Awareness Regarding Self-Care Management Of Gestational Diabetes Mellitus Among Antenatal Women

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Abstract:
Introduction: *Gestational diabetes mellitus (GDM) is a prevalent condition among pregnant women and requires effective self-care management to mitigate associated risks. This study aimed to assess knowledge and attitude regarding self-care management among antenatal women diagnosed with Gestational diabetes mallitus. Understanding the impact of Awareness is crucial for developing targeted strategies to improve knowledge and promote positive attitudes, ultimately improved self-care practices improve health outcomes among women with Gestational Diabetes Mellitus.*
Method: *A quasi-experimental research design was employed, focusing on antenatal women attending Queen Mary Hospital in Lucknow, India. A sample of 107 participants was selected using a nonprobability purposive sampling technique. Inclusion criteria included willingness to participate, ability to read and write, and gestational age between 24 and 28 weeks. Data were collected through structured interviews with a knowledge questionnaire and a self-structured attitude scale. Demographic variables such as age, education, occupation, type of family, residence, gestational age, duration of Gestational Diabetes Mellitus, and family history of diabetes mellitus were considered in the analysis.*
Results: *The findings revealed that the majority of antenatal women had poor knowledge and a negative attitude towards self-care management of Gestational Diabetes Mellitus. The analysis revealed significant associations between knowledge and attitude scores and demographic factors such as education, occupation, family structure, duration of gestational diabetes, and family history of diabetes.*
Conclusion: *There were persistent knowledge gaps, highlighting the need for ongoing reinforcement and educational strategies. Demographic factors were found to influence knowledge and attitude levels, ultimately supporting antenatal women in effectively managing GDM and promoting positive health, which should be the outcomes.*
Keywords: *Gestational Diabetes Mellitus, Self-care Management, , Antenatal Women, Knowledge, Attitude. Key Words: Gestational Diabetes mellitus, Antenatal women, awareness, Self-care*

I.   Introduction:

A number of hormonal and metabolic changes occur during pregnancy. The demands and expectation of each woman during pregnancy and childbirth is very much different. For women and their families alike pregnancy and childbirth are unique occasions. It may also be a period of anxiety and pain and even demise. Pregnancy carries some metabolic changes that may be dangerous to the health of the woman and the fetus she is carrying, even though it is a normal physiologic process rather than sickness. They have mostly been overcome in developed nations since all expected mothers have access to special attention offered to all women who are expecting, throughout their delivery and pregnancy. In contrast in many underdeveloped nations, every pregnancy is a voyage into the unknown.[2]

A type of glucose intolerance is known as gestational diabetes mellitus. There are potentially significant alterations in the metabolism of fat and carbohydrates during pregnancy, in the first few weeks glucose metabolism is typified by higher postprandial and lower fasting plasma level.[3]

Traditionally impaired glucose intolerance that initially manifest or is identified during pregnancy is referred as gestational diabetes mellitus is becoming a more acknowledged risk factor for future cardiovascular disease in mother and child. It has long been linked to obstetrics and neonatal problems related to increased neonatal birth weight. Due to epidemiological factors such as rising maternal age and background rates of obesity.[4]

When a woman's beta cell function can not overcome the antagonistic effect of pregnancy's anti insulin hormone and the increased fuel consumption needed to support the developing feto-maternal unit, she develops gestational diabetes mellitus. Traditional risk factor for gestational diabeted mellitus include a history of macrosomia, diabetes, obesity and poor obstetric history. If a mother has any of these risk factors, she should be identified and given suitable treatment.[5]

Self-care management includes self-monitoring of glucose levels, and strict glycemic management can help prevent pregnancy problems caused by gestational diabetes mellitus. Self-care, including aerobic exercise, is strongly advised as a supportive and self-treatment plan to improve glucose metabolism stimulation of insulin-dependent glucose. Antenatal mothers with gestational diabetes mellitus benefit from suggested self-care strategies, including exercise regimens prior to meals with increased glucose effectiveness and metabolism. [6]

Gestational Diabetes Mellitus is a threat to maternal and child health, according to international diabetes federation pregnant women may be encouraged to take preventive action with their knowledge and positive attitude towards self-care, however there is a paucity of research among self care of women.[7]

II.   Material And Method

A cross-sectional, non-experimental research design was employed, focusing on antenatal women attending Queen Mary Hospital in Lucknow, India. The study was conducted at the Department of Obstetrics and Gynaecology, Queen Mary Hospital, OPD, located in Lucknow, India. Queen Mary Hospital is the obstetrics and gynecology unit of King George'George's Medical UniversityLuckUniversity, Pradesh, India. The hospital offers the highest level of services, including tertiary-level services of obstetrics.

Study Population and Sample Size Determination

The population for this study consisted of antenatal women between 24-28 weeks of gestation. The target population for this study was the antenatal women at Queen Mary Hospital. In this case, the accessible population includes antenatal women who meet the inclusion criteria and are available and willing to participate in the study. The inclusion criteria for this study were Antenatal women who are willing to participate in the study, Antenatal women who can read and write, with 24 to 28 weeks of gestation. Antenatal women who were critically or mentally ill at the time of the interview were excluded from the study. For this study, the sample consisted of antenatal women who were admitted to Queen Mary Hospital. The sample size for this study was calculated using the formula: $n = Z^2 * P * (1-P) / d^2$ Given the following parameters: $Z = 1.96$ (Z statistic for a 95% level of confidence), $P = 0.25$ (expected prevalence or proportion, assuming 25%), $d = 0.07$ (desired precision, assuming 7% error rate). Plugging in these values into the formula, $n = 1.96^2 * 0.25 * (1-0.25) / 0.07^2$ $n = 3.8416 * 0.25 * 0.75 / 0.0049 = 0.9604 / 0.0049$, $n \approx 106.5265$ Rounding up to the nearest whole number, the calculated sample size is 107.

Sampling and data collection procedure

Sampling technique refers to the method used to select the sample from the population. In this study, a non-probability purposive sampling technique was employed. All women who were consented to participate were given a structured knowledge questionnaire and attitude scale . They were instructed to fill their answers with paper pencil technique.

Data collection tools

The instrument used in the study consists of three sections: Section A: Structured Questionnaire This section collects demographic variables, including age, educational status, occupational status, religion, residence, type of family, family income per month, number of pregnancies, gestational age, dietary pattern, and previous history of gestational diabetes mellitus. Section B: Structured Knowledge Questionnaire This section contains 21 multiple-choice questions related to gestational diabetes mellitus. Each question has four options, and the participants are required to select the correct answer. The scoring procedure assigns a score of "ONE" for each correct answer and "ZERO" for each incorrect answer. The total score is used to categorize the level of knowledge into poor, average, or Good, depending upon proportion of relevant responses. Section C: To find out how the participants feel about gestational diabetes, this section includes a self-structured attitude scale. Each of the ten statements on the scale is given a rating on a five-point scale that goes from "Strongly Agree" to "Strongly Disagree." For every right response, a score of one is given, signifying a positive attitude; for every wrong response, a score of zero is given. Each participant will have their attitude level classified as either negative, neutral, or positive based on their total score. With the help of this scoring system, participants' attitudes can be divided into three groups according to their overall scores, negative attitude, neutral attitude & positive attitude.

Research Ethics

The medical superintendent of Queen Mary Hospital in Lucknow gave written consent before any data was collected. Informed consent was acquired, and subjects were guaranteed anonymity. The University Research Department granted ethical permission.

Data management and analysis

According to the goals of the study, descriptive and inferential statistics were used to examine the collected data. Organizing the data on a master sheet, computing demographic variable frequencies and percentages, and figuring out the mean, mean score percentage, and standard deviation were all part of the analysis.

III.   Results

Frequency and percentage (Descriptive statistics) were computed for describing the sample characteristics and are presented in table and figure

Table 1 Frequency and percentages of distribution of socio - demographic variables of antenatal women.

S.N.	Characteristic	Frequency (f)	Percentage (%)
1	Antenatal Women's Age		
	21-25 Years	42	39.3
	26-30 Years	36	33.6
	30 Years and above	29	27.1
2	Antenatal Women's Education Level		
	No formal education	17	15.9
	Primary Education	37	34.6
	Secondary Education	41	38.3
	Degree/ Diploma	12	11.2
3	Occupation		
	House Wife	77	72.0
	Self Employed	12	11.2
	Private Employee/ Daily Wages	13	12.1
	Government Employee	5	4.7
4	Type of Family		
	Nuclear	3	2.8
	Joint	104	97.2
5	Residence		
	Urban	20	18.7
	Rural	87	81.3
6	Gestational Age		
	20-23 Weeks	30	28.0
	24-27 Weeks	19	17.8
	28-30 Weeks	30	28.0
	31-34 Weeks	28	26.2
7	Duration of Gestational Diabetes Mellitus		
	One Month	27	25.2
	Two Month	29	27.1
	Three Months	30	28.0
	Four Months	21	19.6

Regarding the age of the antenatal women, the majority were distributed across different age groups. About 39.3% of the women fell into the age range of 21-25 years, while 33.6% were between 26-30 years. In terms of education level, the antenatal women displayed varied educational backgrounds. A notable portion of the sample, comprising 38.3%, had completed secondary education. Primary education was reported by 34.6% of the women, while 15.9% had no formal education. The occupation of the antenatal women reflected a predominant presence of housewives, constituting 72.0% of the sample. Self-employed individuals accounted for

11.2%, while 12.1% were engaged in private employment or daily wage work. A small proportion, making up 4.7%, held government jobs. The type of family structure among the antenatal women was predominantly joint families, comprising 97.2% of the sample. Only a minority, representing 2.8%, belonged to nuclear families. Approximately 81.3% of the sample resided in rural areas, while the remaining 18.7% lived in urban areas. 28.0% of the women had a gestational age of 20-23 weeks, while 17.8% fell into the range of 24-27 weeks. Similarly, 28.0% had a gestational age of 28-30 weeks, and 26.2% were between 31-34 weeks. Around 28.0% reported a duration of one month, while 27.1% had a duration of two months. Additionally, 30.0% indicated a duration of three months, and 19.6% reported a duration of four months. The majority of the antenatal women did not have a family history (76.6%).

Table 2 showing level of knowledge regarding self-care management of gestational diabetes mellitus among antenatal women N = 107

S. No	Level of pretest knowledge	Frequency (*f*)	Percentage(%)
1.	Poor knowledge	82	76.6
2.	Average knowledge	14	13.1
3.	Good knowledge	11	10.3

According to the data presented in Table 2 it was observed that among the total sample size (antenatal mothers) of 107 participants, 82 individuals (76.6%) were categorized as having poor pretest knowledge regarding self-care management of gestational diabetes mellitus among antenatal women. Additionally, 14 participants (13.1%) were classified as having average knowledge, while 11 participants (10.3%) were identified as having good knowledge in this regard.

Table 3 showing level of attitude regarding self-care management of gestational diabetes mellitus among antenatal women
N = 107

S. No	Level of attitude	Frequency	Percentage
1.	Negative attitude	80	74.8
2.	Neutral attitude	14	13.1
3.	Positive attitude	13	12.1

Data presented in the above table showed that among the total number of samples (107), 80 (74.8%) of the samples had a negative attitude, 14 (13.1%) of the samples had a neutral attitude, and 13 (12.1%) of the samples had a positive attitude regarding self-care management of gestational diabetes mellitus among antenatal women

IV.   Discussion

The current study found that a majority of antenatal women had poor knowledge and a negative attitude towards self-care management of GDM before the intervention. This finding is consistent with previous studies conducted by Lamadah, et al. (2021) where similar levels of poorknowledge and negative attitudes were reported among pregnant women with GDM.(55), These findings highlight a persistent issue across different populations and settings, emphasizing the need for interventions to improve knowledge and attitudes.

Strength and limitation

Study was limited to a single healthcare facility, which may restrict the generalizability of the findings to other settings.

V.   Conclusion

The long-term outcomes of improved knowledge and attitudes on health outcomes for both the mother and the baby can be examined by nursing research. The effectiveness of different educational interventions or teaching approaches in improving knowledge and attitudes can be evaluated by nursing research. Nursing research can involve collaborations with nurses, physicians, dietitians, psychologists, and other healthcare professionals to explore the combined impact of various interventions and the role of interdisciplinary care in improving knowledge, attitudes, and outcomes for women with gestational diabetes. Nursing research can study the integration and adoption of structured teaching plans and interventions within healthcare settings. The study found that improved knowledge and attitude regarding self-care management of gestational diabetes among antenatal women. However, a proportion of participants still had poor knowledge post-intervention. Demographic factors such as education, occupation, family structure, duration of gestational diabetes, and family history of diabetes were associated with knowledge and attitude. These findings emphasize the importance of targeted interventions

to enhance knowledge and promote positive attitudes in self-care management. Ongoing efforts are needed to address knowledge gaps and support antenatal women in effectively managing gestational diabetes.

VI.   Future Research Recommendation

A study can be conducted to replicate the research in multiple healthcare facilities to enhance the generalizability of the findings, Future research should include a larger and more diverse sample to ensure representation of various demographic backgrounds and cultural contexts. It is recommended to conduct longitudinal studies with long-term follow-up to assess the sustained effects of the structured teaching plan on knowledge and attitude regarding self-care management of gestational diabetes mellitus. Future studies should consider incorporating mixed-methods approaches to gather both quantitative and qualitative data, providing a more comprehensive understanding of antenatal women's experiences and perspectives. A comparative study can be conducted to assess the effectiveness of different teaching methods or interventions in improving knowledge and attitude towards self- care management of gestational diabetes mellitus. Further research is needed to explore the barriers and facilitators to self-care management among antenatal women, allowing for the development of targeted interventions to address specific challenges. It is recommended to explore the long-term impact of improved knowledge and attitude on maternal and fetal outcomes in gestational diabetes mellitus. Future studies should include a control group to better assess the causal relationship between the structured teaching plan and the observed improvements in knowledge and attitude.

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