

**PREVALENCE OF LOW BACK PAIN, RISK FACTORS AND  
ASSOCIATION WITH FUNCTIONAL ACTIVITIES AMONG  
PREGNANT WOMEN IN UNIVERSITY OF BENIN TEACHING  
HOSPITAL**

**BY**

**THERESA EMIKE ULOKO**

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# CERTIFICATION

This dissertation by Theresa Emike Uloko is accepted in its present form as satisfying the dissertation requirement of the degree of Bachelor of Physiotherapy of the School of Basic Medical Sciences, College of Medical Sciences of the University of Benin.

**SUPERVISOR**

**SIGNATURE AND DATE**



DR. S.O. BOLARINDE

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**EXTERNAL EXAMINER**

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.....

**APPROVED**

.....

**DR. (MRS) C.O. OBASEKI**

**HEAD**

**DEPARTMENT OF PHYSIOTHERAPY**

**COLLEGE OF MEDICAL SCIENCES**

**UNIVERSITY OF BENIN**

## **DEDICATION**

This dissertation is dedicated to Almighty God and to my amazing family.

## ABSTRACT

**Background/Aim:** Low back pain (LBP) is a common musculoskeletal problem during pregnancy, often contributing to functional limitations and reduced quality of life. This study aimed to determine the prevalence of low back pain, identify associated risk factors and assess its impact on functional activities among pregnant women attending the antenatal clinic at the University of Benin Teaching Hospital (UBTH).

**Methodology:** A cross-sectional study was conducted among pregnant women attending the antenatal clinic at UBTH. Data were collected using a structured self-administered questionnaire comprising sociodemographic information, obstetric history, potential risk factors, the Nordic Musculoskeletal Questionnaire and the Oswestry Disability Index (ODI) to assess functional limitation. Descriptive statistics summarized participants' sociodemographic data, while inferential statistics (Chi-square tests) examined associations between LBP and potential risk factors. The level of significance was set at  $p < 0.05$ .

**Results:** The prevalence of low back pain among the study population was 58% in the last 7 days, indicating a moderate occurrence during pregnancy. The risk factors associated with LBP were prolonged standing, physically demanding work, poor ergonomic postures, stress frequency and the feeling of anxiety ( $p < 0.05$ ). The majority of participants experienced mild to moderate disability as measured by the ODI.

**Conclusion:** Low back pain is prevalent among pregnant women at UBTH and is influenced by multiple physical and occupational factors. The condition moderately affects functional activities and daily living. Awareness, early physiotherapy intervention and ergonomic education during antenatal care are recommended to minimize its impact.

**Keywords:** Low back pain, Pregnancy, Risk factors, Functional activities, Oswestry Disability Index

















































































# **CHAPTER THREE**

## **METHODS**

### **3.1 Participants**

The participants for this study included pregnant women receiving antenatal care at the University of Benin Teaching Hospital (UBTH), located in Benin City, Edo State, Nigeria. These women were recruited during their routine visits to the antenatal clinic in UBTH.

#### **3.1.1 Inclusion Criteria**

- i. Pregnant women attending antenatal clinics at the University of Benin Teaching Hospital (UBTH).
- ii. Pregnant women between 18 and 45 years old
- iii. Pregnant women fluent in reading and writing in English language.
- iv. Pregnant women at any stage of pregnancy (first to third trimester).

#### **3.1.2 Exclusion Criteria**

- i. Women with neurological or musculoskeletal conditions that may affect mobility or back function.
- ii. Inability or unwillingness to complete the study questionnaire or physical assessments.
- iii. Pregnant women with history of trauma or mental impairment.

## 3.2 Materials

### 3.2.1 Instruments

- i. Proforma
- ii. Nordic Musculoskeletal Questionnaire
- iii. Oswestry Disability Index

### 3.2.2 Description of Instruments

- i. **Proforma:** This was used to obtain information on sociodemographic variables (age, marital status, educational level) and obstetric history such as gestational age (trimester), parity (number of previous pregnancies) and gravidity.
- ii. **Nordic Musculoskeletal Questionnaire:** The Nordic Musculoskeletal Questionnaire (NMQ) is a widely recognized tool for assessing musculoskeletal symptoms across various populations, including pregnant women. Its validity and reliability has been established through multiple studies, making it suitable for evaluating low back pain (LBP) prevalence in pregnant women (Osazee et al., 2023). The questionnaire was standardized to ensure consistent evaluation and comparison of musculoskeletal complaints across different populations and regions worldwide. The Nordic Musculoskeletal Questionnaire (NMQ) has demonstrated strong psychometric properties in assessing low back pain (LBP). The reliability of the NMQ for assessing musculoskeletal symptoms was reported to be good, with kappa coefficients ranging between 0.64 and

0.71 for pain in the past week, 0.73 and 0.82 for pain in the past year, and between 0.59 and 0.78 for pain in the past year that interferes with work or leisure. Specifically, the NMQ reported excellent test–retest reliability for age-of-onset questions, with intraclass correlation coefficients (ICCs) ranging from 0.995 to 1.00 across various body regions, including the low back (Al Amer and Alharbi, 2023). For prevalence questions, Cohen’s kappa values ranged between 0.82 and 1.00, indicating almost perfect agreement. Regarding internal consistency, Cronbach’s alpha values for the prevalence section ranged from 0.30 to 0.82, with the low back region achieving the highest reliability (Al Amer and Alharbi, 2023).

- iii. **Oswestry Disability Index:** The Oswestry Disability Index (ODI) was used to assess the functional activities of pregnant women in this study. It consists of 10 sections covering pain intensity, personal care, lifting, walking, sitting, standing, sleeping, sex life, social life, and traveling. Each section contains six statements reflecting increasing levels of disability, with respondents selecting the statement that best describes their condition. The total score is calculated by summing the selected values, dividing by the maximum possible score (50), and multiplying by 100 to obtain a percentage. Higher scores indicate greater disability. ODI has been successfully used in pregnant women population to assess level of disability (Bryndal et al., 2020; Üzelpasaci and Akbayrak., 2023; Akobundu et al., 2025). Test-retest reliability is notably high, with intraclass correlation coefficients (ICCs) ranging from 0.83 to 0.99, depending on the interval

between assessments (Lee et al., 2017). For instance, a study reported ICCs of 0.83 over one week and 0.99 over 24 hours, indicating excellent consistency over time. In terms of validity, the ODI has shown strong construct validity when compared to other established questionnaires. It has demonstrated correlation coefficients ranging from 0.71 to 0.87 when compared with instruments such as the Low Back Outcome Score, the Manniche Scale, and the Aberdeen Score (Irmak et al., 2016).

### **3.3 Methods**

#### **3.3.1 Research Design**

This study adapted a cross-sectional research design.

#### **3.3.2 Sampling Technique**

Convenience sampling technique was used to select the participants for this study from the population of pregnant women attending antenatal clinic in University of Benin Teaching Hospital.

Sample size was calculated using Slovin's Formula

A solid black rectangular box redacting the formula for sample size calculation.

$$1 + N (e)^2$$

Where n = Sample size

N = The population size comprised pregnant women attending the antenatal clinic at the University of Benin Teaching Hospital (UBTH). This figure was obtained

from the clinic's register and reflects the total number of pregnant women who attended the antenatal clinic during the preceding month, amounting to 1,234 individuals.

e = Margin of error (set at 0.05)

The calculated minimum sample size for this study was:

$$n = 1234 / (1 + 1234(0.05)^2)$$

$$n = 302$$

Therefore, the minimum sample size required for this study was approximately 302 participants.

### **3.2.4 Procedure for Data Collection**

Data collection for this study was conducted at the University of Benin Teaching Hospital (UBTH) antenatal clinic. Eligible participants were approached during their scheduled antenatal visits, and informed consent was obtained after explaining the study's purpose, voluntary participation, and confidentiality of responses. A structured questionnaire was administered to gather socio-demographic information, obstetric history, prevalence of low back pain and the impact of low back pain on Functional activities. Prevalence of low back pain was assessed with Nordic Musculoskeletal Questionnaire while disability was evaluated with tools such as the Oswestry Disability Index (ODI). All data were securely stored, anonymized, and coded for data analysis.























































































