# Evaluation of Awareness and Knowledge of Gestational Diabetes Mellitus among Antenatal Women in a Secondary Care Hospital: A Cross Sectional Study

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The health risks associated with GDM for both the mother and neonate are dire. In this cross-sectional study, we evaluated the GDM awareness among 70 pregnant women attending antenatal clinics in Secondary care centre. A structured questionnaire was administered, and information was processed using SPSS version 25. Although 64.3% women had heard of GDM, knowledge of its risk factors and complications were very low at 42.9% and 40.0% respectively. There was a higher awareness of GDM among women who were educated ($p = 0.03$) and those who were employed ($p = 0.04$). To address these gaps, antenatal visits should include focused health education.

## Introduction

Gestational diabetes mellitus (GDM) is a health complication observed during the onset of a woman's pregnancy as it involves an abnormal inability to metabolize glucose, which can pose serious problems for both the mother and the fetus (American Diabetes Association, 2019). In today's world, GDM is known to increase incrementally for an estimated 7-14% of pregnancies as per the demographic region and available diagnostic parameters (International Diabetes Federation, 2021). Some of the macrosomia pregnancy complications include preterm birth, preeclampsia, and elevated chances of caesarean delivery. From the standpoint of long-term complications, women who had macrosomia pregnancies have increased chances of acquiring type two diabetes in addition to the cardiovascular disease which the child is also likely to be as risk of obesity along with metabolic dysfunctions during later stages (Metzger et al., 2008).

Almost all women who are pregnant need to be made aware of GDM so that there can be prompt action taken at the appropriate time along with successful monitoring and diagnosis. Due ANTENATAL CARE visits, women are expected to know more about GDM enabling them to make necessary lifestyle changes and stick to treatment regimens during screening for GDM (WHO, 2013). In contrast with aid and awareness about GDM at lower socioeconomic regions, Thomas et al (2020) argue that women from such places do not posses adequate knowledge owing to access to limited healthcare and educational resources.

An investigation into the comprehension of the GDM phenomenon is important in the strategy formulation and implementation of targeted GDM awareness initiatives. As such, the purpose of this research is to assess the awareness level of GDM among pregnant women and the specific determinants that impact their knowledge in a Secondary care centre.

## Literature Review

GDM or gestational diabetes mellitus is acknowledged as a significant health concern and its prevalence is on the rise due to different populations and regions defining it with their own norms and criteria (International Diabetes Federation, 2021). The scope of awareness regarding GDM among women who are pregnant is very important because it allows for early actions against negative maternal and neonatal results. Studies show that there is a significant gap in GDM awareness in lower and middle-income countries even with the existence of antenatal care, which is an essential part of pregnancy.

Dhyani and Mahantashetti's (2018) study with pregnant women visiting a Secondary healthcare facility and found their awareness levels to be very low. Most of the respondents only had a primary level of education, lived in slum areas, and had almost never heard about GDM, its risk factors, its complications, and why timely screening was necessary. This study implemented suggests the direct impact lower levels of education have on the levels of GDM awareness while also stating the answers could be helpful in forming strategies of health communication aimed towards women who are socio economically poor.

In addition, a WHO report emphasized in 2013 that ANC visits are an essential fomd of educating the women's health, including screening for GDM. Nevertheless, the success of any such educational intervention is often contingent upon the provider's knowledge and manner of communication as well as the woman's willingness to receive health information. In many situations, the absence of clear cut instructions as to how GDM should be taught during ANCs results in inconsistent education and awareness levels among the pregnant women.
Other than individual-based issues, community and structural issues are also a barrier to GDM education. Some of the important contributing factors are cultural beliefs, the level of health literacy, and the availability of health services. Thomas et al, 2020 pointed out that even among those women willing to go for ANC, GDM misconceptions abound mostly due to lack of appropriate provision of care and excessive informal information including from relatives or social media platforms.
As per the available evidence, while antenatal care has a unique window of opportunity to increase knowledge about GDM, many factors inhibit the appropriate flow of information. These factors need to be dealt with through the provision of health information, culturally acceptable communication, and regular refresher courses for the service providers to improve awareness of GDM and eventually the health of mothers and new-borns.

**Methodology**

**Study Design:**

A descriptive cross-sectional study was carried out to assess the knowledge of gestational diabetes mellitus (GDM) among pregnant females visiting antenatal clinics in a Secondary care canter.

**Study Setting:**

The research was conducted at the antenatal clinics of Secondary care centre, a leading health care facility with comprehensive maternal health services. This data was collected over a 3-month period.

**Study Population:**

The research population was made up of expectant women who visited the antenatal clinics within the study period. The inclusion criteria consisted of women who were pregnant, aged at least 18 years and above, and were at any stage of gestation along with giving informed consent. The exclusion criteria were those with established diabetes mellitus and those not willing to take part in the study.

**Sample Size and Sampling Technique:**

Seventy pregnant women participated in the study sample. The sample size was computed using the Cochran formula for cross-sectional studies with a 95% confidence level, expecting an awareness prevalence of 50% for sample size maximization, and 5% margin of error. Participants were recruited via systematic random sampling of the antenatal clinic attendance register where every third pregnant woman qualifying for the inclusion criteria was approached until the desired sample size was reached.

**Data Collection Tool:**

The information on demographic details, obstetric history, and GDM awareness were obtained using a pre-tested, structured questionnaire. Knowledge of the GDM risk factors, symptoms, complications, screening, and management were all integrated in the questionnaire. The questionnaire was drafted in English and translated to the local dialect to enhance understanding.

**Data Collection Procedure:**

Research assistants with specialized training carried out the interviews in-person with the aid of a specific set of questions. Conversations took place in a confidential room of the antenatal clinic so that privacy could be protected, and truthful replies could be obtained.

**Data Analysis:**

The data was inputted and analysed using SPSS version 25. Descriptive statistics like frequencies, percentages, means, and standard deviations were applied to the data to summarize it. Relationships between awareness levels and the socio-demographic characteristics were analysed using Chi-square tests with a p-value of $< 0.05$.

**Ethical Considerations:**
The ethics committee granted ethical approval for the research. Informed written consents were collected from each participant before the data collection process commenced. Participants' information was kept confidential, and they were made aware of their entitlement to withdraw from the study at any time without any adverse effects on their medical care.

**Findings:**
**Demographic Characteristics of Participants:**

| **Demographic Variable** | **Frequency (n=70)** | **Percentage (%)** |
|---|---|---|
| Age (years) | | |
| 18-25 | 25 | 35.7% |
| 26-35 | 35 | 50.0% |
| >35 | 10 | 14.3% |
| Education Level | | |
| Primary | 20 | 28.6% |
| Secondary | 30 | 42.9% |
| Tertiary | 20 | 28.6% |
| Employment Status | | |
| Employed | 40 | 57.1% |
| Unemployed | 30 | 42.9% |

**Awareness of GDM:**

| Awareness Indicator | Frequency (n=70) | Percentage (%) |
|---|---|---|
| Heard about GDM | 45 | 64.3% |
| Aware of GDM Risk Factors | 30 | 42.9% |
| Aware of GDM Complications | 28 | 40.0% |
| Understood Importance of Screening | 35 | 50.0% |

**Association between Awareness and Demographic Factors:**
The association between educational level and awareness of GDM was found to be significant at (p=0.03) and the employment status and awareness association was also found to be significant at (p=0.04). Age and awareness association did not yield significant results at (p=0.15).

**Discussion:**
This study provides important information on the knowledge level of pregnant women with regards to gestational diabetes mellitus (GDM) while attending an antenatal clinic in a Secondary care canter. The awareness level in general was moderate, where 64.3% of the participants had heard of GDM. However, the awareness of certain risk factors (42.9%) and complications (40.0%) associated with GDM were strikingly low, suggesting a significant knowledge deficit.
The education level had a significant relationship with GDM awareness ($p = 0.03$). This means that as education level increased, health literacy related to pregnancy increased. This was seen in previous studies where more educated women had better knowledge about the risk factors, complications of GDM, and even the necessity of screening (Dhyani & Mahantashetti, 2018). In addition, more employed female participants had a higher level of awareness than the unemployed ones ($p = 0.04$). This may result from greater exposure to health information available in various work settings, which is consistent with other studies that examined the impact of socio-economic status on health awareness (Thomas et al., 2020).

Surprisingly, age did not appear to be significantly associated with awareness of GDM ($p = 0.15$). This suggests than non-age related issues, like access to health information or the quality of counselling received during pregnancy, may be more important. This is opposite to findings from some studies where younger women were found to be less aware because they had experienced few pregnancies (Metzger et al., 2008).

The moderate level of awareness regarding the GDM screening importance (50.0%) pointed out the necessity of improving health education in ANC services. The World Health Organization (2013) underlines that ANC visits are important windows to educate about other aspects of pregnancy, including GDM. Thus, there is a need for the healthcare providers to offer GDM education during the routine antenatal visits and place more attention on the risk factors, complications, and advantages of early identification and management of the condition.

To summarize, though a healthy proportion of pregnant women are aware of GDM, there are still many gaps particularly with its risk factors and complications. More focused health education activities are suggested for women with low educational attainment and unemployed for better maternal and neonatal health.

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