

Gestational diabetes knowledge among nurses working in maternity services

Amarja Gosavi, Anuradha Mhaske

Gestational diabetes (GDM) is a common complication of pregnancy. To decrease GDM-related morbidity and mortality, appropriate perinatal care, counselling of the mother and family, and individualised nursing interventions play a major role. The objective of this study was to assess the knowledge of nurses and midwives working in maternity wards regarding screening and management of GDM. A total of 96 nurses working in the maternity settings of public and private hospitals in India were approached using non-probability purposive sampling. Overall, 15% of the participants had good knowledge regarding GDM, 70% had average knowledge and 15% had poor knowledge. It was also concluded that 59% of the nurses had poor knowledge regarding diagnosis of GDM, while 63% and 52% had poor knowledge regarding medical nutrition therapy and complications and management of GDM, respectively. It is concluded that nurses and midwives, as the frontline healthcare providers, require training or refresher courses to increase their knowledge and skills in dealing with mothers with GDM.

Gestational diabetes (GDM) is defined as impaired glucose tolerance (IGT) with onset or first recognition during pregnancy. Worldwide, one in ten pregnancies is associated with diabetes, and 90% of these cases are GDM. Undiagnosed or inadequately treated GDM can lead to significant maternal and fetal complications (Ministry of Health and Family Welfare, 2018).

In India, one of the most populous countries globally, rates of GDM are estimated to be 10.0–14.3%, which is much higher than in the West. As of 2010, there were an estimated 22 million women with diabetes between the ages of 20 and 39 years, as well as 54 million women with IGT or pre-diabetes, with the potential to develop GDM if they become pregnant, in this age group. In a field study conducted in the state of Tamil Nadu, of the 4151, 3960 and 3945 pregnant women screened in urban, semi-urban and rural

areas, respectively, the prevalence of GDM was 17.8%, 13.8% and 9.9% (Seshiah et al, 2008).

Diagnosis of GDM in a woman predisposes her and her offspring to developing glucose intolerance and obesity in the future. GDM may play a crucial role in the increasing prevalence of diabetes and obesity and, hence, has become a public health priority (Veeraswamy et al, 2012). Furthermore, GDM carries risks for the mother and neonate. The large, multinational HAPO (Hyperglycemia and Adverse Pregnancy Outcomes) cohort study demonstrated that risk of adverse maternal, fetal and neonatal outcomes continuously increased as a function of maternal blood glucose levels at 24–28 weeks, even within ranges that were previously considered normal for pregnancy (HAPO Study Cooperative Research Group, 2008). For most complications, there was no threshold for risk. These results have led to careful reconsideration of the diagnostic criteria for GDM (American Diabetes Association, 2016).

Citation: Gosavi A, Mhaske A (2022) Gestational diabetes knowledge among nurses working in maternity services. *Journal of Diabetes Nursing* 26: JDN261

Article points

1. The majority of nurses working in maternity units in this study have average knowledge regarding gestational diabetes (GDM) and its management.
2. However, the majority had poor knowledge of other aspects of GDM, such as diagnosis, medical nutrition therapy and complications of the condition.
3. Training is required to improve knowledge regarding GDM.

Key words

- Education
- Gestational diabetes
- Workforce issues

Authors

Amarja Gosavi, PhD scholar, MGM Institute of Health Sciences, Navi Mumbai, Maharashtra, India; Anuradha Mhaske, Director, MGM College of Nursing, Aurangabad, Maharashtra, India.



Read more online

At a glance factsheet: Diabetes before, during and after pregnancy

Essential information on reducing adverse outcomes in pregnancies complicated by diabetes.

Diabetes & Primary Care **23**: 73–4

[Click here to access](#)

Box 1. Survey questions.

Section A – Demographic data

1. Name
2. Age in years
3. Educational qualifications
4. Work experience
5. Whether attended any refresher course/ conference/seminar/workshop on gestational diabetes (GDM)

Section B – Knowledge of maternity staff nurses regarding GDM

1. What is GDM?
2. Which of the following are the risk factors for GDM?
3. Diagnosis of GDM is done in which trimester?
4. Investigation of choice in GDM is?
5. Abnormal value for a 75 g OGTT
6. Which of the following are the symptoms of hypoglycaemia?
7. Symptoms of GDM
8. Previous unexplained perinatal loss
9. Fetal complications of GDM
10. What is medical nutrition therapy?
11. The key to successful management in GDM
12. Best dietary advice for mothers with GDM
13. Light exercise in GDM helps
14. The commonest mode of parenteral administration of insulin is via what?
15. Antenatal assessment of fetal wellbeing in GDM is done through what?

First-level healthcare providers, particularly nurses and midwives, are usually the first point of contact for pregnant women. The aim of the present study was to assess the knowledge and current practices of nurses and midwives working at primary and secondary healthcare facilities.

Study objectives

1. To assess the knowledge of staff nurses working in maternity services regarding GDM.
2. To associate the knowledge of staff nurses regarding GDM with selected demographic variables.

Materials and methods

A total of 96 staff nurses working in the maternity units of nine hospitals in Aurangabad district in Maharashtra, India, were recruited using non-probability purposive sampling. The units

included one teaching hospital, five private maternity hospitals and three primary health centres. Nurses working in the maternity ward, labour room, postnatal ward and antenatal ward were included in the study. Formal permission was obtained from the concerned hospital authorities, and written informed consent was obtained from the participants. Participants were assured of confidentiality and anonymity regarding the data collected. The research topic was approved by the Institutional Ethics Committee of MGM Mother Teresa College of Nursing, Aurangabad.

A self-structured questionnaire was constructed, which consisted of two sections. Section A comprised demographic data, while section B comprised a knowledge questionnaire on various aspects of GDM (*Box 1*). The questions in section B were scored as 1 for a correct answer and 0 for a wrong answer.

The questionnaire was validated by experts from the field of obstetrics and gynaecological nursing, diabetology and medicine. The questionnaire was also pilot-tested for reliability using the split-half method; the resulting coefficient was 0.87, indicating high reliability.

The knowledge of staff nurses was assessed with the questionnaire and was categorised according to score as poor (1–5), average (6–10) or good (11–15). Chi-squared tests were used to determine the associations between knowledge scores and demographic variables.

Results

In total, 96 responses were recorded. *Table 1* (overleaf) depicts that the majority of participants were aged 26–30 years, 58% were nursing graduates and 46% had working experience of less than 3 years, while only 19% had work experience of more than 10 years. Only 19% had attended any training or refresher courses on management of GDM.

Knowledge regarding GDM

The majority of the participants, 70%, had average knowledge regarding GDM while 15% had poor knowledge and 15% good knowledge scores.

Figure 1 (overleaf) depicts the area-wise distribution of knowledge of the participants regarding GDM. It shows that most nurses (59%) had poor knowledge regarding diagnosis of GDM,

Table 1. Demographic data of participants.

Demographic data	Frequency	Percentage
Age (years)		
20–25	32	33%
26–30	50	52%
>30	14	15%
Educational qualification		
BSc Nursing	56	58%
General Nursing and Midwifery diploma	40	42%
Work experience		
<3 years	44	46%
4–10 years	34	35%
>10 years	18	19%
Attended workshop/refresher course on GDM		
Yes	18	19%
No	78	81%
GDM knowledge		
Poor (1–5)	14	15%
Average (6–10)	68	70%
Good (11–15)	14	15%

GDM=gestational diabetes.

while the majority (52%) had average knowledge regarding management of the condition. It was also concluded that 63% and 52% of the participants had poor knowledge regarding medical nutrition therapy and complications of GDM, respectively.

Table 2 (overleaf) shows that the educational qualification of nurses and attendance at any training or refresher courses regarding GDM were significantly associated with overall knowledge scores. Those nurses who were qualified with a BSc in nursing were more likely to have good knowledge scores, as were those who had attended a training or refresher course on GDM.

Discussion

Utz et al (2017) conducted a study to assess the knowledge and practices related to GDM among primary healthcare providers in Morocco. Although

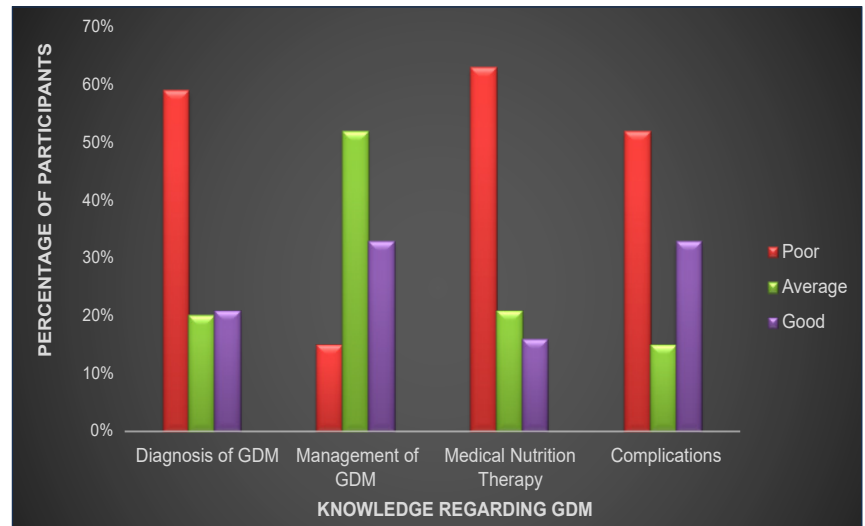


Figure 1. Participants' knowledge regarding gestational diabetes (GDM).

56.8% of the doctors had some pre-service training on GDM, most nurses and midwives lacked such training. The present study also concludes that the majority of nurses working in maternity units have average knowledge regarding GDM and its management.

Devi et al (2020) conducted a study to assess the effect of an education programme on GDM knowledge among nurses in Pune, India. Mean GDM knowledge scores increased from 14.0 to 15.4, and the awareness programme was found to be effective in refining the awareness of nurses regarding GDM. The current study also shows that training is associated with improved knowledge regarding GDM and suggests that nurses have inadequate knowledge regarding certain aspects of the management of GDM, and thus need training.

Kukreti et al (2020) assessed the effectiveness of national guidelines on diagnosis and managing GDM, developed by the Indian Ministry of Health and Family Welfare, in terms of knowledge among Nurse Educators in selected colleges of nursing in New Delhi. The findings suggested that the majority had good knowledge regarding general aspects of GDM and average knowledge regarding screening of mothers for the condition. The majority had average knowledge regarding assessment and diagnosis of GDM, management and follow-up of patients. The present study also supports these findings.



Read more online

Gestational diabetes: Barriers in screening and management and their effects on patient outcomes in Hispanic women

The barriers Hispanic women face with regard to self-management and education about GDM, and how they can be overcome.

Journal of Diabetes Nursing 26: JDN237

[Click here to access](#)

Table 2. Associations of knowledge scores with demographic variables.

	N	Poor knowledge	Average knowledge	Good knowledge	χ ²	P-value
Age (years)						
20–25	32	9	15	8		
26–30	50	14	24	12		
>30	14	3	5	6	2.0782	0.721
Educational qualification						
BSc Nursing	56	20	16	20		
General Nursing and Midwifery diploma	40	21	11	18	7.6556	0.021*
Work experience						
<3 years	44	22	13	9		
4–10 years	34	12	13	9		
>10 years	18	6	7	5	2.342	0.673
Attended workshop/refresher course on GDM						
Yes	18	3	10	5		
No	78	45	22	11	9.8462	0.007*

*Significant at P<0.05.

GDM=gestational diabetes.

Conclusion

For frontline healthcare providers, updating knowledge and skills is very important to tackle complex pregnancy conditions and related adverse pregnancy outcomes. From the study findings, it can be concluded that is important to equip nurses to tackle high-risk pregnancy conditions such as GDM. ■

American Diabetes Association (2016) Standards of medical care in diabetes – 2016: summary of revisions. *Diabetes Care* 39(Suppl 1): S4–5

Devi S, Upendra S, Waghmare S (2020) Effectiveness of education program on knowledge regarding gestational diabetes among nurses. *Indian Journal of Forensic Medicine & Toxicology* 14: 3807–11

HAPO Study Cooperative Research Group (2008) Hyperglycemia and adverse pregnancy outcomes. *N Engl J Med* 358: 1991–2002

Kukreti D, Bhardwaj UD, James MM, Rahman J (2020) A pre-experimental study to assess the effectiveness of national guidelines for diagnosis and management of gestational diabetes mellitus (GDM) developed by Ministry of Health and Family Welfare (MoHFW) in terms of knowledge among nurse educators in selected colleges of nursing, New Delhi, India. *International Journal of Nursing & Midwifery Research* 7: 2–7

Ministry of Health and Family Welfare (2018) Diagnosis and management of gestational diabetes mellitus: Technical and operational guidelines. Maternal Health Division, MHFW, New Delhi, India. Available at: <https://bit.ly/3skOB1J> (accessed 06.05.22)

Seshiah V, Balaji V, Balaji MS et al (2008) Prevalence of gestational diabetes mellitus in South India (Tamil Nadu) – a community based study. *J Assoc Physicians India* 56: 329–33

Utz B, Assarag B, Essolbi A et al (2017) Knowledge and practice related to gestational diabetes among primary health care providers in Morocco: potential for a defragmentation of care? *Prim Care Diabetes* 11: 389–96

Veeraswamy S, Vijayam B, Gupta VK, Kapur A (2012) Gestational diabetes: the public health relevance and approach. *Diabetes Res Clin Pract* 97: 350–8