

**KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS MENSTRUAL
HYGIENE AMONG FEMALE STUDENTS IN THE UNIVERSITY OF BENIN**

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**A RESEARCH SUBMITTED TO THE DEPARTMENT OF HEALTH, SAFETY
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CERTIFICATION

We, the undersigned, certify and approve that this research was carried out by **Lilian Omotayo YAMAH** with Matriculation Number EDU2001898 in the department of Health, Safety and Environmental Education, Faculty of Education, University of Benin, Benin City in partial fulfillment of the requirement of the award of the Bachelor of Science (Ed) degree in Health Education.

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DEDICATION

This research is dedicated to God Almighty for His boundless grace, wisdom, and strength, which has sustained the researcher and made it possible for her to successfully complete her bachelor's degree program.

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ABSTRACT

The study focused on the knowledge, attitudes and practices towards menstrual hygiene among female students in University of Benin. Four(4) research questions guided this study.

The descriptive survey research design was adopted to carry out this study. The population of the study comprises of female undergraduate students in the eight (8) departments of the Faculty of Education in the University of Benin with the total 4,398. A sample size of 100 female students were selected using the simple random sampling technique. The research instrument used was a structured questionnaire used to obtain data from the sample population. The instrument was validated by the supervisor and two other lecturers in the Department of Health, Safety and Environmental Education. The split-half method was used to ascertain the reliability of the instrument. A total of one hundred (100) questionnaires were administered to the sample population and data collected was analyzed using simple percentages and frequency counts.

Findings from the study revealed that female students in the University of Benin have high level of knowledge and positive attitudes towards menstrual hygiene and actively practice proper hygiene habits. Most students track their menstrual cycles regularly and use sanitary pads and tampons as their preferred menstrual products. While menstrual hygiene is recognized as an essential aspect of women's health, opinions vary on how openly it should be discussed. The study highlights the need for increased access to affordable menstrual products, improved menstrual hygiene education for both genders, and better disposal facilities. Based on these findings, recommendations include providing free or subsidized menstrual products by the University and relevant stakeholders particularly for students from low-income backgrounds, integrating menstrual hygiene education into health programs for both male and female students, installing more sanitary disposal bins, promoting open discussions through awareness campaigns, and implementing proper disposal measures such as awareness programs or fines in order to maintain hygiene on campus.

CHAPTER ONE

INTRODUCTION

Background of the Study

Male and female development stages are similar except for distinct changes which occur in the adolescent stage. Females undergo menstruation as an indicator of transition from childhood to womanhood. This transition is marked by an important stage known as Menarche. After attainment of this stage till menopause, reproductive health and menstrual hygiene are significant aspects to the well-being of females. From menarche onwards, due to sensitivity and the physical aspect of menstruation, physical, psychological or social problems may result from the girl while others may be due to external factors. Whether internally or externally instigated, some challenges and experiences more so psychological may have a long-term impact on the future of the female child depending on the perception, which varies with the socio-cultural background.

Menstruation is a physiological process that starts with puberty in females. For most girls and young women, the first menstruation – menarche – starts between the ages of 10 and 15, with a mean of 13. As menstruation begins, ‘menstrual hygiene,’ the act of keeping the body clean during menstruation, is an essential routine.

The menstrual cycle consists of four phases; the follicular phase, ovulation, luteal phase and menstruation, which is of major concern in this work due to its physical aspect and

negative perception in some community settings. Though menstruation associated characteristics vary from one female to another, common symptoms include; uterine cramping, bloating, mood swings, irritability, headache, tiredness and low back pains. Despite menstruation being a key health indicator, its perception varies regionally depending on the culture, and the level of literacy on the subject, which consequently determines the management practices and the attitude associated with it. Inadequate knowledge in girls on menstrual hygiene management (MHM), coupled with negative stereotyped attitudes toward menstruation, has led to collisions in many communities like in Latin America.

The WHO and UNICEF's joint monitoring program (JMP) has defined menstrual hygiene management as the usage of hygienic material for menstrual management, to absorb the blood of menstruating girls or women every month [UNICEF, 2019]. This can be changed as per need in an environment that provides privacy, respect, and comfort, and permits the washing of the hands and body, when required, with soap and clean water, as well as the ability to discard of the used materials properly. Improper menstrual hygiene management (MHM) can lead to low self-esteem, negative body image, and unsafe sexual practices [V et al., 2019]. Considering its impact on women's lives, May 28th is celebrated as "Global Menstrual Hygiene Day", which was introduced by WASH United to create awareness and to recognize the rights of girls to manage their menstruation hygienically.

Menstrual hygiene (MH) practices depend on factors such as geographic origins, cultural and socioeconomic influences, education, and information received. The choice and use of products such as type of sanitary protection, also depend on multiple factors specific to each woman (e.g., menstrual flow, duration of menstrual period, and personal preferences) (Romo and Berenson, 2012). Incorrect MH practices also pose health hazards like urinary and reproductive tract infections, which can have both short and long-term health implications [Nabwera et al., 2021].

According to the World Health Organization (WHO), sexual and reproductive health issues are a rising problem around the globe. Among them, menstrual hygiene is a critical issue encountered by women and girls of reproductive age that negatively affects their health and empowerment [WHO, 2021]. Across the globe, 1.8 billion girls menstruate each month, yet a major portion of this population lacks adequate knowledge as well as basic facilities to handle their menstruation in an appropriate and healthy way [UNICEF, 2021]. Moreover, menstruation is still deemed a taboo subject in several parts of the world. The literature states that young people in low- and middle-income countries (LMICs) confront challenges related to menstruation and menstrual hygiene practices due to religious, cultural, and social constraints and due to incorrect information [Chandra-Mouli and Patel, 2017]. Moreover, girls residing in rural areas encounter more problems, since they lack the proper resources, skills, and knowledge to manage their menstruation in school as well as at home [Kaur et al., 2018]. In Pakistan, menstruating girls have

insufficient information about practices regarding menstruation and menstrual hygiene and, consequently, this impacts the wellbeing of such girls.

Menstrual hygiene management (MHM) is essential for good sexual and reproductive health of females. It plays a critical role in enabling adolescent girls and women to attain their full potential (World Bank Water Global Practice Group, 2021). Globally, about 800 million adolescent girls and women menstruate everyday (Water Aid/ Water Supply and Sanitation/Unilever, 2013). Yet about 500 million females all over the world lack access to menstrual hygiene products and adequate facilities for hygienic management of menstruation (World Bank, 2022). According to WHO/UNICEF Joint Monitoring Programme, MHM is the use of a clean menstrual management material to absorb or collect menstrual blood, which can be changed in privacy as often as necessary, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials (World Bank Water Global Practice Group, 2021; Sommer and Sahin, 2013). This also involves an understanding of the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort, embarrassment, stigma or fear. To effectively manage their menstruation, girls and women require access to adequate water, sanitation, and hygiene (WASH) facilities, affordable and appropriate menstrual hygiene materials and information on good practices. They require access to facilities with privacy for changing materials used for menses, washing body and hands with soap and water, privacy for

washing off stains from clothes with water and soap, facility for drying reusable materials and disposal facilities for used menstrual products from point of collection to final disposal (UNICEF, 2020). MHM has been a challenging issue in developing countries due to water scarcity and insufficient access to WASH facilities and lack of privacy especially for in-school females (Sommer and Sahin, 2013). In Nigeria, menstruating school girls are faced with numerous challenges which hinder their ability to manage their menstruation in a dignified and hygienic way. These include unavailability or inadequacy of WASH facilities, lack of information on MHM and access to hygienic menstrual materials, and harmful taboos and myths associated with menstruation (UNICEF, 2015).

Statement of the Problem

Menstrual hygiene management is a critical aspect of health and well-being for female students, yet it remains a significant challenge in many educational settings. Research indicates that inadequate knowledge, negative attitudes, and poor practices related to menstrual hygiene can adversely affect the health, academic performance, and overall quality of life of female students (Hennegan et al., 2016; Sommer, 2013). At the University of Benin, there is limited empirical data on the specific knowledge, attitudes, and practices regarding menstrual hygiene among female students. This lack of comprehensive data hinders the development of effective interventions and support systems tailored to their needs.

Preliminary observations and anecdotal evidence suggest that misconceptions about menstrual hygiene, combined with potentially inadequate resources and support, may affect the menstrual health management of these students (Paine et al., 2018; Ajao et al., 2020). Despite the availability of menstrual hygiene products and educational materials, there is a critical need to systematically assess the knowledge, prevailing attitudes, and practices related to menstrual hygiene among female students at the University of Benin. The problem thus centers on the inadequate understanding of these factors, which may contribute to suboptimal menstrual hygiene management practices and related challenges. Addressing this issue requires a thorough investigation into the current state of menstrual hygiene practices and attitudes among female students to identify gaps and areas for improvement. This study aims to provide valuable insights that can inform the development of targeted educational programs and supportive measures to enhance menstrual hygiene practices and overall health outcomes for female students at the University of Benin.

Research Questions

The following research questions were raised to guide the study.

1. What is the level of knowledge of menstrual hygiene among students of the University of Benin?
2. What are female students' attitude towards menstrual hygiene in the University of Benin?

3. What is the practice of female undergraduate students of the University of Benin towards their menstruation?
4. What material does the student use during menstruation?

Purpose of the Study

The purpose of this study is to investigate the knowledge, attitudes, and practices regarding menstrual hygiene among female students at the University of Benin.

Specifically, this research aims to:

1. Determine the level of knowledge that female students possess about menstrual hygiene, including the biological aspects of menstruation, proper hygiene practices, and available menstrual products.
2. Explore the attitudes of female students towards menstrual hygiene, including cultural beliefs, stigma, and personal comfort levels in managing menstruation.
3. Examine the actual practices employed by female students in managing menstrual hygiene, such as the use of menstrual products, frequency of changing products, and adherence to hygiene standards.
4. To identify the types of menstrual hygiene materials used by female students in the University of Benin.

Significance of the Study

This study sought to establish the current Knowledge, attitudes, and practices towards menstrual hygiene among female students in the University of Benin. The current

landscape on knowledge, attitude and management practices by female undergraduates is useful to the various stakeholders including, the school's management boards, parents and NGOs in case interventional measures are necessary. In some cases, integral changes on their existing facilities such as restrooms to accommodate the needs of menstruating girls may be necessary. The findings from the current study further contribute to new knowledge to one of the pertinent issues described in current policy documents including Nigeria Environmental "Water Sanitation and Hygiene Policy" towards achieving Vision 2030. The findings will contribute to the implementation of sustainable development goals like good health and wellbeing of female undergraduate students, gender equality through sensitization forums and curriculum revision to enhance knowledge and minimize negative attitudes.

Scope/Delimitations of the Study

This study is focused on female students enrolled at the University of Benin. Specifically, the research targets female undergraduate students from various faculties within the university.

Geographically, the study will be confined to the University of Benin campus, encompassing all its constituent colleges and departments. This localized focus will enable an in-depth examination of menstrual hygiene knowledge, attitudes, and practices among female students within this specific academic environment.

The study will investigate three primary aspects of menstrual hygiene among the target population. Firstly, it will assess students' knowledge about menstrual hygiene, covering biological, practical, and product-related information. Secondly, it will explore attitudes towards menstrual hygiene, including cultural beliefs, stigma, and personal comfort levels. Finally, the research will examine practices related to menstrual hygiene management, such as product usage, changing frequency, and adherence to hygiene practices.

To gather data from participants, the study will employ a combination of surveys, questionnaires, and possibly focus group discussions. These data collection methods will provide a comprehensive understanding of the students' knowledge, attitudes, and practices regarding menstrual hygiene.

By focusing on these specific aspects and employing rigorous data collection methods, this study aims to provide valuable insights into menstrual hygiene among female students at the University of Benin, ultimately informing strategies to promote improved menstrual health and well-being within this population.

Limitations of the Study

This study has several limitations that should be acknowledged. Firstly, the sample size and representativeness of the study may be limited, as it will focus exclusively on female students at the University of Benin. This may not be representative of female students at

other universities or institutions in Nigeria or globally, potentially limiting the generalizability of the findings.

Another limitation is the reliance on self-reported data, which may be subject to response biases such as social desirability or recall bias. This could affect the accuracy of the reported knowledge, attitudes, and practices related to menstrual hygiene.

The study's cross-sectional design is also a limitation. By capturing data at a single point in time, this design does not allow for the examination of changes over time or the establishment of causal relationships. This restricts the study's ability to explore the dynamics of menstrual hygiene knowledge, attitudes, and practices.

Additionally, resource constraints may impact the depth of the investigation. Limited time and resources may affect the extent of qualitative data collection or the ability to follow up with participants, potentially limiting the richness of the data.

Language and communication barriers may also pose a challenge. Although English is the medium of instruction, some students may experience difficulties in understanding or responding to the questionnaires due to language or comprehension issues.

Finally, social and cultural sensitivities related to menstruation may influence participants' openness in sharing accurate information about their practices and attitudes.

This potential bias in responses may impact the validity of the findings.

By acknowledging these limitations, this study aims to provide a focused analysis of menstrual hygiene knowledge, attitudes, and practices among female students at the University of Benin, while recognizing the constraints that may affect the study's findings.

Definition of Terms

1. **Menstrual Hygiene:** Refers to the practices and measures taken to manage menstruation safely and comfortably. This includes the use of menstrual products, maintaining personal cleanliness, and managing menstruation in a way that avoids health risks.
2. **Menstrual Hygiene Products:** Items used to absorb or manage menstrual flow. These include sanitary pads, tampons, menstrual cups, and period panties.
3. **Knowledge:** In this study, knowledge refers to the awareness and understanding that female students have about menstrual hygiene practices, including the biological aspects of menstruation, proper use of menstrual products, and recommended hygiene practices.
4. **Attitudes:** Attitudes pertain to the beliefs, perceptions, and feelings that female students have about menstruation and menstrual hygiene. This includes cultural attitudes, stigma, comfort levels, and personal beliefs related to menstruation.
5. **Practices:** Practices refer to the actual behaviors and actions taken by female students in managing menstrual hygiene. This encompasses the frequency of

changing menstrual products, methods of disposal, and adherence to hygiene routines.

6. **University of Benin:** An educational institution located in Benin City, Nigeria. For the purposes of this study, it refers specifically to the student population enrolled in undergraduate programs at this university.
7. **Cultural Beliefs:** The collective beliefs and practices related to menstruation that are shaped by cultural and societal norms. These can influence attitudes towards menstrual hygiene and practices.
8. **Stigma:** Refers to the negative stereotypes and social disapproval associated with menstruation, which can affect individuals' willingness to discuss or manage menstrual hygiene openly.
9. **Health Outcomes:** The effects of menstrual hygiene practices on the physical and psychological well-being of female students. This includes impacts on general health, comfort, and academic performance.
10. **Support Systems:** Resources and assistance provided to students to help manage menstrual hygiene. This can include educational programs, access to menstrual products, and counseling services.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter deals with the review of relevant and related literature on this study. The literature necessary for this study is reviewed under the following subheadings;

- Concept of Menstrual Hygiene
- Knowledge of Menstrual Hygiene among Female Students
- Attitudes of Female Students toward Menstrual Hygiene
- Menstrual Hygiene Practices among Female Students
- Relationship Between Attitudes and Practices of Menstrual Hygiene among Female Students
- Summary of Review of Related Literature

Concept of Menstrual Hygiene

Menstruation is a significant milestone in the puberty journey of a growing girl. It refers to the regular shedding of the uterine lining, a process regulated by hormones secreted by the hypothalamus and pituitary glands in the brain. The age at which women experience their first menstrual period, known as menarche, varies globally, but most studies suggest it typically occurs between 13 and 15 years. Similarly, the age of menopause differs across nations; however, it is generally reported to take place between 45 and 50 years. This means a woman spends roughly 2,100 days of her life menstruating, which amounts to nearly six years of her reproductive lifespan (Pokhrel et al., 2014).

Menstrual hygiene refers to the practices that ensure the safe and comfortable management of menstruation. Menstrual hygiene is described as the process whereby "women and adolescent girls use a clean menstrual hygiene management (MHM) material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing their bodies as required and having access to facilities to dispose of used menstrual management material" (UNICEF, WHO 2014).

Menstrual hygiene covers a wide range of actions aimed at managing menstrual flow in a hygienic and comfortable manner. These practices include using suitable menstrual products, maintaining personal cleanliness, and accessing adequate facilities during menstruation. It is founded on the understanding that menstruation is a natural biological process that requires proper care to uphold the dignity, health, and well-being of individuals who menstruate.

Effective menstrual hygiene depends on the selection and proper use of appropriate products. Options include tampons, menstrual cups, sanitary pads, and reusable cloth pads, with the choice influenced by factors like affordability, availability, comfort, and individual preference. These products are essential for managing menstrual flow effectively, preventing leaks, discomfort, and potential health risks associated with poor practices.

Maintaining personal hygiene during menstruation includes showering or bathing as needed, changing menstrual products regularly, and washing hands before and after handling these materials. Good hygiene practices help prevent infections, ensure comfort, and contribute to confidence and overall well-being during menstruation. Access to private, clean facilities with washing and disposal options is critical for proper menstrual hygiene. Inadequate facilities can lead to discomfort, embarrassment, and increased health risks. Beyond physical practices, menstrual hygiene also involves addressing cultural and social perceptions of menstruation.

Management approaches often times could be unhygienic and inconvenient, particularly in the poorer settings. Good menstrual hygiene is important for women and girls' safety, wellness, integrity, education, mobility and productivity. Poor menstrual hygiene can lead to stigma and ill health, and school absenteeism. Menstruation is a taboo subject across the globe, and this could lead to misinformation and the promotion of unsafe menstrual hygiene practices. Some repercussions of poor MHM are discomfort, bad odour, fear of soiling, menstrual pain making concentration difficult, among others. The preference of absorbent used to manage menstrual bleeding is based on personal choice, cultural acceptability, economic status, and availability in local market. (Kaur et al., 2018) Some materials/absorbents used during menstruation include:

Disposable sanitary pads: These seem to be girls'/women's preferred method for managing menstrual bleeding. (UNICEF, 2015). They are believed to be more absorbent

than cloths and other materials, simpler to use, and easier to dispose of. However, they are expensive, compared to cloth pads, and not eco-friendly.

Reusable cloth pads: They might serve as sustainable sanitary option if hygienically washed and dried in the sunlight. The sun's heat being a natural sterilizer sterilizes and dries the cloths/cloth pads for future use. Cloth pads are less expensive, readily and easily available, and eco-friendly. However, they need to be stored in a clean dry place for reuse to avoid contamination.

Tampons: They are the type of absorbent that provides internal protection. They are kind of soft material (cotton) which is inserted into the vagina to absorb the menstrual flow before it leaves the body. They are expensive, not easily degradable in nature and hence, not very eco-friendly. Lately, sea sponge tampons are available in the market and serve as natural alternative to synthetic tampons. (Kaur et al., 2018).

Worthy of note is the fact that using highly absorbent tampons during light flow or no menstruation can cause toxic shock syndrome (TSS), and/or vaginal irritation. (House et al., 2012; Radke, 2013). There are also reusable tampons which are washable tampons made up of natural materials like bamboo, wool, cotton, or hemp. They are also knitted or crocheted using the natural absorbent material like cotton or wool. They are inserted into the vagina to absorb menstrual flow same as the disposable tampons.

Menstrual cups: They are small, flexible funnel-shaped cup made of rubber, silicone or latex inserted into the vagina to catch and collect menstrual blood. Cups can hold more

blood than other methods. They can be worn for up to 4-12 hours depending on the flow before being emptied, rinsed and reinserted. They are reusable and eco- friendly. Many women claim they have never heard of menstrual cups though some may know them as ‘Diva cups’ or ‘Moon cups’ which are some brand names of menstrual cup. (Scaccia and Wilson, 2017). They may be a new technology for poor girls and women and also an alternative to sanitary pads and tampons. Menstrual cups offer sustainable, practical, and cost-effective alternative where sanitation conditions are not good.

Toilet paper or tissues: This is easily available in the local market. The disadvantages are that the toilet paper loses strength when wet and can fall apart, they are difficult to hold in place and may be too expensive for the poorest users. (House et al., 2012). This study was carried out among undergraduate female students in tertiary institutions of Imo State, Southeastern Nigeria to investigate their menstrual hygiene management practices.

The History of Menstruation and Menstrual Hygiene Practices

Menstruation, a natural biological process experienced by individuals with vaginas, has been surrounded by myths, taboos, and varying levels of understanding throughout history. The term "menstruation" is derived from the Latin word *menstruus*, meaning "monthly," closely linked to the Old English *monadblot*, or "month blood." The term "period," first appearing in 1822, simply reflects the recurring nature of this cycle.

Historically, menstruation has been associated with superstitions and misinformation. In ancient times, menstrual blood was often regarded as magical or even dangerous. Roman

philosopher Pliny the Elder claimed menstruating women could halt hailstorms, ruin crops, and spoil food or drink. Such beliefs persisted for centuries, and even today, in some rural parts of India, menstrual taboos continue, such as the idea that menstruating women can cause pickles to spoil.

The origins of menstrual hygiene products are unclear, but some historical accounts suggest ancient Egyptians used softened papyrus as tampons, while the Greeks used wood wrapped in lint, and the Romans made pads and tampons from wool. Despite these practices, many women likely free-bled, particularly during medieval times when access to menstrual products was limited. This period also gave rise to the term “on the rag,” as women often used cloth to manage their menstruation.

Religion and societal norms have long stigmatized menstruation, leading to shame and secrecy. Medieval women carried herbal sachets to mask the smell of blood, and bizarre remedies, like burning a toad and wearing its ashes, were believed to reduce menstrual flow and cramps. Despite these myths, little progress in understanding menstruation occurred until the last century.

By the Victorian era, concerns over hygiene and comfort during menstruation began to surface, particularly as industrialization and women’s participation in the workforce grew. This period marked the early development of menstrual products. The first disposable menstrual pad was introduced in 1888 but failed due to stigma and lack of advertising. However, the use of cellucotton during World War I inspired the creation of Kotex pads,

which gained traction in the 1920s. These were initially held in place by sanitary belts—a cumbersome solution that persisted until the 1970s when adhesive pads revolutionized menstrual hygiene.

Tampons, another major innovation, were invented in 1929 by Dr. Earle Haas. His design involved a cotton plug inserted with a cardboard applicator, inspired by a friend who used a sponge to absorb menstrual blood.

These advancements highlight the gradual evolution of menstrual hygiene products, reflecting changing societal attitudes towards menstruation. However, misinformation and stigmas remain significant barriers, particularly in developing regions. Understanding this history is crucial to addressing contemporary issues surrounding menstrual hygiene, as it provides context for the persistent challenges faced by women and girls, especially in education and access to resources.

Knowledge of Menstrual Hygiene among Female Students

Knowledge refers to the level of awareness, understanding, and information about menstruation and its proper management. This knowledge plays a vital role in shaping attitudes and practices related to menstrual hygiene, as well-informed individuals are more likely to adopt appropriate hygiene measures. For female university students, having sufficient knowledge is critical for maintaining physical health, enhancing self-esteem, and enabling active engagement in academic and daily activities. Knowledge significantly impacts various aspects of life, including behaviour, making its influence

undeniable. Numerous studies have explored knowledge relating to menstrual hygiene, revealing differing levels of understanding regarding its management (Yadav et al., 2018). The level of awareness regarding menstrual hygiene among women often depends on their cultural environment, educational background, and access to information. Many women understand the biological basis of menstruation, such as the shedding of the uterine lining and the release of blood through the vagina. They are also familiar with typical menstrual cycles, which range from 21 to 35 days, and menstrual bleeding that usually lasts between 3 to 7 days. This foundational understanding often shapes their perception of menstrual hygiene practices.

A significant portion of women is aware of the importance of maintaining personal hygiene during menstruation. This includes regularly changing menstrual products to prevent leaks, odours, and infections, as well as washing hands thoroughly before and after handling these products. Maintaining genital hygiene through regular bathing is also widely recognized as a critical practice. These measures help in managing menstrual health comfortably and reducing risks of infections. In addition to practical knowledge, many women are also aware of the societal and cultural influences surrounding menstruation. They recognize that taboos, stigma, and social expectations can influence their experiences and decisions about menstrual hygiene. For example, cultural restrictions may discourage open discussions about menstruation, which in turn limits access to accurate information and support.

However, misinformation and myths about menstruation persist and negatively impact hygiene practices. A common misconception associates menstruation with impurity, which may lead some women to avoid essential hygiene practices due to feelings of shame. Additionally, the false belief that menstrual blood is inherently dirty can deter proper handling of menstrual materials. Another myth, especially in some cultures, is that using tampons affects virginity or damages the hymen, discouraging their use even when they are a safe option. The cultural norm of maintaining silence about menstruation further exacerbates these challenges. Women may hesitate to seek advice or resources due to societal pressures, thereby reinforcing stigma and misinformation. By encouraging open conversations about menstruation, these barriers can be addressed, fostering better menstrual health practices. For women and girls in low-income settings, menstrual hygiene is often hampered by limited awareness and inadequate resources. In many cultures, menstruation is shrouded in secrecy and influenced by societal taboos that restrict mobility and daily activities. For instance, in countries like India and Nepal, menstruating individuals may face restrictions on drinking milk, cooking, socializing, or participating in religious activities (Arumugam et al., 2014). Low-income nations, such as Nepal, employ a variety of materials as adsorbent during menstruation, from commercially produced disposable sanitary pads to reusable towels made from cotton fabric and women's clothes (Sebastian et al., 2013). These cultural practices, coupled with the use of improvised absorbent materials, contribute to health issues such as urinary

tract infections (UTIs) and reproductive tract infections (RTIs), as well as social and educational disruptions. It is advised that women in low -income nations use practical, sustainable, and culturally acceptable techniques to meet their menstrual hygiene needs. Education about menstrual health should begin before menarche and involve both males and females. Schools, parents, and social media platforms can play a significant role in disseminating accurate information and creating awareness. This comprehensive approach not only improves hygiene practices but also combats cultural taboos, reduces the risk of infections, and enhances the quality of life for menstruating individuals. Globally, poor knowledge and unsafe practices surrounding menstruation lead to significant consequences, such as reproductive tract infections, school absenteeism, and social isolation. Addressing these gaps requires a multidimensional approach that combines education, access to hygienic menstrual products, and supportive cultural environments.

Stages of Menstruation

Menstruation is a natural biological process where the uterine lining, known as the endometrium, sheds along with blood. This cycle occurs monthly throughout a woman's reproductive years, except during pregnancy, beginning at puberty (menarche) and ceasing permanently at menopause, which is defined as one year after the final menstrual period. The menstrual cycle is counted from the first day of menstruation, or bleeding, which is considered day one, and it ends just before the next period begins. Cycles

typically range from 24 to 38 days, although only 10–15% of women experience the standard 28-day cycle. Approximately 20% of women have irregular cycles, which are shorter or longer than the typical range. These variations are more common during the early years after menarche and closer to menopause. Bleeding during menstruation usually lasts 3 to 7 days, with an average blood loss of 1/5 to 2 1/2 ounces. Sanitary products such as pads or tampons are designed to absorb up to one ounce of blood per item. Menstrual blood generally does not clot unless the flow is abnormally heavy.

Hormones play a key role in regulating the menstrual cycle. The pituitary gland produces luteinizing hormone (LH) and follicle-stimulating hormone (FSH), which prompt ovulation and stimulate the ovaries to produce estrogen and progesterone. These hormones prepare the uterus for a possible pregnancy and influence other parts of the body (Jessica, 2022).

The cycle is divided into four main stages:

1. **Menstrual Phase:** This phase marks the beginning of the cycle and is characterized by the shedding of the uterine lining. During this time, female students may experience symptoms such as abdominal cramps, fatigue, bloating, breast tenderness, mood swings, and headaches, which can affect their academic and social activities.
2. **Follicular Phase:** Starting from the first day of menstruation, this phase involves the development of ovarian follicles and the thickening of the uterine lining.

Estrogen levels increase, and one dominant follicle matures to prepare for ovulation.

3. **Ovulatory Phase:** Ovulation occurs when the mature follicle releases an egg, typically around the middle of the cycle. This is the most fertile phase, lasting 16 to 32 hours. Some students may experience mild abdominal discomfort during ovulation, known as mittelschmerz, which is normal and temporary.
4. **Luteal Phase:** After ovulation, the ruptured follicle transforms into a corpus luteum, producing progesterone to maintain the uterine lining. If the egg is not fertilized, hormone levels decline, leading to the start of a new cycle.

Understanding the menstrual cycle is essential for promoting proper menstrual hygiene management. It is crucial for students in universities and other higher education institutions to understand the stages of menstruation. The menstrual period significantly impacts the academic performance of female students. It affects various aspects of their lives, including social interactions, dietary habits, physical activity, sleep duration and quality, study schedules, focus, participation in group tasks, exam preparation and performance, as well as class attendance (Khamdan et al., 2014). This knowledge not only promotes healthier practices but also contributes significantly to overall well-being. A clear understanding of menstrual stages equips female students with the skills to manage their hygiene effectively during different phases of their cycle. For instance: During menstruation, they are more likely to adopt proper methods of using and

disposing of menstrual products, which minimizes the risk of infections and reduces environmental harm. In the pre- and post-menstrual phases, they can address hormonal changes with appropriate hygiene practices. Research has shown that increased awareness about menstruation leads to better hygiene practices and improved health outcomes (Benshaul Tolonen et al. 2019; Phillips-Howard et al. 2016).

Understanding menstruation empowers students to make decisions that suit their personal needs. They can select menstrual products that align with their preferences and manage symptoms like cramps or mood swings through lifestyle changes. Research underscores the importance of education in fostering confidence and self-efficacy in menstrual management.

Attitudes of Female Students toward Menstrual Hygiene

Menstrual attitudes are shaped by various factors, including urban or rural residence, cultural norms, and religious beliefs. A girl's first experience of menstruation, particularly in unprepared circumstances, can evoke fear or discomfort. Studies reveal that inadequate preparation and lack of information before menarche contribute significantly to these reactions. Research from Nigeria and Pakistan demonstrates that many girls encounter their first period without prior knowledge or support, resulting in feelings of embarrassment and anxiety. Cultural myths, societal expectations, and family dynamics further contribute to discomfort and misinformation surrounding menstruation.

Cultural norms and taboos often perpetuate secrecy and stigma around menstruation. In certain regions, cultural practices impose restrictions on bathing during menstruation and prohibit the burial of blood-stained menstrual cloths without first washing them. These cloths are often reused or buried after cleaning. Washing and drying menstrual cloths are traditionally done in secret or in hidden areas to avoid being seen by others (Dhingra et al., 2009). There is a belief that menstrual fluids could be exploited for black magic, leading to the practice of washing menstrual wrappers or cloths at night when others are asleep. Menstrual blood is often viewed as impure, shameful, and harmful, prompting women to hide menstrual cloths for fear of curses or harm. Some believe that menstrual waste is associated with witchcraft and should be buried to prevent witches from using it to cause harm, such as infertility (Umeora et al., 2008). In some areas, menstruating women are considered untouchable and face various restrictions. They may be prohibited from cooking, consuming certain foods like pickles, participating in religious activities, or handling religious objects. Such restrictions are more prevalent in rural communities compared to urban ones. Additionally, menstruating girls may be discouraged from bathing or washing their hair due to the belief that it could obstruct blood flow.

These beliefs highlight the importance of education in managing menstrual hygiene effectively. By educating both men and women about menstruation, it is possible to challenge and dispel these misconceptions and taboos. However, due to cultural restrictions, many girls lack adequate knowledge about menstruation before menarche,

leading to feelings of abnormality, illness, or distress. Girls who are unprepared for menstruation often experience fear, confusion, and embarrassment, which may result in negative perceptions of menstruation.

Challenging these beliefs is crucial for fostering open conversations and ensuring individuals feel supported during their menstrual cycles. Access to accurate information and affordable menstrual products is essential for effective management. Without these resources, individuals may face challenges that lead to negative health and emotional consequences.

Social stigma also influences menstruation-related behaviors. Many women feel embarrassed purchasing menstrual products, with studies indicating that over 66% of respondents find it shameful to buy pads. This stigma perpetuates unsafe hygiene practices, including prolonged use of menstrual materials, which can increase the risk of infections. Additionally, inadequate water, sanitation, and hygiene (WASH) facilities in schools result in absenteeism among menstruating girls. In sub-Saharan Africa, girls may miss up to five school days per month due to a lack of menstrual products and inadequate facilities. Improved access to WASH infrastructure significantly boosts school attendance, as evidenced by a sanitation program in Bangladesh that led to an 11% increase in girls' enrollment.

Cultural taboos and misinformation further exacerbate negative attitudes toward menstruation. While some communities view menstruation as impure, others celebrate it

as a marker of fertility and womanhood. The attitudes within these communities often dictate behaviors, including restrictions on participation in social or religious activities during menstruation. Media representations and gender norms also play a role, as menstruation is often portrayed as a "women's issue," sidelining men from the conversation. However, increasing awareness and progressive narratives are challenging these stereotypes, fostering a more inclusive dialogue.

Education is critical in addressing misconceptions and fostering positive attitudes toward menstrual hygiene. Societies with higher education levels often exhibit progressive views, as knowledge promotes healthier practices. Economic factors also influence menstrual attitudes, with affordability issues leading to the use of unhygienic alternatives in low-income settings. Countries that implement menstrual health policies—such as subsidizing menstrual products or including menstrual education in school curricula—see significant improvements in societal perceptions and practices. For example, access to affordable and sustainable menstrual products has shifted the focus toward environmental consciousness and long-term health benefits.

Attitudes toward menstrual hygiene are complex and multifaceted, shaped by cultural, social, and economic factors. Promoting open discussions, increasing awareness, and improving access to resources are key to breaking taboos and supporting better menstrual hygiene practices globally. Girls and young women can benefit from building a positive outlook on menstruation, understanding it as a normal biological process, and prioritizing

self-care and hygiene. By advocating for open communication and challenging stigma, individuals can contribute to creating a more supportive environment for menstrual health. To address misconceptions and promote open communication about menstruation, it is essential to foster supportive environments. Students should feel comfortable discussing their experiences and concerns with peers, family members, or school counselors. Schools play a pivotal role in this regard by providing resources, educational sessions, and a safe space for students to learn about and manage menstruation. Addressing myths and misconceptions surrounding menstruation is equally important to alleviate anxiety and promote a healthier understanding of this natural process.

Menstrual Hygiene Practices among Female Students

Menstrual hygiene practices involve the behaviours and actions taken by individuals during menstruation to maintain cleanliness, ensure comfort, and safeguard their health. These practices include the selection and use of menstrual products, personal hygiene routines, proper disposal of used materials, and addressing any related health concerns. Maintaining good menstrual hygiene is crucial for preventing infections, promoting reproductive health, and supporting mental well-being.

Menstrual hygiene practices are critical for the health, confidence, and overall well-being of female students. Research has shown that poor menstrual hygiene can negatively affect university students' academic performance, attendance and emotional well-being (Munro et al., 2021). Many students prefer sanitary pads due to their ease of use and proper

disposal methods. Regular pad changes are essential to avoid leaks and maintain hygiene, especially during long academic days. Some students opt for tampons, which are discreet and ideal for active lifestyles, but their safe usage requires proper insertion techniques and timely changes to prevent discomfort and reduce the risk of toxic shock syndrome (TSS). Menstrual cups, gaining popularity as a cost-effective and sustainable option, require proper guidance on insertion, cleaning, and storage to ensure safe usage. Regardless of the menstrual product used, frequent changes are crucial to reduce odour, discomfort, and the risk of infections.

Education on proper disposal methods is vital. Used pads and tampons should be securely wrapped and placed in designated bins to maintain hygiene and privacy. Sustainable options, like reusable pads and menstrual cups, require cleaning and storage guidelines to ensure long-term safety. Maintaining personal hygiene is also important during menstruation. This includes regular showers, washing hands before and after handling menstrual products, and cleaning the external genital area to promote good hygiene practices. Students can also benefit from strategies to manage accidental stains, such as carrying spare underwear or using stain removers, and choosing dark or patterned underwear for added comfort.

Managing menstrual cramps is another priority for students, especially during lectures and academic activities. Over-the-counter pain relievers, hot water bottles, or heating pads can provide relief, and severe or persistent pain should be discussed with healthcare

providers. A balanced diet and proper hydration can positively impact menstrual health, helping students stay focused and comfortable during their cycle. Awareness of the menstrual cycle, including regular patterns and potential variations, is crucial for identifying irregularities and seeking medical advice when necessary.

Schools can play a significant role by providing resources, creating awareness through informational sessions, and fostering a supportive environment that encourages students to discuss menstruation openly. Breaking the stigma surrounding menstruation helps students build confidence and adopt healthy practices. Good menstrual health and hygiene practices can prevent infections, reduce odours, and help students stay comfortable during their period. Reliable menstrual products such as sanitary pads, tampons, menstrual cups, and period underwear are essential for preventing infections and maintaining comfort. Proper use of these products includes:

1. Handwashing: Wash hands before and after handling menstrual products to prevent infections. It is also advisable to wash hands after using the restroom.
2. Disposal: Wrap used pads and tampons securely before placing them in a trash bin. Avoid flushing them to prevent plumbing issues.
3. Sanitary pads: Change pads every few hours, especially during heavy flow, to maintain hygiene.
4. Tampons: Replace tampons every 4 to 8 hours and use the lowest absorbency necessary. Avoid prolonged use to reduce health risks.

5. Menstrual cups: Clean cups daily after use. Sanitize menstrual cups after your period is over by rinsing them thoroughly and then placing them in boiling water for one to two minutes.
6. Period underwear: Wash reusable underwear following the manufacturer's instructions.

Additional hygiene practices to help students stay healthy and comfortable during their periods include

1. Wearing breathable fabrics like cotton underwear to prevent moisture buildup, which can lead to infections.
2. Changing menstrual products regularly. Trapped moisture provides a breeding ground for bacteria and fungi. Wearing a pad or period underwear for too long can lead to a rash or an infection.
3. Clean the external genital area daily with water, avoiding harsh chemicals and scented products that can disrupt the vagina's natural pH balance. Wash the outside of your vagina (vulva) and bottom every day. When you go to the bathroom, wipe from the front of your body toward the back, not the other way. Use only water to rinse your vulva. The vagina is a self-cleaning organ. Changing the natural pH balance of your vagina by washing or using chemicals to cleanse out the vagina can be harmful and may result in a yeast infection or bacterial vaginosis.

4. Using unscented toilet paper, tampons, or pads. Scented hygiene products can irritate the skin and impact your natural pH balance.
5. A balanced diet and adequate hydration during menstruation can positively impact menstrual health. Endeavour to eat nutritious meals and stay hydrated by drinking enough liquids throughout your cycle. This can help wash out your urinary tract and help prevent infections, like vaginal candidiasis.
6. Regular monitoring of the menstrual cycle are also essential, as irregularities can signal underlying health concerns, such as hormonal imbalances or nutritional deficiencies. Your menstrual cycle is a valuable marker for your overall health. You can track your period on a calendar or with an app on your phone designed for this purpose.
7. Routine checkups with healthcare providers are encouraged, as they are critical for addressing reproductive health concerns. Any significant changes in menstrual symptoms, such as increased pain, heavier bleeding, or unusual odours, should prompt immediate medical consultation.
8. Providing comprehensive menstrual hygiene education and fostering a supportive environment can empower female students to maintain healthy practices, boost their confidence, and enhance their overall well-being.

Challenges of Menstrual Waste Management and Disposal

Menstrual Waste refers to the discarded materials from menstrual management, such as used pads, tampons, menstrual cups, packaging and wrappers. Proper disposal and handling of this waste is essential to protect both public health and the environment, with solutions like incineration, composting (for biodegradable items), or using adequate waste manager systems. When improperly disposed of, these materials pose environmental, health, and social concerns.

The effective management of menstrual waste is an essential aspect of menstrual hygiene but remains a significant challenge globally. This issue is particularly pressing in educational institutions, such as universities, where young women require adequate facilities and knowledge about proper waste disposal.

The proper disposal of used menstrual materials remains a significant challenge in many parts of the world. While most countries have developed efficient systems for managing fecal and urinary waste, the lack of comprehensive menstrual hygiene management practices means that many women dispose of their used menstrual products—such as sanitary pads and tampons—alongside household garbage. This untreated waste ultimately becomes part of solid waste streams, exacerbating environmental concerns. In countries like India, for instance, public toilets often lack designated disposal bins for menstrual waste or facilities for women to wash their hands during menstruation.

In urban settings, where disposable menstrual products are more commonly used, they are often disposed of by flushing them down toilets, discarding them in bins, or incorporating them into existing solid waste management systems (Ashley et al., 2005). Conversely, in rural areas, disposal practices differ significantly. Common methods include burying, burning, or throwing menstrual waste into garbage heaps or pit latrines. Rural women are more likely to use reusable, non-commercial materials such as cloth or homemade pads, which result in less menstrual waste compared to the disposable products predominantly used in urban areas. Disposal practices are influenced by the type of product used, cultural norms, and the availability of disposal facilities. For women living in informal settlements or slums, privacy constraints often make burning or burying menstrual waste difficult (Garg et al., 2001). In these situations, waste is frequently disposed of in pit latrines, partly due to fears that visible menstrual materials might be misused for superstitious practices like witchcraft.

In educational institutions, including schools, inadequate sanitary facilities pose a significant barrier to proper menstrual waste disposal. Female students often discard used pads in toilets due to the absence of appropriate disposal systems. Some girls, especially in resource-limited settings, dispose of used menstrual cloths without washing them first. These challenges, coupled with poor infrastructure—such as broken toilet doors, lack of water supply, and inadequate waste disposal systems—lead to absenteeism among menstruating students (Jasper et al., 2012). In some schools where incinerators or

"feminine hygiene bins" are available, students still hesitate to use them due to embarrassment or fear of being judged by their peers (Crofts 2012).

Women's disposal behaviors also vary based on their location. At home, they often wrap menstrual waste and throw it into household garbage bins alongside other domestic waste. However, in public spaces, disposal practices are inconsistent. Women may flush used pads down the toilet or discard them, wrapped or unwrapped, in corners of public restrooms if no disposal bins are available. This not only renders public toilets unhygienic for other users and cleaners but also contributes to health hazards, as the waste attracts flies and mosquitoes. Furthermore, public toilet operators frequently report sewer blockages caused by menstrual materials flushed into the drainage systems.

A 2018 review highlighted that menstrual waste disposal is often overlooked in sanitation systems, leading to improper management and significant negative consequences for users, sanitation infrastructure, and the environment. In many developing countries, inadequate solid waste management systems leave women without suitable options for disposing of used menstrual products, such as pads. Improper disposal practices place immense pressure on sanitation systems, as menstrual hygiene items can block toilets, pipes, and sewers. For instance, it is estimated that in the United Kingdom, tampons, pads, and applicators contribute approximately 200,000 tonnes of plastic waste annually. In developing regions, women face dual challenges: limited access to affordable menstrual hygiene products and insufficient sanitation and waste disposal services to manage their

menstrual cycles effectively. The absence of proper waste management infrastructure compels many to dispose of used products in toilets, pit latrines, or open areas, including rivers and streams. Such practices pose health risks to waste handlers who may be exposed to blood-borne infections and chemicals from menstrual hygiene products. Additionally, improperly disposed menstrual waste exacerbates sanitation issues, causing sewage blockages and environmental degradation.

These deficiencies in sanitation facilities also have social implications, particularly for female students, as they can contribute to school absenteeism. Without access to safe, private, and hygienic facilities, many girls face significant barriers to managing their menstrual health, which negatively impacts their education and overall well-being. For female students in universities like the University of Benin, similar challenges may exist, exacerbated by a lack of awareness, cultural influences, and inadequate waste management facilities. Addressing these issues requires targeted education, improved infrastructure, and culturally sensitive interventions to promote proper disposal practices and reduce the stigma surrounding menstruation.

Strategies for Managing Menstrual Waste

1. **Addressing Health and Environmental Concerns:** The disposal of menstrual waste is a critical issue due to its potential impacts on public health and the environment. It is essential to develop efficient menstrual materials that require minimal and cost-effective management.

2. **Incorporating Menstrual Hygiene Education:** Educating adolescent girls and women about menstrual hygiene management is crucial. This education should be integrated into school curriculums to ensure widespread awareness and understanding. It is crucial to educate students on appropriate disposal methods, regardless of the product used. Used pads and tampons should be securely wrapped before being discarded to maintain hygiene and privacy. For reusable products like menstrual cups or cloth pads, students need clear instructions on cleaning and storage. Regular personal hygiene practices, such as washing hands before and after changing menstrual products and keeping the genital area clean, should also be emphasized.
3. **Free Distribution of Menstrual Products:** Schools and educational institutions should provide menstrual products free of charge, ensuring that all students have access to necessary resources, promote the use of biodegradable or reusable menstrual products like menstrual cups and cloth pads and make eco-friendly options more affordable and accessible to students.
4. **Adequate Facilities for Hygiene Management:** Toilets should include adequate space and resources for washing, cleaning, and changing. These facilities must provide water, toilet paper, dustbins, and sinks for washing menstrual products or cleaning stained clothing.

5. **Privacy in Waste Disposal:** Covered containers and discreet placement of disposal bins can ensure privacy, allowing women to dispose of menstrual waste without embarrassment.
6. **Safety Measures for Waste Handlers:** Cleaners and sanitation workers should be provided with gloves and appropriate safety tools to protect them from exposure to harmful pathogens and toxic gases during waste handling.
9. **Policy and Legal Frameworks:** Governments should develop comprehensive policies and legal frameworks for the safe disposal and management of menstrual waste, similar to regulations for solid or biomedical waste.
10. **Awareness Campaigns and Funding:** Both government and non-governmental organizations (NGOs) should raise awareness about menstrual waste management. Funding should be allocated to municipalities and NGOs for constructing women-friendly toilets and improving waste management infrastructure.
11. **Eco-Friendly Incineration:** Incinerators remain a viable option for menstrual waste disposal but should operate under strict environmental guidelines to reduce harmful emissions. High-temperature incinerators specifically designed for sanitary waste are effective in reducing waste volume and eliminating pathogens. Operating incinerators at controlled temperatures (around 800°C) minimizes the release of toxic gases. Such facilities should be installed in schools, universities,

slum areas, and community centers to ensure accessible and sustainable waste management.

In conclusion, effectively managing menstrual waste is vital for safeguarding public health, protecting the environment, and upholding the dignity of women. By equipping female students with the necessary knowledge and resources, the institution can foster a healthier, more sustainable campus environment. In addition, prioritizing menstrual hygiene management and waste disposal, institutions such as the University of Benin can help female students overcome barriers to effective menstrual health practices, enhancing their academic performance and overall quality of life.

Relationship between Attitudes and Practices of Menstrual Hygiene among Female Students

The relationship between attitudes and practices toward menstrual hygiene is complex and influenced by numerous environmental, social, cultural, and personal factors. While attitudes reflect individuals' thoughts, feelings, and perceptions about menstruation, practices refer to the actions taken to manage it hygienically. Understanding the connection between these two is essential for promoting effective menstrual hygiene habits and improving overall menstrual health.

Positive attitudes toward menstruation, such as viewing it as a natural and healthy process, often correlate with better hygiene practices. For instance, individuals who hold positive views are more likely to adopt practices such as using clean menstrual products,

maintaining personal hygiene, and accessing proper facilities for menstrual management. Conversely, negative attitudes, such as stigma or shame, may result in poor hygiene practices, increasing the risk of infections and discomfort.

Cultural and societal norms significantly influence both attitudes and practices surrounding menstrual hygiene. In cultures where menstruation is stigmatized or considered impure, individuals may feel guilt or embarrassment, leading to unhygienic or discreet behaviors. However, in communities that openly discuss and accept menstruation, individuals often feel more comfortable practicing proper menstrual hygiene.

Education and access to resources are critical factors that shape menstrual hygiene behaviors and attitudes. Providing accurate information about menstruation and hygiene enables individuals to develop positive attitudes and adopt sanitary practices. Access to menstrual products, clean sanitation facilities, and reproductive health education empowers individuals to make informed choices. Conversely, limited access to these resources can hinder good hygiene practices, even if individuals have a positive outlook toward menstruation.

Social support and interpersonal relationships also play a role. Environments that normalize and support open conversations about menstruation can foster positive attitudes and behaviors. On the other hand, negative social influences or peer pressure can perpetuate stigma and discourage proper hygiene practices.

The link between attitudes and practices also extends to broader societal factors, including accessibility and affordability of menstrual products. Societal perceptions of menstrual products as luxury items rather than necessities can impact their availability, particularly for economically disadvantaged groups. This often leads to unhygienic practices, negatively affecting health and well-being. Similarly, societal attitudes about sustainable practices and environmentally friendly products can shape individual choices, such as adopting reusable menstrual products.

Economic factors further influence menstrual hygiene. Limited financial resources may compel individuals to use improvised methods, compromising hygiene. Societal support for economically disadvantaged individuals can encourage the implementation of policies to provide affordable or free menstrual products.

Psychological well-being is closely tied to attitudes and practices surrounding menstruation. Positive attitudes help individuals maintain a healthy self-image, while negative attitudes can lead to shame and discomfort. Practices such as regular hygiene routines and receiving emotional support during menstruation can contribute to a positive outlook.

Empowerment plays a crucial role in menstrual hygiene. Positive attitudes encourage individuals to take control of their menstrual health by making informed decisions, seeking medical advice, and advocating for menstrual education. Empowerment practices

include challenging societal stigmas, promoting awareness, and fostering policies that prioritize menstrual health.

Cultural taboos and myths about menstruation also impact both attitudes and practices. In some societies, menstruation is surrounded by restrictions and rituals that influence behavior. Education and awareness campaigns can help challenge these taboos, promoting healthier and more informed practices.

The level of community and institutional support also matters. Positive societal attitudes can lead to the creation of supportive policies, such as the provision of menstrual products in public spaces. Advocacy and awareness efforts aim to challenge existing norms and encourage practices that prioritize menstrual health as a key component of overall well-being.

Innovations in menstrual hygiene products are another area where attitudes and practices intersect. The adoption of menstrual cups, reusable pads, or digital period-tracking tools depends on cultural acceptance and perceptions of modern solutions. Technological advancements can promote sustainable and personalized practices, reflecting evolving attitudes toward menstrual health.

In summary, the relationship between attitudes and practices in menstrual hygiene is deeply interconnected and influenced by a variety of factors, including cultural norms, education, resource availability, and social support. Addressing the underlying causes of negative attitudes and barriers to proper practices is crucial for empowering individuals to

manage menstruation with dignity and in a healthy manner. By fostering positive attitudes, ensuring access to necessary resources, and creating supportive environments, societies can improve menstrual health outcomes and enhance overall well-being.

Summary of Review of Related Literature

To fully understand the knowledge, attitudes, and practices (KAP) related to menstrual hygiene among female students at the University of Benin, it is essential to analyze various academic studies, reports, and relevant literature. This review begins by exploring the global landscape of menstrual hygiene management (MHM), underlining its critical role in promoting women's health, education, and overall well-being. International organizations like UNICEF, WHO, and UNESCO recognize MHM as a fundamental aspect of public health and a driver of gender equality.

One significant theme in the literature is the influence of cultural taboos and beliefs on menstrual behavior. Research from diverse cultural settings highlights how these taboos foster secrecy, shame, and poor menstrual hygiene practices. Studies have also identified a strong link between effective menstrual hygiene management and academic performance. For instance, inadequate access to menstrual products and proper facilities contributes to school absenteeism among girls. Poor menstrual hygiene has been linked to health risks such as reproductive tract infections (RTIs), emphasizing the need for affordable and hygienic menstrual products and facilities.

Access to appropriate menstrual hygiene resources impacts girls' ability to manage menstruation safely and discreetly, affecting their participation in daily activities, including education. Research reveals varying levels of awareness and understanding of menstruation among female students, with gaps in knowledge about menstrual physiology, hygiene, and health management often stemming from insufficient education on sexual and reproductive health.

The literature also explores societal perceptions of menstruation and their impact on girls' experiences. Negative attitudes and stigma associated with menstruation hinder open discussions and limit access to essential resources, perpetuating feelings of shame and embarrassment. Educational interventions aimed at improving menstrual health awareness and hygiene practices have been implemented in many contexts. Evaluations of these programs reveal their effectiveness in enhancing knowledge, attitudes, and behaviors related to menstrual hygiene.

Challenges in managing menstrual hygiene within educational settings are also highlighted in the literature. These challenges include inadequate infrastructure, sociocultural norms, financial constraints, and gaps in policy. Addressing these issues requires a multi-sectoral approach that involves collaboration among community members, institutions, and policymakers.

Based on findings from previous studies, several recommendations have been proposed to improve menstrual hygiene management among female students at the University of

Benin. These include implementing comprehensive sexuality education programs, ensuring access to menstrual products and facilities, fostering a supportive and inclusive environment, and advocating for policy reforms.

The review concludes by identifying areas for further research, such as exploring the socio-cultural influences on menstrual hygiene practices, conducting longitudinal studies to evaluate the long-term effects of MHM programs, and assessing the impact of policy initiatives aimed at improving menstrual health in educational settings. These insights are crucial for developing sustainable solutions to enhance menstrual hygiene management and its associated outcomes.

CHAPTER THREE

METHODOLOGY

This chapter describes the method and procedure used in this research. This chapter will be organized under the following subheadings:

- Research Design
- Population of the Study
- Sample and Sampling Technique
- Research Instrument
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Research Design

This study adopted a survey research design. According to Jackson (2009), this design involves collecting data from participants through questionnaires or interviews, enabling the researcher to examine and summarize their responses. It is the most appropriate choice for this study as it allows for data collection at a single point in time, providing insight into the menstrual hygiene knowledge, attitudes and practices of female students at the University of Benin.

Population of the Study

The population of the study comprises of female undergraduate students in the eight (8) departments of the Faculty of Education with the total 4,398 (Students Affairs 2021/2022). The departments are shown in the table below:

Table of the departments in the faculty of Education;

S/N	DEPARTMENT	POPULATION OF STUDY
1.	ADULT AND NON-FORMAL EDUCATION (ADT)	400
2.	CURRICULUM AND INSTRUCTIONAL TECHNOLOGY (CIT)	621
3.	EDUCATIONAL EVALUATION AND COUNSELLING (EECP)	324
4.	EDUCATIONAL MANAGEMENT (DEM)	892
5.	EDUCATIONAL FOUNDATION (DEF)	1148
6.	HUMAN KINETIC AND SPORT SCIENCE (HKS)	213
7.	HEALTH SAFETY ENVIRONMENTAL EDUCATION (HSE)	524
8.	VOCATIONAL AND TECHNICAL EDUCATION (VTE)	276
	TOTAL	4398

Sample and Sampling Technique

A sample size of 100 female students were selected using the simple random sampling technique. This method was chosen to ensure that every female student in the faculty had an equal chance of being selected without bias.

To implement this, the researcher visited different departments within the Faculty of Education and randomly approached female undergraduate students willing to participate in the study. No specific selection criteria were applied beyond ensuring that participants were female students of the faculty. Efforts were made to distribute the questionnaires evenly across the eight (8) departments to ensure broad representation. This approach allows for a fair and unbiased selection of participants.

Research Instrument

The research Instrument used for this study is a structured questionnaire. The questionnaire comprises of sections 'A' and 'B'. Section 'A' of the instrument consists of the demographic characteristics of the respondents. Section 'B' consists of questions which were designed to elicit responses on the knowledge, attitudes and practices towards menstrual hygiene among female students in the University of Benin.

Validity of the Instrument

The research instrument was validated by the researcher's supervisor and two other lecturers in the department of Health Safety and Environmental Education (HSE) to scrutinize and make necessary corrections and suggestions. Their corrections made were incorporated in the final copy of the instrument.

Reliability of the Instrument

In order to ascertain the reliability of the instrument, the researcher used the split-half method. The researcher administered the instrument once and scored two equivalent

halves of the item by numbering odd items and even items, and compute the correlation coefficient between the two, and then correct reliability to fit the whole test by using Cronbach's Alpha to obtain a coefficient value of .805

Method of Data Collection

The administration of the questionnaire was done by the researcher by giving out the questionnaire to the female students at the University of Benin. The respondents were assured of confidentiality and urged to answer the questions to the best of their knowledge. Instructions were given to the respondents on how to fill the questionnaire and the questionnaire was collected on the same day to achieve 100% response and return.

Method of Data Analysis

Data collected was analyzed using descriptive statistics such as simple percentages and frequency counts. Tables were also used for easy calculation and presentation.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter outlines presentation of results and discussion of findings

Table 1: Respondents' Age Grade

Sex	Frequency	Percent
16-19	20	20.0
20-23	34	34.0
24-27	28	28.0
28 and above	18	18.0
Total	100	100.0

Table 1 showed the age grade of the respondents. Out of the 100 students used for this study, 20(20%) of them were between the ages of 16-19, 34(34%), were between the ages of 20-23, 28(28%) of them were between the ages of 24-27, while 18 (18%) of them were 28 years old and above .

Research Question 1: What is the level of knowledge of menstrual hygiene among students of the University of Benin?

S/N	Level of knowledge (Score)	Frequency & Percentage	Total
1.	Low	35(35%)	100%
2.	High	65(65%)	100%

(0-2; Low Knowledge, 3-5; High Knowledge)

Table 2 Display the level of knowledge of menstrual hygiene among students of the University of Benin. From the table, 35% of the students have a low knowledge of menstrual hygiene, while 65% of the students have a high knowledge of menstrual

hygiene. It can therefore be inferred that majority of the students have high knowledge of menstrual hygiene.

Research Question 2: What are female students' attitude towards menstrual hygiene in the University of Benin

S/N	Items	Mean Score	Criterion Mean	Remark
1	Menstrual hygiene should be a priority for all women.	2.78	2.50	Accepted
2	Menstruation is a private matter that should not be openly discussed.	3.12		Accepted
3	Female students should have access to free or subsidized menstrual hygiene products.	3.68		Accepted
4	Menstrual hygiene should be taught to both genders.	3.00		Accepted
5	Ladies who dispose used menstrual products improperly should pay a fine.	2.88		Accepted

Table 3 Display the mean responses from female students' attitude towards menstrual hygiene in the University of Benin. The conclusion is drawn from them meeting the criterion mean of 2.50. From the table above, it can be inferred that menstrual hygiene should be a priority for all women, Menstruation is a private matter that should not be openly discussed, Female students should have access to free or subsidized menstrual hygiene products, Menstrual hygiene should be taught to both genders, Ladies who dispose used menstrual products improperly should pay a fine.

Research Question 3: What is the practice of female undergraduate students of the University of Benin towards their menstruation?

S/N	Items	Yes(%)	No(%)
1.	Do you dispose menstrual products (e.g. sanitary pads, tampons, menstrual cups, etc) in a hygienic manner?	80(80%)	20(20%)
2.	Do you change your menstrual products (e.g. sanitary pads, tampons, menstrual cups, etc) as often as needed to maintain good hygiene?	86(86%)	14(14%)
3.	Do you maintain good personal hygiene during menstruation periods?	88(88%)	12(12%)
4.	Do you wash your hands and genital area properly after menstruation?	70(70%)	30(30%)
5.	Do you track your menstrual cycle regularly?	79(79%)	21(21%)

Table 4 shows the responses on the practice of female undergraduate students of the University of Benin towards their menstruation. From the table, 80% of the respondents dispose their menstrual products after use, 86% change their products, 88% maintain hygiene during menstruation periods. 79% of the respondents track their menstrual hygiene. It can therefore be inferred that majority of the students in the University of Benin practice menstrual hygiene and track their menstrual cycle regularly.

Research Question 4: What material do the student use during menstruation?

S/N	Items	Yes(%)	No(%)
1.	Do you use disposable sanitary pads during menstruation?	80(80%)	20(20%)
2.	Do you use tampons during menstruation?	10(10%)	90(90%)
3.	Do you use menstrual cups during menstruation?	-	100(100%)
4.	Do you use reusable cloth materials during menstruation?	10(10%)	90(90%)
5.	Do you use toilet paper or tissue as an alternative menstrual material?	-	100(100%)

Table 5 Display the responses on the material students use during menstruation. From the table above, 80% of the respondents use disposable sanitary pads during menstruation, 10% of the respondents used reusable cloth and 10% use tampons. It can be inferred that sanitary pads reusable cloth, and tampons are the materials students use during menstruation.

Discussion of Findings

The findings of this study reveal that the female students in the University of Benin have a high knowledge level of menstrual hygiene. This is similar to the study of Yadav (2018) who opined that. A large proportion of women understand the necessity of maintaining personal cleanliness during menstruation. This includes replacing menstrual products on a regular basis to avoid leaks, smells, and infections, as well as carefully cleaning hands before and after using these items. Maintaining genital cleanliness through regular bathing is also commonly seen as an important practice. These strategies aid in the management of menstrual health while also lowering the risk of infection. In addition to practical information, many women are aware of the social and cultural influences on menstruation. They understand how taboos, stigma, and social expectations can shape their experiences and decisions concerning menstruation hygiene.

Secondly, menstrual hygiene should be a priority for all women, Menstruation is a private matter that should not be openly discussed, Female students should have access to free or subsidized menstrual hygiene products, Menstrual hygiene should be taught to both

genders, Ladies who dispose used menstrual products improperly should pay a fine. Menstrual hygiene is a critical aspect of women's health that warrants prioritization across various sectors. Recognizing menstruation as a natural biological process, societies should foster an environment where open discussions about menstrual health are encouraged, rather than stigmatized. It is imperative that female students receive access to free or subsidized menstrual hygiene products to ensure their educational engagement is not hindered by health-related challenges (Jemal et al., 2018). Moreover, comprehensive menstrual hygiene education should be integrated into school curricula for all genders, promoting understanding and empathy (Sommer, 2019). Addressing waste management, it is essential to implement regulations that require individuals who improperly dispose of menstrual products to incur fines, thereby emphasizing the importance of proper hygiene practices (Mason 2020).

Furthermore, majority of the students in the University of Benin practice menstrual hygiene and track their menstrual cycle regularly. A significant proportion of students at the University of Benin actively engage in menstrual hygiene practices and consistently monitor their menstrual cycles. This level of awareness and proactive management contributes to improved health outcomes among female students, highlighting the importance of menstrual health education within academic institutions. Such practices are essential in promoting bodily autonomy and reducing the stigma surrounding

menstruation, thereby fostering an environment conducive to both academic success and personal well-being.

Lastly, sanitary pads, tampons and reusable cloth are the materials students use during menstruation. The data presented in the table indicates that a significant majority, comprising 80% of respondents, prefer using disposable sanitary pads during menstruation, 10% opt for tampons while the remaining 10% opt for reusable cloth. This insight underscores the predominant reliance on sanitary pads as the primary menstruation management product among students. The preference for these materials reflects not only individual choices but also broader cultural and societal factors influencing menstrual hygiene practices. Understanding these trends is critical for addressing the needs and preferences of menstruators in educational settings (Johnson, 2021).

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

This chapter presents summary of the study alongside the conclusion drawn from the analysis of data collected and the results obtained in the course of this study. The recommendations offered based on the findings of the study are also highlighted.

Summary

The study investigated the knowledge, attitude and practices towards menstrual hygiene among female students in the University of Benin

Therefore, in order to achieve the objectives of the study, five research question were raised. In investigating this study, the descriptive survey design was adopted. A sample size of 100 respondents and a simple random sampling technique was used. A structured questionnaire designed was the instrument used for the study. The data collected were analyzed using frequency counts and Mean score analysis.

Findings

Findings from the study revealed that:

- The female students in the University of Benin have a knowledge of menstrual hygiene.
- Menstrual hygiene should be a priority for all women, Menstruation is a private matter that should not be openly discussed, Female students should have access to free or subsidized menstrual hygiene products, Menstrual hygiene should be

taught to both genders, Ladies who dispose used menstrual products improperly should pay a fine.

- Majority of the students in the University of Benin practice good menstrual hygiene and track their menstrual cycle regularly
- Sanitary pads, tampons and reusable cloth are the materials students in the University of Benin use during menstruation

Conclusion

Female students at the University of Benin have a high level of knowledge about menstrual hygiene and actively practice proper hygiene habits. Most students track their menstrual cycles regularly and use sanitary pads and tampons as their preferred menstrual products. While menstrual hygiene is recognized as an essential aspect of women's health, opinions vary on how openly it should be discussed. There is also a consensus on the need for better access to affordable menstrual hygiene products and the importance of educating both genders on menstrual hygiene. Addressing improper disposal of menstrual products through fines or other measures may help maintain a clean and hygienic environment.

Recommendations

From the findings of the study, it is recommended that:

- Free or subsidized menstrual products should be provided by the university and relevant stakeholders, particularly for students from low-income backgrounds.

- Menstrual hygiene education should be included in health education programs for both male and female students to reduce stigma and promote awareness.
- More sanitary disposal bins should be installed in female restrooms to encourage proper disposal of menstrual products.
- Public awareness campaigns should be introduced to promote open discussions about menstrual hygiene and to break cultural taboos surrounding menstruation.
- Measures should be implemented to ensure proper disposal of used menstrual products, such as awareness programs or fines, in order to maintain hygiene on campus.

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DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION

FACULTY OF EDUCATION

UNIVERSITY OF BENIN

**QUESTIONNAIRE ON KNOWLEDGE, ATTITUDES AND PRACTICES
TOWARDS MENSTRUAL HYGIENE AMONG FEMALE STUDENTS IN THE
UNIVERSITY OF BENIN**

Dear Respondents,

I am a final year student in the Department of Health, Safety and Environmental Education, Faculty of Education, University of Benin. This study is conducted to determine the knowledge, attitudes and practices towards menstrual hygiene among female students in the University of Benin. Your sincerity is required as your response will be treated with utmost confidentiality. Thanks for your cooperation.

INSTRUCTION: Please tick () any of the option provided that correspond your response.

SECTION A

DEMOGRAPHIC DATA

Gender: Male () Female ()

Age: 16–19 () 20–23() 24–27 () 28 & above ()

Religion: Christianity () Islamic () Traditional ()

Department: ADT () CIT () EECF () DEM () DEF
() HKS () HSE () VTE ()

SECTION B

What is the level of knowledge of menstrual hygiene among students of the University of Benin?

- 1). Is menstruation a natural biological process or a disease?
 - a) A disease
 - b) A natural biological process
 - c) A sign of weakness

- d) A curse
- 2). What is the average menstrual cycle length?
- a) 10 – 14 days
 - b) 21 – 35 days
 - c) 40 – 50 days
 - d) 60 – 90 days
- 3). Have you heard about menstrual hygiene management before?
- a) Yes
 - b) No
 - c) Maybe
 - d) Never
- 4). What can poor menstrual hygiene lead to?
- a) Infections such as itching and rashes of the genital organs
 - b) Improved reproductive health
 - c) Increased energy levels
 - d) Weight loss
- 5). What can tracking your menstrual cycle help with?
- a) Detecting irregularities or health issues
 - b) Preventing pregnancy
 - c) Improving athletic performance
 - d) Enhancing beauty

Keys

Strongly Agree = SA

Agree = A

Strongly Disagree = SD

Disagree = D

What are female students' attitude towards menstrual hygiene in the University of Benin?

S/N	ITEMS	SA	A	SD	D
1.	Menstrual hygiene should be a priority for all women.				
2.	Menstruation is a private matter that should not be openly				

	discussed.				
3.	Female students should have access to free or subsidized menstrual hygiene products.				
4.	Menstrual hygiene should be taught to both genders.				
5.	Ladies who dispose used menstrual products improperly should pay a fine.				

What is the practice of female undergraduate students of the University of Benin towards their menstruation?

S/N	ITEMS	YES	NO
1.	Do you dispose menstrual products (e.g. sanitary pads, tampons, menstrual cups, etc) in a hygienic manner?		
2.	Do you change your menstrual products (e.g. sanitary pads, tampons, menstrual cups, etc) as often as needed to maintain good hygiene?		
3.	Do you maintain good personal hygiene during menstruation periods?		
4.	Do you wash your hands and genital area properly after menstruation?		
5.	Do you track your menstrual cycle regularly?		

What material do the student use during menstruation?

S/N	ITEMS	YES	NO
1.	Do you use disposable sanitary pads during menstruation?		
2.	Do you use tampons during menstruation?		
3.	Do you use menstrual cups during menstruation?		
4.	Do you use reusable cloth materials during menstruation?		
5.	Do you use toilet paper or tissue as an alternative menstrual material?		