Nurses' Knowledge Regarding Control and Management of Gestational Diabetes Mellitus at Rajshahi Diabetic Association General Hospital

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Original Research Article	Abstract:

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Background: Gestational Diabetes Mellitus (GDM) poses significant health risks to pregnant women and their offspring. Nurses play a pivotal role in educating and supporting patients with GDM. This study explores the extent of nurses' knowledge about the control and management of GDM at Rajshahi Diabetic Association General Hospital (RDAGH), Bangladesh. **Methods:** A descriptive cross-sectional design was employed to assess nurses' knowledge. Data was collected from November 2014 to April 2015 through direct questionnaires administered to 50 staff nurses. Participants' mean ages 37.3 years were distributed. Educational and professional qualifications were also recorded. **Results:** The results indicated that nurses exhibited varying levels of knowledge regarding GDM control and management. Nurses demonstrated strong awareness (98%) of gestational diabetes during pregnancy, yet misunderstandings arose about postpartum onset (34%). While excessive weight gain (100%) and sugar intake (96%) were recognized as contributors to high glucose levels, unfamiliar terms like "balanced glucose tolerance" scored lower (40%). Effective education can address these gaps for improved patient care. **Conclusion:** This study underscores both the proficient understanding and the knowledge gaps among nurses regarding GDM management. Although respondents exhibited commendable knowledge in key domains, misconceptions suggest the need for targeted educational interventions. Enhancing nurses' comprehension of GDM will empower them to provide more accurate guidance to patients, thereby improving patient care and outcomes.
Key Words: Gestational Diabetes Mellitus, Nurses' Knowledge, Control, Management, Bangladesh.

INTRODUCTION

Gestational diabetes mellitus (GDM) is a prevalent medical disorder that affects approximately 2-5% of pregnancies. It is characterized by varying degrees of carbohydrate intolerance, with the onset or first recognition occurring during pregnancy [1]. GDM poses significant risks to maternal health and well-being, making effective antenatal care and blood sugar control critical for reducing its complications.

An essential aspect of understanding GDM is its definition, which encompasses any level of glucose intolerance that originates during pregnancy, without excluding the possibility of preexisting intolerance [2]. The challenge in studying GDM lies in the range of adverse outcomes associated with untreated cases, including fetal macrosomia, neonatal hypoglycemia, and perinatal complications such as brachial plexus injury and clavicular fracture.

The evolving nature of research on GDM outcomes is highlighted by the changing understanding of its association with perinatal mortality. Historical data suggested a higher risk, but modern advances in obstetrical and neonatal practices may have mitigated this risk [3]. The impact of GDM also extends beyond birth, potentially influencing the offspring's long-term health, including the risk of impaired glucose tolerance, childhood obesity, and neuropsychological disturbances.

Clinical detection of GDM is crucial for identifying pregnancies at higher risk for adverse outcomes. Despite the absence of a defined glucose threshold for determining risk, various glycemic criteria have been proposed and adopted worldwide for GDM diagnosis [4]. The frequency of GDM may differ among ethnic groups and diagnostic criteria used. However, all diagnostic approaches aim to identify women with glucose tolerance at the upper end of the population distribution during pregnancy.

This study explores the complex landscape of GDM, encompassing its definition, diagnostic criteria, and associated risks for both mothers and their offspring. The focus on antenatal care, blood sugar control, and long-term implications underscores the significance of accurate detection and management of GDM to ensure optimal maternal and child health outcomes [5].

OBJECTIVES

General objectives

- The study was done with a view to explore the nurses' knowledge regarding control and management of Gestational Diabetes mellitus at Rajshahi Diabetic Association General Hospital.

Specific objectives

- To assess the nurses knowledge about gestational diabetes.
- To determine the nurses knowledge about risk factors of gestational diabetes mellitus.
- To state the diagnosis of gestational diabetes mellitus.
- To assess the nurses knowledge about management of gestational diabetes.
- To explain the complication of gestational diabetes mellitus
- Relationship between knowledge about socio demographic characteristic of the respondents.

MATERIALS AND METHODS

It was a descriptive cross-sectional study design was employed to investigate (N=50) nurses' knowledge regarding the control and management of Gestational Diabetes Mellitus (GDM). The study was conducted at Rajshahi Diabetic Association General Hospital from November 2014 to April 2015.

Inclusion Criteria

- Registered nurses currently employed at Rajshahi Diabetic Association General Hospital.
- Nurses willing to participate voluntarily in the study.
- Nurses possessing a minimum of one year of professional experience.

Exclusion Criteria

- Nurses not currently working at Rajshahi Diabetic Association General Hospital.
- Nurses unwilling to participate or provide informed consent.
- Nurses with less than one year of professional experience.
- Nurses on extended leave or medical absence during the study period.

Data Collection

A written permission must take from the concerned hospital authority before collecting data. Then this study was conducted with the director to explain the views and aims of this study. It is also discussing the study purpose with respected respondents by using questionnaires. Finally collected data is tabulated accordingly.

Data Analysis

Data collected for the study were subjected to thorough analysis using the Statistical Package for the Social Sciences (SPSS) software, vs 26. The subjects' demographic information, Nurse's Knowledge regarding control and Management of Gestational Diabetes Mellitus were analyzed using frequencies and percentages. The information from the completed questionnaire was entered in a data base in the statistical package. The data was checked for accuracy of data entry and then analyzed using descriptive statistics. Then the findings are presented by using various tables.

RESULT

The study interviewed 50 nurses at Rajshahi Diabetic Association General Hospital (RDAGH) to evaluate their understanding of gestational Diabetes Mellitus control and management. The subsequent sections sequentially present the study's findings as obtained from data analysis.

Demographic Information

This table shows that the age of 50 respondents nurse are 26% the age of 21-30 years, 36% at the age of 31-40 years, 32% at the age of 41-50 years, 6% at the age of 51-60 years.

Table 1: Distribution of the respondent by their age

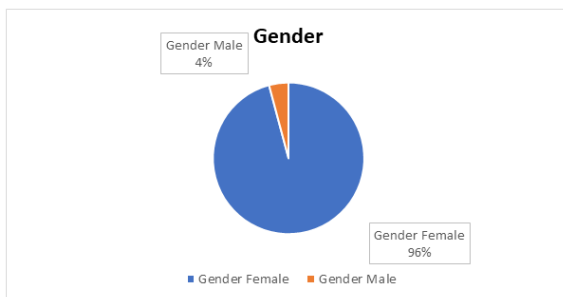| Variable	Parameters	N=50	Percentage
Age (years)			
	21-30 years	13	26%
	31-40 years	18	36%
	41-50 years	16	32%
	Above 50 years	3	6%
Gender			
	Male	4	8%
	Female	46	92%

Figure 1: Graph showing the percentage of gender for nurses

Figure shows that the professional qualification of respondent's nurse is Diploma in Nursing & Midwifery 35 (70%), B. Sc. in Nursing 10(20%), MPH / M.Sc/MPH 5(10%) %, B.Sc. in Public Health Nursing 0%.
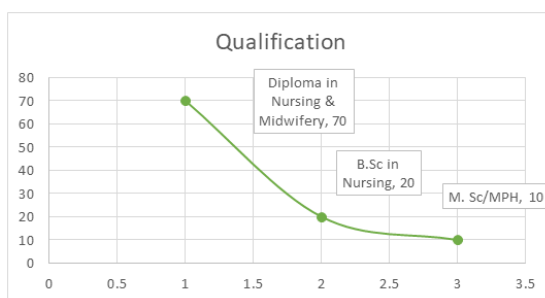

Figure 2: Respondents by their professional qualification

Table 2: Nurses knowledge regarding gestational diabetes mellitus

Parameters	Answer			
	Yes		No	
	N=50	%	N=50	%
What is gestational diabetes mellitus?				
a. Appears in pregnancy	50	100	0	0
b. previously non diabetic patient	48	96	2	4
c. Appears after delivery	17	34	33	66
d. First time	48	96	2	4
e. Above all	49	98	1	2
Do you know the following factors can cause high blood glucose level in pregnancy?				
a. Excess gain of weight	50	100	0	0
b. Excessive sweat intake	48	96	2	4
c. impaired glucose tolerance	45	90	5	10
d. . Balanced glucose tolerance	20	96	30	60
e. Above all	48	98	2	4
Do you know About obstetric management of diabetes patient at term?				
a.Careful antenatal supervision	50	100	0	0
b. Control of diabetes mellitus.	45	90	5	10
c. Don't obstetric management	36	72	14	28
d. Follow up	47	94	3	6
e. Above all	49	98	1	2
Do you know what are the effects of gestational diabetes mellitus on pregnancy?				
a.Pre-eclampsia	42	84	8	16
b.Polyhydromonios	40	80	10	20
c. Antepartum hemorrhage	48	96	2	4
d.Lactation failure	43	86	7	14
e. Above all	49	98	1	2

Understanding Gestational Diabetes Mellitus: Respondents demonstrated clear awareness that gestational diabetes appears during pregnancy (100%) and recognized the risk of GDM in previously non-diabetic individuals (96%). However, only 34% correctly understood that GDM doesn't occur after delivery. First-time occurrence was understood by 96%, with an overall understanding of GDM at 98%.

Factors Causing High Blood Glucose in Pregnancy: Most recognized excess weight gain (100%) and excessive sweat intake (96%) as contributors to high glucose levels. While impaired glucose tolerance was identified by 90%, only 40% grasped the impact of balanced glucose tolerance. Overall awareness stood at 96%.

Obstetric Management of Diabetes Patients at Term: Respondents were well-informed about careful antenatal supervision (100%) and diabetes control (90%). However, misconceptions arose, with 72% misunderstanding the need for obstetric management and 28% believing it should be avoided. Follow-up was acknowledged by 94%, and overall awareness was at 98%.

Effects of Gestational Diabetes Mellitus on Pregnancy: Respondents exhibited good understanding of pre-eclampsia (84%) and antepartum hemorrhage (96%), with lower awareness of polyhydramnios (80%). Lactation failure's impact was recognized by 86%, and overall recognition was at 98%. Addressing misconceptions and enhancing comprehension could optimize patient care through well-informed nursing staff.

DISCUSSION

The purpose of this study was to assess the knowledge of senior staff nurses at Rajshahi Diabetic Association General Hospital regarding the control and management of gestational diabetes mellitus (GDM) and to identify specific learning needs. GDM has emerged as a significant global health concern due to its prevalence and its impact on hospital stay duration and economic burden [6]. Consequently, nurses' role in patient care and education becomes pivotal, especially since patients are admitted to gynecological wards [7]. Thus, nurses bear a substantial responsibility for providing a secure environment that prevents complications arising from gestational diabetes [8].

The findings suggest that nurses' understanding of GDM varies across different aspects. While all respondents correctly identified that GDM appears during pregnancy, there were misconceptions regarding GDM occurring after delivery (34% answered 'yes'). Similarly, 96% recognized that previously non-diabetic individuals could develop GDM during pregnancy, indicating a solid understanding of risk factors. However, a significant portion (40%) did not accurately comprehend the concept of 'balanced glucose tolerance' contributing to high blood glucose levels, indicating a potential area for educational intervention.

The respondents' knowledge of obstetric management displayed a robust understanding of careful antenatal supervision (100%) and controlling diabetes (90%). However, 72% of nurses incorrectly believed that obstetric management should be avoided, highlighting a need for clarification in communication and training. The significance of comprehensive management by the entire gynecological team should be emphasized, encompassing various dimensions to ensure optimal patient care.

When assessing the effects of GDM on pregnancy, the respondents demonstrated awareness of outcomes like pre-eclampsia (84%) and antepartum hemorrhage (96%). However, 20% were unaware of polyhydramnios, indicating scope for enhancing their familiarity with possible complications. The recognition of lactation failure (86%) showcased their grasp of diverse GDM-related effects.

These findings similar systematic review, which assessed associations between different GDM diagnostic criteria and clinically relevant outcomes. Their study focused on WHO and IADPSG criteria, highlighting the importance of precise diagnostic criteria for appropriate patient management. The association between plasma glucose and pregnancy outcomes is intricate, with the current diagnostic criteria identifying milder degrees of hyperglycemia. This implies that if these criteria were applied more broadly, including women with higher glucose levels, associations could be stronger. However, the study indicates that even with stronger associations, major diagnostic discrimination might not be achieved. This emphasizes the role of investigating other factors contributing to adverse outcomes [9].

Heterogeneity across studies, could arise from population characteristics, study designs, and variations in diagnostic criteria. The influence of specific studies, such as the EBDG and HAPO studies, on heterogeneity further underscores the need to consider individual study contexts [10].

In this study sheds light on the knowledge of senior staff nurses regarding GDM control and management. While their understanding is commendable in many areas, there are specific aspects that warrant focused educational

interventions. Providing clear and comprehensive education can empower nurses to deliver effective patient care and contribute to improved outcomes in the context of gestational diabetes.

CONCLUSION

Nurses exhibit diverse knowledge levels in Gestational Diabetes Mellitus (GDM) control, yet translating this into effective practice remains a challenge, potentially leading to complications. Urgent interventions, including targeted training, are imperative to bridge this gap and enhance patient care. Enhancing nurses' comprehension and practice is vital for effective GDM management and better healthcare outcomes.

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