The Multifaceted Hygiene Promotion Program on Knowledge, Attitude, and Practice of Menstrual Health and Hygiene Management Among Girls in Nigeria: A Quasi Experimental Study

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ABSTRACT:

Aims: The onset of menstruation is a significant milestone in a girl's life, yet the silence and stigma surrounding it burden young girls by keeping them ignorant of this natural phenomenon. In Kano State, prevailing myths and cultural norms dictate restrictive practices that further exacerbate the challenges associated with menstruation, including limited access to sanitation facilities and hygiene products. This study investigates the effectiveness of the multifaceted hygiene promotion on knowledge, attitude and practice of menstruation among girls in Nigeria.

Methods: A quasi-experimental design was employed, with 104 participants divided into intervention and control groups. Pre- and post-intervention assessments, along with a two-month follow-up, were conducted to measure changes in knowledge, attitude and practice concerning menstruation among girls in Nigeria. The intervention group received the multifaceted hygiene promotion program, while the control group received standard education. Descriptive and inferential statistics were used to analyse the collected data of the study.

Result: The findings from the baseline data reveal significant gaps in knowledge, negative attitudes, and suboptimal practices regarding menstrual health among the participants, highlighting the pressing need for comprehensive and multifaceted interventions.

Conclusions: In conclusion, this study establishes a foundational understanding of the current state of menstrual health knowledge, attitudes, and practices among secondary school girls in Nigeria. The insights gained from the baseline data provide a strong basis for the design and implementation of effective interventions aimed at empowering girls with the knowledge and skills necessary for managing menstruation confidently and hygienically.

1. Introduction

Menstruation, a natural physiological process, holds profound significance in the reproductive health of adolescent girls, marking a crucial transition into womanhood. Despite its universality, menstruation remains veiled in secrecy, myths, and cultural taboos, particularly in regions like Kano State, Nigeria (Lahme, Stern & Cooper, 2018).

The onset of menstruation is a significant milestone in a girl's life, yet the silence and stigma surrounding it burden young girls by keeping them ignorant of this natural phenomenon (Gold-Watts, 2020). In Kano State, prevailing myths and cultural norms dictate restrictive practices that further exacerbate the challenges associated with menstruation, including limited access to sanitation facilities and hygiene products (Okafor-Terver & Chuemchit, 2017). The urgency of addressing these challenges is underscored by the Sustainable Development

Goals (SDGs), which recognize the intrinsic link between menstrual health and broader development objectives (Shrestha *et al.*, 2020).

Recognizing the urgent need to address these challenges, this study investigates the effectiveness of a multifaceted hygiene promotion program in demystifying menstruation fallacies and beliefs among secondary school girls in Kano State, Nigeria. Drawing upon a quasi-experimental design, the study aims to compare the impact of the intervention on the knowledge, attitude, and practice (KAP) regarding menstruation between an intervention group and a control group (Okafor-Terver & Chuemchit, 2017).

The phenomenon of menstruation, although natural, remains shrouded in secrecy and surrounded by a web of cultural, social, and religious taboos and misconceptions. In Nigeria, where over 52% of the population consists of women of reproductive age, addressing menstrual health and hygiene (MHH) is paramount (Sahiledengle *et al.*, 2022). However, prevailing myths, misconceptions, and societal beliefs continue to hinder progress in this area, particularly in regions like Kano State, where traditional practices and Islamic law dictate social norms and behaviors (Shah *et al.*, 2019).

The dearth of open dialogue and education about menstruation contributes to a myriad of challenges faced by adolescent girls, ranging from reproductive health issues to social exclusion and stigma (Jalan *et al.*, 2020). Recognizing the importance of breaking the silence around menstruation, this study seeks to empower girls with accurate information and promote healthy menstrual hygiene practices. By challenging prevailing myths and providing comprehensive education, we aim to equip girls with the knowledge and skills necessary to manage menstruation hygienically and confidently (Okafor-Terver & Chuemchit, 2017).

The multifaceted approach of the intervention encompasses various strategies, including educational sessions, engagement with religious leaders, and the provision of hygiene products (Fehintola *et al.*, 2019). By involving multiple stakeholders and addressing socio-cultural barriers, we aim to foster an environment conducive to open dialogue and positive behavioral change regarding menstruation (Hennegan *et al.*, 2018).

Building upon existing literature on menstrual hygiene management (MHM) and educational interventions, this study fills a critical gap by evaluating the efficacy of a multifaceted approach in addressing KAP regarding menstruation among adolescent girls in Kano State (Khorsand *et al.*, 2023). Through rigorous evaluation, we endeavor to contribute evidence-based insights that can guide efforts to advance menstrual health and hygiene promotion in Kano State and beyond.

In line with this aim, the study seeks to compare the scores of knowledges, attitude, and practice regarding demystifying menstruation fallacies among secondary school girls before, immediately after, and two months following the intervention, between the intervention group and the control group. By elucidating the impact of the intervention on knowledge, attitudes, and practices, we aim to inform future interventions and policy initiatives aimed at promoting menstrual health and well-being in similar contexts.

2. Materials and methods

Study design and population characteristics

A. Research Design

This study employs a quasi-experimental design with the aim to compare the scores of knowledges, attitude, and practice regarding demystifying menstruation fallacies among secondary school girls before, immediately after, and three months following the intervention, between the intervention group and the control group.

B. Participants

The participants of this study comprise adolescent girls aged 12-19 years who are currently enrolled in junior or senior secondary schools within the geographical boundaries of Kano State, Nigeria. Kano State, with its diverse cultural, religious, and socioeconomic characteristics, provides a rich context for examining menstruation myths and stigmatization among adolescent girls. The recruitment process begins with the identification of local government areas (LGAs) and schools within the state, ensuring representation from both

urban and rural settings. This approach aims to capture a broad spectrum of experiences and perspectives on menstruation within the target population. The following are the criteria used in choosing the participants:

Inclusion Criteria of Participants

i.Girls currently in secondary school

ii. Girls currently within the age blanket of 12- 19 years

iii. Have experience menstruation at least once (Menarche)

iv. Give inform consent to participate in the study

v. Physically challenged

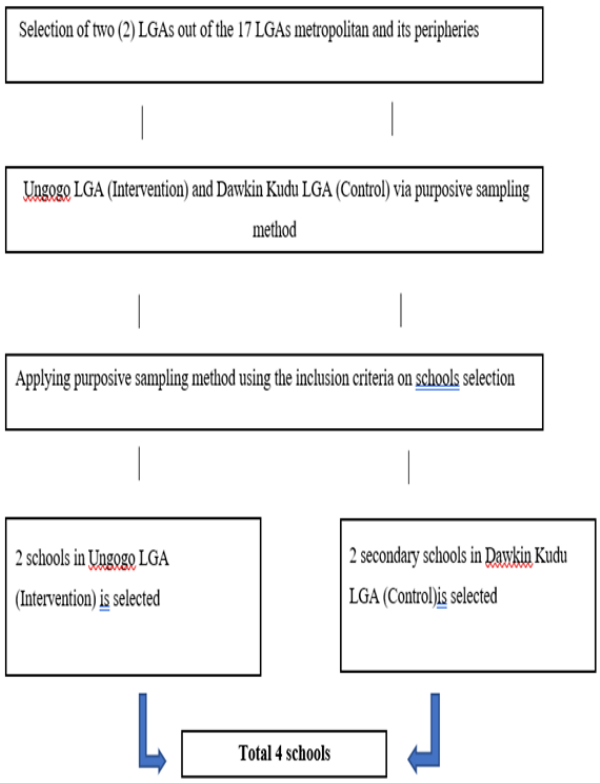
Exclusion Criteria of Participants

i. Students who are sick within the period of this study.

ii. Visiting students.

iii. Mentally impaired students

Fig 1: Flowchart on Sampling of Local Government Areas and Schools



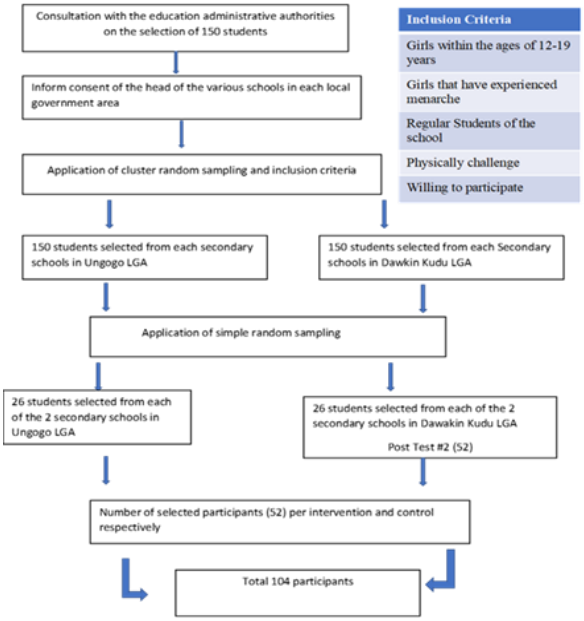


Fig 2: Flowchart for Recruitment of Participants by Simple Random Sampling and Inclusion Criteria

Statistical analyses

Data were analysed using Statistical Package for the Social Sciences (SPSS) version 29.0. Descriptive statistics were used to describe the participants' demographic characteristics, knowledge, attitudes and practices. For comparisons between groups, the independent samples t-test was used to analyse normally distributed continuous data, while the Mann– Participants are carefully selected based on rigorous inclusion criteria to ensure the study's validity and reliability. Inclusion criteria include being within the specified age range of 12 to 19 years, having experienced menstruation at least once (menarche), and currently attending secondary school. Additionally, participants must provide informed consent to participate in the study, indicating their willingness to contribute to research efforts aimed at understanding and addressing menstruation-related challenges. Moreover, the inclusion of physically challenged individuals ensures the representation of diverse experiences and needs within the study population.

To maintain the integrity of the sample and minimize confounding factors, exclusion criteria are applied. Students who are sick during the study period are excluded to prevent potential biases in data collection and analysis. Similarly, visiting students from other schools are omitted from the sample to ensure consistency and comparability across study participants. Additionally, mentally impaired students are excluded to safeguard the ethical principles of voluntary participation and informed consent, as individuals with cognitive impairments may face challenges in understanding and consenting to research participation.

In essence, the recruitment process is designed to uphold ethical standards, ensure the inclusion of diverse perspectives, and generate reliable findings that contribute to addressing menstruation-related challenges among adolescent girls in Kano State, Nigeria. Through a systematic approach to participant selection, this study aims to provide valuable insights into the myths, stigmatization, and misconceptions surrounding menstruation, ultimately informing targeted interventions and policy initiatives aimed at promoting menstrual health and hygiene.

C. Instruments

Baseline data was collected using a modified version of a self-report questionnaire based on two previously published studies on menstrual hygiene management (Stella & Chuemchit, 2017; Bhutan: KAP Survey 2018). The questionnaire consisted of two parts: (i) Socio-demographic features and (ii) Knowledge on Menstruation, Menstrual Hygiene, myths, and limitations.

Each correct response was allocated a score of 1, while any incorrect answer received a score of 0. The knowledge categories outlined by Bloom were employed. For knowledge, the cut off points were defined as follows: High Knowledge, 80% to 100%; Moderate level, 60% to 79%; and Low level, less than 60%.

Validity of the Tools

Three (3) experts in this field reviewed the questionnaire for content validity at the development stage. Then experts considered and inspected on the questionnaire and assigned index of item – objective congruence (IOC) score for each question (Ronna C. Turner & Laurie Carlson, 2003).

The item-Objective Congruence (IOC) used for screening each question's quality. The score ranges are -1 to 0 to +1: Incongruent = -1, Questionable = 0 and Congruent = +1. Each item will be examined with a score, and an item's quality will be considered as IOC value ≥0.5.

Reliability of the Tools

The internal consistency of each tool was examined using Cronbach's Alpha coefficient, with a threshold of 0.7 and above indicating good consistency. The responses of the participants from the pilot on each item or variable were imputed and run in IBM SPSS 22. The questionnaires for self-report were piloted using 10% of the participants to ensure comprehension and adherence to instructions.

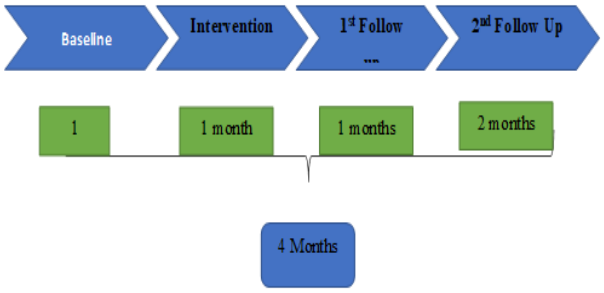
D. Data Collection Procedure

The comprehensive questionnaire was administered to the participants to gather quantitative data on their knowledge, attitudes, and practices regarding menstrual health and hygiene management.

E. Interventions

The multifaceted hygiene promotion intervention program is meticulously crafted to combat menstruation myths and stigmatization prevalent among adolescent girls. Designed to be comprehensive and adaptable, the intervention aims to empower girls with accurate knowledge and practical skills for managing menstruation confidently and hygienically. The intervention timeline, depicted in Fig 3: Intervention Timeline or Time Frame, delineates the structured approach adopted throughout the program.

Fig 3: Intervention Timeline or Time Frame:



The intervention program unfolds through the following stages:

1. **Engagement with Religious and Traditional Leaders**: This initial stage involves dialogue and collaboration with religious and traditional leaders within the community. By leveraging their influence and authority, the intervention seeks to challenge and dispel prevalent myths and misconceptions surrounding menstruation. Through informed discussions and educational initiatives, religious and traditional leaders are enlisted as allies in promoting accurate information and positive attitudes towards menstruation.
2. **Consultation with School Management Committees**: Building on community engagement, the intervention extends to school settings by consulting with school management committees. These consultations facilitate an understanding of the prevailing challenges and barriers to menstrual hygiene management within the school environment. By involving key stakeholders in decision-making processes, the intervention aims to garner support and commitment towards implementing effective interventions tailored to the needs of students.
3. **Cluster Meetings with Students**: Central to the intervention is the direct engagement of students through cluster meetings. These gatherings provide a platform for students to share their experiences, concerns, and insights regarding menstruation openly. Facilitated discussions enable the identification of specific issues and misconceptions that hinder menstrual hygiene management. By fostering a supportive and participatory environment, cluster meetings empower students to voice their opinions and contribute to shaping the intervention's direction.
4. **Development and Implementation of Targeted Interventions**: Guided by insights gathered from religious leaders, school management committees, and students, targeted interventions are developed and implemented. These interventions encompass educational sessions that provide accurate information on menstruation, debunk myths, and promote hygienic practices. Practical training sessions on menstrual hygiene management equip girls with essential skills, such as proper pad disposal and reusable pad production, fostering self-reliance and confidence.

5. **Continuous Evaluation and Adjustment**:

   Throughout the intervention period, ongoing evaluation and adjustment mechanisms are in place to monitor progress and effectiveness. Feedback from participants, stakeholders, and key informants inform iterative improvements to intervention strategies. By embracing a dynamic and responsive approach, the intervention program remains agile in addressing emerging challenges and maximizing impact.

In summary, the multifaceted hygiene promotion intervention program adopts a systematic and participatory approach to combat menstruation myths and stigmatization among adolescent girls. Through strategic engagement with religious leaders, school authorities, and students, coupled with targeted educational and practical interventions, the program endeavors to foster a supportive environment conducive to menstrual health and hygiene.

F. Statistical Analysis

Data analysis involves both descriptive and inferential statistics using IBM SPSS software. Descriptive statistics are utilized to summarize socio-demographic characteristics, while inferential statistics such as repeated measures ANOVA are employed to compare knowledge, attitude, and practice scores before and after the intervention. The analysis also includes multivariable comparisons of baseline, post-intervention, and two-month scores on MHHM behaviour measures.

G. Ethical Considerations

Ethical considerations are paramount throughout the research process to ensure the safety, privacy, and confidentiality of participants. Measures include obtaining informed consent, anonymizing data, and following ethical guidelines set by relevant authorities. Training of research staff is conducted to handle sensitive issues with care, and participants are provided with support services for any emotional distress. The study receives

ethical approval from the Ethics Review Committee and formal consent from relevant authorities and participants before commencement.

3. RESULTS AND DISCUSSION

This section presents the results and discussion of the study, focusing on the data of knowledge, attitude, and practice regarding menstrual health and hygiene management among secondary school girls in Nigeria. The study included 104 participants, divided into the intervention group and the control group.

A. Socio-Demographic Characteristics of the Respondents

From the data on table, students that are 16 years old are the majority (24.0%) followed by students of 17 years old (21.2%). However, 20- and 19-years old students have the lowest percentage (1.0% and 1.9%) respectively.

With regards to marital status, 96.2% are single while 3.8% are married. This shows that majority of the respondents are not married. This is not surprising as majority of the students are between 14 years to 17 years. On the other hand, SSS 2 students are the majority of the respondents (36.5%) while JSS 2 students have the lowest percentage of the respondents (1.9%).From the data, it can also be seen that Hausa ethnic group are the majority in the schools (83.7%) while Tiv and Yoruba (1% each) are the minority. As for religion, 81.7% of the respondents are Muslims while those with other religion (1%) (Not Muslim, Christians traditional religion). Respondents living with their parents are the majority (69.2%) while students living with their husbands are the minority (1.9%)

Table 1: Socio-demographic characteristics of respondents

Variable	Options	Frequency	Percentage (%)
Age			
	13	8	7.7
	14	13	12.5
	15	20	19.2
	16	25	24.0
	17	22	21.2
	18	13	12.5
	19	2	1.9
	20	1	1.0
Marital Status			
	Married	4	3.8
	Single	100	96.2
Class			
	SS3	7	6.7
	SS2	38	36.5
	SS1	28	26.9
	JS3	29	27.9
	JS2	2	1.9
Ethnic Group			
	Hausa/Fulani	87	83.7
	Igbo	13	12.5
	Tiv	1	1.0
	Yoruba	1	1.0
	Others	2	1.9
Religion			
	Christian	15	14.4

	Moslem	85	81.7
	Traditionalist	3	2.9
	others	1	1.0
Living with			
	Parents	72	69.2
	Mother only	23	22.1
	Father only	7	6.7
	Husband	2	1.9
Person that provide sanitary pad during menses			
	Father	17	16.3
	Mother	79	76.0
	Yourself	8	7.7
Total		104	100.0

Source: Fieldwork, 2024

B. Knowledge Scores

Table 2 shows the knowledge score among students in the two groups: the intervention group and the control group before and after the intervention. Before intervention, the intervention group had a knowledge score of 2.62, while the control group scored 2.47. The difference in scores between the two groups at this stage was not statistically significant, as indicated by the p-value of 0.125, suggesting that both groups started with similar levels of knowledge on menstrual hygiene management.

After participating in the study intervention, the knowledge score of the intervention group improved significantly to 3.47, while the control group's score showed a slight increase to 2.53. This change is reflected in a p-value of 0.004, indicating a statistically significant difference between the two groups after the intervention. It is found that, there has been a significant change on the score of knowledge among the group of students who have undergone the educational intervention while the group of students who did not undergo the educational intervention did not witness any such change. This can be seen to have supported participants' knowledge hence underpinning the utility of the intervention.

Table 2: Knowledge Scores Before and After Intervention

Time	Knowledge score		*p* value
	Intervention group (n=52)	Control group (n=52)	
Baseline	2.62	2.47	0.125
After participate in this study	3.47	2.53	0.004

Attitude Scores

Table 3 presents the attitude score in both the intervention group and the control group before and after the intervention. The baseline information on attitude score of the intervention group is 2.94, and the control group attitude scored 2.98 is slightly higher. The p-value for this comparison was 0.269, indicating that there was no statistically significant difference between the two groups before the intervention.

However, after the intervention it becomes clear that there exists a great difference in the attitude of students on menstrual hygiene management. The attitude score of the intervention group dropped to 1.67, suggesting a considerable change in attitude, while the control group's score increased to 3.22. The p-value for the post-intervention comparison is less than 0.001, indicating a highly significant difference between the two groups at this stage.

This implies that the given intervention influenced the participants' attitude in the intervention group hence the reduction of the attitude scores thus indicating improvement in the management of the menstruation hygiene. Conversely the control group which was not exposed to the intervention had an improved attitude score probably due to other factors or natural progression of their attitudes. The post intervention p-value which is < 0.05 provides a strong indication that the intervention that was done was able to change the attitude of students towards MHH

Table 3: Attitude Scores Before and After Intervention

Time	Attitude score		*p* value
	Intervention group (n=52)	Control group (n=52)	
Before intervention	**2.94**	**2.98**	**0.269**
After participating in this study	**1.67**	**3.22**	**<0.001**

Attitude level	Intervention group (n=52)		Control group (n=52)	
	baseline	after	baseline	after
Good	4 (12.5%)	20 (62.5%)	4 (12.5%)	8 (25%)
Moderate	13 (40.6%)	6 (18.75%)	16 (50%)	16 (50%)
Poor	15 (46.9%)	6 (18.75%)	12 (37.5%)	8 (25%)

Practice Scores

The findings of the practice scores before and after the intervention for both the intervention and control groups are as presented in Table 4. The practice score of the intervention group, before the intervention is 1.572 while the control group score of 1.66 is slightly higher. The p-value is 0.208 and this shows that there is no significant difference between the two groups before the intervention exercise.

However, the results have shown that after carrying out the intervention, the intervention group's practice score rose to 2.216, while the control group's score remained almost the same at 1.575. The p-value of 0.045 indicates that the intervention group has a statistically significant higher practice scores as compared to those of the control group after the intervention. This indicates that the intervention brought a reasonable change on the practice outcomes, proving the efficiency of the intervention in increasing the participant's practices as compared to those of the control group

Table 4: Practice Scores Before and After Intervention

Time	Practice score		*p* value
	Intervention group (n=52)	Control group (n=52)	
Before intervention	**1.572**	**1.616**	**0.208**
After participate in this study	**2.216**	**1.575**	**0.045**

Discussions

The results of this study highlight the baseline data of knowledge, attitudes, and practices (KAP) regarding menstrual health and hygiene management among secondary school girls in Kano state, Nigeria. By analysing these baseline data, we gain a comprehensive understanding of the initial state of menstrual health awareness and behaviours among the participants, which is crucial for informing future interventions and policies.

Before the intervention, both the intervention and control groups exhibited similar knowledge scores, indicating a shared baseline level of understanding regarding menstruation. This initial equivalence in knowledge underscores the widespread gaps in menstrual health education among secondary school girls in the study area. The similarity in baseline scores aligns with findings from other studies that report a general lack of accurate menstrual health information among adolescent girls in low-resource settings (Naik *et al.*, 2024). The baseline data thus highlight the necessity for targeted educational interventions to enhance menstrual health knowledge.

However, following the intervention, the schools that participated in the training demonstrated a significantly higher level of knowledge regarding menstrual hygiene management. In contrast, the schools in the control group which did not receive the intervention showed no noticeable improvement as their level of knowledge remaining unchanged. This highlights the effectiveness of the intervention in enhancing awareness and understanding of menstrual hygiene management in the area.

The attitudes towards menstruation were also comparable between the intervention and control groups at the baseline and after intervention. This indicates that before any educational intervention, prevailing cultural taboos and misconceptions about menstruation were similarly entrenched in both groups. Such findings are consistent with existing literature that documents the pervasive negative attitudes and stigmas surrounding menstruation in many developing countries, including Nigeria (Ekeanyanwu & Uzoechi, 2021). Addressing these ingrained attitudes is crucial for any effective menstrual health intervention.

However, after the educational intervention, there was a marked decline in the prevalence of cultural taboos and misconceptions surrounding menstrual hygiene management in the intervention schools. This suggests that the educational programme was effective in dispelling myths and breaking down long held cultural barriers. In the control group schools, where no educational intervention took place, these taboos and misconceptions remained significantly high. This highlights the crucial role that targeted education plays in addressing deeply ingrained cultural stigmas and improving menstrual hygiene management.

In terms of menstrual hygiene practices, the baseline data revealed no significant differences between the intervention and control groups. Both groups demonstrated suboptimal practices, reflecting common challenges such as inadequate access to sanitary products and proper sanitation facilities (Okafor-Terver & Chuemchit, 2017). This baseline similarity is indicative of the broader systemic issues that affect menstrual hygiene management (MHM) in the region, including economic barriers and lack of infrastructure.

However, after the intervention, the schools that received the educational programme showed a significant improvement in menstrual hygiene practices. This improvement was evident in the way students managed their periods, including the use of appropriate sanitary materials, regular cleaning, and safe disposal of menstrual waste (Onubogu, 2024). The intervention also fostered a more open environment for discussing menstrual hygiene, further encouraging healthy practices. On the other hand, the control group schools, which did not receive the intervention, showed no improvement in menstrual hygiene practices. Students in these schools continued to exhibit inadequate practices, likely due to the persistence of misinformation, lack of resources, and limited awareness. This contrast indicates the effectiveness of the intervention in promoting better menstrual hygiene habits and highlights the need for similar programmes in schools lacking proper menstrual health education.

The baseline data and post intervention information presented in this study provide a critical reference point for evaluating the effectiveness of educational interventions aimed at improving menstrual health and hygiene management among adolescent girls. The initial findings confirm the urgent need for comprehensive MHH programmes that address not only knowledge gaps but also deeply rooted attitudes and inadequate practices.

The insights gained from the baseline data have significant implications for menstrual health programming and policy in Nigeria and similar contexts. They highlight the need for large scale multifaceted approaches that integrate education, community engagement, and infrastructure development to address menstrual health

challenges comprehensively. Furthermore, the findings emphasize the importance of culturally sensitive interventions that can effectively challenge and transform negative attitudes towards menstruation.

In conclusion, this study provides a foundational understanding of the KAP regarding menstrual health and hygiene management among secondary school girls in Kano state, Nigeria. These insights are crucial for designing and implementing effective interventions that can empower girls, improve their health outcomes, and promote gender equality and social inclusion. By addressing the identified gaps and challenges, future programmes can significantly advance menstrual health and well-being in similar settings.

4. Conclusion and Future Scope

This study investigated the association between knowledge, attitude, and practice of menstrual health and hygiene management among secondary school girls in Kano state, Nigeria, using baseline data as a foundation for understanding the current state of menstrual health education and behaviours and post educational intervention. The findings from the baseline data and post educational intervention reveal significant gaps in knowledge, negative attitudes, and suboptimal practices regarding menstrual health among the participants, highlighting the pressing need for comprehensive and multifaceted interventions.

The baseline equivalence in knowledge, attitudes, and practices between the intervention and control groups underscores the widespread nature of menstrual health challenges faced by adolescent girls in Nigeria. These challenges are consistent with those documented in existing literature, which points to a lack of accurate information, pervasive cultural stigmas, and inadequate access to sanitary products and facilities. Such systemic issues necessitate targeted and contextually appropriate interventions to improve menstrual health outcomes.

The study's findings have important implications for future menstrual health programming and policy development. The findings provide a critical benchmark against which the effectiveness of interventions can be measured. By demonstrating the initial state of KAP regarding menstrual health, this study underscores the importance of educational programmes that not only disseminate accurate information but also work to shift negative attitudes and improve practical menstrual hygiene management.

Moreover, the results highlight the necessity of involving multiple stakeholders, including educators, community leaders, and policymakers, in efforts to enhance menstrual health education and infrastructure. Addressing the cultural and socioeconomic barriers that hinder effective menstrual health management is essential for achieving sustainable improvements in the well-being of adolescent girls.

The multifaceted hygiene program led to significant improvements in knowledge, attitudes, and practices regarding menstrual health and hygiene management among secondary school girls in Nigeria. The intervention group consistently outperformed the control group across all three domains—knowledge, attitude, and practice—immediately after the intervention and during the three-month follow-up period. These findings underscore the effectiveness of the multifaceted approach in promoting menstrual health and hygiene among adolescent girls.

In conclusion, this study establishes a foundational understanding of the current state of menstrual health knowledge, attitudes, and practices among secondary school girls in Nigeria. The insights gained from the findings providing a strong basis for the design and implementation of effective interventions aimed at empowering girls with the knowledge and skills necessary for managing menstruation confidently, in a dignified manner and hygienically. By addressing the identified gaps and challenges, future programs can significantly contribute to improving menstrual health, promoting gender equality, and fostering social inclusion in similar contexts.

Limitation and Recommendations

This study should not be generalized to reflect the entire state status of KAP in all the schools. Reason being

that, the study areas of the intervention and control groups were basically rural, and as such have differences in all parameters as in urban and rural settings. Furthermore, the study was in 4 schools which could not represent the entire school situation. Consequently, the period of this study was conducted within a short period of 4 months (one month intervention and 3 months follow up), and as such may not ensure the desired sustainability. It is therefore suggested that a similar study with longer duration should be conducted to assess the long term impact of the program on the students.

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