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## Awareness on Gestational Diabetes Mellitus (GDM) and compliance to management among pregnant women- A narrative review

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# Awareness on Gestational Diabetes Mellitus (GDM) and compliance to management among pregnant women- A narrative review

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## Abstract

Being one of the subtypes of Diabetes Mellitus (DM), Gestational Diabetes Mellitus (GDM) is one of the transient conditions which is suffered commonly by pregnant women and affects both maternal and neonatal health. Timely awareness and prompt compliance will translate in adapting healthy life style practices, prevention of complications and early diagnosis of the burden in later years. The present paper is reviewed to assess the awareness regarding GDM and compliance to management among pregnant women with GDM.

**Key words:** Awareness, compliance, gestational diabetes mellitus (GDM), knowledge, pregnant women

## Introduction

Gestational diabetes is a condition in which some women are unable to keep their blood glucose level within the normal range and develop hyperglycaemia during the second half of pregnancy. The condition may revert back to normal after delivery and affects about one in eight to ten women and few times causes adverse effects to mother and child (Rani & Begum, 2016). Hence, prenatal screening is fundamental in early diagnosis and treatment of GDM during pregnancy.

The risk for GDM is higher among Asians, women with advanced maternal age above 30 years; obese or overweight; positive family history of diabetes (first degree relatives) or previous history of GDM or had problems in past pregnancies such as a large baby, stillbirth or repeated abortions and few women who

have no known risk factors (International Federation of Gynaecology and Obstetrics, 2018).

According to International Diabetes Federation (IDF), worldwide about 60 million of women in the reproductive age have suffered with diabetes. "One in seven births is affected by gestational diabetes. IDF estimates that 6 million births are affected by some form of hyperglycaemia during pregnancy in India alone, of which 90% are due to GDM" (International Diabetes Federation, 2017). The GDM rate in India is 26.3% and it is highest in the World (Cho, 2017). A community-based study conducted in South India by Seshiah, et al. (2008), reports prevalence of GDM was 17.8%, 13.8% and 9.9% in urban, semi urban and rural areas respectively based on the two-hour post glucose. Thus the prevalence of GDM is steadily increasing over the past decades. Thus compliance with the treatment schedule is crucial in managing GDM. Appropriate awareness and prompt compliance will translate in adapting healthy life style practices, prevention of complications and early diagnosis of the burden in later years. Exploring factors like awareness about the disease condition and ways to manage in terms of diet, exercise, compliance to drugs, self-care, and early risk perception would help the midwives and healthcare professionals provide better care and direct most appropriate measures that would promote wellbeing.

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**Awareness on gestational diabetes mellitus (GDM)**

A cross-sectional study was conducted to assess the awareness of GDM among 500 pregnant women with GDM in Belagavi, Karnataka. The study revealed that eight (1.6%) of pregnant women had excellent knowledge, 109 (21.8 %) of pregnant women had good knowledge, 288 (57.6%) of pregnant women had average knowledge and 95 (19%) of pregnant women had poor knowledge. The study emphasized the need to create awareness about GDM through regular screening and uses of mass media (Vineeta, Mahantashetti, Ganachari, Kamar, & Ghatnatti, 2018).

A cross-sectional survey study conducted among 100 pregnant women with GDM in South India revealed that 45 (45%) women had known about GDM and majority 85 (85%) women had average knowledge regarding GDM. Majority 62 (62%) women had favourable attitude and 32 (32%) had an unfavourable attitude towards DM. Moreover, the study revealed that as awareness towards condition enhanced, women developed positive attitude to management ( $r=1, p=.146$ ). The study also found that 77 (77%) of the pregnant women had perceived low risk of developing type 2 DM and 23 (23%) had high risk for developing type 2 DM in the future (Noronha, et al., 2018).

A cross sectional study done at antenatal clinics in Samoa among 149 pregnant women showed that around 82 (58%) women were aware about GDM that occurs for the first time of pregnancy and also revealed that 40 (49%) women identified that family history of GDM is the major risk factor of developing GDM followed by pre-pregnancy obesity 19(23%). Knowledge about GDM among antenatal women helped them to transform or adopt healthier lifestyle practices, improved healthcare-seeking pattern and better self-care (Price, Lock, Archer, & Ahmed, 2017).

A descriptive study was conducted to assess the awareness, attitude and performance to gestational diabetes among 300 pregnant women with GDM at Zabol, Iran. The study revealed that 110 (36.7 %) women had good awareness, 175 (58.3%) had average awareness and 15 (5%) had weak awareness about GDM. Of total 300, 168 (56%) women had good

performance, 114 (38%) had average performance and 18 (6%) women had weak performance on management of GDM. The study also revealed that majority 206 (68.7%) women had good attitude and 94(31.3%) had average attitude towards GDM. Moreover, the study found that higher the education level, the attitude of the pregnant women towards GDM was good. The study implicated that there was need of formulating plan to provide education among women related to GDM (Davoodi, Sepehri, Ganjali, & Bagheri, 2016).

A cross sectional descriptive study was conducted to assess the knowledge and awareness of GDM among 200 antenatal women at Pondicherry. The study revealed that 27 (13%) antenatal women had good knowledge about GDM (mean score knowledge 7.72) and its risk factors, but awareness on screening, treatment and consequences were found to be poor ( $p<0.01$ ) (Elamurugan & Arounassalame, 2016).

A cross-sectional study was conducted on 166 GDM women in Malaysia to evaluate the knowledge about GDM and its association with glycaemic level. The study revealed that 91 (54.6%) of the pregnant women had positive family history of DM. About 145 (87.3%) pregnant women reported that they followed diet control therapy to manage GDM. The study result also showed that 94 (54.4%) women had adequate knowledge about GDM diet. The study indicated that working women had significantly higher knowledge scores than housewives. Moreover, the study also revealed that glycaemic control was significantly associated with their knowledge about the disease ( $p<.01$ ) (Hussain, Yusoff, & Sulaiman, 2015).

Even though GDM is a public health problem, there exists a need to promote general awareness regarding the disease condition, its management in terms of diet, activity, self-care, compliance to drug regime, train and sensitize healthcare professionals to promote early detection and its management.

**Compliance to management of GDM**

GDM, a transient condition in pregnancy poses adverse long and short term effect on mother and child. In order to minimize these consequences judicious recognition, optimum management, adequate follow-up and compliance to management is essential.

A qualitative study was conducted among five pregnant women diagnosed with GDM to assess the self-management in Australia. The study revealed that the factors contributing, barriers and facilitators of GDM self-management were time pressure, physical constraints, social constraints, limited comprehension of requirements and medication. The study found that women, who had low socio-economic and migrant backgrounds had low self-management to adhere to GDM dietary and exercise guidelines (Carolan, 2013).

A descriptive study conducted by Mahmoud, Mohammed, & Mohamed, (2018) to assess compliance of 130 women with GDM to scheduled therapeutic regimen in Egypt found that 43 (33.1 %) of the pregnant women had satisfactory compliance with therapeutic regimen and 87 (66.9%) of the pregnant women had unsatisfactory compliance.

A systematic review was conducted to assess the importance of the role of physical activity in the prevention and management of GDM. The review was done with reference from PubMed data based from seven pre-natal physical activity based intervention studies which aimed to improve the glycaemic control in GDM. The review found that the compliance to the physical activity among the pregnant women with GDM was good after the exercise intervention program (Ruchat & Mottola, 2013).

A qualitative study was conducted by Bandyopadhyay, et al. (2011) to identify the lived experience among 17 pregnant women with GDM in Australia. An interview was conducted, which focused on the experience of GDM and revealed that women had inadequate knowledge prior to the disease diagnosis and difficulty in following dietary management. The study concluded that need for extensive information on dietary habits, exercise pattern and self-care management to be advocated by health care provider to women with GDM.

The above studies highlight on factors that hinders compliance to management such as low socio-economic status, lack of physical activity and not following strict dietary practices. Thus, the attention and management of GD during pregnancy are mandatory.

## Conclusion

GDM is often linked with greater antepartum risk for mothers and a higher possibility for developing type 2 DM in future. Infant born by a woman with GDM has high risk for developing jaundice, hypocalcaemia, macrosomia, hypoglycaemia, respiratory distress syndrome, polycythaemia and metabolic disorder. The awareness of GDM among antenatal women is important for the outcome of pregnancy and to achieve a healthy lifestyle. There is an essential need to emphasis health care provider in planning health teaching program on the promotion of good compliance to management, prevention and its complication of GDM among antenatal women.

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