Designed & Printed by
247 Publishing & Printing Hub
+234-802-311-9495, 0816-945-9198

Niger Delta Journal of Medical Sciences | July 2025 | Vol. 4 Issue 3

NIGER DELTA JOURNAL OF MEDICAL SCIENCES

ISSN: (Print) 2736 0202 | ISSN: (Online) 2756 4002 | URL: https://www.ndjms.org

Official Publication of
The Faculty of Clinical Sciences
Niger Delta University
Wilberforce Island, Bayelsa State, Nigeria

Volume 4 Issue 3, July 2025

Niger Delta Journal of Medical Sciences

July 2025 | Vol. 4 Issue 3

ISSN: (Online) 2756 4002
ISSN: (Print) 2736 0202
URL: https://www.ndjms.org

Official Publication of
The Faculty of Clinical Sciences
Niger Delta University
Wilberforce Island, Bayelsa State, Nigeria

Niger Delta Journal Of Medical Sciences

Reaching out with Scholarly Research

Editorial Board

PHILOSOPHY

To reach out with scholarly research positively impacting on the clinical services in Nigeria and the rest of Africa.

SCOPE

Niger Delta Journal of Medical Sciences (NDJMS) is a peer-reviewed, quarterly, international, general medical journal that accepts scholarly manuscripts from within and outside Nigeria in areas of basic and clinical medical sciences and related fields.

Editorial Information

Niger Delta Journal of Medical Sciences (NDJMS) is a quarterly peer-reviewed official publication of the Faculty of Clinical Sciences (FCS), College of Health Sciences (CHS), Niger Delta University (NDU), Amassoma, Wilberforce Island Bayelsa State, Nigeria. This general medical journal accepts manuscripts from within and outside Nigeria in areas of basic and clinical medical sciences and related fields. All manuscripts submitted to this journal are expected to conform to the Uniform Requirements for Manuscripts Submitted to Biomedical Journals issued by the International Committee for Medical Journal Editors (ICMJE).

Types of Manuscripts and Limits

Original Article

Papers on original scientific articles with up to 3,000 words, five illustrations/tables/figures, and twenty-five references.

Review Article

A comprehensive review of a timely, important clinical subject along with the analysis of the topic leading to conclusions. This should not exceed 4,000 words and 120 references.

Letters to Editor

Comments on papers recently published in the journal up to 500 words and three references without any figures.

OTHER TYPES OF PUBLICATIONS

Reviews of books and other media, abstracts from medical workshops and conferences will be published by special arrangement. Each submission must be accompanied by a covering letter signed by each author. The covering letter must include information on prior or duplicate publication and a statement on financial and conflicts of interest. Copies of any permission(s) to reproduce published material or to use illustrations or report information about identifiable persons must accompany the manuscript.

DISCLAIMER

It must be emphasized that the data, opinions, and information published in Niger Delta Journal of Medical Sciences are strictly the views and responsibilities of the author(s). The Journal, its Editorial Board, or the Publishers do not accept any liability for inaccurate information. Manuscripts should be sent as an attachment to the Journal email: ndjms@ndu.edu.ng. A manuscript upon submission first undergoes editorial review to ascertain its novelty and suitability for publication in NDJMS. Thereafter it is sent to two/three independent assessors for peer review.

PREPARATION OF MANUSCRIPT

Manuscripts should be prepared on A4 paper, double-spaced with margins of 2.5 cm from each edge, font size 12, and face Times New Roman. Pages should be numbered consecutively in the bottom right-hand corner. The manuscript should include the following sections: Title page, abstract and keywords, text, acknowledgements, references, tables, and figures in that order.

Style:

Niger Delta Journal of Medical Sciences uses both UK and US spelling as long as one is consistently used throughout a manuscript. International System of Units (SI) units should be used for all measurements. Use abbreviations to avoid repetition of long technical terms/names: Indicate the abbreviation in parentheses when the term/name is used in full for the first time. Avoid abbreviations and references in the abstract section. Use only the approved generic names of chemical substances and drugs.

Original Article should be formatted as follows:

Title page

Title of the article, names of contributing

authors in this order; surname (family name) in full, middle name initial, and first name in full e.g. Green O. Smith, name of the institution where the study is carried out and qualifications of each author, name, address, and email of the corresponding author.

Article file
This file contains the abstract and keywords and the main text sections only.

Abstract
This is arranged into a brief introduction highlighting the background, methods highlighting (setting, design, timeline, subjects, data management, etc.), results, and conclusions. It should not exceed 250 words.

Keywords
These should not be more than six or less than four words.

Text
The text of an original manuscript should be separated into the standard IMRAD format as follows: Introduction, Methodology, Results, and Discussion. Sections on Acknowledgements and References should be included.

Introduction
Should be concise and state the background and clear objective of the paper.

Materials and Methods
Should be clear enough for another researcher to be able to repeat the study. A detailed statement on ethical issues should be in this section.

Results
Present results in logical sequence in the text, tables, figures, and other illustrations. Do not repeat in the text all the data in the tables or illustrations; emphasize or summarize only the important observations. Use the symbols * ¶ ŧ ǂ § sequentially to explain as footnotes unconventional abbreviations used in the tables.

Discussion
The major findings should be highlighted and related to other studies. Their significance, implications, and limitations should be emphasized.

Conclusions
As much as possible, relevant conclusions from the results in relation to the objectives of the study should be stated.

Acknowledgement:
The following should be acknowledged: Research or other financial grants; material support, contributions of institutions, colleagues, and other relevant participants who contributed significantly but not sufficient for authorship.

References
Should follow the Vancouver style giving the name of the journal or its standard abbreviation, year, volume, first and last pages. The references should be numbered, using Arabic numerals in superscript in the order in which they are first used in the text, tables, figures, and legends. In the reference section, list the references in the order of appearance in the text, tables, figures, and legends. Do not include abstracts, unpublished data, oral communications, and personal communications in the reference list. All references should be against the original documents. In the reference section, the names of the first six authors should be listed followed by "et al." Names of journals should be abbreviated using the approved style as in Index Medicus/PubMed. A manuscript may be rejected for inaccurate citations.

References to a chapter in a textbook
Should include the surname and up to two initials of each author, title of the chapter, followed by In:, surname and up to two initials of each editor of the book, title of the book, edition, publisher, year of publication, first and last page of the chapter.

Reference to a book
Should state the surname and up to two initials of each editor of the book, followed by eds, title of the book, edition of the book, place of publication, year, and pages of the chapter.

Copyright
Manuscripts accepted for publication in Niger Delta Journal of Medical Sciences become the property of the journal. All authors are therefore expected to sign a transfer of copyright form and send a scanned copy by email attachment to the editorial office. With copyright, the journal has the exclusive rights to the reproduction, translation, and distribution of the article.

Subscription Per Annum
Individuals – N4,000
Institutions – N7,000
Overseas – USD 100 or equivalent

Financial implications for journal

Proposed cost of publication to author (e-copy) – N50,000 or $50/article
Proposed number of journals per year – 4 (quarterly)

Advertisement rates per Issue

Full page (cover pages) – N25,000
Inside Full page – N22,500
½ page – N15,000
¼ page – N8,000

Processing and Publication Fees: N50,000 or $50 payable only after the acceptance of the submitted manuscript.

SUBMISSION:
All manuscripts should be submitted in 2 separate Microsoft Word files as follows:
Non-blinded article file: This should contain the full contents of the article, inclusive of names and affiliations at which the study was done or acknowledgements.

Blinded Article file: The main text of the article, beginning from Abstract till References (including tables/figures) should be in this file. It must not contain any mention of the authors' names or initials or the institution at which the study was done, or acknowledgements. Page headers/running titles can include the title. Manuscripts not in compliance with the Journal's blinding policy will be returned to the corresponding author. Do not zip the files.

All correspondences should be sent to
Editor-in-Chief
Prof Chika Onyinyechi Duru

Niger Delta Journal of Medical Sciences.
E-mail: ndjms@ndu.edu.ng
Phone: +234 803 430 2438
Website: www.ndjms.org

E-mail: ndjms@ndu.edu.ng; chikaduru@ndu.edu.ng

Contents

Page

EDITORIAL: Promoting Evidence-Based Practice Through Indigenous Research. **Duru CO.** ---------- **7**

1. Class attendance and Academic performance: A comparative analysis among undergraduate medical students in a Medical University in Yenagoa, Nigeria. **Dimoko AA, Harry TC, Ozigbo CJ.** -------- **8 - 18**

2. Primary Healthcare Utilization: An Assessment of its Prevalence and Determinants Among Residents of Okada, Edo State, Nigeria. **Esene H, Ehis SB, Agbon-ojeme G, Otuomagie F, Adam YV.** ---------- **19 - 31**

3. Prevalence and Social Determinants of Teenage Pregnancy in Bayelsa. State. **Okumoko MA, Okeke V C, Onwudiegwu U.** ---------- **32 - 43**

EDITORIAL: Promoting Evidence-Based Practice Through Indigenous Research

Prof. Chika Onyinyechi Duru; MBBS, MPH, MRCPCH(UK), FWACP, (Paed)
Editor-in-Chief

Niger Delta Journal of Medical Sciences. 2025;4(3)7

We are pleased to present Volume 4, Issue 3 (July 2025) of the *Niger Delta Journal of Medical Sciences*, the official publication of the Faculty of Clinical Sciences, Niger Delta University. This edition showcases a compelling array of scholarly articles that reflect the ongoing commitment to research and evidence-based practice within and beyond the Niger Delta region.

The lead article by Dimoko *et al*. offers a thought-provoking comparative analysis on *Class Attendance and Academic Performance* among undergraduate medical students in a Yenagoa-based medical university. In an era where digital learning platforms are on the rise, this study underscores the enduring relevance of physical classroom engagement in shaping academic outcomes.

In the second article, Esene *et al*. examine the *Prevalence and Determinants of Primary Healthcare Utilization* in Okada, Edo State. Their work provides critical insights into healthcare-seeking behaviours in semi-urban communities, highlighting both systemic challenges and opportunities for policy intervention to strengthen primary healthcare delivery in Nigeria.

The third article by Okumoko *et al.* turns the spotlight on the *Prevalence and Social Determinants of Teenage Pregnancy in Bayelsa State*. This research addresses a pressing public health issue, shedding light on the sociocultural and economic factors that influence early pregnancies and offering recommendations for targeted interventions to reduce their occurrence.

Collectively, these contributions offer valuable perspectives that enhance our understanding of health systems, education, and social health determinants in Nigeria. We extend our sincere appreciation to the authors, reviewers, and editorial team for their rigorous efforts and commitment to academic excellence.

We trust that this issue will serve as a useful resource for scholars, clinicians, policymakers, and public health practitioners, and we look forward to continued scholarly engagement in future editions.

Prof. Chika Onyinyechi Duru
Chief Editor
Niger Delta Journal of Medical Sciences
Faculty of Clinical Sciences
Niger Delta University

Class attendance and Academic performance: A comparative analysis among undergraduate medical students in a Medical University in Yenagoa, Nigeria.

Dimoko A. Aruoriwo[1], Harry T. Clement[2], Ozigbo C. Juliana[3]

[1]Senior Lecturer/Consultant, Department of Surgery, Faculty of Clinical Sciences, Bayelsa Medical University, Yenagoa, Bayelsa State, Nigeria.

[2]Provost, College of Medicine, Bayelsa Medical University, Yenagoa, Bayelsa State, Nigeria.

[3]Senior Lecturer/Consultant, Department of Paediatrics, Faculty of Clinical Sciences, Bayelsa Medical University, Yenagoa, Bayelsa State, Nigeria.

Corresponding Author:
Dimoko Alexander, FWACS, FICS, FACS
Senior Lecturer/Consultant, Department of Surgery, Faculty of Clinical Sciences, Bayelsa Medical University, Yenagoa, Bayelsa State, Nigeria.
E-mail: zanderdimoko@gmail.com
GSM: +234 810 940 1140
ORCID ID: https://orcid.org/0000-0002-7119-9593

How to cite this article:
Dimoko AA, Harry TC, Ozigbo CJ: **Class attendance and Academic performance: A comparative analysis among undergraduate medical students in a Medical University in Yenagoa, Nigeria.**
NDJMS 2025; 4(3): 8-18

Received: 19th May, 2025 | **Accepted**: 17st July, 2025 | **Published** 11th August, 2025

ABSTRACT

Background: *Lecture attendance is a critical factor in medical education, yet its impact on different examination components remains underexplored. This study investigates differences in examination performance between medical students with ≥75% lecture attendance and those with <75% in a surgical end-of-posting examination.*

Methods: *A retrospective analysis of the academic performance of 60 1st – year clinical students was conducted. They were categorized into two groups based on lecture attendance (≥75% vs. <75%). Performance in multiple choice questions (MCQs), essay exams, long cases, short cases, overall clinical scores and overall examination scores were compared using simple descriptive statistics, logistic regression, and multiple regression analysis.(p<0.01)*

Results: *Students with ≥75% lecture attendance scored significantly higher in long cases (mean=16.2 vs. 12.8, p<0.01) and short cases (mean=16.8 vs. 13.5, p<0.01) than those with <75%. Essay performance was significantly better in the ≥75% group (p=0.001), while MCQ performance showed no significant difference (p>0.05). Logistic regression identified MCQ (OR=3.42, p=0.01),*

essay (OR=6.62, p=0.001), short case (OR=2.44, p=0.04), and clinicals (OR=3.06, p=0.02) as significant predictors of overall performance. Multiple regression analysis revealed that lecture attendance accounted for 18% of the variance in performance at clinical examinations (R^2=0.18, p<0.01).

Conclusion: *Lecture attendance significantly influences clinical examination and essay examination performance but has no significant effect on MCQ performance. Targeted interventions should focus on improving performance in key predictors like essays and clinicals to enhance overall outcomes while also addressing absenteeism from lectures.*

KEYWORDS: Attendance, Medical Education, Surgical Exam, Performance, Clinical Competence.

INTRODUCTION

Medical education is constantly evolving to meet the demands of modern healthcare. Some of the factors influencing academic and clinical performance of medical students are attendance, clinical exposure, simulation-based training, and formative assessments.[1] These elements have been extensively studied, with varying degrees of emphasis on their impact on learning outcomes. Several studies highlight the positive correlation between attendance and academic performance in medical school. Some researchers have found that consistent attendance significantly enhances students' understanding of complex medical concepts, leading to better examination results.[2,3] Other workers have also emphasized the role of attendance in fostering engagement and active participation, which are crucial for long-term retention of knowledge.[4,5] These views have however been contested by some authoritieswho noted that after adjustment for sex, gender and other variables there was no statistically significant relationship between class attendance and examination performance.[6,7]Attendance in medical education is a well-documented predictor of clinical competence, as it facilitates hands-on learning and skill acquisition[2,3]. However, its influence on written exams, such as multiple-choice questions (MCQs) and essays, is less clear.

The concept of a 75% minimum lecture attendance requirement in medical education lacks a single definitive origin but there are a number of examples which provide some precedent.

India's National Medical Commission, (formerly the Medical Council of India) institutionalized attendance thresholds to standardize training, enforcing 75–90% attendance for MBBS programs to ensure foundational knowledge.[8] In Nigeria the 75% lecture attendance mandate was introduced by the National Universities Commission to curb student absenteeism and improve academic outcomes.[9] In South Africa undergraduate nursing programs require 75% minimum lecture attendance for examination eligibility, per the South African Nursing Council (SANC) Regulation R425[10] while in Egyptmost public universities enforce mandatory lecture attendance, while private universities require mandatory attendance

only for tutorials, labs, or seminars[11].
This study aimed to analyze differences in exam performance between students with ≥75% lecture attendance and those with <75% in a surgical end-of-posting exam, focusing on long cases, short cases, MCQ, essay exams, and overall performance. Additionally, trends and anomalies in the data are highlighted, and methods for addressing them are proposed.

Methodology.
Study area and setting: This study was done on the pioneer set of 60 first year clinical students of a state-owned Medical University in Yenagoa, Bayelsa state in the Niger Delta region of Nigeria.

Study Design and Population: This was a post examination quality assurance study evaluating the effect of lecture attendance on examination performance after an eight-week posting based on didactic lecture attendance of <75% and ≥75%. The population consisted of 60 1st year clinical students in their first surgical posting (Junior Surgery).The students were recruited using the census method where every member of the class was involved in the study. As part of the policies introduced at the commencement of the clinical program, information was provided verbally and in writing on the compulsory nature of attendance in all activities, didactic and clinical. The posting lasted eight weeks and consisted of didactic lectures, ward rounds, outpatient clinics, theatre sessions, call duties and small group tutorials. Late production of the clinical logbooks made it difficult to monitor attendance at clinical activities from the beginning of the posting. It was however decided to monitor attendance at didactic lectures as a proxy for overall attendance. There were 30 lecture topics taken by 14 different lecturers. Students were required to sign the attendance register at the onset of every lecture with the lecturer countersigning the said record at the end of the lecture. At the conclusion of the posting the register was used to calculate the attendance percentage for each student and stratify them into 2 groups (<75% and ≥75%). A waiver was granted to allow those with < 75% lecture attendance participate in the examinations and data collected included scores for Paper I (MCQ), Paper II (Essay), Long Cases, Short Cases, Total Written (MCQ + Essay), Total Clinical (Long case + short cases), Exam Total, and attendance percentages. This was exported from the Excel spreadsheet to IBM Statistical Package for Social Sciences (SPSS) version 27 (IBM Corporation, Armonk, New York, USA) for analysis. Ethical committee approval was waived since this was a post-examination quality assurance initiative with data analyzed anonymously without contact with any of the subjects.

Statistical Analysis:
- The following analyses were conducted:
- Descriptive statistics for each examination component based on attendance groups (≥75% vs. <75%).
- Logistic Regression to predict the likelihood of passing the overall exam based on attendance and performance in individual components.
- Correlation Analysis to assess the relationship between attendance percentage and total examination score.
- Comparative Analysis to compare performance trends between the two attendance groups.

Results.

Table 1-Demographic characteristics of study population.

Demographic Variable		Number	Percentage (N-60)
Sex	Male	34	56.7
	Female	26	43.3
Age	15-20 years	13	21.7
	21-25 years	32	53.3
	26-30 years	15	25
	31-35 years	0	0

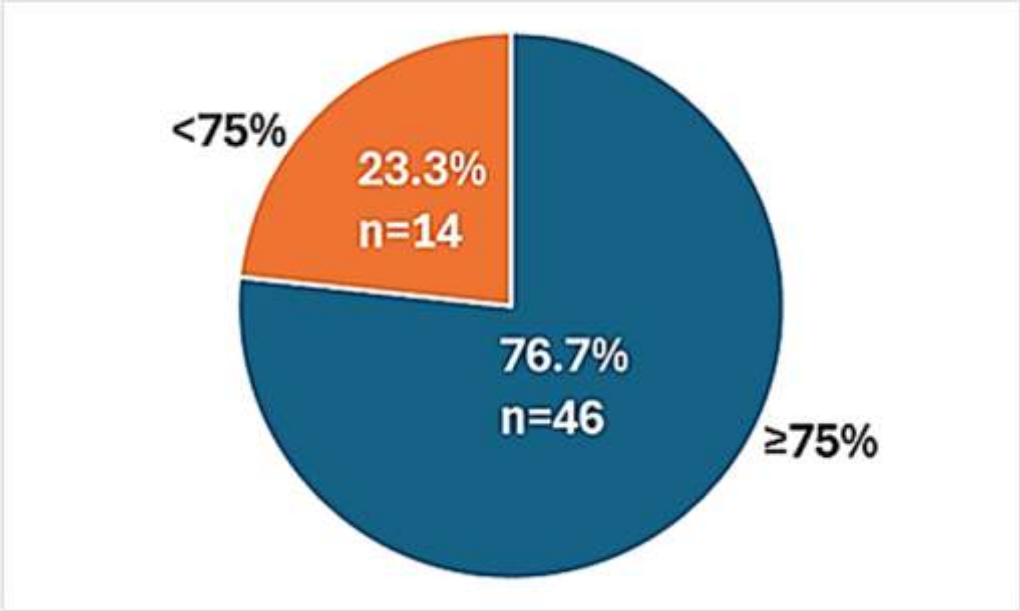

Figure 1: Pie chart showing percentage lecture attendance.

Table 2-Simple descriptive statistical indicators for the study groups.

Component (With score denominator)	Attendance ≥75% (n=46)	**Attendance <75% (n=14)**	**p-value**
MCQ (Over 25)	Mean=18.2, SD=3.4	Mean=17.8, SD=3.1	0.45
Essay (Over 25)	Mean=18.4, SD=2.9	Mean=12.3, SD=3.2	0.001*
Long Case (Over 25)	Mean=16.2, SD=3.1	Mean=12.8, SD=2.9	<0.01*
Short Case (Over 25)	Mean=16.8, SD=2.7	Mean=13.5, SD=2.5	<0.01*
Total Clinicals (Over 50)	Mean=32.6, SD=4.2	Mean=28.4, SD=3.8	<0.01*
Overall Score (Over 100)	Mean=58.6, SD=8.2	Mean=49.3, SD=7.8	<0.01*

*Statistically significant.

Students with ≥75% lecture attendance performed significantly better in essays, long cases, short cases, clinicals, and overall scores. No significant difference was observed in MCQ performance.

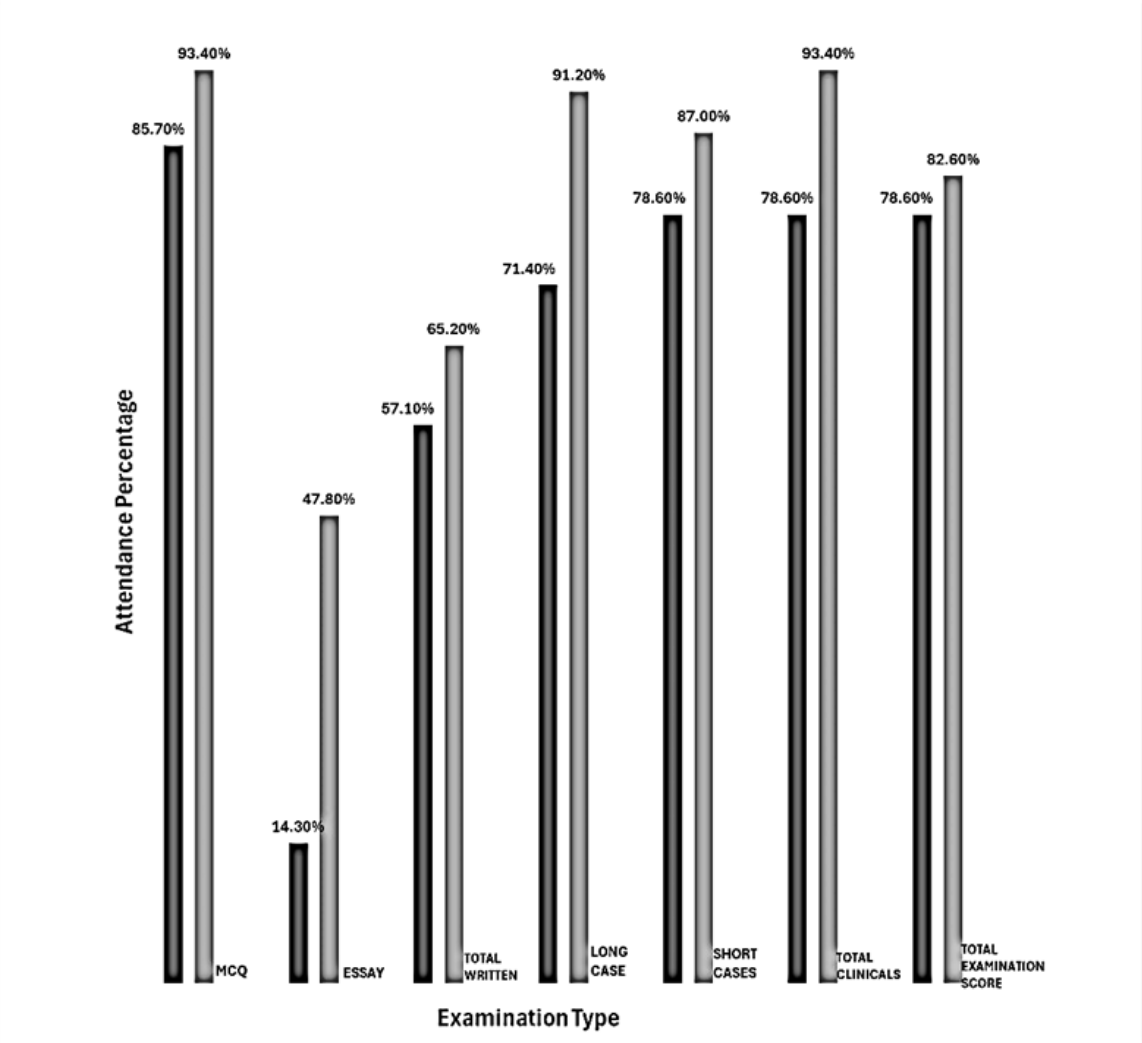

Figure 2:Bar chart comparing pass percentages of students with less than 75% lecture attendance (black bars) and students with more than 75% attendance (grey bars).

Logistic Regression.

Logistic regression was used to predict the likelihood of passing the overall exam based on performance in individual components (MCQ, Essay, Long Case, Short Case).

The logistic regression model was statistically significant, χ^2 (6) = 25.34, $p < 0.001$. The model explained 42.5% of the variance (Nagelkerke R^2) and correctly classified 86.7% of cases.

MCQ, essay, short case, and long case are significant predictors of overall exam performance.

Multiple Regression Analysis.

This was conducted to assess the impact of attendance on clinical performance.

Model Specification:

- **Dependent Variable**: Clinical Performance Score.
- **Independent Variable**: Attendance Percentage.

Variable	Coefficient (β)	Standard Error	t-value	p-value	R^2
Attendance	0.18	0.05	3.62	**<0.01**	0.18

Attendance accounted for 18% of the variance in clinical performance (R^2=0.18, p<0.01). This indicates a moderate but significant relationship between lecture attendance and clinical performance.

Correlation Analysis.
This was conducted to assess the relationship between attendance percentage and total examination score.

Pearson's r: 0.18
p-value: 0.17

There is a weak positive correlation between attendance and total examination score, but it was not statistically significant (p > 0.05).

Comparative Analysis.

Table 3: Comparative Analysis of performance by attendance group.

Attendance Group	Overall examination pass rate.	Weakness
≥75% attendance	82.6% (38/46)	Essay (47.8% pass rate)
<75% attendance	78.6% (11/14)	Essay (14.3% pass rate)

Both groups struggled with the essay component, but the high-attendance group performed significantly better. The MCQ and clinical components were strengths for both groups, with pass rates above 85%.

Anomaly Detection:
Anomalies were identified using scatterplots. Two key anomalies were observed:
High-performing students with <75% lecture attendance: One student scored 60% in clinicals with only 26.7% lecture attendance while another had the highest score in MCQ and essay with 67.9% attendance.

Underperforming student with high attendance: A student scored 44.75% final score despite 100% lecture attendance.

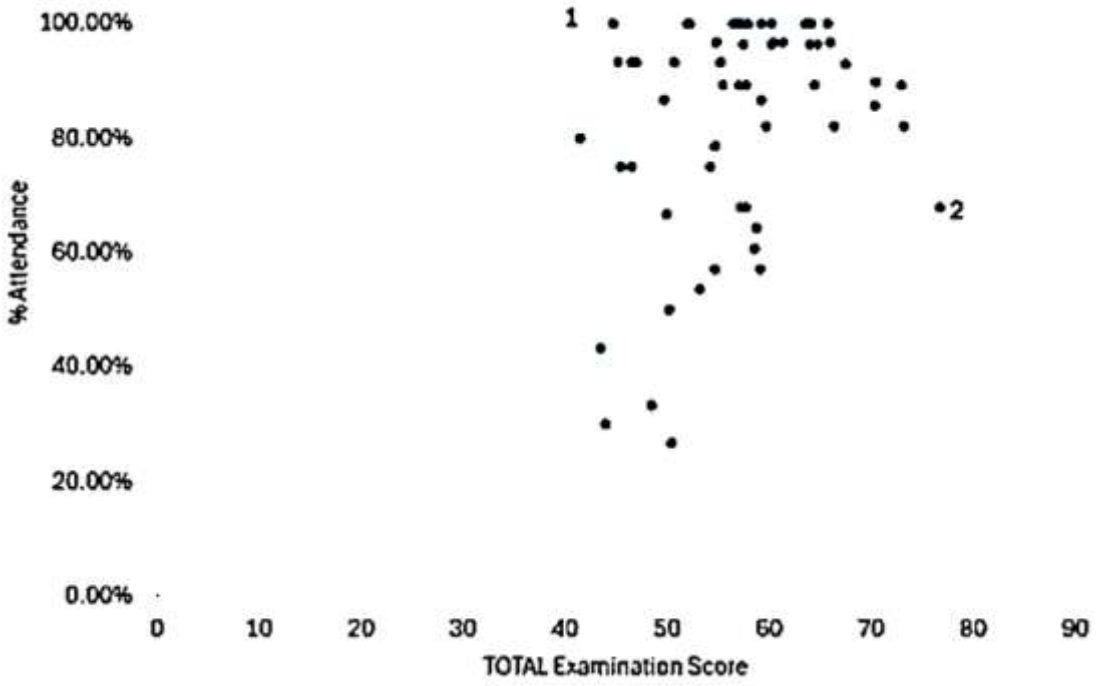

Figure 3: Scatterplot showing outliers in examination performance in relation to lecture attendance.1-Low score with 100% attendance.2-Highest examination score with 67.9% attendance.

Discussion.

The findings align with previous studies demonstrating a positive correlation between lecture attendance and clinical performance[2-7]. Active participation in clinical postings enhances diagnostic and procedural skills, which are assessed in long and short cases[7]. However, the lack of significant differences in MCQ performance suggests that this component may rely more on independent study and prior knowledge rather than attendance[7]. The non-influence of attendance on the MCQ results could also be a result of the cueing effect. This occurs when the candidate can answer MCQ questions correctly by recognizing the correct option but could not have answered the question in the absence of options[13]. It is virtually impossible to estimate the amount of cueing that may occur in an MCQ examination since it cannot usually be differentiated from guessing which is another reason why MCQ scores may not align with attendance[13]. The significant association between attendance and essay performance highlights the importance of developing critical thinking and writing skills[14]. Logistic regression identified MCQ, essay, short case, and clinicals as significant predictors of overall performance, emphasizing the need for targeted interventions in these areas[15]. Anomalies, such as high-performing students with low attendance, may indicate exceptional self-study capabilities or prior clinical experience[16]. Good performance despite low lecture attendance was not due to previous exposure to the relevant lectures

because the class was a pioneer set and none of the students were repeating the posting.

Conversely, the failure of a student with 100% attendance underscores the need for individualized support and assessment of non-academic factors, such as mental health and learning disabilities[17]. Recommendations for improvement in student performance include attendance monitoring and institution of threshold alarms that trigger mitigation once a student is found to be lagging behind. Training and resources to improve essay-writing skills should also be provided. Further research is needed into factors such as study habits and previous academic performance which may affect examination performance.

Conclusion.

This study highlights the importance of lecture attendance and its impact on exam performance. While attendance significantly influences clinical and essay components, its effect on MCQ performance is less pronounced. Interventions to mitigate challenges should focus on improving performance in key predictors like essays and clinicals to enhance overall performance.

Limitations of the study: The population size was small and the study should have compared several classes. This could not be done because this is a pioneer set of students. The study also did not capture percentage attendance of clinical activities. A larger, more robust study is planned in the future.

Declaration of conflict of interest: There was no declaration of conflict of interest from any of the authors.

Acknowledgement: The authors acknowledge the support of the Faculty of Clinical Sciences, Bayelsa Medical University.

Funding: No funding was obtained for this study.

Contribution of the authors: AD, TH and CO all contributed to conceptualization of the study and participated in the draft of the manuscript. AD did the data entry and analysis.

References.

1. UNICA. Innovative Medical Education [Internet]. Brussels: UNICA; 2022 [cited 2025 Jul 17]. Available from: https://www.unica-network.eu/wp-content/uploads/2022/01/eBook-Innovative-Medical-Education.pdf
2. Romer D. Do students go to class? Should they? *J Econ Perspect.* 1993; 7(3):167-74.
3. Bamuhair SS, Al Farhan AI, Althubaiti A, UR Rahman S, Al-Kadri HM. Class attendance and cardiology examination performance: a study in problem-based medical curriculum. *Int J Gen Med.* 2016; 9:1-5.
4. Kirby A, McElroy B. The effect of attendance on grade for first year economics students in University College Cork. *Econ Soc Rev.* 2003; 34(3):311-26.
5. Alghamdi A, Yamani A, Khalil A, Albarkati B, Alrehili O, et al. Prevalence, causes and impacts of absenteeism among medical students at UQU. *Education.* 2016; 6(1):9-12.

6. Eisen DB, Schupp CW, Isseroff RR, Ibrahimi OA, Ledo L, et al. Does class attendance matter? Results from a second-year medical school dermatology cohort study. *Int J Dermatol.* 2015; 54(7):807-16.
7. Doggrell SA. No apparent association between lecture attendance or accessing lecture recordings and academic outcomes in a medical laboratory science course. *BMC Med Educ*. 2020; 20:207.
8. Puntambekar V. Global trends in attendance in medical colleges and possible solutions. *Natl Med J India.* 2020; 33(5):306-7.
9. Ugwuja NE, Onu FU. The challenges and prospects of the full implementation of 75% lecture attendance policy of NUC to qualify a student for examination in Nigerian universities. *IDOSR J Comput Appl Sci.* 2018; 3(1):43-50.
10. Randa MB. An exploration of absenteeism among nursing students in the context of a South African university. *Open Nurs J.* 2020; 14:78-86.
11. Iparraguirre JL, Antón-Sancho Á, Vergara D. Lecture attendance among undergraduate business students in Egypt: an exploratory study. *Educ Sci.* 2023; 13(1):59.
12. Riaz S, Sheikh M, Khan MT, Mumtaz A, Saghir M. The association between attendance and academic performance of MBBS students of a private medical college in the subject of ophthalmology. *Pak J Ophthalmol.* 2022; 38(2):151-5.
13. Schuwirth LW, van der Vleuten CP, Donkers HH. A closer look at cueing effects in multiple-choice questions. Med Educ. 1996; 30(1):44-9.
14. Fadelelmoula T. The impact of class attendance on student performance. *Int Res J Med Med Sci.* 2018; 6(2):47-9.
15. Cheema MA, Rehman A, Khalid S, Ali SM, Khan RA. Role of attendance in academic performance of male and female medical students in pre-clinical years: a descriptive study. *J Univ Med Dent Coll.* 2022; 13(4):513-7.
16. Nevins EJ, Moori PL, Alexander L, Richards B, Bleasdale V, et al. Could attendance at medical school be improved? A prospective study of medical education at the University of Liverpool: study of attendance at a UK medical school. *Med Ed Publish.* 2016; 5:78.
17. Al Shenawi H, Yaghan R, Almarabheh A, Al Shenawi N. The relationship between attendance and academic performance of undergraduate medical students during surgical clerkship. *BMC Med Educ.* 2021; 21:207.
18. Cohall DH, Skeete D. The impact of an attendance policy on the academic performance of first year medical students taking the Fundamentals of Disease and Treatment course. *Caribb Teach Sch.* 2012; 2(2):125-34.
19. Ekwochi U, Osuorah DC, Ohayi SA, Nevo AC, Ndu IK, et al. Determinants of academic performance in medical students: evidence from a medical school in South-East Nigeria. *Adv Med Educ*

20. Khan YL, Lodhi SK, Bhatti S, Ali W. Does absenteeism affect academic performance among undergraduate medical students? Evidence from "Rashid Latif Medical College (RLMC). *Adv Med Educ Pract.* 2019; 10:999-1008.
21. Yeager L, Valenzuela S, Marino M, Carney PA. An observational study of the impact of attendance on pre-clinical undergraduate medical education performance. *Educ Res Appl.* 2018; 10:2575-7032.
22. Sharmin T, Azim E, Choudhury S, Kamrun S. Reasons of absenteeism among undergraduate medical students: a review. *Anwer Khan Mod Med Coll J.* 2017; 8(1):60-6.
23. Subramaniam BS, Hande S, Komattil R. Attendance and achievement in medicine: investigating the impact of attendance policies on academic performance of medical students. *Ann Med Health Sci Res.* 2013; 3(2):202-7.
24. Bati AH, Mandiracioglu A, Orgun F, Govsa F. Why do students miss lectures? A study of lecture attendance amongst students of health science. *Nurse Educ Today.* 2013; 33(6):596-601.
25. Khan H, Aasif HA, Noor H, Aslam F. Correlation of academic performance of medical students with their attendance. *J Rawalpindi Med Coll.* 2018; 22(S-2):89-92.
26. Deane RP, Murphy DJ. Student attendance and academic performance in undergraduate obstetrics/gynecology clinical rotations. *JAMA.* 2013; 310 (21) :2282-8.
27. Demir EA, Tutuk O, Dogan H, Egeli D, Tumer C. Lecture attendance improves success in medical physiology. *Adv Physiol Educ.* 2017; 41(4):599-603.
28. Nagappan PG, Brown S, McManus A, Sayers S, Absar S, et al. Changes in medical student attendance and its impact on student educational outcomes: a systematic review protocol. *BMJ Open.* 2024; 14(3): e078252.
29. Daud S, Javaid F. Effect of class attendance of medical students' tests performance. *Pak J Med Health Sci.* 2012; 6(2):295-7.
30. Ahmad M, Rahman FN, Shawon MM, Ali M. Effect of class attendance on medical student's academic performance-an observational study. *Faridpur Med Coll J.* 2017; 12(2):58-63.
31. Aljaffer MA, Almadani AH, Aldughaither AS, Basfar AA, Alghadir SM, et al. The impact of study habits and personal factors on the academic achievement performances of medical students. *BMC Med Educ.* 2024; 24(1):888.

Primary Healthcare Utilization: An Assessment of its Prevalence and Determinants Among Residents of Okada, Edo State, Nigeria

Esene Hendrith[1], Ehis S. Bodeno[1], Agbon-Ojeme Godwill[2], Otuomagie Felix[2], Adam Y.Vincent[3]

[1]Department of Community Medicine,
Igbinedion University Okada, Edo State, Nigeria

[2]Department of Obstetrics and Gynaecology,
Igbinedion University Okada, Edo State, Nigeria

[3]Department of Community Health,
University of Benin, Edo State, Nigeria

Corresponding Author:
Dr. Ehis S. Bodeno, (MBBS, MPH, FMCPH)
Department of Community Medicine,
Igbinedion University Okada, Edo State, Nigeria
e-mail: bodeno.ehis@iuokada.edu.ng
Tel: +23480 65472148

How to cite this article:
Esene H, Ehis SB, Agbon-Ojeme G, Otuomagie F, Adam YV:
Primary Healthcare Utilization: An Assessment of its Prevalence and Determinants Among Residents of Okada, Edo State, Nigeria
NDJMS 2025; 4(3): 19-31

Received 17th March, 2025 | **Accepted** 19th July, 2025 | **Published** 11th August, 2025

ABSTRACT

Background: *Primary healthcare (PHC) is essential for equitable health access, yet its utilisation remains inconsistent across communities in Nigeria. This study assessed the prevalence and determinants of Primary healthcare utilisation in Ovia North East Local Government Area, Edo State.*

Methods: *A community-based cross-sectional study was conducted from February to November 2024 among 380 adults selected through multistage sampling. Data were collected via an interviewer-administered questionnaire and analysed using descriptive and bivariate statistics at a 5% significance level ($p<0.05$). Ethical approval was obtained (IUTH/R.24/VOL.I/102), and informed consent was secured. Participants with poor PHC use were counselled.*

Results: *Primary healthcare utilisation was reported by 299 respondents (78.7%). Utilisation was significantly associated with age ($\chi^2 = 44.485$, $p < 0.001$), marital status ($\chi^2 = 44.768$, $p < 0.001$), education ($\chi^2 = 53.342$, $p < 0.001$), employment ($\chi^2 = 10.098$, $p = 0.006$), and income ($\chi^2 = 20.803$, $p < 0.001$). Respondents earning ≤₦50,000 were over three times more* likely to utilise Primary healthcare than higher earners (OR = 3.178; 95% CI: 1.789–5.644). Similarly, those without tertiary education (OR = 3.542; 95% CI: 1.790–7.008) and those under 40 years (OR = 0.294; 95% CI: 0.129–0.667) showed distinct utilisation patterns. Males were significantly less

likely to utilize PHC (OR = 0.370; p = 0.002), while marital status was not predictive in the multivariate model.

Conclusion: *While overall PHC utilisation was high, disparities persist by age, sex, education, and income. Improving service quality and public trust are essential for improved utilisation. Mixed-method research is recommended to explore underlying behavioural and systemic barriers.*

KEYWORDS: Health Services Accessibility, Primary Health Care, Health Services Utilization, Socioeconomic Factors, Nigeria

Background

Primary healthcare (PHC) serves as the basis of healthcare service delivery, addressing up to 90% of an individual's health needs across their lifetime.[1]These include health promotion, disease prevention, treatment, rehabilitation, and palliative care, delivered in an integrated, accessible, and people-centred manner.[2] However, over half of the global population still lack access to essential PHC services, exposing a significant gap in equitable healthcare provision.[3]This disproportion challenges the principles of Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs), particularly in low- and middle-income countries (LMICs).[4]

Scaling up the utilisation of high-quality PHC in LMICs could avert as many as 60 million deaths by 2030 and increase life expectancy by 3.7 years.[5] Achieving these gains, however, requires significant financial investment, with current estimates suggesting an additional $200-328 billion globally each year.[6] Currently, low-income countries spend an average of $3 per capita on primary healthcare, and lower-middle-income countries spend about $16. Both figures fall significantly short of the recommended minimum—$65 for low-income countries and $59 for lower-middle-income countries[5,7]. By comparison, high-income countries invest substantially more in PHC, estimated to be about 60 to 100 times more per capita, delineating the inequity in financing and resource allocation.[8]

Successful PHC models from around the world demonstrate its critical role in healthcare systems. In the United Kingdom, the National Health Service (NHS) recorded over 374 million primary care appointments in 2023, accounting for about 90% of health care appointments, and emphasise PHC's importance as the first point of contact for health concerns.[9] Similarly, Thailand has achieved near universal health coverage, reaching over 99% of its population through its District Health Systems Networks, which deliver essential services in rural areas while addressing urban healthcare challenges through a mix of public and private providers.[10]Thailand's success with PHC is reflected in its average life expectancy of 77 years, significantly exceeding the global average of 73 years.

South Africa offers a tailored approach to PHC, addressing specific health priorities such as Human immunodeficiency virus (HIV), tuberculosis, and maternal and child health, having made investments in more than 400 upgraded PHC centres, and the integration of community health workers (CHWs) into services for underserved communities.[11]In contrast, in sub-Saharan Africa, PHC utilisation remains

inconsistent, hampered by systemic barriers such as inadequate infrastructure, workforce shortages, and financial constraints.[12]Nigeria exemplifies these issues, with approximately 34,000 PHC facilities comprising 85% of the nation's healthcare infrastructure with only 20% meeting the basic operational standards due to inadequate funding, insufficient staffing, and limited essential medical supplies, as well as high out-of-pocket expenses, which account for 77% of Nigeria's total health expenditure and further hinder access.[13]Consequently, PHC utilisation in Nigeria is suboptimal, with many individuals bypassing PHC facilities for tertiary centres or traditional medicine. Multiple factors shape the utilisation of PHC services in Nigeria, ranging from individual and household characteristics to system-level issues. Socioeconomic constraints—particularly among the unemployed, those with limited education, or residents in rural areas—often limit access and health-seeking behaviours. Perceptions of poor service quality, long waiting times, lack of essential medicines, and inadequate staffing contribute to low confidence in PHC facilities.[14] These challenges push many to seek care in secondary or tertiary centres, or resort to self-medication and traditional medicines, despite the proximity and affordability of PHC services. There is also a variance in the quality of PHC distribution across the country, with key Northern states such as Abuja and Kaduna having a notably higher quantity and quality of PHC services in comparison to other parts of the country.[15]

Cultural beliefs and gender dynamics also influence PHC use, with some populations perceiving government facilities as inefficient or unfriendly. Women, especially in patriarchal settings, may be restricted from seeking care independently or may prefer female health workers who are not always available in PHC centres. Meanwhile, awareness campaigns and community engagement strategies have shown promise in boosting PHC patronage, particularly when services are delivered by trusted community health workers. Addressing these behavioural, social, and systemic barriers is essential to improve PHC utilization and move toward equitable healthcare access.

Workforce challenges also remain a critical barrier to PHC utilisation in Nigeria, with the healthcare workforce density being 1.95 per 1,000 population, significantly below the World Health Organisation's (WHO)-recommended threshold.[16]The Coronavirus 2019 (COVID-19) pandemic highlighted the fundamental role of strong PHC systems in health system resilience, as countries with strong PHC infrastructure were better able to detect and respond to the crisis while maintaining routine services. In Nigeria, however, the pandemic exposed vulnerabilities in the country's underfunded PHC system, emphasising the urgent need for sustained investment.[13] Against this backdrop, this study aimed to assess the prevalence of PHC utilisation in Okada, Edo State, and identify key factors influencing service use.

MATERIAL AND METHODS

Study Area

The study was carried out in Ovia North East Local Government Area (LGA) of Edo State, Nigeria, which encompasses several communities within its jurisdiction. The LGA is home to several PHC facilities that provide 24-hour services, including antenatal care, immunisation, Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) care, family planning, health education, as well as maternal and newborn care services Most PHCs are manned by community health extension workers, with some support from nurses, midwives, and visiting medical officers. However, many face limitations such as inadequate infrastructure, shortages of skilled personnel, and inconsistent drug supplies. Based on the 2006 census, Ovia North East LGA had a population of 155,344 and covered a land area of 2,301 square kilometres. At an annual population growth rate of 2.5%, the population is expected to rise to about 242,071 by the end of 2024. The region is diverse, with communities such as Okada, Uhen, Utese, and others, inhabited by various ethnic groups including the Bini, Igbo, Yoruba, Urhobo, and more. This community-based study was conducted within this dynamic and culturally rich region. The LGA has a significant Christian population, with smaller groups practicing Islam and African Traditional Religion. It is also home to Igbinedion University and a variety of economic activities, including saw milling, which shapes the local economy.

Study Population

This community-based study focused on all individuals aged 18 years and above who had resided in Ovia North East LGA for at least one year before the study. This population was selected due to their potential awareness and experiences with the utilisation of PHC services within the local government area. The inclusion of individuals 18 years and above ensured that the study captured the perspectives of adults, who are the primary users of health services, particularly in terms of decision-making and healthcare-seeking behaviour.

Sampling Technique

The minimum sample size was calculated using the formula for single population proportions, with a 95% confidence level, 5% margin of error, and a PHC utilisation prevalence of 42.5% from a similar study. This yielded a sample size of 376, which was adjusted to 418 to account for a 10% non-response rate. Thereafter, a three-stage sampling technique was used to select the study sites and participants. In the first stage, three communities—Okada, Iguomo, and Egbeta—were selected from Ovia North East LGA using simple random sampling. The second stage involved stratified sampling with proportional allocation based of the sample size on their populations: Okada (25,479): 339 respondents, Iguomo (2,540): 34 respondents and Egbeta (3,413): 45 respondents. In the final stage, residential clusters such as streets and compounds within each community were randomly selected using a table of random numbers. Data collectors approached households within the selected clusters, starting from a central location (e.g., a market square or town hall) and moving systematically house-to-house. In each household, the first eligible adult encountered was invited to participate. If more than one eligible adult was present, one was randomly selected. This continued until the required number of respondents for each community was reached. Of the 418 individuals approached, data for 380 eligible participants were analyzed, giving a response rate of 90.9%.

Data Collection

Data for this study was collected using structured, interviewer-administered questionnaire, which was designed to capture sociodemographic characteristics, prevalence of PHC utilisation, and determinants of PHC utilisation. The questionnaire, adapted from existing instruments, was tailored to the study context.[17,18]The first section of the questionnaire collected data on participant's sociodemographic characteristics such as age, sex, marital status, education level, occupation, and religion. These variables were important for identifying potential factors that might influence PHC utilisation. The second section assessed the prevalence of PHC utilisation, asking respondents about their usage of PHC services in the past year, the types of services accessed, and the frequency of visits. This provided a clear picture of the proportion of the population utilising PHC services and the factors that affected their usage. The final section focused on the determinants of PHC utilisation, exploring factors like socioeconomic status, proximity to healthcare facilities, service quality, and cultural beliefs. The aim was to identify barriers to PHC usage, such as financial constraints, transportation issues, or negative perceptions of services. A pre-test was conducted in Okha community, Ovia South West LGA, with 42 participants. Feedback from the pre-test led to adjustments in the questionnaire to ensure clarity and relevance for the main study. This approach ensured the data collection tool was both reliable and valid for the research objectives. Data collection took place over a three-week period within this time frame.

Ethical Considerations

Ethical clearance for this study was granted by the Ethical and Research Committee of Igbinedion University, Okada (Ethical clearance certificate number: IUTH/R.24/VOL.I/102). Informed consent was obtained from all participants, ensuring they were fully aware of the study's aims and that participation was voluntary. Confidentiality was maintained throughout the study, with no personal identifiers included in the questionnaires. Participants were informed of their right to withdraw from the study at any time without consequence. All data collected were securely stored, with access restricted to the research team. At the end of data collection, participants identified as having poor utilisation of PHC services were counselled on the importance of regular and timely use of available primary healthcare facilities.

Data Analysis

The data was analysed using IBM SPSS Statistics version 27. Descriptive statistics, including frequency and percentage distributions, were used to summarise the data. Univariate and bivariate analyses were conducted to explore associations between variables, using chi-square tests. A p-value of less than 0.05 was considered significant. Results were presented in frequency tables and pie charts.

Results

Sociodemographic characteristics of respondents

The participants were aged <18 to >50 (mean 35.1 ± 13.8) years, with 32.9% (125) aged 20–29 years and 24.2% (92) aged 30–39 years. Those aged ≥50 years were 69 (18.1%). There were 235 (61.8%) females and 145 (38.2%) males with 49.2% (187) married; 162 (42.6%) single, and 25 (6.6%) widowed.

Educational attainment was mainly secondary (166; 44.7%) and tertiary (152; 40.0%) with only 6 (1.6%) having no formal education. Most respondents were employed (268; 70.5%), while 57 (15.0%) were students and 55 (14.5%) unemployed. Regarding income, 173 (45.6%) earned below ₦30,000, 81 (21.3%) earned ₦30,000–₦49,999, 82 (21.6%) earned ₦50,000–₦99,999, and 44 (11.5%) earned above ₦100,000.

Prevalence of PHC utilisation

Out of 380 respondents, 299 (78.7%) had ever visited a PHC facility, while 81 (21.3%) had not. Among those who had used PHC, 164 (54.8%) last visited more than six months ago, 92 (30.8%) within the past 1–6 months, and 43 (14.4%) within the last month.

Factors affecting the utilisation of PHC

Primary health care facility utilisation was significantly associated with age, marital status, education, employment, and income ($p < 0.05$). All respondents aged 18–19 and 40–49 years reported PHC use, while utilisation was lowest among those aged 30–39 years (56; 60.9%) ($\chi^2 = 44.485$, $p < 0.001$). Married (162; 86.6%) and widowed (25; 100.0%) participants had higher utilisation compared to singles (112; 69.1%) and divorced individuals (0.0%) ($\chi^2 = 44.768$, $p < 0.001$).

Primary health care facility use was highest among those with only primary education (56; 100.0%) and lowest among tertiary-educated respondents (102; 67.1%) ($\chi^2 = 53.342$, $p < 0.001$). Employment status was also significant ($\chi^2 = 10.098$, $p = 0.006$), with higher utilisation among the unemployed (49; 89.1%) compared to students (37; 64.9%).

Income was a strong determinant ($\chi^2 = 20.803$, $p < 0.001$) of utilisation with those earning ≤₦50,000 having greater PHC use (217; 85.4%) than those earning above ₦50,000 (82; 65.1%). Although bivariate analysis showed no statistically significant association between sex and PHC utilisation ($p = 0.116$), females reported slightly higher usage (191; 81.3%) than males (108; 74.5%). However, in the multivariate model, females were significantly more likely to use PHC services compared to males (OR = 2.703; 95% CI: 1.423–5.128; $p = 0.002$). Similarly, respondents under 40 years of age had significantly lower odds of utilising PHC services compared to those aged 40 and above (OR = 0.294; 95% CI: 0.129–0.667; $p = 0.003$).

Educational level remained a strong predictor of PHC utilisation. Respondents with non-tertiary education (i.e., primary or secondary) were over three times more likely to utilise PHC than those with tertiary education (OR = 3.542; 95% CI: 1.790–7.008; $p < 0.001$). Notably, none of the six participants without formal education reported using PHC services, though their small number limited statistical inference.

Similarly, income was a significant determinant of PHC utilisation with those earning ₦50,000 or less being over three times more likely to use PHC services compared to higher-income earners (OR = 3.178; 95% CI: 1.789–5.644; $p < 0.001$).

Marital and employment status were not significantly associated with PHC utilisation in the adjusted model ($p > 0.05$).

Table 1: Sociodemographic characteristics of the study participants

Variables	Frequency (n=380)	Percentage (%)
Age (years)		
18 - <20	31	8.2
20 - <30	125	32.9
30 - <40	92	24.2
40 - <50	63	16.6
≥50	69	18.1
Mean Age (± S.D)	**35.1 ±13.8**	
Sex		
Male	145	38.2
Female	235	61.8
Marital Status		
Single	162	42.6
Married	187	49.2
Divorced	6	1.6
Widowed	25	6.6
Highest Level of Education		
Primary	56	14.7
Secondary	166	44.7
Tertiary	152	40.0
No formal education	6	1.6
Occupation		
Employed	268	70.5
Unemployed	55	14.5
Schooling	57	15.0
Monthly Income (₦)		
<30,000	173	45.6
30,000-<50,000	81	21.3
50,000-<100,000	82	21.6
≥100,000	44	11.5

Table 2: Prevalence of PHC utilisation

Variables	Frequency (n=380)	Percentage (%)
Ever visited a PHC		
Yes	299	78.7
No	81	21.3
Time of last visit		
Less than a month	43	11.3
1-6 months	92	24.2
More than 6 months	164	43.2
Never	81	21.3

Table 3: Factors associated with PHC utilisation

Variables	PHC utilisation		OR (95% CI)	χ^2	p-value
	Yes (n = 299) n (%)	No (n=81) n (%)			
Age					
18 - <20	31 (100.0)	0 (0.0)		Fischer's exact	<0.001*
20 - <30	99 (79.2)	26 (20.8)			
30 - <40	56 (60.9)	36 (39.1)			
40 - <50	63 (100.0)	0 (0.0)			
≥50	50 (72.5)	19 (27.5)			
Sex					
Male	108 (74.5)	37 (25.5)	0.672 (0.409-1.105)	2.468	0.116
Female	191 (81.3)	44 (18.7)			
Marital Status					
Single	112 (69.1)	50 (30.9)		Fischer's exact	<0.001*
Married	162 (86.6)	25 (13.4)			
Divorced	0 (0.0)	6 (100.0)			
Widowed	25 (100.0)	0 (0.0)			
Level of education					
No formal education	0 (0.0)	6 (100.0)		Fischer's exact	<0.001*
Primary Education	56 (100.0)	0 (0.0)			
Secondary Education	141 (84.9)	25 (15.1)			
Tertiary Education	102 (67.1)	50 (32.9)			
Employment status					
Employed	213 (79.5)	55 (20.5)		10.098	0.006*
Unemployed	49 (89.1)	6 (10.9)			
Schooling	37 (64.9)	20 (35.1)			
Monthly Income (₦)					
≤50,000	217 (85.4)	37 (15.6)	3.147 (1.898 – 5.218)	20.803	<0.001*
>50,000	82 (65.1)	44 (34.9)			

*** Significant**

Table 4: Predictors of PHC utilization

Predictors	β (Regression co-efficient)	Odds Ratio	95% CI for OR		p-value
			Lower	Upper	
Age (years)					
<40	-1.225	0.294	0.129	0.667	0.003**
≥ 40*		1			
Sex					
Female	0.994	2.703	1.423	5.128	0.002**
Male*		1			
Marital Status					
Never married	-0.120	0.887	0.429	1.834	0.746
Ever married*		1			
Level of education					
Non-tertiary	1.265	3.542	1.790	7.008	<0.001**
Tertiary*		1			
Employment					
Employed	0.197	1.217	0.628	2.359	0.560
Student/Unemployed*		1			
Monthly income (₦)					
≤50,000	1.156	3.178	1.789	5.644	<0.001**
>50,000*		1			

Reference category, ** Statistically significant, R^2 = 13.9% - 21.6%

Discussion

Although there was a high rate of primary healthcare (PHC) utilisation among residents of Ovia North East LGA, the use of PHC services was not evenly distributed across demographic groups, highlighting the influence of socioeconomic and individual-level factors in shaping healthcare-seeking behaviour. The levels of PHC utilisation observed in our study are comparable to those reported in a study conducted in Kaduna, where nearly all respondents utilised PHC services.[18] This similarity may reflect improvements in PHC development across both regions. While the rate reported in Kaduna is somewhat higher, such variation across regions may be influenced by contextual differences in healthcare delivery models, health awareness, or community engagement, which were not directly examined in this study. Nonetheless, the high uptake in both settings reinforces the relevance of PHC in meeting population-level healthcare needs in Nigeria. Future research comparing system-level drivers such as service availability, accessibility, and perceived quality would provide clearer insight into regional utilisation disparities.

Age emerged as a significant determinant of PHC utilisation. While younger adults may seek care more frequently due to reproductive health needs and greater exposure to health messaging via schools or youth-targeted programmes, the decline observed among middle-aged individuals may stem from time constraints, work-related responsibilities, or a preference for private healthcare perceived as faster or

more effective.[19,20] Cultural norms that equate midlife with strength and self-reliance may also discourage formal healthcare use during this stage. This suggests a need for more flexible, workplace-friendly PHC services and community-based sensitisation that normalises routine care-seeking in mid-adulthood.

Gender differences were also evident, with females significantly more likely to utilise PHC services than males, aligning with broader evidence suggesting that women, due to maternal health responsibilities and greater interaction with the health system, are more frequent users of PHC.[21] Their frequent contact with the healthcare system for antenatal care, family planning, and child health services highlights the central role of maternal health responsibilities in shaping PHC engagement among women.

Marital status was significantly associated with PHC utilisation, with higher usage among married and widowed respondents. This likely reflects increased demand for maternal and reproductive health services, which our study identified as the main reason for PHC use.

While almost all respondents with only primary education utilised PHC services, utilisation declined progressively with higher education levels, with individuals without tertiary education being three times more likely to use PHC services than those with tertiary education. This contrasts with studies showing higher utilisation among more educated individuals, likely due to health literacy and awareness.[18,22] The inverse trend in this setting may reflect differences in health-seeking preferences or facility choice, with more educated individuals possibly opting for private or specialist care. However, this study did not assess the types of health conditions prompting PHC use, so it remains unclear whether the nature of health needs differs significantly across educational levels. Further research is warranted to understand the motivations and constraints driving PHC choices across different educational groups.

Income emerged as a significant predictor of PHC utilisation, with lower-income individuals demonstrating higher levels of use compared to their higher-income counterparts. These findings mirror trends observed in other studies, where affordability makes PHC a preferred option for low-income groups.[17] Although this study did not explore reasons for utilisation, the observed pattern reinforces the relevance of PHC as a vital access point for underserved populations. Strengthening the quality and reach of PHC services remains essential to ensure that these facilities can continue to meet the needs of economically vulnerable groups.

Conclusion

This study revealed high PHC utilisation in Ovia North East, particularly among older adults, lower-income earners, and those with less education. However, lower uptake among middle-aged and more educated groups suggests disparities in healthcare preferences. Addressing this requires further investigation into the motivations and perceptions influencing healthcare choices, especially among underutilising subgroups, alongside sustained efforts to strengthen PHC quality and responsiveness across all demographic strata.

Limitations

No further diagnostic or confirmatory tools were used to confirm or refute the crude findings generated from the used General Health Questionnaire and as such, the prevalence and determinants of utilisation of primary health care may be over or under-reported. The lack of qualitative components, such as facility data, key informant interviews (KIIs), or focus group discussions (FGDs), limited deeper exploration of contextual factors influencing utilisation. A mixed-methods approach would have provided more comprehensive insights.

Financial support and sponsorship: Nil.

Conflict of interest: There are no conflicts of interest in this study.

References

1. United States Agency for International Development (USAID). Primary Health Care. https://www.usaid.gov/global-health/health-systems-and-innovation/health-systems-strengthening/primary-health-care. Accessed July 2025.
2. The Lancet Regional Health – Europe. Strengthening primary health care to achieve universal health coverage. *Lancet Reg Health Eur.* 2024;39:100897. doi:10.1016/j.lanepe.2024.100897
3. World Health Organization. World Bank and WHO: Half the world lacks access to essential health services, 100 million still pushed into extreme poverty because of health expenses. Published December 13, 2017. Accessed March 2025. https://www.who.int/news/item/13-12-2017-world-bank-and-who-half-the-world-lacks-access-to-essential-health-services-100-million-still-pushed-into-extreme-poverty-because-of-health-expenses
4. Chotchoungchatchai S, Marshall AI, Witthayapipopsakul W, Panichkriangkrai W, Patcharanarumol W, Tangcharoensathien V. Primary health care and sustainable development goals. *Bull World Health Organ.* 2020;98(11):792-800. doi:10.2471/BLT.19.245613
5. Mwai D, Hussein S, Olago A, Kimani M, Njuguna D, Njiraini R, et al. Investment case for primary health care in low- and middle-income countries: a case study of Kenya. *PLoS One.* 2023;18(3):e0283156. doi:10.1371/journal.pone.0283156
6. World Health Organization. Primary health care. https://www.who.int. Accessed July 2025.
7. Correction to Lancet Glob Health 2022;10:e715–72. *Lancet Glob Health.* 2023;11(4):e504. doi:10.1016/S2214-109X(23)00035-9
8. Erlangga D, Powell-Jackson T, Balabanova D, Hanson K. Determinants of government spending on primary healthcare: a global data analysis. *BMJ Glob Health.* 2023;8(11):e012562. doi:10.1136/bmjgh-2023-012562
9. NHS England.*NHS England Annual Report and Accounts 2022/23.* Published 2024. Accessed March 2025. https://www.england. nhs.uk/ publication/nhs-england-annual-report-and-accounts-2022-23/
10. Sumriddetchkajorn K, Shimazaki K, Ono T, Kusaba T, Sato K, Kobayashi N. Universal health coverage and primary care, Thailand. *Bull World Health Organ.* 2019;97(6) :415-422.doi:10.2471/BLT.18. 223693

11. Naidoo N, Matlakala N, Railton J, Khosa S, Marincowitz G, Igumbor JO, et al. Provision of HIV services by community health workers should be strengthened to achieve full programme potential: a cross-sectional analysis in rural South Africa. *Trop Med Int Health.* 2019;24 (4):401-408. doi:10.1111/ tmi.13204
12. Odhus CO, Kapanga RR, Oele E. Barriers to and enablers of quality improvement in primary health care in low- and middle-income countries: a systematic review. *PLOS Glob Public Health.* 2024;4 (1):e0002756.doi:10.1371/journal. pgph.0002756
13. Abubakar I, Dalglish SL, Angell B, Sanuade O, Abimbola S, Adamu AL, et al. The Lancet Nigeria Commission: investing in health and the future of the nation. *Lancet.* 2022;399(10330):1155-1200.doi: 10.1016/S0140-6736(21)02488-0
14. Josiah BO, Enebeli EC, Duncan BA, Anukam LU, Ncube F, Josiah CC, et al. Perceptions of healthcare finance and system quality among Nigerian healthcare workers. *PLOS Glob Public Health.* 2024;4(11):e0003881. doi:10.1371/ journal.pgph.0003881
15. Ogundeji Y, Abubakar H, Ezeh U, Hussaini T, Kamau N, Love E, et al. An assessment of primary health care costs and resource requirements in Kaduna and Kano, Nigeria. *Front Public Health.* 2023; 11:1226145. doi:10.3389/fpubh. 2023.1226145
16. Adeloye D, David RA, Olaogun AA, Auta A, Adesokan A, Gadanya M, et al. Health workforce and governance: the crisis in Nigeria. *Hum Resour Health.* 2017;15(1):32-39. doi:10.1186/s12960-017-0205-4
17. Nwokoro UU, Ugwa OM, Ekenna AC, Obi IF, Onwuliri CD, Agunwa C. Determinants of primary healthcare services utilisation in an under-resourced rural community in Enugu State, Nigeria: a cross-sectional study. *Pan Afr Med J.* 2022;42:209-216. doi:10.11604/ pamj.2022.42.209.33317
18. Otovwe A, Elizabeth S. Utilization of primary health care services in Jaba Local Government Area of Kaduna State Nigeria. *Ethiop J Health Sci.* 2017;27(4):339-343.doi:10.4314/ ejhs.v27i4.5
19. Chueiri PS, Gonçalves MR, Hauser L, Wollmann L, Mengue SS, Roman R, et al. Reasons for encounter in primary health care in Brazil. *Fam Pract.* 2020;37(5):648-654.doi:10. 1093/fampra/cmaa029
20. Olagundoye O, van Boven K, van Weel C. International Classification of Primary Care-2 coding of primary care data at the general out-patients' clinic of General Hospital, Lagos, Nigeria. *J Family Med Prim Care.* 2016;5(2):291-295. doi:10.4103 /2249-4863.192341
21. Carretero MT, Calderón-Larrañaga A, Poblador-Plou B, Prados-Torres A. Primary health care use from the perspective of gender and morbidity burden. *BMC Womens Health.* 2014;14(1):145-150. doi:10. 1186/s12905-014-0145-2
22. Sule SS, Ijadunola KT, Onayade AA, Fatusi AO, Soetan RO, Connell FA. Utilization of primary health care facilities: Lessons from a rural community in southwest Nigeria. *Niger J Med.* 2008;17(1):98-106. doi:10.4314/njm.v17i1.37366

Prevalence and Social Determinants of Teenage Pregnancy in Bayelsa State

Maureen A. Okumoko[1], Vivian C. Okeke[2], Uche Onwudiegwu[3]

[1]Niger Delta University Teaching Hospital, Okolobiri, Bayelsa State

[2]National Obstetrics Fistula Center, Abakaliki, Ebonyi state

[3]Bayelsa Medical University, Yenagoa, Bayelsa State

***Corresponding Author*:**
Okumoko A. Maureen
Niger Delta University Teaching Hospital, Okolobiri
E-mail: maureenokumoko04@gmail.com
Tel: +234 703 610 7090

How to cite this article:
Okumoko MA, Okeke VC, Onwudiegwu U:
Prevalence and Social Determinants of Teenage Pregnancy in Bayelsa State
NDJMS 2025; 4(3): 32-43

Received 12th June, 2025 | **Accepted** 30th July, 2025 | **Published** 11th August, 2025

ABSTRACT

Background*: Teenage pregnancy remains a pressing public health concern with far-reaching socio-economic and cultural implications, particularly in Nigeria. The prevalence of teenage pregnancy varies between states and countries with varying risk factors. This study aims to determine the prevalence of teenage pregnancy and social determinants associated with teenage pregnancy in Bayelsa State, Nigeria.*

Methods: *This was a cross-sectional descriptive study conducted, using a questionnaire adapted from the World Health Organisation illustrative – questionnaire for interview survey with young people. Using a stratified random sampling technique, 2,644 teenagers aged 13-19 years were recruited to participate in the study. Frequencies and percentages were calculated and tables were used to present the results. Logistic regression was used to define the relationship between teenage pregnancy and selected sociodemographic factors. The level of statistical significance was set at $p < 0.05$*

Results: *The prevalence of teenage pregnancy in Bayelsa State, south-south Nigeria was 22.5%. A significantly higher proportion of teenage pregnancy occurredin those aged 13-15 years compared to their older counterparts ($p<0.001$). Teenage pregnancy was found to be significantly higher in those*

who attended public schools than private schools (p<0.001). Teenagers who lived in the urban areas, belonged to monogamous and high socioeconomic class families had a reduced likelihood of being pregnant when compared to their counterparts (p<0.001).

Conclusion: *This study underscores the urgent need for a multi-sectoral approach to addressing teenage pregnancy. Interventions must go beyond merely providing information on contraception and must also tackle the structural barriers that perpetuate teenage pregnancies.*

Keywords: Teenage pregnancy, Prevalence, Social determinants, Bayelsa State, Nigeria

INTRODUCTION

Teenage pregnancy according to World Health Organization, is pregnancy in young women aged 13–19 years and is a major global public health concern that has dire social, economic, and health consequences.[1] During the teenage years, the individual progresses from the appearances of secondary sexual characteristics to full sexual maturity and within this period, psychological and emotional processes develop from those of a child to those of an adult.[2] The teenager also transits from being dependent socio-economically to one of relative independence. The culture of teenage pregnancy has decreased in high-income nations but is still prevalent in low and middle-income countries like Nigeria and South Africa.[3,4] Teenage birth incidence has been reported high in these countries as about 90% of teenage childbearing is attributed to reasons such as; low socioeconomic class, cultural, and health factors.[4] Overall, teenage pregnancy levels are considerably high in Nigeria, ranking in the third place in Sub-Saharan Africa,[3,4] though there are regional variations in Nigeria. In developed climes like the United States of America (USA), teenage pregnancy birth rates have dramatically declined over the past several decades,[4] however, disparities still exist in the rates of teenage pregnancies amongst the African American and Hispanic youths as these ethnic groups contribute to 57% of teenage pregnancies in the USA.[4] Poverty, lack of education and quality health care have been shown to contribute to this increase. Subsistence farming and fishing are primary activities in Bayelsa state accompanied by very high youth and in particular, young women and girls' poverty rate.[5] This is because such tedious jobs as farming and fishing are majorly left for the menfolk and elderly who are expected to cater for them.[5] This social factor implies that due to economic difficulties, households force teenagers into early marriages or relationships invariably promoting teenage pregnancies. Several studies[4-6] report progressive, giant differences in the incidence of teenage pregnancy and this is attributed to the fact that skills and career openings in teaching, corporate business and other sectors for young, unmarried females are rare in the rural-settings of any community.[4,5]

Furthermore, some people in the Izon culture comprising izon speaking areas in Niger Delta region, specifically in Bayelsa, Delta and Rivers states, develop other related beliefs about early marriage and childbearing which exacerbate the problem.[7] For instance, these cultures embrace teenage pregnancy as a norm and as a result they reject attempts that go

against the tide when preventing teenage pregnancy.[5,7] Teenage pregnancies are often as a result of coitus with their first partner, who is sometimes of the same age and usually not more advantaged socially.[6]

Other than low socio-economic and cultural factors, family structure and inadequate or lack of monitoring from parents contributes to high teenage pregnancy in Bayelsa. Young girls in single-parent homes, households with family conflict or homes where the mother also had teenage pregnancy, are at higher risk of engaging in early sexual behaviours, and or unwanted pregnancies due to the probable absence of proper supervision or encouragement.[6,7] The Nigeria Demographic Health Survey reported that there are negative consequences associated with child bearing in the teenage years, especially to the life of the young mother and her baby.[7]

In all, teenage pregnancy in Bayelsa State continues to be multivariate, which includes socio-economic and cultural dimensions, as well as infrastructural challenges. Maternal malnutrition, foetal congenital malformations, maternal anaemia, twin pregnancy, preterm birth, preeclampsia, eclampsia, maternal infections are some complications that may occur and as such, pregnant teenage girls are more likely to drop out of school.[2-4] Teenage pregnancy is rife and can have huge consequences for the health, productivity, and future of the Niger Delta region of which Bayelsa state is a part. This study therefore, aims to offer specific findings that will hopefully guide the design of special prevention strategies and policies, which will greatly enhance the existing literature on teenage pregnancy in Bayelsa State and comparable settings.

MATERIALS AND METHOD

Study Area

This school-based study was carried out between November, 2024 and March, 2025 in three (3) randomly selected, local government areas of Bayelsa State namely; Kolokuma/Opokuma, Yenagoa and Sagbama.

Bayelsa is located in the South-South geo-political zone, the core of the Niger Delta area of the country and was created in 1996.[8] Bayelsa state has an area of 10,773 square kilometres, a population of about 3,724,000 as at 2024 (from the 2006 national population census projection) and eight Local Government Areas with Yenagoa town as the state capital.[9] The 2024 adolescent population projection from 2006 national population census, at annual growth rate of 3% of 176,197 is 271,345.[9] The main inhabitants of Bayelsa state are Ijaw (Izon) along with Isoko and Urhobo people. The people are artisans, civil servants, traders, subsistence farmers, fishermen and lumberjacks.[8]

Study design

This was a cross sectional analytical study. A multistage sampling technique was used to select the representative samples. Simple random sampling was used to select the three (3) local government areas and secondary schools used. The names of the 8 LGAs were written on separate pieces of paper and put in a bag, an observer picks a piece of paper without returning it to the bag till the 3 LGAs were picked. Based on the number of private and public schools in each of the selected LGAs, schools were proportionately selected (in a ratio of ≈1:1) using a computer generated table of random numbers.Ssystematic sampling

was used to recruit participants from the selected schools. A list of all secondary schools in Kolokuma/Opokuma, Yenagoa and Sagbama LGA was obtained from the post – primary school management board and the ministry of education. The schools were stratified into public and private secondary schools according to their location-rural or urban. The dependent and independent variables were determined.

Study Population

The target group for this study comprised all female adolescents, 13-19 years attending secondary school and residing in both rural and urban communities in Bayelsa State, south-south, Nigeria. Female teenagers who have resided in the selected local government area for at least 6 months and those who have ever been pregnant or not were included in this study while those teenagers whose parents/guardians did not give consent for participation in the study were excluded.

Sample size

A minimum sample size was calculated with the following formula:

$$n = \frac{Z^2P}{e^2}$$

Where,

n = Sample size
Z = Corresponding to 95% confidence interval (1.96)
P = Prevalence of teenage pregnancy in a similar study by Ayuba & Gani,[10] which was 6.2%
e = Level of precision – 10% = 0.1

$$n = \frac{1.96^2X6.2}{0.1^2}$$

$$n = \frac{3.8416X6.2}{0.01^2}$$

$$n = 2381.79 = 2382$$

The adjustment factor was calculated with the formula below:

$$q = \frac{1}{1-f}$$

Where q is the adjustment factor and f the non-response rate which is 10% (0.1) in this environment.

$$q = \frac{1}{1 - 0.1}$$

$$q = \frac{1}{0.9}$$

$$q = 1.11$$

Hence, adjusted minimum sample size was given as 2382 participants multiplied by the adjustment factor of 1.11=2644 participants.

Adjusting for non-response rate, a total sample size of 2644 was obtained.

Data collection

Data was collected from female students attending secondary school in the selected local government areas using a structured, self-administered questionnaire for interview survey which was adapted from the WHO Illustrative questionnaire for interview – surveys with young people. Information on sociodemographic characteristics of the participants as well as information on the parents and family were obtained. Socioeconomic stratification was done based on the Oyedeji[9] classification which used occupation and highest educational status of the parents.

Data Analysis

Data was coded into the Statistical Package for Social Sciences (SPSS) version 25 and analysed. Results are presented in tables as frequencies, percentages with confidence interval set at 95% and statistical significance at $p<0.05$. Logistic regression was used to determine the relationship between teenage pregnancy and some social determinants.

Ethical consideration

Ethical clearance for this study was obtained from the Ministry of Education and Ministry of Health with reference numbers MOE/PRS/868/Vol.1 and BSHREC/Vol.1/24/05/1 respectively.
Informed consent was obtained from the principals of selected schools and from parents of selected participants. Assent was also obtained from recruited participants.

RESULTS

Sociodemographic characteristics of participants

Two thousand six hundred and forty – four (2644) teenagers were recruited for this study. The mean age of all the participants was 16.4 ±1.6 years (Table I). Sixty-seven percent (67%) lived in urban areas, 40.7% belonged to the lower socioeconomic class, and majority of the participants (41%) were from polygamous families.

Table I: Sociodemographic characteristics of participants

Sociodemographic Characteristics	No. of respondents (N=2,644)	
	N	%
Age		
13-15 years	912	34.5
16-18 years	1508	57.0
19 years	224	8.5
Type of School		
Public	1843	69.7
Private	801	30.3
Place of residence		
Urban	1777	67.2
Rural	867	32.8
Family Type		
Monogamous	945	35.7
Polygamous	1086	41.1
Single/Separated/Divorced	613	23.2
Socioeconomic Class (SEC) of parents		
Lower SEC	892	33.7
Middle SEC	1077	40.7
Upper SEC	675	25.5

Educational level and occupation of participants' parents

Table II reveals that the highest percentage of participants' parents (31.7% of fathers and 29.3% of mothers) had tertiary education. Concerning occupation of the parents, most of them (28.7% of fathers and 27.8% of mothers) were junior grade civil servants.

Table II: Educational level and occupation of participants' parents

Characteristic of Participants	Father (N =2644)		Mother (N=2644)	
	N	%	N	%
Highest educational level of parents				
University	567	21.4	481	18.2
Post-secondary education	839	31.7	774	29.3
Secondary education	682	25.8	555	20.9
Primary education	381	14.4	668	25.3
No formal education	175	6.6	166	6.3
Occupation of parents				
Senior public servant/professional /manager/ contractor/large scale trader	452	17.1	547	20.7
Intermediate grade public/civil servant/ senior schoolteacher	421	15.9	588	22.2
Junior grade public civil servant/ Junior schoolteacher/driver (artisans)	736	27.8	759	28.7
Petty trader /labourers/messengers	688	26.0	687	26.0
Unemployed/homemaker/student	347	13.1	63	2.4

Prevalence of teenage pregnancy

Figure 1 shows that out of the two thousand six hundred and forty-four (2644) participants, five hundred and ninety-four (594) participants admitted having been pregnant at a point in time, giving a prevalence rate of 22.5% among the study participants.

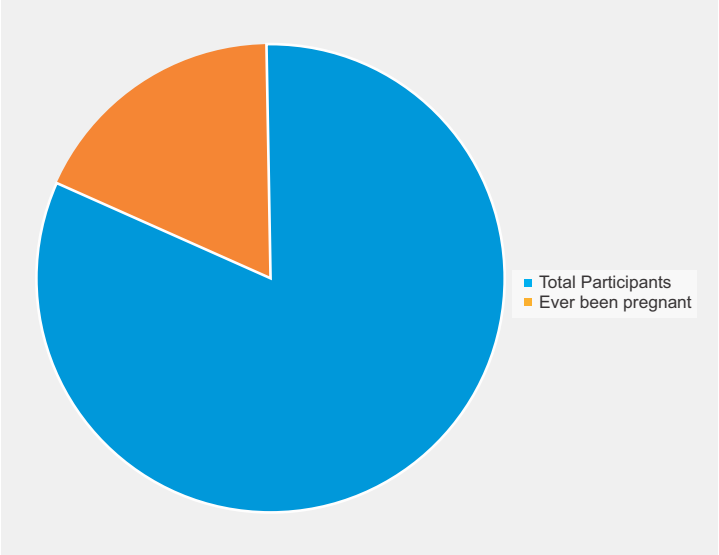

Figure 1: Diagram showing total number of participants and those who have been pregnant

Table III shows that majority of the teenagers who had ever been pregnant 55.2% (328) were aged 13 – 15 years. Of this number, majority, 67.7% and 58.9% attended public schools and were from single parent/separated or divorced families respectively. More than half (55.7%) resided in the rural areas while 51.7% of the participants' parents were of the lower socioeconomic class.

Table III: Prevalence of teenage pregnancy in Bayelsa State

Variables	No. of respondents (N=594)	
	N	%
Age		
13-15 years	328	55.2
16-18 years	102	17.2
19 years	164	27.6
Type of School		
Public	402	67.7
Private	192	32.3
Place of residence		
Urban	263	44.3
Rural	331	55.7
Family Type		
Monogamous	36	6.1
Polygamous	208	35.0
Single/Separated/Divorced	350	58.9
Socioeconomic Class (SEC) of parents		
Lower SEC	307	51.7
Middle SEC	225	37.9
Upper SEC	62	10.4

Prevalence of teenage pregnancy by age and social determinants

Table IV shows that there was a significant difference in the likelihood of occurrence of teenage pregnancy in those teenagers aged 13-15 years, 16-18 years ($p<0.001$, OR-0.87; 95% CI: 0.52-1.16) and ($p=0.000$, OR-0.36;0.28-0.74) respectively. Those participants who lived in the urban areas or belonged to monogamous families had a reduced likelihood of being pregnant ($p<0.001$, OR-1.22; 95%CI: 0.75-1.65) and ($p<0.001$, OR-0.82; 95%CI: 0.79-1.45) respectively.

Table IV: Prevalence of teenage pregnancy by age and social determinants

Variables	No. of respondents (N=594)		UOR(95%CI)	P value
	N	%		
Age				
13-15 years	328	55.2	0.87(0.52-1.16)	<0.001**
16-18 years	102	17.2	0.36(0.28-0.74)	0.000**
19 years*	164	27.6	RC	
Type of School				
Public	402	67.7	1.01(0.58-1.14)	<0.001**
Private*	192	32.3	RC	
Place of residence				
Urban	263	44.3	1.22(0.75-1.65)	<0.001**
Rural*	331	55.7	RC	
Family Type				
Monogamous	36	6.1	0.82(0.79-1.45)	<0.001**
Polygamous	208	35.0	1.38(0.60-2.16)	<0.004
Single/Separated/Divorced*	350	58.9	RC	
Socioeconomic Class (SEC) of parents				
Lower SEC	307	51.7	1.15(0.81-1.71)	<0.001**
Middle SEC	225	37.9	0.96(0.45-1.94)	0.001**
Upper SEC*	62	10.4	RC	

*RC-Reference Category, **significant p value, UOR-Unadjusted Odds Ratio, CI- Confidence Interval

DISCUSSION

The purpose of this study was to determine the prevalence and social determinants of teenage pregnancy in Bayelsa State. This study found that the prevalence of teenage pregnancy in Bayelsa state was 22.5%. A higher proportion of teenage pregnancy was seen in the teenagers between 13-15 years, this could be as a result of early sexual debut, inadequate or lack of sexual and reproductive health education. This finding was also found to be high in similar studies carried out by Kassa et al.,[3] and Envuladu et al.[6] in Nigeria and Akella and Jordan[4] in females 15-19 years old in the USA.Although, this finding contradicts that of Ayuba and Gani,[10] who in their study of sociodemographic determinants of teenage pregnancy in the Niger-Delta of Nigeria in 2012, found that teenage pregnancy was more prevalent amongst older teenagers, 18- 19years. This may be due to present day increased exposure to social media and unsupervised access to sexually prolific contents that predispose these younger teenagers to experiment amongst themselves. Teenagers whose parents fall into the lower SEC were also found to have a higher pregnancy rate as compared to their counterparts in the middle and high SEC.[12,13] This finding could be attributed to the fact that teenagers at this age, face the challenges of affording their basic needs especially if their parents are in the lower SEC, exposing them to having sexual relationships with those who can cater for their needs.[13]

It was also found that majority of the teenagers who attended public secondary schools and/or lived in the rural areas have been pregnant at a given time. This finding could be plausibly explained by the possible lack or inadequate supervision of teenagers attending public schools,[13-15] coupled with the belief that those residing in the rural areas are culturally ingrained with the impression that teenage pregnancy promotes and invariably confirms fertility and helps to ensure financial security, even if the pregnancy is out of wedlock.[15] Ezenwaka et al., in their study, exploring factors constraining utilization of contraceptive services among adolescents in south eastern Nigeria, had comparable findings, in that girls from rural communities are least likely to have access to adequate sexual and reproductive health services that provide adequate and explicit information on contraceptive use[16] its advantages in preventing unwanted pregnancy and promoting sexual and reproductive health.[16,17]

This study further found that a large number of teenagers from single parent, separated or divorced homes had been pregnant. This may be because girls born into homes, or growing up in homes especially, without a father figure, tend to spend a great amount of time trying to seek out and obtain the love and affection that they did not receive from their father.[18] Various studies[16-18] have shown that children reared in single parent homes are more likely to become single parents as well especially if their mothers were teenage parents. A significantly lower number of teenage pregnancies was found in those teenagers who belonged to monogamous families. This could be attributed to adequate parental guidance and monitoring, with parents likely to notice deviant behaviour on time and institute an intervention.[17-19] Parents in such families are often times educated and in turn try to ensure their children are educated. Also, such families are not usually large, therefore, teenagers in such environments can have their needs promptly catered for without seeking external support that may predispose them to sexual molestation or rape.[19]

The inverse relationship between parental education levels and teenage pregnancy rates highlights the critical role of education in shaping adolescent outcomes.[20,21] Parents with higher education levels are more likely to provide accurate information about sexual and reproductive health, foster open communication, and set high expectations for their children. These practices reduce the likelihood of early pregnancies and promote healthier adolescent development.[21]

Government policies should enforce establishment of youth-friendly health clinics in both urban and rural areas to provide teenage girls with access to contraception, sexual health education, and prenatal care.[21,24] Implement mobile health units to serve remote and underserved communities, offering reproductive health services and counselling on a regular basis. Also to increase collaboration with international organizations such as WHO and UNICEF to address infrastructural gaps and enhance healthcare delivery in rural Bayelsa. Preventive measures should encompass a multi-sectorial model of education, the development of supportive policies, community mobilization, and advocated access to health facilities.

CONCLUSION

This study underscores the urgent need for a multi-sectoral approach to addressing teenage pregnancy. Interventions must go beyond merely providing information on contraception and must also tackle the structural barriers that perpetuate teenage pregnancies. These barriers include limited family type, educational opportunities, poor healthcare access, socio-economic inequality, and cultural norms. It is therefore recommended that there should be improved supervision of teenagers in public schools, training and retraining of teachers on knowledge and teaching of sexual and reproductive health. Reproductive health services and contraceptives should be made easily accessible to teenagers without the attendant stigmatisation from the parents, community and even health workers.

STUDY LIMITATION

Male counterparts in teenage pregnancy and the modifiable factors were not explored to provide a holistic view of the problem of teenage pregnancy.

ACKNOWLEDGEMENTS

The authors acknowledge the parents, students and teachers of the selected secondary schools for their cooperation in carrying out this study.

CONFLICT OF INTEREST

The authors declare no conflicting interest(s)

REFERENCES

1. World Health Organization. Global health observatory data repository: Adolescent fertility rates by region. Geneva: World Health Organization (2024). Accessed April 2025 https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy
2. Scholl TO, Hediger ML, Salmon RW, Belsky DH, Ances IG. Association between gynaecological age and preterm birth. *Paediatric and Perinatal Epidemiology* 1989;Vol 3(4):357-366
3. Kassa GM, Arowojolu AO, Odukogbe AA, Oladimeji BY. Prevalence and determinants of adolescent pregnancy in Africa: A systematic review and meta-analysis. *Reproductive Health* 2018; 15(1), 195. https://doi.org/10.1186/s12978-018-0460-4
4. Akella D, Jordan M. Impact of social and cultural factors on teen pregnancy. *Journal of health disparities research and practice* 2014; 8(1):41-62 https://digitalscholarship.unlv.edu/jhdrp/vol8/iss1/3
5. Omidjin AO, Deinne CE. Spatial and environmental antecedents of prevalence of teenage pregnancy in Yenagoa, Bayelsa State. *IIARD International Journal of Geography & environmental management (IJGEM)* 2023; 9(1): 43-57 doi:10.56201/ijgem.v9.n01.2023.pg43.57
6. Envuladu E, Ohize VA, Zoakah AI, Agbo HA. Determinants and outcome of teenage pregnancy in a rural community in Jos, Plateau State, Nigeria. *Sub-Saharan African Journal of Medicine* 2014; 1(1):48
7. Okonta P. Adolescent sexual and reproductive health in the Niger Delta region of Nigeria: Issues and challenges. *African Journal of Reproductive Health* 2007; 11(1):113-24. DOI:10.2307/30032494
8. Learn about Bayelsa State, Local Government and business opportunities in Bayelsa. www.ngex.com Accessed 4th May, 2025.
9. National Population Commission- 2006 PHC priority tables. www.population.gov.ng Accessed 4th February 2024.
10. Ayuba II, Ibukun OOG. Socio-demographic determinants of teenage pregnancy in the Niger Delta of Nigeria. *Open journal of Obstetrics and Gynaecology* 2012;2 (3):239-243.

11. Oyedeji GA. Socio-economic and cultural background of hospitalized children in Ilesha. *Niger J Paediatr* 1985: 12: 111-117.
12. Brahmbahtt H, Kagesten A, Emerson M, Decker MR, Olumide AO, Ojengbede O *et al*., Prevalence and determinants of adolescent pregnancy in urban disadvantaged settings across five cities. *J. Adolesc Health* 2014; 55(6): S48-57
13. Ahmed S, Creanga AA, Gillespie DG, Tsui AO. Economic status, education and empowerment implications for maternal health service utilization in developing countries. *PLoS One* 2010;5(6): e11190. doi10.1371/journal.pone. 0011190
14. Yakubu I, Salisu WJ. Determinants of adolescent pregnancy in Sub-Saharan Africa: A systematic review. *Reprod Health* 2018;15(1):1-11
15. Pradhan R, Wynter K, Fisher J. Factors associated with pregnancy among adolescents in low-income and lower middle-income countries: A systematic review. *J. Epidemol Community Health* 2015; 69(9:918-24)
16. Ezenwaka U, Mbachu C, Ezuma N, Eze I, Agu C, Agu I, *et al*. Exploring factors constraining utilization of contraceptive services among adolescents in Southeast Nigeria: an application of socio-ecological model. *BMC Public Health* 2020; 20(1):1-11
17. Ojo TF, Ijabadeniyi OA. Teenage pregnancy and its influence on female education in Nigeria. *International Journal of Research and Scientific Innovation (IJSRI)* 2021; Vol. 8(1):312-315
18. Teenage pregnancy linked to single parent homes. https://prezi.com/bttity7ntinq/teenage-pregnancy-linked-to-single-parent-homes/ Accessed March 2025
19. Chiazor IA, Ozoya MI, Idowu AE, Udume M, Osagide M. Teenage pregnancy: The female adolescent dilemma. *International Journal of Scence Commerce and Humanities* 2017; 5(1): 70-82
20. Akanbi MA, Ope BW, Adeloye DO, Amoo EO, Iruonagbe TC, Omojola O. Influence of socio-economic factors on prevalence of teenage pregnancy in Nigeria. *African journal of reproductive health* 2021; 25(5s): 137-145
21. Jones EF, Forrest JD, Goldman N, Henshaw SK, Lincoln R, Rosoff JI *et al.* teenage pregnancy in developed countries: Determinants and policy implications. JSTOR 1985; 17(2):53-63
22. Onwumere O. Complexities fronting millions of pregnant Nigerian girls. https://www.thenigerianvoice.com/news/255317/complexities-fronting-millions-of-pregnant-nigerian-girls.html Accessed April 2024
23. https://cdn.who.int/media/docs/default-source/hrp/adolescents/sample-core-instruments.pdf
24. Taylor ZE, Larsen-Rife D, Conger RD, Widaman KF, Cutrona CE. Life stress, maternal optimism and adolescent competence in single mother, African-American families. *Journal of family psychology* 2010; 24(4):468-474