligns with international trends, where postpartum screening rates vary widely, with a median of approximately 21.8%.[12] The results highlight the need to address a complex interplay of barriers within the local healthcare and sociocultural context.

Informational and cognitive barriers were the strongest predictors of non-compliance. Believing that normal controlled blood glucose during pregnancy eliminates the need for postpartum testing (aOR = 4.255), and insufficient explanation by healthcare providers (aOR = 3.834), significantly reduced screening adherence. These findings are consistent with studies from countries such as Italy and Iran, where lack of awareness and poor provider communication were key deterrents.[13,14] The World Health Organization has similarly emphasised the role of patient education and health literacy in reducing the burden of noncommunicable diseases.[18]

Psychological barriers also played a major role. Fear of being diagnosed with diabetes (aRO = 0.322) was significantly associated with avoidance, aligning with prior research linking emotional distress with screening non-compliance.[14] Notably, 60% of women who completed the OGTT still reported fear of diagnosis, indicating persistent emotional resistance and emphasizing the need for empathetic counselling during antenatal and postpartum care.

Logistical barriers, such as lack of transportation (aOR = 0.364), were influential, as reported in both high- and low-income setting.[12,13] Although most respondents did not perceive facility access as an issue, correlation analysis suggested links between transportation difficulties and perceived accessibility, pointing to the potential value of mobile testing units or decentralised screening models. Sensory discomfort, particularly related to the OGTT drink, had a modest but statistically significant association with non-attendance (aOR = 0.479). While secondary to psychosocial barriers, improving test palatability or offering clinically acceptable alternatives may improve compliance.[11]

Non-compliance rose sharply in those reporting multiple barriers, indicating that fragmented interventions may be insufficient. A multifaceted approach is needed—one that concurrently addresses structural, emotional, and cognitive dimensions. Although reminder systems were not independently predictive, standard message notifications were the preferred option among participants. Given the demonstrated success of digital prompts in previous studies, integrating automated message reminders into Oman's primary care system could be a feasible and scalable intervention.[13]

None of the classic sociodemographic predictors—such as age, education, income, or parity—were significantly associated with OGTT uptake, except for having a first-degree relative with diabetes. This suggests that personal awareness of diabetes risk may play a greater role in motivating postpartum screening than demographic status, aligning with findings from other Middle Eastern studies.[5,6]

This study's strengths include its multi-centre design, stratified sampling, and dual focus on actual and perceived barriers. The use of a validated, culturally adapted tool, coupled with phone interviews, improved response quality and contextual relevance. Multivariate regression further enhanced analytical rigor.

Nevertheless, limitations must be acknowledged. As a cross-sectional study, causal relationships cannot be inferred. Reliance on self-reported data may have introduced recall or social desirability bias. Moreover, the urban setting may have lacked the depth of face-to-face methods. Additionally, the study did not assess whether women who declined the OGTT underwent alternative tests, such as fasting glucose or HbA1c, which may have provided insight into patient preferences.

The findings emphasise the need for multilevel interventions targeting patients, providers, and healthcare systems. Training for providers should prioritise risk communication and empathetic counselling. Patient education must begin antenatally and continue postpartum. Digital reminder tools, particularly standard messaging that was preferred by 70% of participants, could improve follow-up rates. These tools are especially promising in Oman's well-digitised primary care infrastructure.

Given the high lifetime risk of T2DM among women with prior GDM, addressing the barriers identified is essential.[7] Structured follow-up protocols, integrated into chronic disease prevention programmes, may offer a sustainable approach. The low OGTT adherence rate in this study appears primarily due to modifiable factors, limited awareness, inadequate counselling, and logistical challenges. Targeted strategies, such as structured education, provider-led counselling, reminder systems, and improved test acceptability, may enhance adherence. Further research should evaluate alternative screening methods and explore rural populations to broaden applicability.

Conclusion

Postpartum diabetes screening among Omani women with prior GDM remains suboptimal. Major barriers include limited awareness, inadequate counselling, absence of follow-up reminders, and aversion of the OGTT drink. Targeted strategies—such as structured education, provider training, reminders systems, and improved test tolerability—may enhance adherence. Further research should explore the feasibility and acceptability of alternative screening methods, including fasting glucose and HbA1c, to support wider uptake and long-term diabetes prevention.

Disclosure

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References

1. American Diabetes Association Professional Practice Committee. 2. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes-2022. Diabetes Care 2022; 45:S17–S38. https://doi.org/10.2337/dc22-S002.

2. Chiefari E, Arcidiacono B, Foti D, Brunetti A. Gestational diabetes mellitus: an updated overview. J Endocrinol Invest 2017; 40:899–909. https://doi.org/10.1007/s40618-016-0607-5.

3. DeSisto CL, Kim SY, Sharma AJ. Prevalence estimates of gestational diabetes mellitus in the United States, Pregnancy Risk Assessment Monitoring System (PRAMS), 2007–2010. Prev Chronic Dis 2014; 11:E104. https://doi.org/10.5888/pcd11.130415.

4. Oman Ministry of Health. Annual Health Report. Department of Health Information and Statistics, Directorate General of Planning and Studies. Muscat: Ministry of Health; 2020. From: https://moh.gov.om/media/v3xfdvmd/annual-health-report-2023.pdf Accessed: Jun 2025.

5. Al Subhi SK, Al Kindi RM, Al Rawahi A, Al Seyabi IS, Al Mukhaini A. Prevalence of gestational diabetes mellitus using the latest World Health Organization diagnostic criteria among Omani women in Muscat, Oman. Oman Med J 2021; 36:e215. https://doi.org/10.5001/omj.2021.08.

6. Kim C, Newton KM, Knopp RH. Gestational diabetes and the incidence of type 2 diabetes: a systematic review. Diabetes Care 2002; 25:1862–1868. https://doi.org/10.2337/diacare.25.10.1862.

7. Bellamy L, Casas JP, Hingorani AD, Williams D. Type 2 diabetes mellitus after gestational diabetes: a systematic review and meta-analysis. Lancet. 2009; 373:1773–1779. https://doi.org/10.1016/S0140-6736(09)60731-5.

8. American College of Obstetricians and Gynecologists. Committee Opinion No. 736: Optimizing postpartum care. Obstet Gynecol 2018; 131:e140–e150. https://doi.org/10.1097/AOG.0000000000002633.

9. American Diabetes Association Professional Practice. Committee. 15. Management of diabetes in pregnancy: Standards of medical care in diabetes-2022. Diabetes Care 2022; 45:S232–S243. https://doi.org/10.2337/dc22-S015.

10. Oman Ministry of Health. Pregnancy and childbirth management guidelines. Level – 1. A guide for nurses, midwives and doctors. Second Edition. Department of Women and Child Health Care, Directorate General of Primary Health Care. Muscat: Oman Ministry of Health. 2016. p. 34-41. From: https://maqsurah.com/home/item_detail/73374 Accessed: Jun 2025.

11. Smirnakis KV, Chasan-Taber L, Wolf M, Markenson G, Ecker JL, Thadhani R. Postpartum diabetes screening in women with a history of gestational diabetes. Obstet Gynecol 2005; 106:1297–1303. https://doi.org/10.1097/01.AOG.0000189081.46925.90.

12. Quaresima P, Visconti F, Chiefari E, Puccio L, Foti DP, Venturella R, et al. Barriers to Postpartum Glucose Intolerance Screening in an Italian Population. Int J Environ Res Public Health 2018; 15:2853. https://doi.org/10.3390/ijerph15122853.

13. Jones EJ, Hernandez TL, Edmonds JK, Ferranti EP. Continued Disparities in Postpartum Follow-Up and Screening Among Women With Gestational Diabetes and Hypertensive Disorders of Pregnancy: A Systematic Review. J Perinat Neonatal Nurs 2019; 33:136–148. https://doi.org/10.1097/JPN.0000000000000399.

14. Rafii F, Rahimparvar SFV, Mehrdad N, Keramat A. Barriers to postpartum screening for type 2 diabetes: a qualitative study of women with previous gestational diabetes. Pan Afr Med J 2017; 26:54.

15. Oman Ministry of Health, Oman. Annual Health Report. Department of Health Information and Statistics, Directorate General of Planning and Studies. Muscat: Ministry of Health; 2022. From: https://www.moh.gov.om/en/web/statistics/annual-reports Accessed: Jun 2025

16. Zanatta CM, Zanchetta C, Cacciatore F, Bortolus R, De Vito C, Marceca M. Barriers to postpartum glucose intolerance screening in an Italian population. Int J Environ Res Public Health 2018; 15:2853. https://doi.org/10.3390/ijerph15122853.

17. Sousa VD, Rojjanasrirat W. Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: a clear and user-friendly guideline. J Eval Clin Pract 2011; 17:268–274. https://doi.org/10.1111/j.1365-2753.2010.01434.x.

18. World Health Organization. Health Literacy. From: https://www.who.int/news-room/fact-sheets/detail/health-literacy Accessed: Jun 2025.