



Original Article

Knowledge of Gestational Diabetes Mellitus Among Diabetic Pregnant Females

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ABSTRACT

The prevalence of Gestational Diabetes (GDM) is rising quickly and patients require assistance with decision-making, behavioral control and obtaining the knowledge required for self-care. The knowledge of GDM, together with nutritional guidance and glycemic control education, is crucial to the care of diabetic women. **Objective:** To determine the knowledge among gestational diabetic pregnant females. **Methods:** A cross sectional study was conducted at obstetrics and gynecology outpatient departments in Department of Obstetrics and Gynecology, Niazi Medical and Dental College, Sargodha. 150 pregnant females aged range (18-40) year, with any gravida and diagnosed with GDM were enrolled in current study. A structured questionnaire regarding the knowledge of gestational diabetes was used to collect data. Data were entered and analyzed in Statistical Package for Social Sciences (SPSS) version 21.0. **Results:** Majority of participants were 18-30 years 80 (59.3%) old. 42 (28%) were normal weight, 82 (54.6%) were overweight and 26 (17.3%) were obese while 98 (65.3%) women were housewives. 63 participants know about self-care routine of GD, while 58 know about feto-maternal complications. Majority 90 (60%) females don't know about the risk and symptoms of gestational diabetes. 101 (67.3%) have poor knowledge about glucose monitoring. When they asked about the management of hypo and hyper glycemia 81 (54%) don't have enough knowledge about management protocols. Regarding the diagnostic procedures 74 (49.3%) have good knowledge. **Conclusions:** The study concluded that most participants, have lack of knowledge of GDM, management of Gestational Diabetes Mellitus (GDM), its symptoms, fetomaternal complications and diagnostic criteria..

INTRODUCTION

Gestational diabetes is a global public health concern [1]. In 2019, 223 million females are predicted to develop diabetes. The population this disease is expected to reach 343 million by 2045. 20 million live births or 16% of all births, were impacted by a specific type of pregnant hyperglycemia. It is believed that 84% of cases are caused by gestational diabetes. One in six babies had gestational diabetes [2]. Pregnant hyperglycemia most frequently occurred in low and middle-income countries, when access to maternity care is typically restricted [3]. The prevalence of GDM is rising quickly and is expected to keep rising in light of the global obesity pandemic. Through genetic and environmental factors that are yet not fully understood, GDM has substantial negative effects on the

health of both the present and future generations. The condition also places a heavy financial burden on healthcare systems, with variations in clinical approach frequently being dictated by resource constraints. Uncertainty exists over the ideal period for screening and diagnostic GDM thresholds [4]. Every woman has a special period during her pregnancy. When GDM is diagnosed, which necessitates controls and therapies that will unavoidably impair the woman's life, the condition becomes even more delicate. GDM can result in clinically significant detrimental consequences on the mental health of the mother, including a reduced quality of life, as well as dangers for the development of fetus [5]. In Pakistan, Gestational Diabetes Mellitus (GDM) poses

significant health risks, increasing hypertension, cesarean delivery, and future diabetes in mothers and causing complications like macrosomia and neonatal hypoglycemia in children. Factors such as lack of awareness, limited healthcare access, traditional diets and genetic predispositions contribute to these risks. Preventive measures include early screening, promoting healthy lifestyles, public education, and improving healthcare accessibility [6]. The disease is mostly unrecognized in Pakistan since there is a lack of relevant information about its risk factors and preventive measures. According to conflicting data from Pakistan, the incidence varied widely by city, reaching as high as 36% in Peshawar, 22% in Karachi, 37% in Lahore, 20% in Balochistan, 14% in Bahawalpur, and 14.8% in Hyderabad [7]. GDM is a severe and risk to the health of mothers and children. Many females with GDM experience pregnancy-related issues such high blood pressure, premature birth and labor obstruction. Nearly half of women with a history of GDM develop type 2 diabetes within five to ten years of giving child. Adverse pregnancy outcomes are linked to gestational diabetes mellitus [8]. Due to the GDM clinical treatment procedure complexity, both the mother and the fetus are at risk. Exploring GDM risk factors can therefore help to lower the frequency of perinatal problems [9]. Self-care is a concept that needs more research in women with GDM because it is influenced by cultural norms and personal views [10]. Self-care is less common in women with GDM, which may be a result of the lack of educational resources available to diabetic clinics and health centers due to a lack of awareness of self-care strategies [11]. GDM patients require assistance with decision-making, behavioral control and obtaining the knowledge required for self-care. Self-management of GDM, together with nutritional guidance and glycemic control education, is crucial to the care of diabetic women. An essential component of managing and controlling gestational diabetes is self-efficacy [12]. According to reports, pregnant women who lack self-care knowledge about GDM and its complications lengthen their stays in hospitals [13]. Providing clear GDM education on self-care and managing complications for pregnant women can reduce complications and shorten hospital stays [14]. Teaching the patient how to self-monitor and log their own glucose and ketone readings at home is a crucial component. Health education is one of the strategies to provide women with the knowledge and skills to facilitate self-care, which is a key aspect of managing GDM to achieve the best possible outcome for the mother and child, since it is the first cornerstone step for good diabetes control. The present study was conducted to determine the self-care knowledge among gestational diabetic pregnant females.

METHODS

A cross sectional study was conducted in department of obstetrics and gynecology Niazi Medical and Dental College, Sargodha after taking the approval from institutional review board of Niazi Medical and Dental College Sargodha, IRB number, NM&DC/IRB/91 and reference number, NM&DC/IRB/409. The duration of study was 15th September to 30th December 2023. The sample size of 150 was calculated by taking expected percentage of self-care knowledge of GDM among pregnant females as 26.2%, by taking 95% confidence interval and 7% margin of error [15]. After taking the written and informed consent all the pregnant females aged range 18-40 years, with any gravida and diagnosed with GDM were enrolled by convenient sampling technique in current study. The females with type 1 or type 2 diabetes mellitus pregnancy with more than one fetus, known major fetal anomaly, Current or planned corticosteroid therapy and females from medical background were excluded from current study. A structured questionnaire regarding the knowledge of gestational diabetes was used to collect data. This was measured through 18-items multiple choice questions adopted from knowledge questionnaire. The correct answer for knowledge was given a score of "1" and incorrect given "0" [16]. The questionnaire also consists of information regarding risk factors, symptoms, effects on pregnancy, including diagnostic procedures required to rule out GDM, treatment plans, and women's sources of information on the condition. Each correct answer was marked as 1 and incorrect as 0. The score ranges from 0-18. The score more than 8 was consider as good knowledge and score <8 was considered as poor. and Data were entered and analyzed in Statistical Package for Social Sciences (SPSS) version 21.0. For quantitative variables, mean and standard deviation was computed. For qualitative variables, frequencies and percentages was computed.

RESULTS

Table 1 illustrated the demographic data of participants. Regarding the age majority of participants were 18-30 years 80 (59.3%) old and remaining were 31-40 years 61 (40.6%), In regard to the BMI (Body Mass Index) of the pregnant women, the findings of the present study documented that 42 (28%) were normal weight, 82 (54.6%) were overweight and 26 (17.3%) were obese. Regarding the educational level table also shows that (24.6%) were illiterate, while (36%) have secondary education, (41%) had intermediate education and only 12% were graduated. According to occupation, 98 (65.3%) women were housewives and the rest of them were working. While 34.0% husbands' occupation was laborer and most of them 58% were Jobian, only 8% were unemployed. On the other hand, females with the strong family history of DM as the most frequently encountered risk factors of GDM that was

confirmed by 97(64.6%) as shown in table 1.

Table 1: Socio-Demographic Characteristics of the Intervention and Control Group

Variables	N (%)
Age (Years)	
18-30	89 (59.3%)
31-40	61 (40.6%)
BMI	
Normal Weight	42 (28%)
Over Weight	82 (54.6%)
Obese	26 (17.3%)
Education Level	
Illiterate	37 (24.6%)
Secondary	54 (36%)
Intermediate	41 (27.3%)
Graduation	18 (12%)
Female Occupation	
Housewife	98 (65.3%)
Working	52 (34.6%)
Husband Occupation	
Labour	51 (34.0%)
Job	87 (8%)
Unemployed	12
Family History Of Diabetes	
Yes	97 (64.6%)
No	53 (35.3%)

As shown in table 2, it indicates that majority females (62.0% respectively) were multigravida. Also table 2 showed that majority females had more than 1 parity. As regard to the type of last delivery, slightly more than half (58.6% respectively) of women among delivered by cesarean section.

Table 2: Reproductive History of the Participants

Variables	N (%)
Primingrgrvida	57 (38.0%)
Multigravida	93 (62.0%)
Parity	
Nullipara	21 (14.0%)
1-3	82 (54.6%)
>3	47 (31.3%)
24 - 26 Weeks	61 (40.6%)
27 - 28 Weeks	89 (59.3%)
Previous History of GDM	
Yes	55 (36.6%)
No	95 (63.3%)
Caesarean Section	88 (58.6%)
Normal Vaginal Delivery	62 (41.3%)

Table 3 illustrates the knowledge about gestational diabetes among pregnant females. According to the data, 63 participants (42%) are aware of the risk factors associated with GDM, and 58 participants (38%) are knowledgeable about feto-maternal complications.

However, 92% of participants have poor knowledge in these areas. When it comes to the management of GDM, 101 participants (67.3%) lack sufficient knowledge. Regarding diagnostic procedures and treatment plans, 74 participants (49%) have a good understanding. Overall, 62 participants (42%) possess good knowledge of GDM (Table 1).

Table 3: Knowledge about Gestational Diabetes among Pregnant Females

Knowledge about GDM	Frequency	Percentage of Knowledge
Knowledge about Risk Factors (Yes/No)	63/87	42%
Knowledge about diagnostic Criteria and treatment Plan (Yes/No)	74/76	49%
Knowledge about feto-maternal Complications (Yes/No)	58/92	38%
Management of GDM (Yes/No)	49/10	32.6%
Overall Knowledge (Yes/No)	163/87	42%

DISCUSSION

Prenatal care plays a crucial role in minimizing risks and fostering favorable outcomes for both mothers and fetuses. It empowers expectant women by equipping them with essential knowledge and skills while boosting their physical and mental well-being [17]. Interventions focusing on lifestyle adjustments in the early stages of pregnancy empower women, enhance their self-care practices and mitigate potential negative consequences [18]. A study involving 85 pregnant women in the United States aimed to evaluate their knowledge and beliefs during their initial prenatal appointment. It revealed that half of the participants had insufficient understanding of Gestational Diabetes Mellitus (GDM), including its risks, treatment options, causes and potential outcomes. Notably, some attributed GDM to inheritance, environmental factors and hormonal changes, indicating a lack of awareness. These women also expressed a need for medical intervention to manage associated complications. These findings were relevant to the current study, which indicates that 54% have poor knowledge and majority the females don't know about the risk and symptoms of gestational diabetes [19]. In current study it was mentioned that 101 (76.3%) don't have enough knowledge about management protocols. These findings are related to the study conducted by Ali RA et al., in Egypt to evaluate the impact of self-care recommendations on pregnant women's knowledge and behavior regarding Gestational Diabetes Mellitus (GDM). Regarding the selfcare knowledge, only 4% of women had satisfactory knowledge about GDM and 95% had unsatisfactory practice. The study suggests ongoing health education initiatives and wider implementation of self-care recommendations to enhance knowledge and self-care behaviors related to GDM [20]. In a cross-sectional study carried out by Mahalakshmi B et al., among 360 pregnant women in Tamil Nadu, India, 88%

demonstrated awareness of Gestational Diabetes Mellitus (GDM). However, 60% of the participants were unaware that GDM could recur and 56% lacked knowledge about its treatment options. Understanding of Gestational Diabetes Mellitus (GDM) varies throughout the stages of pregnancy. Overall awareness, knowledge of dietary substitutes and management strategies tend to improve as the pregnancy advances through trimesters. The feeling of pregnant women to seek information also increases as their pregnancy progresses [21]. Self-care practices among women diagnosed with GDM can be shaped by various socio-demographic, physiological and psychosocial factors. Certain factors, such as maternal concerns regarding the health of their newborn and available social support, may aid in the management of GDM. Conversely, other factors, like physical and social limitations, as well as a lack of understanding about GDM management, can pose barriers to effective self-management [22].

CONCLUSIONS

The study suggests that most participants, have lack of knowledge of about GDM, moreover they have not adequate knowledge about the management of gestational diabetes mellitus (GDM), its symptoms and feto-maternal complications.

Authors Contribution

Conceptualization: SA¹

Methodology: SA¹, NS, KA, HAI

Formal analysis: NS

Writing, review and editing: SA², HAI, MA

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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