JOHA
Journal Of Health Academics

PREVALENCE AND KNOWLEDGE OF GESTATIONAL DIABETES MELLITUS AMONG ANTENATAL CLINIC ATTENDEES AT DGH KILINOCHCHI

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ABSTRACT

Gestational diabetes mellitus (GDM) is glucose intolerance first recognized during pregnancy and is associated with short- and long-term adverse outcomes for both mother and child. Knowledge about GDM influences screening uptake, self-management, and postpartum follow-up. This study assessed prevalence indicators of GDM and evaluated knowledge regarding GDM among antenatal clinic attendees at District General Hospital (DGH), Kilinochchi. A descriptive cross-sectional study was conducted among 423 pregnant women. Data were collected using a structured questionnaire and recorded plasma glucose readings. Descriptive statistics were used. Fasting plasma glucose >95 mg/dL was observed in 35% of participants and 2-hour plasma glucose >140 mg/dL in 68%. Only 33% had ever heard of GDM, and family was the main source of information. Knowledge about screening, risk factors, complications, postpartum testing, and long-term child outcomes was generally poor. The findings highlight the need for structured antenatal education and strengthened health-worker counselling to improve GDM awareness and management in this setting.

 2025 October 1

Academy of Health Research

INTRODUCTION

Gestational diabetes mellitus (GDM) is defined as glucose intolerance first recognized during pregnancy. It is associated with maternal and fetal complications including macrosomia, polyhydramnios, intrauterine fetal death, preeclampsia, preterm birth, and increased caesarean section rate. Women with GDM are at increased risk of developing type 2 diabetes mellitus later in life, and their offspring are at increased risk of obesity and glucose intolerance. Early detection through screening and appropriate management including lifestyle modification and pharmacotherapy can reduce adverse outcomes.

Understanding the burden of GDM and the knowledge level among antenatal clinic attendees is essential to improve screening uptake, timely diagnosis, adherence to dietary and lifestyle advice, and postpartum follow-up. There is limited local data from Kilinochchi describing both glucose abnormalities and patient knowledge regarding GDM. Findings from this study can inform targeted education strategies and strengthen clinical services at DGH Kilinochchi. GDM prevalence varies globally depending on diagnostic criteria, population characteristics, and screening strategies. The Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study demonstrated a continuous relationship between maternal glucose levels and adverse pregnancy outcomes, which contributed to international diagnostic recommendations. International Association of Diabetes and Pregnancy Study Groups (IADPSG) and WHO criteria have influenced many national guidelines, while organizations such as ACOG, RCOG, RANZCOG, and SLCOG provide clinical recommendations on screening and management. Regional studies report increasing prevalence in South Asia and the Middle East, commonly associated with higher maternal age, obesity, and family history of diabetes. Evidence also indicates that patient knowledge is often insufficient, particularly regarding risk factors, screening timing, postpartum follow-up, and long-term consequences. Sri Lankan evidence suggests knowledge gaps among antenatal clinic attendees, emphasizing the need for structured counselling and culturally appropriate educational interventions.

METHODS

Descriptive cross-sectional study was conducted at antenatal clinic, District General Hospital (DGH), Kilinochchi, Sri Lanka. Pregnant women attending the antenatal clinic were considered as study population. Health care workers who were among study population were excluded from the study. Sample size was 423 which were recruited through consecutive sampling of eligible antenatal clinic attendees during the study period. A

structured questionnaire assessed socio-demographic factors, obstetric characteristics, awareness and knowledge about GDM, and management knowledge. Plasma glucose readings (fasting and 2-hour) were recorded from available tests was used as study instrument. Relevant descriptive statistical techniques were used for data analysis.

RESULTS

A total of 423 antenatal clinic attendees participated in the study. Results are presented according to the study objectives. Fasting plasma glucose values above 95 mg/dL were observed in 148 (35%) participants. Two-hour plasma glucose values above 140 mg/dL were observed in 288 (68%) participants. The 1-hour OGTT value was not performed.

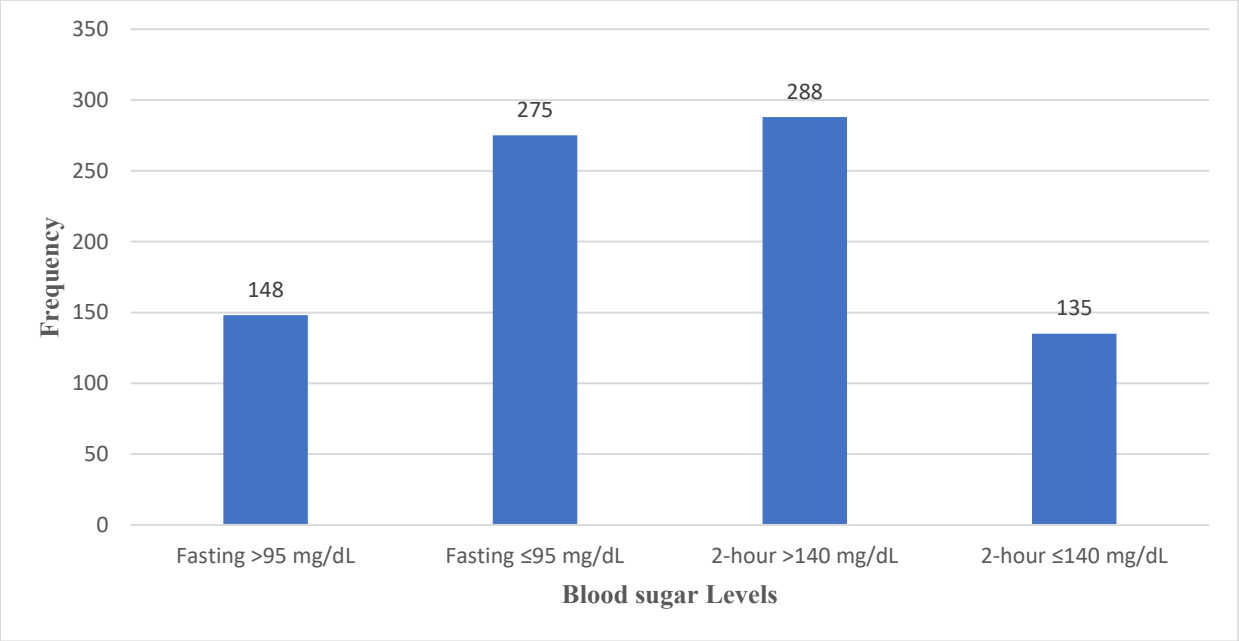

Figure 1. Plasma glucose readings (N=423)

The majority of the study participants believed that there is a higher risk of developing GDM when there's a history of GDM during previous pregnancies. However, the majority refused to accept the risk of experiencing GDM when there is a family history of Diabetes Mellitus. The majority of the study participants believed that GDM does not create any risk of having preterm childbirth or increase the risk of pre eclampsia.

Table 1. Knowledge about risk factors for GDM (N=423)

Item	Yes-n(%)	No-n(%)	Don't know-n(%)
Previous history of GDM	321	34	68
Previous history of macrosomia	72	51	300
Family history of diabetes	98	211	114
Previous pregnancy with congenital anomaly	8	22	393
Previous stillbirth / unexplained fetal demise	38	76	309
Pre-pregnancy obesity	59	110	254
Rapid weight gain during pregnancy	17	34	372

The majority of the participants were not aware of the association between GDM and occurring congenital abnormalities, unexplained fetal dismissal or macrosomia newborns (Table 2). A significant number of pregnant mothers refused to accept the relationship between onset of GDM and presence of pre pregnancy obesity.

Table 2. Knowledge on fetal and maternal complications (N=423)

	Yes-n(%)	**No-n(%)**	**Don't know-n(%)**
Fetal Complications			
Macrosomia	72	144	207
Polyhydramnios	51	190	182
Unexplained sudden intrauterine death	25	288	110
Maternal Complications			
Caesarean section	144	97	182
Preterm birth	59	279	85
Increased risk of preeclampsia	21	347	55

The majority of the participants did not have any knowledge regarding the association between GDM and experiencing rapid weight gain during the pregnancy period (Table1). According to the majority of the study participants, having childbirth through LSCS is decided due to the presence of GDM.

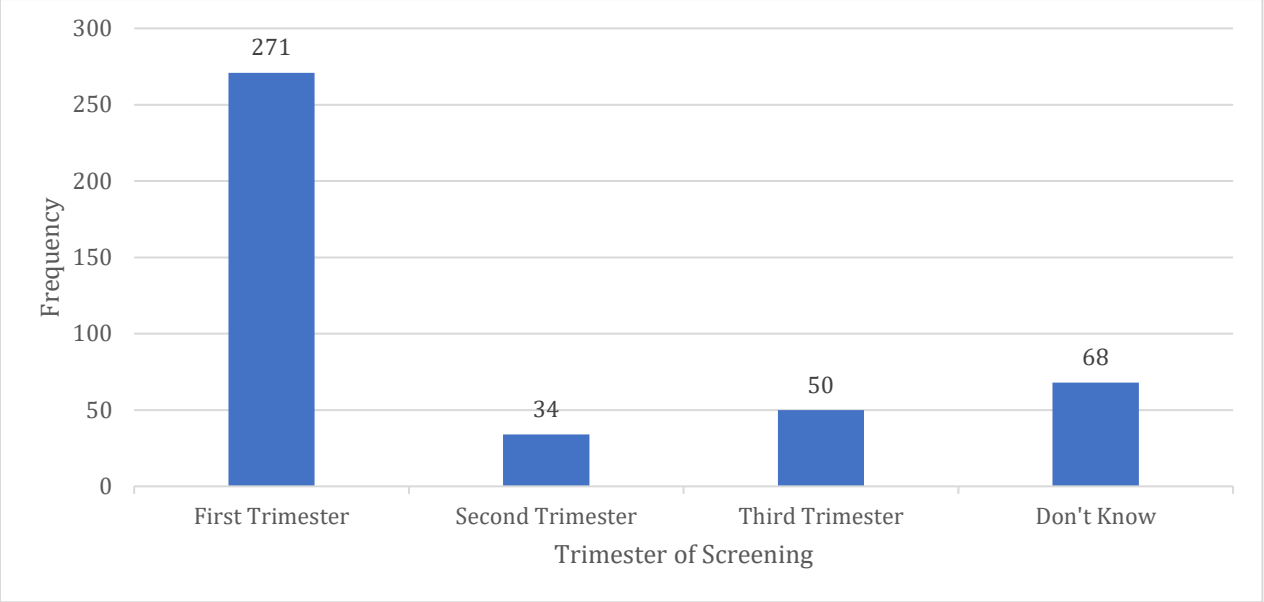

Figure II: Knowledge on trimester for screening (N=423)

According to the majority of the study participants, screening for GDM should be done during the first trimester. However, 19.8%(n=84) of the study participants were not aware of any screening procedures related to GDM(Figure: II).

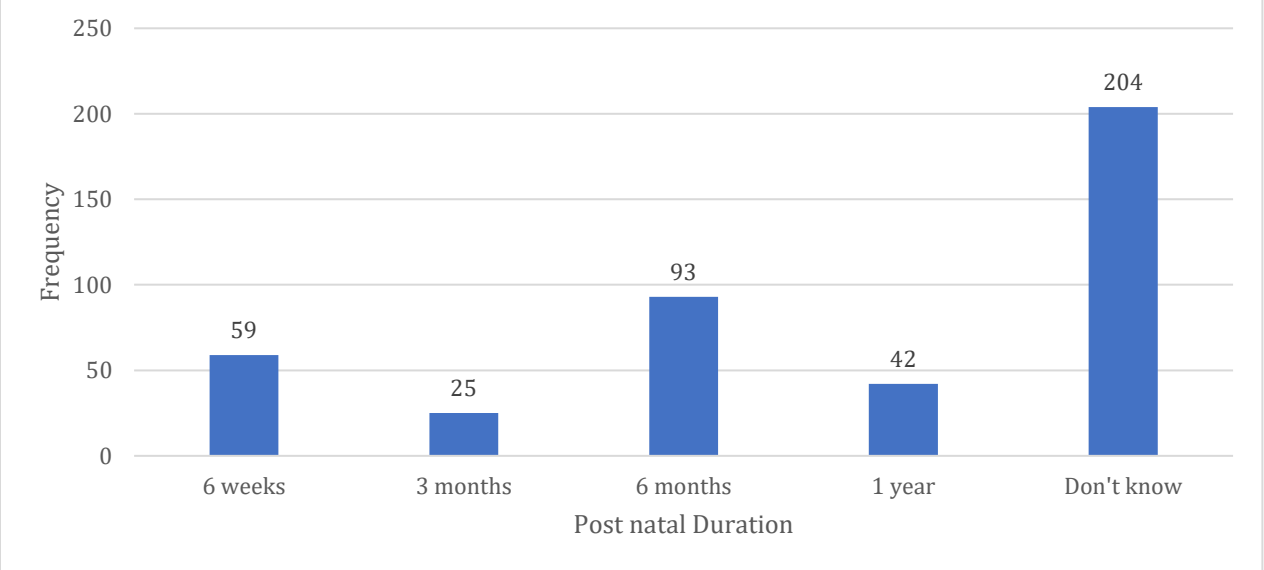

Figure III : Knowledge on postpartum blood sugar testing (N=423)

The majority of the study participants were not aware of any postpartum blood sugar testing procedures (n=204). According to the majority of the mothers who were aware of the postpartum blood sugar testing procedure, it should be done six months after the childbirth process (Figure: III).

DISCUSSION

This study assessed the prevalence indicators of gestational diabetes mellitus (GDM) and the level of knowledge regarding GDM among antenatal clinic attendees at DGH Kilinochchi. The discussion is presented according to the study objectives.

The findings suggest a considerable burden of abnormal glucose readings among antenatal clinic attendees. More than one-third (35%) had fasting plasma glucose values above 95 mg/dL and over two-thirds (68%) had 2-hour plasma glucose values above 140 mg/dL. However, interpretation of true prevalence must be cautious because the 1-hour OGTT value was not performed, and complete OGTT testing is typically required for diagnosis. Awareness of GDM was low, with only one-third reporting they had heard of the condition. Among those who had heard, family was the most common source of information. Knowledge of screening, risk factors, complications, postpartum testing, and long-term child outcomes was generally poor, although most women understood that good blood sugar control is important.

This study used summarized questionnaire data, which limited the ability to compute individual knowledge scores and perform inferential statistics. The 1-hour OGTT reading was not performed, which may affect diagnostic classification. Knowledge was assessed using close-ended questions, which may not fully capture depth of understanding.

CONCLUSIONS

Abnormal fasting and 2-hour plasma glucose values were common among antenatal clinic attendees at DGH Kilinochchi, suggesting a high burden of glucose intolerance during pregnancy. However, awareness and knowledge regarding GDM were poor across most domains. Strengthening antenatal education, standardized screening, and postpartum follow-up is required.

Structured antenatal education sessions on GDM should be implemented at clinic level, with emphasis on screening timing, risk factors, complications, postpartum testing, and long-term effects. Health workers should provide consistent counselling and culturally appropriate

materials. Standardized screening protocols and postpartum follow-up pathways should be strengthened.

REFERENCES

1. Society of Obstetricians and Gynaecologists of Sri Lanka (SLCOG). National guidelines on gestational diabetes mellitus. (Latest available edition).
2. Royal College of Obstetricians and Gynaecologists (RCOG). Clinical guidance on gestational diabetes mellitus. (Latest available edition).
3. American College of Obstetricians and Gynecologists (ACOG). Practice Bulletin: Gestational Diabetes Mellitus. (Latest available edition).
4. Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG). Clinical guideline on gestational diabetes mellitus. (Latest available edition).
5. World Health Organization. (2013). Diagnostic criteria and classification of hyperglycaemia first detected in pregnancy.
6. International Association of Diabetes and Pregnancy Study Groups (IADPSG). (2010). Recommendations on the diagnosis and classification of hyperglycemia in pregnancy.
7. HAPO Study Cooperative Research Group. (2008). Hyperglycemia and adverse pregnancy outcomes. New England Journal of Medicine, 358, 1991–2002.
8. American Diabetes Association. (2024). Standards of Medical Care in Diabetes—Management of diabetes in pregnancy.
9. Metzger, B. E., & Gabbe, S. G. (2010). IADPSG recommendations for GDM diagnosis. Diabetes Care.
10. Chiefari, E., Arcidiacono, B., Foti, D., & Brunetti, A. (2017). Gestational diabetes mellitus: An updated overview. Journal of Endocrinological Investigation.
11. McIntyre, H. D., et al. (2019). Gestational diabetes mellitus. Nature Reviews Disease Primers.
12. Şimşek, Ö. G., & Şimşek, B. (2015). Prevalence of gestational diabetes mellitus and associated risk factors in Turkish women: the Trabzon GDM Study. Gynecological Endocrinology, 31(9), 741–746. https://doi.org/10.3109/09513590.2015.1054384
13. Wimalajeewa, T. M. D. Y. D., & Hettiaratchi, U. P. K. (2021). Knowledge and Attitudes on Gestational Diabetes Mellitus and its Associated Factors among pregnant mothers in Sri Lanka. Journal of Health Sciences and Innovative Research, 2(1), 34–42. https://doi.org/10.31357/jhsir.v2i01.5420

14. Siuluta, N., Sato, M., Linh, L. K., et al. (2024). Assessment of gestational diabetes mellitus knowledge, attitudes, and practices in Coastal Kenya. Tropical Medicine and Health, 52, 74. https://doi.org/10.1186/s41182-024-00630-3
15. Abualhamael, S., Mosli, H., Baig, M., Noor, A. M., & Alshehri, F. M. (2019). Prevalence and associated risk factors of GDM in Saudi Arabia. Pakistan Journal of Medical Sciences, 35(2), 325–329. https://doi.org/10.12669/pjms.35.2.498
16. Morsy, T., et al. (2024). Assessment of the level of knowledge about risk factors, prevention, and treatment of GDM in Saudi Arabia. PubMed ID: 38765423.
17. Ali, A., et al. (2023). Awareness of GDM among women in Al-Baha Region, Saudi Arabia. PubMed ID: 38192925.
18. Wafa, T., et al. (2023). Knowledge and attitude regarding GDM among pregnant women in Tabuk City, Saudi Arabia. PubMed ID: 38046782.
19. Kim, C. (2014). Maternal outcomes and follow-up after gestational diabetes mellitus. Diabetic Medicine.
20. Bellamy, L., Casas, J. P., Hingorani, A. D., & Williams, D. (2009). Type 2 diabetes after GDM: systematic review and meta-analysis. The Lancet.

