UNIVERSITY OF HEALTH SCIENCES

COLLEGE OF NURSING

GRADUATION RESEARCH PROPOSAL

Assessment of Pregnant Women’s Knowledge Regarding Gestational Diabetes Mellitus

Prepared by: .....

Supervisor: .....

Proposed study site: Obstetrics and Gynecology Department, Dongola, Northern State, Sudan

Proposed study duration: One month

Proposal Abstract

This study aims to assess pregnant women's level of knowledge regarding gestational diabetes mellitus, including its meaning, risk factors, possible signs, screening methods, complications, prevention, and control. The importance of this topic lies in the fact that detecting and monitoring gestational diabetes can help reduce health risks for both the mother and the fetus. A descriptive cross-sectional study is proposed in the Obstetrics and Gynecology Department in Dongola, Northern State, over one month. Data will be collected using a structured questionnaire after obtaining the required approvals and informed consent from participants. Data will be analyzed using frequencies and percentages; an overall knowledge score may also be calculated. This proposal is an initial plan. The final sample size will be determined after reviewing the number of eligible attendees and consulting the university requirements and supervisor.

CHAPTER ONE: INTRODUCTION

1.1 Background

Gestational diabetes mellitus (GDM) is high blood glucose first detected during pregnancy, and the pregnant woman may not have obvious symptoms. Pregnancy causes hormonal changes that may reduce the body's response to insulin and increase the need for it. When the body cannot meet this need, blood glucose levels may rise. GDM may be associated with complications such as excessive fetal growth, difficult delivery, and low blood glucose in the newborn after birth. It may also increase the mother's later risk of developing type 2 diabetes. Care depends on timely screening, appropriate nutrition, suitable physical activity, blood glucose monitoring, and treatment when needed under the guidance of the healthcare team.

Knowledge of the condition is an important factor in seeking care and following health recommendations. Therefore, this study seeks to measure pregnant women's knowledge at the proposed study site and identify areas where health education is needed.

1.2 Problem Statement

Despite the importance of early detection and monitoring of GDM, pregnant women's knowledge may vary regarding risk factors, screening, complications, and ways to control the condition. Inadequate information or inaccurate beliefs may delay seeking care or reduce adherence to recommendations. This proposal does not assume in advance that knowledge in Dongola is at any particular level; rather, it aims to measure it systematically.

1.3 Research Question

What is the level of knowledge regarding gestational diabetes mellitus among pregnant women attending the Obstetrics and Gynecology Department in Dongola, Northern State?

1.4 Objectives

General objective: To assess pregnant women's knowledge regarding gestational diabetes mellitus at the proposed study site.

Specific objectives:

- To determine pregnant women's knowledge of the meaning of GDM and its risk factors.
- To assess their knowledge of the importance of screening and possible signs of the condition.
- To assess their knowledge of potential complications for the mother and fetus.
- To identify their knowledge of prevention, control, and follow-up.
- To identify selected sociodemographic and obstetric characteristics associated with knowledge level.

1.5 Significance of the Study

The findings may help identify information that pregnant women need to strengthen, guide health education programs in antenatal clinics, and support nurses and midwives in preparing appropriate educational messages.

The study may also provide preliminary local findings for future researchers, without generalizing them beyond the study population except as justified by the methodology and sample.

CHAPTER TWO: THEORETICAL FRAMEWORK AND PREVIOUS STUDIES

2.1 Definition of Gestational Diabetes

Gestational diabetes is a disorder of blood glucose regulation diagnosed during pregnancy according to approved screening and diagnostic criteria. The healthcare provider determines the appropriate test and timing based on the applicable health protocol and the pregnant woman's condition.

2.2 Risk Factors

- A history of gestational diabetes in a previous pregnancy.
- A family history of diabetes, especially among first-degree relatives.
- Overweight or obesity before pregnancy.
- A previous baby with high birth weight, or certain previous complications related to blood glucose.
- Other factors assessed by the healthcare provider according to the medical history and approved guidelines.

2.3 Complications, Prevention, and Follow-up

Possible complications include excessive fetal growth, an increased likelihood of cesarean delivery or birth injuries, abnormal blood glucose in the newborn after birth, and an increased risk of type 2 diabetes in the mother later in life. Risks can be reduced through antenatal follow-up, screening according to guidelines, an appropriate dietary plan, safe physical activity, glucose monitoring, and prescribed treatment when needed. General information should not replace an individual medical assessment.

2.4 Previous Studies

This section will be completed after reviewing published studies from Sudan and other countries on pregnant women's knowledge of GDM. For each study, the researcher should record the author, publication year, study location, sample size, data-collection tool, and main findings. Unsupported percentages or results should not be included. Searching databases such as PubMed, Google Scholar, and Sudanese health journals is recommended.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Study Design

A descriptive cross-sectional study will be used to measure knowledge during a defined period.

3.2 Study Setting

The proposed setting is the Obstetrics and Gynecology Department in Dongola, Northern State, Sudan. The final site will be confirmed after approval by the healthcare institution and the university.

3.3 Study Duration

One month is proposed for data collection. The approval process and data analysis may require additional time.

3.4 Study Population

The study population will consist of pregnant women attending the selected site during the data-collection period.

3.5 Inclusion and Exclusion Criteria

Inclusion: Pregnant women attending the site during the study period who voluntarily agree to participate and meet the study criteria approved by the supervisor. Exclusion: Women who do not wish to participate, and questionnaires that are incomplete according to a criterion specified in advance in the analysis plan.

CHAPTER THREE: RESEARCH METHODOLOGY (CONTINUED)

3.6 Sample Size and Sampling Technique

The total number of pregnant women expected during the study period has not yet been determined; therefore, the final sample size cannot be fixed accurately in this version. The sample size should be calculated after obtaining the population size or attendance rate and discussing it with the supervisor.

If a formula for estimating a proportion in a large population is used, the following may serve as a guide: $\mathbf{n = Z^2 \times p(1 - p) / d^2}$, where Z = 1.96 for a 95% confidence level, p = 0.50 when no previous estimate is available, and d = 0.05 for a 5% margin of error. This gives an initial sample size of approximately 384 before applying a finite-population correction or allowing for non-response. This sample may be impractical for a one-month study; therefore, the accessible population and an appropriate method must be agreed upon with the supervisor. A convenience or consecutive sample of eligible pregnant women may be used during the data-collection period if approved by the research committee and supervisor, with the limits on generalizability clearly stated.

3.7 Data Collection Tool

A structured questionnaire in Arabic will be used; an English version may be attached if needed. It will include the following sections:

- General information: age, educational level, occupation, and place of residence.
- Obstetric and health history: number of pregnancies and births, previous diabetes or GDM, and family history of diabetes.
- Knowledge: definition of GDM, risk factors, screening, complications, diet and physical activity, blood glucose monitoring, and follow-up after delivery.

The questionnaire should be reviewed by specialists and, if possible, pilot-tested with a small number of participants outside the final sample to check clarity. The scoring system should be defined in advance; for example, one point for a correct answer and zero for an incorrect answer or “I do not know,” with the answer key’s reference documented.

3.8 Data Collection Procedure

After official approvals are obtained, the researcher will explain the study purpose to participants and request their informed consent. The questionnaire will then be distributed or administered consistently, and completeness of responses will be checked without pressuring any participant.

3.9 Data Analysis

Data will be reviewed, coded, and entered into a suitable program such as Excel or SPSS. General characteristics will be presented using frequencies and percentages. The mean or total knowledge score may be calculated and categorized according to a criterion defined in advance and scientifically justified. Actual results must not be written before data collection and analysis are completed.

3.10 Ethical Considerations

- Obtain approval from the university and the healthcare institution or ethics committee before data collection begins.
- Participation will be voluntary, and participants may withdraw without any effect on their healthcare.
- Do not collect names or unnecessary identifying information; keep questionnaires and data confidential.
- Use the data for scientific research only; do not provide a diagnosis or treatment based on the questionnaire.

3.11 Study Limitations

The findings may be affected by a small sample, a short data-collection period, or reliance on participants’ responses. A study conducted at one site cannot support generalization to all pregnant women in Northern State or Sudan.

PROPOSED TIMELINE

- Week 1: Complete the proposal, review the questionnaire, and request approvals.
- Weeks 2–3: Collect data after the required approvals have been obtained.
- Week 4: Enter and analyze the data and prepare the preliminary report.

BUDGET

The budget will be determined according to the needs for printing, transportation, stationery, and data entry. Actual amounts should be included after local costs have been estimated.

INITIAL REFERENCES

1. World Health Organization. (2013). *Diagnostic Criteria and Classification of Hyperglycaemia First Detected in Pregnancy.* WHO.

2. American Diabetes Association Professional Practice Committee. (2025). *Management of Diabetes in Pregnancy: Standards of Care in Diabetes—2025.* Diabetes Care.

3. National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). *Gestational Diabetes.* Educational information about gestational diabetes.

4. Centers for Disease Control and Prevention (CDC). *Gestational Diabetes.* Health information about gestational diabetes.

NOTE BEFORE SUBMISSION

This is an initial research proposal, not a final report of results. Before submission, review the formatting and requirements of the College of Nursing, add the student’s and supervisor’s names, verify the references and details of previous studies, and finalize the sample size in consultation with the supervisor.

Graduation Research Proposal – Gestational Diabetes