



Health Education and Menstrual Hygiene Practices among Junior Secondary School Students in Rivers West Senatorial District, Rivers State, Nigeria

***Peter-Kio, O.B., & Nduka, C.**

Department of Human Kinetics, Health and Safety Education, Ignatius Ajuru University of Education, Rivers State, Nigeria

***Corresponding author email:** opirite.peter-kio@iaue.edu.ng

Abstract

This study examined the effect of health education on menstrual hygiene practice among junior secondary school students in Rivers West Senatorial District. The pre-test and post-test design was adopted with a population comprising 21,929 female junior secondary school students in Rivers West Senatorial District. A sample size of 200 was selected using a multi-staged sampling procedure. The instrument for data collection was a structured test instrument titled “Test Instrument on Knowledge and Practice of Menstrual Hygiene (TioPMeHy)”, with a reliability coefficient of 0.87. Data collected was analyzed with the aid of the Statistical Product for Service Solution (SPSS) version 23.0 using mean and analysis of covariance (ANCOVA). The study's finding showed that health education had a positive effect on personal hygiene management during menstruation with a mean difference of 1.52, and menstrual hygiene practice with a mean difference of 2.82. The finding of the study also revealed that health education had a significant effect on personal hygiene management during menstruation [$F(1,99) = 1.59, p < 0.05$], and menstrual hygiene practice [$F(1,99) = 5.97, p < 0.05$] among junior secondary school students. It was concluded that health education has the potential to influence the practice of health behaviour and also translate knowledge into the practice of menstrual hygiene among female secondary school students. It was recommended among others that, health agencies should collaborate with primary healthcare workers to ensure weekly or monthly visits to schools with the aim of monitoring and enforcing good menstrual hygiene among female students.

Keywords: Education, Health, Hygiene, Menstruation, Junior Students.

Introduction

Menstrual hygiene is a crucial aspect of public health, especially among adolescents who may lack the necessary knowledge to handle reproductive health issues. It is essential to ensure that adolescents are well-informed about maintaining menstrual hygiene to enable them to maintain good health and actively participate in home and school activities. Educating them about menstrual hygiene is one of the best ways to achieve this goal. According to Pokhrel et al. (2014), understanding how to manage hygiene during menstruation is crucial for adolescent females. Poor maintenance of hygiene during menstruation can lead to several diseases such as reproductive tract infections, pelvic inflammatory diseases, and urinary tract infections, among others. These diseases can have long-term consequences such as infertility. According to the United Nations, around 2.5 billion adolescent girls still lack access to improved sanitation facilities, which puts them at risk of infections. In sub-Saharan Africa, 44% of the population uses shared or unimproved facilities. Poor menstrual hygiene is responsible for over 60% of the disease burden among adolescent girls and results in more than 250,000 deaths annually due to hygiene-related diseases. Deficiencies in menstrual hygiene continue to be a major public health concern, particularly in developing countries, as stated by Paliwal et al. (2014). In Nigeria, Fehintola et al. (2017) found that 47% of secondary school girls used cloth as absorbent material during menses, while only 20.36% used sanitary pads, indicating poor personal hygiene.

As recommended by Omidvar and Begum's research in 2014, adolescent female students need to prioritize good personal hygiene, including taking regular baths, washing their genital area, and changing pads frequently, especially

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before bedtime. UNICEF also emphasizes the critical role of clean and appropriate menstrual products in maintaining menstrual hygiene, as outlined in its 2020 report. Effective menstrual hygiene practices encompass various factors such as using clean and suitable menstrual products, regularly changing them, disposing of used products properly, accessing clean water and sanitation facilities, and maintaining personal hygiene. Proper hygiene management during menstruation involves practising good hygiene habits to care for the body, health, and well-being through cleanliness throughout the menstrual cycle. Personal hygiene management is the science of healthy living that encompasses all day-to-day activities that contribute to the health and well-being of an individual. During menstruation, it is important to prioritize personal hygiene practices such as hand hygiene, cloth hygiene, and body hygiene, as outlined by Aiello et al. (2018).

Personal hygiene is important for various reasons, including reducing personal illness, healing from illness, promoting optimal health and well-being, gaining social acceptance, and preventing the spread of illness to others (Tietjen, 2016). In addition, personal grooming is also important as it contributes to maintaining a good personal and public appearance (Irish et al., 2014). To achieve body hygiene, the United Nations Children's Fund (UNICEF, 2019) recommends using personal hygiene products such as soap, shampoo, toothbrushes, toothpaste, cotton swabs, antiperspirant, facial tissue, mouthwash, nail files, skin cleansers, and toilet paper. These products are not only essential for body hygiene, but also for menstrual hygiene during the menstrual cycle. Adolescent females must understand how to manage hygiene during menstruation, yet this topic has remained a silent issue (Pokhrel et al., 2014). As noted by Goel and Kundan (2013), many adolescent girls feel embarrassed about menstruation and believe it should be kept hidden. In most developing countries, a stigma known as the "culture of silence" surrounds menstruation, and it is rarely discussed in homes and schools (Santhanakrishnan & Athipathy, 2018). Premila et al. (2015) have shown that most adolescent girls have incomplete and inaccurate information about menstrual physiology and hygiene. Therefore, it is crucial to educate girls about the basic things they need to know about menstruation and menstrual hygiene.

Education about menstrual hygiene is crucial for the well-being of adolescent girls. Unfortunately, menstrual hygiene is often overlooked and not given the attention it deserves. Therefore, it is necessary to promote a positive approach towards managing menstruation and related problems among adolescents. This information can be obtained from various sources, including the mass media, parents, healthcare professionals, friends, and health education programs. According to the World Health Organization (2022), health education is defined as any combination of learning experiences designed to help individuals and communities improve their health by increasing their knowledge or influencing their behaviour. Studies by Montgomery et al. (2013) have shown that girls often have little knowledge about how to maintain personal hygiene during menstruation and resort to using unhygienic rags during their menstrual period. The lack of knowledge about the importance of menstrual hygiene is a major reason why menstruating adolescents do not know how to use menstrual hygiene products and continue using traditional methods that expose them to health risks.

Adolescence is the phase of life between childhood and adulthood which ranges from 10 to 19 years of age. The onset of menses takes place during an adolescent period in which dominant physiological and emotional changes take place (Ayele & Berhan, 2013). About 1/6th of the global population are adolescents (Parasuraman et al., 2022). In the words of Jogdand and Yerpude (2021), adolescent girls require specific and special attention since they are the most vulnerable group not only in terms of their social status but also their health. The onset of menstruation and the development of secondary sexual characteristics are the important changes that occur during the adolescent phase in girls. Dasgupta and Sarkar cited in Parasuraman et al. (2022) stated that, although menstruation is a normal process, there are several misconceptions and practices linked with it, resulting in adverse health outcomes, thus, it requires special attention and programmes to help adolescents girls. Many girls face challenges in managing their menstruation in a dignified and hygienic way due to insufficient access to information, sanitary facilities, and materials. Unfortunately, most parents, teachers, cultures, religious bodies, and peer groups provide incorrect information and are uncomfortable discussing menstruation, resulting in misconceptions, myths, and unsafe practices. As a consequence, girls become shy or stressed during menstruation, may dispose of absorbents incorrectly, and participate less in school activities. Poor knowledge of menstrual hygiene increases susceptibility to urinary tract and reproductive tract infections, and pelvic inflammatory diseases, which can negatively impact health and academic performance.

In the Rivers West Senatorial District, it was observed that many public schools lack proper sanitary facilities, especially in the junior secondary sections. Interactions with the students revealed that they lack personal and menstrual hygiene practices, leading to unpleasant odours, unkempt hands, and uniforms. Although many studies have

been conducted on menstrual hygiene, they have only been descriptive and no direct intervention has been implemented. Therefore, the researcher has decided to conduct a health education intervention study to positively impact junior secondary school students. The focus of this study is to investigate the effect of health education on the practice of menstrual hygiene among junior secondary school students in the Rivers West Senatorial District. The study provided answers to the following research questions:

1. What are the effects of health education on personal hygiene management during menstruation among junior secondary school students in Rivers West Senatorial District, Rivers State?
2. What are the effects of health education on menstrual hygiene practices among junior secondary school students in Rivers West Senatorial District, Rivers State?

Methodology

The study employed a pre-test post-test design, which involves observing participants before and after an intervention that is not controlled by the researcher. The study population was comprised of 21,929 female secondary school students in the Rivers West Senatorial District, according to the Rivers State Universal Basic Education Board (2020). The sample size of the study was 200, with 100 participants in each group, and was calculated using Taylor's formula for intervention studies comparing the effect between two groups.

$$n = D \left\{ \frac{Z_{1-\alpha/2} \sqrt{2P_0(1-P_0)} + Z_{\beta} \sqrt{P_0(1-P_0) + P_1(1-P_1)}}{P_0 - P_1} \right\}$$

Where, P1 = proportion of females practicing menstrual hygiene at the baseline (12%). The study was hoped to improve the percentage by 15%. P2= Minimum proportion of females expected to engage in menstrual hygiene after the intervention = 27%. P0 = average of P1 and P2 = (12+27)/2 = 19.5% = 0.195. $Z_{1-\alpha/2}$ = Standard normal deviation corresponding to the level of significance (α) of 5% = 1.96. Z_{β} = Standard normal deviation corresponding to type II error (β) of 10% = 1.28. P1 – P2 = 15%. D = design effect of 1.5.

A multi-stage sampling procedure was adopted for the study. The procedure involved the following stages. At stage 1, the cluster sampling technique was used to group the senatorial district into two strata (riverine and upland) based on the terrain and cultural similarities, riverine (AKULGA, ASALGA, Bonny and Degema) and upland (Abua-Odual, Ahoada East, Ahoada West, and Ogba-Egbema-Ndoni LGA). At stage 2, a simple random sampling method was used to select one Cluster, which is the upland. At Stage 3, a simple random sampling technique was used to select two LGAs in the selected cluster (ONELGA and Ahoada East). At Stage 4, a simple random sampling method was used to select two secondary schools from each of the selected LGAs. At stage 5, a proportionate stratified simple random sampling technique was used to select the number of students to sample in each school. The instrument for data collection was a structured test instrument titled “Test Instrument on Practice of Menstrual Hygiene (TioPMeHy)” with a reliability coefficient of 0.87. Data collected was entered and coded in the Statistical Product for Service Solution (SPSS) version 23.0. Data were analyzed using descriptive statistics of mean, standard deviation (SD) and analysis of covariance (ANCOVA) at 0.05 level of significance.

Results

The results of the study are shown below:

Table 1: Mean and standard deviation on the effect of health education on personal hygiene management during menstruation among junior secondary school students in Rivers West Senatorial District

Group	Test	N	Mean	S.D.	Mean difference	Remark
Intervention	Pre-test	100	1.92	0.63	1.52	Positive effect
	Post-test	100	3.45	0.86		
Control	Pre-test	100	2.01	0.73	0.25	
	Post-test	100	2.26	0.95		

Criterion mean = 3.00

Table 1 presents the mean and standard deviation of the effect of health education on personal hygiene management during menstruation among junior secondary school students. The results indicate that the control group had a pretest score of 2.01 ± 0.73 and a post-test score of 2.26 ± 0.95 , with a mean difference of 0.25. On the other hand, the intervention group had a pretest score of 1.92 ± 0.63 and a post-test score of 3.45 ± 0.86 , with a mean difference of 1.52. Therefore, the study concludes that health education has a positive impact on personal hygiene management during menstruation among junior secondary school students in the Rivers West Senatorial District.

Table 2: Mean and standard deviation on the effect of health education on menstrual hygiene practice among junior secondary school students in Rivers West Senatorial District

Group	Test	N	Mean	S.D.	Mean difference	Remark
Intervention	Pre-test	100	1.56	0.54	2.82	Positive effect
	Post-test	100	4.38	0.61		
Control	Pre-test	100	1.55	0.53	0.40	
	Post-test	100	1.95	0.77		

Criterion mean = 3.00

Table 2 shows the mean and standard deviation of the effect of health education on menstrual hygiene practice among junior secondary school students. The result showed that respondents in the control group had a pretest score of 1.55 ± 0.53 and a post-test score of 1.95 ± 0.77 with a mean difference of 0.40; however, respondents in the intervention group had a pretest score of 1.56 ± 0.54 and post-test score of 4.38 ± 0.61 with a mean difference of 2.82. Thus, health education had a positive effect on menstrual hygiene practice among junior secondary school students in Rivers West Senatorial District.

Table 3: Analysis of Covariate (ANCOVA) on the effect of health education on personal hygiene management during menstruation among junior secondary school students in Rivers West Senatorial District

Source	Type III Sum of Squares	df	Mean Square	F	p-value	η^2
Corrected Model	1.194 ^a	1	1.194	1.595	.010	.216
Intercept	136.744	1	136.744	182.704	.000	.656
Pretest	1.194	1	1.194	1.595	.010*	.216
Error	71.851	98	.748			
Total	1238.110	100				
Corrected Total	73.045	99				

*Significant; $p < 0.05$

Table 3 presents the results of an Analysis of Covariate (ANCOVA) conducted to determine the impact of health education on personal hygiene management during menstruation among junior secondary school students. The findings showed that the intervention had a significant effect [$F(1,99) = 1.59, p < 0.05$] on personal hygiene management during menstruation. Moreover, the intervention explained 21.6% ($\omega^2 = 0.216$) of the variance in the post-test practice score. Therefore, the null hypothesis that health education has no significant effect on personal hygiene management during menstruation among junior secondary school students in Rivers West Senatorial District, Rivers State, was rejected.

Table 4: Analysis of Covariate (ANCOVA) on the effect of health education on menstrual hygiene practice among junior secondary school students in Rivers West Senatorial District

Source	Type III Sum of Squares	df	Mean Square	F	p-value	η^2
Corrected Model	2.111 ^a	1	2.111	5.972	.016	.259
Intercept	160.213	1	160.213	453.243	.000	.825
Pretest	2.111	1	2.111	5.972	.016	.259
Error	33.934	96	.353			
Total	1922.780	98				
Corrected Total	36.045	97				

*Significant; $p < 0.05$

Table 4 presents the Analysis of Covariate (ANCOVA) which was conducted to ascertain the effect of health education on menstrual hygiene practice among junior secondary school students. The result showed that the intervention had a significant effect [$F(1,99) = 5.97, p < 0.05$] on menstrual hygiene practice. Furthermore, 25.9% ($\omega^2 = 0.259$) of the variance in the post-test practice score could be explained by the intervention. Thus, the null hypothesis which stated that health education has no significant effects on menstrual hygiene practice among junior secondary school students in Rivers West Senatorial District, Rivers State was rejected.

Discussion

The study results indicate that health education has a significant impact on personal hygiene management during menstruation among junior secondary school students [$F(1,99) = 1.59, p < 0.05$]. This is an encouraging finding as it shows that classroom knowledge is translating into good hygiene practices. Knowledge about menstrual hygiene among junior secondary school students can help prevent urinary tract infections and reduce odour during menstruation. Additionally, possessing this knowledge can reduce absenteeism associated with menstruation and improve academic performance among this population. Moreover, this knowledge can have a ripple effect as students can serve as agents of health promotion among their peers and siblings, leading to a reduction in absenteeism later in life. The findings of this study are consistent with those of other studies conducted in Bangladesh and Thiruvallur, Tamil Nadu, which also focused on in-school adolescents. However, this study differs from studies conducted in India, Indonesia, and Ethiopia, which showed poor personal hygiene management during menstruation. The variation in findings between this study and previous ones can be attributed to differences in study location and design; this study used a pre-test post-test design, where junior students were exposed to the menstrual cycle and related topics not found in their curriculum, while the previous studies used a descriptive research design that did not employ any form of formal learning.

The result showed that health education had a significant effect [$F(1,99) = 5.97, p < 0.05$] on menstrual hygiene practice among junior secondary school students. The finding of this study is also encouraging because it shows that health education as a useful tool for influencing behaviour can aid the translation of knowledge into practice sustained as in recent times there is the perception schooling had not helped in shaping the life of young people and wealth creation. With more students practicing menstrual hygiene, will not only reduce the prevalence of reproductive tract infection but also enhance the social health of people including improving self-esteem and social inclusion of young in other extra-curricular activities such as participating in sporting activities without withdrawing from such activities for improved performance. The finding of this study is in keeping with that Reda et al. (2014) whose study on the effect of health education programs on practices about menstrual hygiene among adolescent girls at orphanage homes in Egypt showed that health education had a significant effect on practices toward menstrual hygiene management. The finding of this study is in consonant with that of Haque et al. (2014) whose study on the effect of a school-based educational intervention on menstrual health among adolescent girls in Bangladesh revealed that school-based health education had a significant effect on menstrual hygiene management during menstruation among the study subjects.

The finding of this study is in support of that of Ekong (2015) whose study on the effect of health education on menstrual hygiene among rural and urban adolescent girls in South-South Nigeria revealed that health education had a significant effect on menstrual hygiene management. The finding of this study is in support of that of Upashe et al. (2015) whose study on the knowledge and practice of menstrual hygiene among high school girls in western Ethiopia revealed that health education had a significant effect on knowledge of the menstrual cycle. The finding of this study

is also in keeping with that of Parasuraman et al. (2022) whose study on the impact of a health education intervention on menstruation and its hygiene among urban school-going adolescent girls in Thiruvallur, Tamilnadu revealed that health education had a significant impact on menstrual hygiene management. This similarity might be because the two studies were carried out among female school students. However, the finding of this study differs from the results found in other studies such as that of Belen et al. (2018) in India, Davis et al. (2018) in Indonesia, Raj et al. (2019) in India, and Belayneh and Mekuriaw (2019) in Ethiopia which all showed poor menstrual hygiene practice among the respondents. This variation between the present study and the previous ones might be attributed to the difference in study location and study design as the present study adopted a pre-test and post-test design whereas the previous studies adopted a descriptive research design.

Conclusion

Based on the findings of the study, it was concluded that health education has the potential to influence the practice of health behaviour and also translate knowledge into the practice of menstrual hygiene among female secondary school students.

Recommendations

Based on the results, the following recommendations were put forward

1. Curriculum developers should review all schools' curricula at the junior secondary level to include the menstrual cycle and relate topics to improve menstrual hygiene management among these sets of students.
2. Health agencies should collaborate with primary healthcare workers to ensure weekly or monthly visits to schools with the aim of monitoring and enforcing WASH practices in schools
3. Non-governmental agencies promoting the girl's child should periodically sponsor programme on menstrual management and assist in the supply of sanitary materials to help reduce the number of times students will skip school due to the fear of soiling themselves.

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