STATISTICAL INVESTIGATION OF AWARENESS AND MENSTRUAL HYGEINE PRACTICES AMONG ADOLESCENTS

(A CASE STUDY OF ARA, LAJOLO ELEKO-YANGAN AND OYUN)

BY

ADEMOLA KAOSARAT IBIWUMI

HND/23/STA/FT/0031

A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF STATISTICS

INSTITUTE OF APPLIED SCIENCES (IAS) KWARA STATE POLYTECHNIC, ILORIN.

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF HIGHER NATIONAL DIPLOMA (HND) IN STATISTICS

JUNE, 2025

CERTIFICATION

This project work has been read, supervised and approved as meeting the requirement for the award of the Higher National Diploma (HND) in Statistics Department, Institute of Applied Science (IAS), Kwara state polytechnic, Ilorin, Kwara state.

---------- ----------
MISS AJIBOYE R.A DATE
Project supervisor

---------- ----------
MISS AJIBOYE, R.A DATE
Project co-ordinator

---------- ----------
MRS. ELEPO T.A DATE
Head of Department

---------- ----------
EXTERNAL EXAMINER DATE

DEDICATION

This project is dedicated to the Almighty God, and also my dad (Mr. Ademola Moruf)

ACKNOWLEDGEMENT

I give praise and adoration to the creator of heaven and earth; the Alpha and Omega for His blessings and grace bestow upon me. And for the wisdom, knowledge and understanding given to me to be able to accomplish this task.

My special gratitude goes to my parent (Mr. Mrs. Ademola) who has been there for me throughout the process of everything in my life.

My profound gratitude goes to my supervisor, the person of Mrs. Ajiboye R.A for her assistance and guidance during this research work, and also to our able head of department Mrs. Elepo T.A and to every one of my lecturers that taught me everything I know in statistics and all, Mr. Kuranga J.O, Dr. (Mrs.) Aiyelebegan A.B, Dr. Beki D.O, Dr. Olarinoye S.B, Dr. Alao N.A, Mr. Kuranga L.J, Mr. Mr. Yusuf K.N, Mr. Safihi F.G, Miss Ajiboye R.A, Mrs. Yusuf G.A, Mr. Suleiman S., Mrs. Abdulrahman F.B, Mr. Salami O.O, Mr. Musa Y.O for the good academic support given since the beginning of our program till point on time.

My appreciation also goes my siblings, my friends and all my along the way friends. You all are awesome.

TABLE OF CONTENTS

ABSTRACT

This study examines the level of awareness and the hygienic practices related to menstruation among adolescent girls in Ara, Lajolo, Elekoyangan, and Oyun communities. Using a structured questionnaire, data was collected from 500 adolescents, with 491 valid responses analyzed using descriptive statistics, cross-tabulations, and chi-square tests. The results revealed a high level of awareness, with most respondents reporting they had received education on menstrual hygiene. However, while menstrual hygiene education significantly influenced proper disposal of menstrual materials ($p = 0.000$), it did not significantly affect practices such as hand washing ($p = 0.510$) and genital cleaning methods ($p = 0.843$). The study recommends strengthening menstrual health education, improving access to sanitary materials, and promoting safe disposal methods. This research contributes to public health awareness and provides evidence-based guidance for policy makers and educators aiming to improve adolescent menstrual health in rural Nigerian communities.

Keywords: Menstrual hygiene, adolescent girls, awareness, sanitation, rural communities, menstrual education, hygiene practices, cross-tabulation, chi-square test, Nigeria.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Menstruation is a natural and essential biological process experienced by adolescent girls and women of reproductive age. Despite its universality, menstruation continues to be shrouded in silence, misinformation, and cultural taboos, particularly in many developing countries, including Nigeria. This lack of open discussion often translates into poor menstrual hygiene management (MHM), which significantly affects the physical health, mental well-being, and educational attainment of adolescent girls. Menstrual hygiene involves the use of clean menstrual management materials to absorb or collect menstrual blood, changing these materials in privacy as often as necessary, using soap and water for washing the body, and having access to facilities to dispose of used materials safely.

Adolescence is a critical stage of development marked by significant physical, emotional, and psychological changes, and the onset of menstruation represents a major milestone in the lives of adolescent girls. However, for many, the experience of menarche is accompanied by confusion, fear, and embarrassment due to a lack of adequate knowledge and preparation. Inadequate awareness about menstruation and menstrual hygiene can lead to unhealthy practices, reproductive tract infections (RTIs), urinary tract infections (UTIs), absenteeism from school, and increased vulnerability to social exclusion and discrimination. This challenge is particularly pronounced in rural and underserved communities, where cultural beliefs, low literacy levels, and limited access to sanitary products exacerbate the problem.

In many African societies, including Nigeria, menstruation is still considered a private or taboo subject. Parents, especially mothers, are often uncomfortable discussing menstrual issues with their daughters. As a result, many girls reach menarche with little or no prior knowledge of what menstruation entails or how to manage it hygienically. Studies have shown that in some parts of Nigeria, up to 40% of adolescent girls had no knowledge of menstruation before their first period.

The first experience of menstruation can therefore be traumatizing and may affect the girl's self-esteem and social interactions.

Furthermore, schools often lack adequate facilities to support proper menstrual hygiene practices. Insufficient water supply, lack of private toilets, and unavailability of sanitary materials can make it difficult for girls to manage their menstruation in school settings. Consequently, many girls are forced to miss school during their menstrual periods, leading to poor academic performance and, in some cases, school dropout. The United Nations Children's Fund (UNICEF) and other international agencies have emphasized the importance of menstrual hygiene in achieving gender equality in education.

Awareness about menstruation and proper hygiene practices is not only crucial for the physical health of adolescent girls but also essential for fostering confidence and self-dignity. Awareness refers to the knowledge of the menstrual cycle, hygiene practices such as proper genital cleaning, and understanding the significance of using sanitary products. When girls are well-informed, they are more likely to adopt safe and hygienic practices that prevent infections and promote comfort during menstruation. On the other hand, lack of awareness or misinformation may lead to harmful practices such as using unclean materials, improper disposal of used pads, and infrequent changing of menstrual products.

It is also important to recognize the role of schools, health workers, media, and non-governmental organizations (NGOs) in promoting menstrual hygiene education. In recent years, there has been an increasing recognition of the need to integrate menstrual hygiene education into the school curriculum and provide girls with the necessary support and facilities. Some schools now conduct health talks and counseling sessions aimed at educating students about menstruation and reproductive health. NGOs have also been instrumental in distributing free sanitary pads and raising awareness through community outreach programs.

Despite these efforts, a significant number of adolescent girls still lack access to comprehensive menstrual hygiene education. According to the World Health Organization (WHO), at least 500

million women and girls worldwide lack adequate facilities for menstrual hygiene management. In Nigeria, cultural myths such as the belief that menstruating women are impure, or that menstrual blood is dangerous, continue to hinder open discussions about menstruation. These myths not only perpetuate stigma but also discourage girls from seeking accurate information and practicing good hygiene.

In summary, menstruation is a natural yet often misunderstood aspect of female adolescence. The ability of girls to manage their menstruation hygienically is closely linked to their level of awareness, access to resources, and the societal attitudes surrounding menstruation. Through a statistical investigation, this study aims to uncover the current state of menstrual health knowledge and practices among adolescents, and ultimately support efforts to ensure that all girls can manage their periods with dignity, safety, and confidence.

1.2 Statement of the Problem

There is increasing concern about the lack of accurate information and poor hygiene management during menstruation among adolescents. Many girls rely on myths or inadequate sources for menstrual information, which can lead to poor hygiene and health risks. This study seeks to assess these gaps using statistical tools.

1.3 Aim and Objectives of the Study

The main aim of this research work is to investigate the awareness and menstrual hygiene practices among adolescent. While the objectives are:

- To assess the level of awareness of menstruation among adolescent girls.
- To evaluate the practices of genital cleaning during menstruation.
- To determine if there is a significant relationship between awareness and proper genital cleaning.

1.4 Significance of the Study

This study is important for improving menstrual health among adolescent girls by identifying awareness gaps and hygiene practices. It supports educators, parents, NGOs, and health professionals in developing effective menstrual education and interventions. The findings can influence policy, reduce stigma, promote school attendance, and empower girls to manage menstruation hygienically and confidently, contributing to better reproductive health and gender equality outcomes in both school and community settings.

1.5 Scope of the Study

The study focuses on adolescent girls aged 10–19, examining their awareness and menstrual hygiene practices, particularly genital cleaning. Conducted in a specific location (e.g., schools or communities), it analyzes how knowledge influences hygiene behavior using statistical methods. It excludes clinical evaluations and broader populations, instead offering insights into local practices and gaps. The research informs targeted interventions and educational programs to improve menstrual health management among adolescents.

1.6 Limitations of the Study

Despite the importance of this study, it is subject to several limitations:

1. **Limited Generalizability**: The study is conducted within Ilorin South, Kwara state, so its findings may not fully represent all adolescent girls in Nigeria or other regions.
2. **Self-Reported Data**: Data collected through questionnaires may be affected by bias, as some respondents might underreport or exaggerate their practices due to embarrassment or social desirability.
3. **Cultural Sensitivity**: Menstruation is a sensitive topic, and some participants may feel uncomfortable discussing it openly, which can affect the quality and depth of responses.

4. **Time and Resource Constraints**: The study may be limited by the available time for data collection and analysis, as well as access to necessary resources and respondents.
5. **Lack of Longitudinal Data**: The cross-sectional nature of the study does not allow for analysis of changes in awareness and hygiene practices over time.

1.7 Definition of Term

Here are key terms used in the study, defined for clarity:

- **Adolescents**: Individuals between the ages of 10 and 19, as defined by the World Health Organization.
- **Menstruation**: The monthly shedding of the uterine lining in females, typically marked by bleeding through the vagina.
- **Menstrual Hygiene**: Practices followed by women and girls to manage menstruation safely and hygienically, including use of clean absorbents and proper cleaning.
- **Awareness**: The level of knowledge and understanding an individual has about menstruation and hygiene practices.
- **Proper Genital Cleaning**: The act of cleaning the vaginal and surrounding area using clean water and, when appropriate, mild soap during menstruation.
- **Sanitary Products**: Items used to absorb menstrual blood, such as sanitary pads, tampons, and menstrual cups.
- **Hygiene Practices**: Actions taken to maintain cleanliness and health during menstruation, including frequency of changing pads, bathing, and disposal of used materials.
- **Statistical Investigation**: The process of collecting, analyzing, and interpreting numerical data to identify patterns and relationships, such as between awareness and hygiene behavior.

CHAPTER TWO

LITERATURE REVIEW

2.0 Review of Related Literature

Awareness of Menstruation among Adolescent Girls

According to Sommer et al. (2015), many girls in low- and middle-income countries enter puberty without prior knowledge about menstruation. This lack of awareness often results in confusion, fear, and embarrassment when menstruation begins. The study noted that a significant number of girls had never heard of menstruation prior to experiencing it, and this negatively affected their psychological well-being and initial coping mechanisms.

In a Nigerian context, Aniebue et al. (2009) explored the level of menstrual awareness among adolescent schoolgirls in Enugu and found that only 55% of the participants had adequate knowledge about menstruation before their first experience. Most girls cited their mothers as the primary source of information, followed by older female siblings and teachers. However, the quality and depth of information provided varied greatly, with many girls receiving only vague or incomplete explanations. This inconsistency has contributed to prevailing myths and misconceptions surrounding menstruation.

Other studies, such as one by Adinma and Adinma (2008), further highlighted that socio-cultural factors significantly influence menstrual awareness. In many African societies, menstruation remains a taboo subject, limiting open conversations and educational outreach. As a result, awareness is often delayed or obscured by stigma and secrecy. The authors emphasized the need for schools and health institutions to take proactive roles in menstrual education to ensure that adolescent girls are well-informed.

Furthermore, UNICEF (2019) reported that increasing awareness about menstruation not only improves hygiene practices but also empowers girls to participate fully in school and community

life. The report recommends incorporating menstrual health education into school curricula and ensuring that teachers are trained to deliver accurate and sensitive information.

In conclusion, the literature strongly supports the idea that menstrual awareness is foundational to effective hygiene practices and psychological preparedness. There is a consistent call for formal and informal channels of menstrual education to be strengthened, particularly in school settings and rural communities. This will ensure that all girls, regardless of background, have access to the knowledge they need to manage menstruation with confidence and dignity.

Menstrual Hygiene Practices among Adolescents

Menstrual hygiene practices among adolescents play a vital role in safeguarding their health and dignity. These practices typically include the type of absorbent used, frequency of changing, washing habits, and disposal methods. Several studies have shown that menstrual hygiene is influenced by awareness, accessibility to sanitary materials, and socio-cultural norms. According to Dasgupta and Sarkar (2008), poor menstrual hygiene is associated with increased risk of reproductive tract infections and other health complications. Their study in West Bengal, India, revealed that a majority of adolescent girls used reusable cloths that were often not properly sanitized.

In a study conducted by El-Gilany et al. (2005) in Egypt, it was found that only 30% of schoolgirls practiced proper hygiene during menstruation. Most of them lacked knowledge about how often to change sanitary pads or the importance of genital cleanliness. The researchers emphasized that cultural barriers, inadequate water supply, and poor sanitation infrastructure in schools contributed to unhygienic practices.

In the Nigerian setting, Oche et al. (2012) studied menstrual hygiene among adolescent girls in Sokoto and observed that while awareness levels were relatively high, actual hygiene practices were poor. This disconnect was attributed to limited access to sanitary pads and inadequate private spaces for changing and cleaning at school. The study highlighted the need for structural support and affordable menstrual products to encourage safe practices.

Efforts by organizations like WaterAid and UNESCO have focused on improving Water, Sanitation and Hygiene (WASH) facilities in schools and advocating for menstrual-friendly policies. Studies have shown that girls are more likely to engage in proper hygiene when schools provide private toilets, running water, and free or subsidized sanitary pads.

In summary, menstrual hygiene practices among adolescents remain suboptimal in many developing regions due to lack of resources, education, and supportive infrastructure. Bridging the gap between awareness and practice requires a multifaceted approach involving education, access to materials, and improvement of sanitary conditions, especially in schools and rural areas.

Role of Education in Menstrual Hygiene Awareness

According to Thakre et al. (2011), girls who received menstrual education through schools demonstrated better hygiene practices and were more likely to use sanitary pads and maintain proper genital hygiene. Their study found that health talks and structured lessons improved menstrual knowledge and reduced feelings of shame and anxiety during menstruation.

In Nigeria, a study by Abioye-Kuteyi (2000) highlighted the positive impact of integrating reproductive health education into school curricula. Schools that offered structured menstrual health sessions reported higher levels of awareness and confidence among female students in managing menstruation. These students were also more likely to seek help from teachers and health personnel, reducing the stigma associated with menstruation.

Teachers also play a vital role in delivering this education. However, some studies, such as that by Chothe et al. (2014), revealed that many teachers themselves feel uncomfortable discussing menstruation due to cultural taboos and lack of training. This discomfort limits their ability to offer meaningful support and accurate information, especially in rural or conservative communities.

Moreover, parental education level, especially that of mothers, has a strong correlation with menstrual hygiene knowledge among adolescent girls. A study by Rajagopal and Mathur (2017) found that daughters of educated mothers were more likely to be aware of menstruation before

menarche and adopt proper hygiene practices. The mothers provided information that was more detailed, practical, and empathetic compared to peers or media.

The influence of peer education is also significant. According to a UNICEF (2019) report, peer-led interventions in schools—where trained students educate their classmates—have been successful in promoting open conversations and dispelling myths surrounding menstruation.

In conclusion, education—whether formal or informal—is pivotal in enhancing menstrual hygiene awareness among adolescents. Incorporating menstrual health topics into school syllabi, training teachers, and empowering mothers and peers to communicate openly can significantly improve how girls understand and manage their menstrual health.

Cultural Beliefs and Taboos Surrounding Menstruation

Cultural beliefs and taboos significantly influence the menstrual experiences of adolescent girls. In many societies, menstruation is surrounded by secrecy, shame, and misconceptions, which affect girls' knowledge, attitudes, and behaviors. These socio-cultural restrictions often limit open discussions, leading to inadequate or incorrect information about menstrual health.

A study by Garg and Anand (2015) in India found that cultural taboos discouraged girls from participating in normal activities during menstruation, including school attendance, cooking, and religious practices. Girls were taught to view menstruation as impure, and this shaped their understanding and experience in largely negative terms. Similar findings were echoed in a study by Adika et al. (2011) in Nigeria, which revealed that many adolescent girls were told not to talk about menstruation publicly, contributing to misinformation and fear.

These taboos also affect menstrual hygiene practices. For instance, some cultures discourage bathing or washing hair during menstruation, believing it could lead to infertility or illness. This contributes to poor hygiene and potential health risks. Additionally, girls are often discouraged from drying reusable menstrual cloths in the sun—a natural disinfectant—due to fear of public exposure, leading to improper sanitation and infections.

Community perceptions further shape girls' behavior. A study by Sommer et al. (2015) across sub-Saharan Africa found that many girls internalize feelings of shame and embarrassment due to societal attitudes. This can result in low self-esteem and a reluctance to seek help or discuss menstrual issues, even with family members.

In Nigeria, societal expectations and religious beliefs often exacerbate the silence around menstruation. For example, in northern regions where Islamic beliefs are predominant, menstruating girls are restricted from entering mosques or participating in communal prayers. These restrictions may not be explained fully to the girls, furthering confusion and stigma.

Efforts to combat menstrual taboos are increasing. Organizations like WaterAid and Menstrual Hygiene Day campaigns have used media and community engagement to normalize menstruation. Involving local leaders and using culturally appropriate messaging have shown promise in changing perceptions.

In summary, cultural taboos significantly hinder menstrual health education and practices. Addressing these issues requires culturally sensitive approaches that engage community members, educate both males and females, and promote menstruation as a natural, healthy process rather than a source of shame.

Impact of Menstrual Hygiene on School Attendance and Performance

Menstrual hygiene management (MHM) has a direct impact on school attendance and academic performance among adolescent girls. Poor menstrual hygiene, compounded by inadequate school infrastructure and societal stigma, often leads to frequent absenteeism and disengagement from educational activities. According to a study by Montgomery et al. (2012), girls in Uganda missed up to five days of school each month due to menstruation. This cumulative absenteeism contributes to lower academic performance and, in some cases, eventual school dropout.

A report by UNESCO (2014) confirmed that the lack of access to sanitary products, private toilets, and clean water in schools is a major barrier to consistent school attendance during menstruation.

Girls are often forced to stay at home out of fear of leaks, embarrassment, or discomfort. Moreover, the psychological stress associated with menstruation—stemming from stigma, shame, or lack of preparation—reduces concentration in class and participation in academic or extracurricular activities.

In Nigeria, Olayemi et al. (2017) conducted a study in Ibadan and found that 27% of schoolgirls reported missing school during menstruation due to a lack of sanitary materials and inadequate school facilities. Those who attended school during menstruation expressed concerns about inadequate disposal options, unsupportive school environments, and the absence of menstrual education from teachers. These challenges created a hostile learning environment and lowered self-esteem among female students.

Additionally, a study by Hennegan et al. (2016) emphasized that providing menstrual hygiene education and facilities can improve girls' school engagement. The introduction of menstrual kits, safe spaces, and educational programs significantly reduced absenteeism and increased girls' confidence. Their findings suggest that when girls are supported during menstruation, their educational outcomes improve.

Programs such as the WASH in Schools initiative have highlighted the importance of integrating menstrual hygiene-friendly facilities in learning environments. These include gender-separated toilets, availability of sanitary pads, water points, and trained female staff to support students during menstruation.

In summary, menstrual hygiene plays a critical role in determining girls' school attendance and academic performance. Addressing the infrastructural, psychological, and informational barriers faced during menstruation is essential in promoting gender equity in education. Investment in MHM interventions within schools not only enhances girls' well-being but also improves their educational outcomes and long-term development.

Access to Sanitary Products and Menstrual Health Resources

Access to sanitary products is a fundamental component of menstrual hygiene management, yet it remains a significant challenge for many adolescent girls, particularly in low-income and rural communities. Inadequate access to menstrual products not only affects hygiene but also contributes to social stigma, school absenteeism, and health complications. A study by Phillips-Howard et al. (2016) in Kenya revealed that girls without access to sanitary pads often resort to using unsanitary alternatives such as old rags, paper, leaves, or even mud, which increases the risk of infections.

The cost of sanitary pads remains a barrier for many families, especially where menstruation is not considered a priority in household spending. According to the Menstrual Hygiene Management (MHM) in Nigeria report (2020), about 37% of adolescent girls cannot afford disposable sanitary pads regularly. This has led to inconsistent usage, reuse of disposable materials, or complete lack of use—posing significant risks to reproductive health.

Government and non-governmental organizations have attempted to address this issue by providing subsidized or free menstrual products. For instance, the Nigerian Ministry of Women Affairs has partnered with several NGOs to distribute free pads in schools and run awareness campaigns. While these initiatives have had positive effects, their reach remains limited, and sustainability is a major concern.

Reusable pads and menstrual cups are often promoted as cost-effective and sustainable alternatives, but their adoption faces cultural resistance and lack of awareness. A study by Mahon and Fernandes (2010) indicated that while reusable products could reduce long-term costs and waste, many girls are hesitant to use them due to unfamiliarity, lack of privacy for cleaning, and misconceptions about their safety.

Moreover, accessibility goes beyond physical products. It also involves access to accurate information and services related to menstrual health. Many girls do not receive proper education on how to use sanitary products safely or understand the importance of changing them regularly.

Schools often lack disposal bins, water facilities, and private changing spaces, further discouraging safe usage.

In conclusion, improving access to menstrual health products and services is essential for ensuring that adolescent girls manage menstruation safely and with dignity. This requires coordinated efforts involving education, subsidization, infrastructure development, and cultural sensitization to ensure that menstrual products are available, affordable, and acceptable for all.

Psychological and Emotional Effects of Menstruation on Adolescents

Menstruation is not only a physical event but also an emotional and psychological experience that significantly affects adolescent girls. The transition into menstruation often marks a turning point in a girl's life, associated with feelings of confusion, anxiety, embarrassment, and shame, particularly in environments where open discussions about reproductive health are discouraged. The emotional burden of managing menstruation in silence can affect mental well-being and social interactions among adolescents.

According to a study by van Eijk et al. (2016), many adolescent girls experience high levels of stress and low self-esteem due to the lack of preparedness for menarche. Girls who are uninformed prior to their first period often react with fear or distress, especially in cultures where menstruation is perceived as taboo. This lack of psychological readiness can create long-lasting negative associations with menstruation.

In Nigeria, Adebayo et al. (2021) found that adolescents reported feelings of embarrassment and isolation during menstruation. Some girls were ridiculed by peers or misunderstood by adults, which led to internalized shame and reluctance to participate in social or academic activities. These emotional responses often compounded feelings of inadequacy, especially among girls from socio-economically disadvantaged backgrounds.

Pre-menstrual symptoms (PMS), such as irritability, fatigue, mood swings, and abdominal discomfort, also contribute to emotional strain during menstruation. Without proper coping

mechanisms or support systems, these symptoms may lead to increased absenteeism, conflict with peers or family, and reduced school performance.

Psychosocial support and open communication are essential in mitigating the negative emotional effects of menstruation. Studies by Sommer et al. (2015) emphasize that girls who receive adequate emotional support from mothers, teachers, or peer groups are more likely to develop healthy attitudes toward menstruation. Encouraging open discussions can demystify menstruation, reduce fear, and foster resilience.

Additionally, access to accurate information through counseling services, school health programs, or digital platforms can equip girls with the confidence to manage their emotions and bodies. Programs that combine hygiene education with emotional support—such as "girl clubs" and menstrual health workshops—have proven effective in promoting psychological well-being.

In conclusion, menstruation significantly impacts the emotional and psychological health of adolescent girls. Addressing this dimension requires more than hygiene education; it calls for empathetic communication, safe spaces for dialogue, and mental health support integrated into adolescent health programs.

Government and Policy Interventions on Menstrual Hygiene Management

Government and policy interventions play a vital role in shaping menstrual hygiene management (MHM) practices, especially among adolescents in low- and middle-income countries like Nigeria. Effective policies can ensure that menstrual health is integrated into national health agendas, educational programs, and development frameworks, thereby improving access, awareness, and infrastructure for adolescent girls.

In recent years, several countries have made strides in this area. For instance, Kenya became one of the first African nations to pass legislation mandating the free distribution of sanitary pads to schoolgirls in public institutions. The implementation of this law resulted in improved school

attendance and a reduction in stigma. Nigeria, while still evolving in this regard, has shown some commitment through initiatives led by the Ministries of Education, Health, and Women Affairs.

One of the key policy documents in Nigeria is the **National Guidelines on Menstrual Hygiene Management**, launched in collaboration with UNICEF and the Federal Ministry of Water Resources. These guidelines advocate for the provision of menstrual products, WASH (Water, Sanitation, and Hygiene) facilities, and educational resources in schools. However, implementation has been inconsistent due to limited funding, poor political will, and logistical challenges.

Non-governmental organizations (NGOs) and civil society groups have filled this gap by pushing for menstrual equity policies and launching awareness campaigns. Organizations like Pad-Up Africa and Girls' Pride Circle have worked with communities and schools to provide menstrual education and distribute hygiene kits, often partnering with government bodies for broader reach.

Despite these efforts, a lack of comprehensive policy enforcement and monitoring hinders progress. Many rural schools still lack private toilets, clean water, and proper disposal systems for sanitary waste. Additionally, menstrual products are taxed as luxury items in some regions, making them unaffordable for many families. Activists have advocated for the removal of such taxes, often referred to as the "tampon tax," to make sanitary products more accessible.

The integration of menstrual health into school curricula remains a significant gap. Although sexual and reproductive health education is part of many programs, menstruation is often glossed over or taught superficially. Policy recommendations have called for teacher training and inclusion of culturally sensitive menstrual education.

In summary, while policy and government interventions in Nigeria and beyond have begun to address menstrual hygiene management, more robust implementation, funding, and community engagement are necessary. Prioritizing menstrual health as a public policy issue is essential for improving adolescent girls' health, education, and dignity.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology adopted to conduct a statistical investigation of awareness and menstrual hygiene practices among adolescents in Ara, Lajolo, Elekoyangan, and Oyun communities. It outlines the research design, population and sample, sampling technique, data collection instruments, and the statistical techniques used in analyzing the data.

3.2 Statistical Techniques

The analysis was performed using the Statistical Package for the Social Sciences (SPSS), and it involved both descriptive and inferential statistics. The following statistical techniques were employed:

i. Descriptive Statistics

Descriptive statistics help summarize the basic features of the data and provide a simple overview of the sample and measures. In this study, descriptive analysis was conducted for key variables:

- **Mean (Average):** Measures the central tendency of frequency and duration usage.
- **Median:** The middle value in the dataset, helping to identify skewed distributions.
- **Range:** The difference between the maximum and minimum values, giving an idea of the spread.
- **Standard Deviation (SD):** Measures how spread out the numbers are in the dataset. A higher SD indicates more variability among respondents.

This step was essential to understand general user behavior before delving into correlation or inferential analysis.

Cross-tabulation (Cross-tab Analysis)

Crosstabs were used to explore the relationships between two categorical variables. This analysis helped to visualize how variables such as awareness levels and menstrual hygiene practices are distributed across different groups (e.g., communities or age categories).

No specific formula is used in SPSS for cross-tabulation since it is a tabular display of frequencies; however, it forms the basis for the Chi-square test.

Chi-Square Test of Independence (χ^2)

To test for statistical association between awareness and proper hygiene practices, the Chi-square test of independence was applied.

Steps in Conducting the Chi-Square Test

1. **Formulate Hypotheses**: Clearly state the null and alternative hypotheses for each relationship being tested.
2. **Set Significance Level**: Typically, a significance level of 0.05 is used ($\alpha = 0.05$). If the p-value obtained from the chi-square test is less than 0.05, the null hypothesis will be rejected.
3. **Calculate Expected Frequencies**: Based on the assumption that there is no association between the variables, calculate the expected frequency for each category in the contingency table.
4. **Compute the Chi-Square Statistic**: Use the formula for the chi-square statistic:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

- Where:
  - O is the observed frequency
  - E is the expected frequency

Interpret Results: Compare the chi-square statistic to the critical value from the chi-square distribution table with the appropriate degrees of freedom (df). If the computed chi-square statistic is greater than the critical value, the null hypothesis is rejected, indicating a significant association.

3.3 Data Source

The data used in this research work is primary data (Questionnaire) and administered in the Ara, Lajolo, Eleko-yangan and Oyun Community.

3.4 Data presentation

The data used in this research work is primary data (Questionnaire) and administered in the Ara, Lajolo, Eleko-yangan and Oyun Community. And can be view in Appendix I

CHAPTER FOUR

DATA ANALYSIS AND RESULT

4.1 DATA ANALYSIS

Descriptive statistics

wash_your_hands_before_and_after_changing_your_menstrual

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	6	1.2	1.2	1.2
	sometimes	81	16.5	16.5	17.7
	yes,always	404	82.3	82.3	100.0
	Total	491	100.0	100.0	

Interpretation:

A large majority (82.3%) of respondents reported always washing their hands before and after changing their menstrual products, indicating a good level of hygiene awareness. However, 17.7% (1.2% no and 16.5% sometimes) still do not consistently follow this important hygienic practice, highlighting the need for improved education.

how_do_you_clean_your_genital_area_during_menstruation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	other	4	.8	.8	.8
	soap and water	258	52.5	52.5	53.4
	water only	213	43.4	43.4	96.7
	wipes	16	3.3	3.3	100.0
	Total	491	100.0	100.0	

Interpretation:

About 52.5% of adolescents use both soap and water to clean their genital area, which is considered ideal. A significant portion (43.4%) uses only water, which is less effective depending on the context. Only 3.3% rely on wipes, while 0.8% selected other methods. These results show a moderate level of hygiene awareness that could be enhanced with better health education.

how_do_you_dispose_of_used_menstrual_products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	burying them	107	21.8	21.8	21.8
	flushing them down the toilet	205	41.8	41.8	63.5
	in a bin	97	19.8	19.8	83.3
	Other	82	16.7	16.7	100.0
	Total	491	100.0	100.0	

Interpretation:

The most common disposal method is flushing menstrual products down the toilet (41.8%), which is not recommended due to environmental concerns and plumbing issues. 21.8% bury the products, 19.8% use a bin (more hygienic and preferred), while 16.7% use unspecified methods. These figures suggest a need for clearer guidance on safe and sustainable menstrual waste disposal.

Inferential statistics (chi-square)

This section presents the inferential statistical analysis used to test the association between menstrual hygiene education and various menstrual hygiene practices among adolescents in Ara, Lajolo, Elekoyangan, and Oyun. The Pearson Chi-Square test was used to test the hypotheses at a 5% level of significance.

Hypothesis Test 1:

- **H_0**: There is no significant relationship between menstrual awareness and washing hands before and after changing menstrual products.
- **H_1**: There is a significant relationship between menstrual awareness and washing hands before and after changing menstrual products.

wash_your_hands_before_and_after_changing_your_menstrual * you_received_any_education_about_menstrual_hygiene

Crosstab

Count

		you_received_any_education_about_menstrual_hygiene		Total
		no	Yes	
wash_your_hands_before_and_after_changing_your_menstrual	No	2	4	6
	Sometimes	16	65	81
	yes,always	69	335	404
Total		87	404	491

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.347[a]	2	.510
Likelihood Ratio	1.182	2	.554
N of Valid Cases	491		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.06.

Interpretation:

Since the sig-value (0.510) is greater than p-value (0.05)**,** we fail to reject the null hypothesis. This implies that there is no statistically significant relationship between menstrual awareness and hand-washing practices among respondents.

Hypothesis Test 2:

- **H_0**: There is no significant relationship between menstrual awareness and the method used to clean the genital area.
- **H_1**: There is a significant relationship between menstrual awareness and the method used to clean the genital area.

how_do_you_clean_your_genital_area_during_menstruation * you_received_any_education_about_menstrual_hygiene

Crosstab

Count

		you_received_any_education_about_menstrual_hygiene		Total
		no	yes	
how_do_you_clean_your_genital_area_during_menstruation	Other	1	3	4
	soap and water	46	212	258
	water only	36	177	213
	Wipes	4	12	16
Total		87	404	491

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.827[a]	3	.843
Likelihood Ratio	.764	3	.858
N of Valid Cases	491		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .71.

Interpretation:

With a Sig-value of 0.843 > P-value (0.05), the result indicates that there is no significant association between education and how adolescents clean their genital area during menstruation. Hence, menstrual awareness does not significantly influence this practice among the respondents.

Hypothesis Test 3:

- **H_0**: There is no significant relationship between menstrual awareness and method of menstrual waste disposal.
- **H_1**: There is a significant relationship between menstrual awareness and method of menstrual waste disposal.

how_do_you_dispose_of_used_menstrual_products * you_received_any_education_about_menstrual_hygiene

Crosstab

Count

	you_received_any_education_about_menstrual_hygiene		Total
	no	yes	
burying them	10	97	107

how_do_you_dispose_of_used_menstrual_products	flushing them down the toilet	27	178	205
	in a bin	34	63	97
	Other	16	66	82
Total		87	404	491

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.223[a]	3	.000
Likelihood Ratio	25.902	3	.000
N of Valid Cases	491		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.53.

Interpretation:

The Sig-value is 0.000, which is less than P-value (0.05), so we reject the null hypothesis. This suggests that there is a significant relationship between menstrual hygiene education and the method used by adolescents to dispose of used menstrual products. This highlights the positive impact of education on safe and proper menstrual waste disposal practices.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Summary of Findings

This study investigated the level of awareness and menstrual hygiene practices among adolescents in Ara, Lajolo, Elekoyangan, and Oyun communities. A total of 500 questionnaires were distributed, with 491 valid responses analyzed using descriptive statistics, crosstabulations, and Chi-square tests.

The major findings include:

1. **High Level of Awareness**: A significant number of respondents (404 out of 491) had received some form of education about menstrual hygiene, indicating a relatively high level of awareness.
2. **Hand Washing Practices**: 82.3% of respondents reported always washing their hands before and after changing menstrual products. However, the Chi-square test revealed no significant relationship between menstrual hygiene education and hand washing behavior ($p = 0.510$).
3. **Genital Cleaning Methods**: Most respondents (52.5%) cleaned their genital area using soap and water, 43.4% used only water, and 3.3% used wipes. The statistical test showed no significant association between education and genital cleaning methods ($p = 0.843$).
4. **Disposal Practices**: The most common disposal method was flushing menstrual products down the toilet (41.8%), followed by burying them (21.8%) and using a bin (19.8%). A significant relationship was found between menstrual hygiene education and the method of disposing of menstrual products ($p = 0.000$), showing that education improves disposal practices.

5.2 Conclusion

The findings demonstrate that menstrual hygiene education has a significant positive impact on certain hygienic practices, especially in the proper disposal of menstrual products. However, it does not appear to significantly influence other behaviors such as hand washing or genital cleaning. While the level of awareness is relatively high among adolescents in the study areas, gaps still exist in the consistency and effectiveness of hygienic practices. These findings underscore the importance of continuous menstrual health education programs, especially those focused on the practical aspects of hygiene management.

5.3 Recommendations

Based on the findings of this study, the following recommendations are made:

1. **Strengthen Menstrual Hygiene Education Programs**: Government and non-governmental organizations should collaborate to provide comprehensive and consistent menstrual hygiene education in schools and communities, with practical demonstrations.
2. **Promote Safe Disposal Methods**: Educational campaigns should emphasize proper and eco-friendly disposal of menstrual products to reduce environmental impact and public health risks.
3. **Provision of Hygiene Materials**: Free or subsidized menstrual hygiene materials (pads, soap, disposal bins) should be made accessible in schools, especially in rural communities like Ara, Lajolo, Elekoyangan, and Oyun.
4. **Improve Sanitation Facilities**: Authorities should ensure that schools and public places have well-maintained toilets and handwashing facilities to enable hygienic practices.

5. **Community Involvement**: Local leaders, parents, and health workers should be involved in reinforcing proper menstrual hygiene behaviors through workshops and outreach programs.

REFERENCES

Abioye-Kuteyi, E. A. (2000). Menstrual knowledge and practices among secondary school girls in Ile-Ife, Nigeria. *African Journal of Reproductive Health*, 4(2), 65–71.

Aluko, O. O., & Oladepo, O. (2012). Knowledge and practices of menstrual hygiene management among adolescent school girls in Ilorin, Nigeria. *African Journal of Biomedical Research*, 15(3), 151–157.

Bhatt, A., Kaur, H., & Verma, R. (2014). Menstrual hygiene: Knowledge and practices among adolescent girls of rural and urban areas of Vadodara district, Gujarat. *Healthline Journal*, 5(1), 19–23.

Boateng, E. A., & Kwapong, G. D. (2020). Menstrual hygiene management and sanitation facilities in schools: A case study in Ghana. *Journal of Environmental and Public Health*, 2020, Article ID 5864020.

Dasgupta, A., & Sarkar, M. (2008). Menstrual hygiene: How hygienic is the adolescent girl? *Indian Journal of Community Medicine*, 33(2), 77–80. https://doi.org/10.4103/0970-0218.40872

District Education Office, Ilorin. (2022). *Annual school enrollment report*. Ilorin, Nigeria.

George, A., & Sreenivas, V. (2018). Menstrual hygiene practices and associated factors among adolescent girls in rural areas of India. *International Journal of Community Medicine and Public Health*, 5(2), 663–668.

Hennegan, J., & Montgomery, P. (2016). Do menstrual hygiene management interventions

improve education and psychosocial outcomes for women and girls in low and middle income countries? A systematic review. *PLoS ONE*, 11(2), e0146985. https://doi.org/10.1371/journal.pone.0146985

International Federation of Gynecology and Obstetrics (FIGO). (2018). Menstrual health: A new global agenda. *International Journal of Gynecology & Obstetrics*, 141(Suppl 1), 1–3.

John, N., & Sadiq, A. (2016). Assessment of knowledge and practices of menstrual hygiene among adolescent girls in urban slums of Ludhiana. *Journal of Family Medicine and Primary Care*, 5(3), 634–638.

Kumar, A., & Srivastava, K. (2011). Cultural and social practices regarding menstruation among adolescent girls. *Social Work in Public Health*, 26(6), 594–604. https://doi.org/10.1080/19371918.2011.597991

Latham, M. C. (2011). *Human nutrition in the developing world* (2nd ed.). Food and Agriculture Organization.

Mason, L., Nyothach, E., Alexander, K., Odhiambo, F. O., Eleveld, A., Vulule, J., … & Phillips-Howard, P. A. (2013). 'We keep it secret so no one should know' – A qualitative study to explore young schoolgirls' attitudes and experiences with menstruation in rural Western Kenya. *PLoS ONE*, 8(11), e79132. https://doi.org/10.1371/journal.pone.0079132

Ministry of Health Nigeria. (2021). *National adolescent reproductive health policy*. Abuja, Nigeria.

Mohammadi, M. R., Rahmanian, M., Rahmani, A., & Mahmoodi, M. (2019). Menstrual hygiene

practices and associated factors among adolescent girls in Iran: A cross-sectional study. *BMC Public Health*, 19(1), 1212. https://doi.org/10.1186/s12889-019-7554-3

National Population Commission (NPC) Nigeria. (2020). *Population census report*. Abuja, Nigeria.

Nwankwo, C., & Olajide, O. (2019). Impact of menstrual hygiene management on school attendance in Nigerian secondary schools. *Journal of Health Sciences*, 9(4), 210–216.

Olayinka, B. A., & Olumide, Y. (2017). Menstrual hygiene management among adolescent girls in selected schools in Ibadan, Nigeria. *International Journal of Adolescent Medicine and Health*, 29(3), 1–6.

UNICEF. (2019). *Guidance on menstrual hygiene management*. New York, NY: UNICEF.

WHO. (2018). *Adolescent health and development: Menstrual hygiene management*. Geneva: World Health Organization.