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MENSTRUAL HYGIENE KNOWLEDGE, ATTITUDE AND PRACTICE AMONG IN-SCHOOL AND OUT-OF-SCHOOL ADOLESCENT GIRLS RESIDING IN CROSS RIVER STATE, NIGERIA

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ABSTRACT

Globally, at least 500 million women and girls have poor knowledge on menstruation and lack adequate facilities for menstrual hygiene management (MHM). This study sought to determine the menstrual hygiene knowledge, attitude and practices of adolescent girls in Cross River State, Nigeria. Ethical approval was obtained from the Cross River State Health Research Committee (CRS/MH/HREC/021/Vol.V1/211). A community-based cross-sectional study design was used with a mixed method of data collection (Quantitative and Qualitative). Quantitative data was obtained from 422 adolescent girls aged 10-19 years who had attained menarche, and also gave their consent to participate in the study using a pre-tested adapted semi-structured questionnaire by UNICEF. Focus Group Discussion guide was used to obtain qualitative data from adolescent girls who participated in the FGD. Pearson Chi-square (χ^2) statistic was used to test association between variables. Majority 315 (74.6%) of the respondents had high knowledge of menstruation with most 174 (41.2%) of the respondents strongly agreeing that menstruation is something they just had to tolerate because they had no choice. Majority 360 (85.3%) of respondents indicated that they used disposable sanitary pads during menstruation. There was a statistically significant association between adolescent girls' knowledge of menstruation and their school status, χ^2 (2, N = 422) = 11.45, p = 0.03. Government, Non-Governmental Organizations and the general public have to put more effort into ensuring that adolescent girls are well educated on menstruation and importance of good menstrual hygiene practice in schools but particularly for out-of-school girls.

KEYWORDS: Menstrual Hygiene, Knowledge, Attitude, Practice

INTRODUCTION

Menstruation is a universal and normal phenomenon during the reproductive age of females (Belayneh and Mekuriaw, 2019), sometimes, it is referred to as 'menses' or 'menstrual period' (House, Mahon & Cavill, 2012). It is a normal physiological process that marks the onset of reproductive life (Choudhary & Gupta, 2019).

During puberty or adolescence, girls between the ages of 8 to 19 begin to menstruate. They begin to undergo physical and emotional changes such as; wider hips, growing breasts, and certain hormonal changes. They continue to menstruate until they attain a stage called menopause, which is when menstruation stops. This usually occurs between the late 40's and mid 50's of a woman's life (House et al., 2012).

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The World Health Organization (WHO) defines adolescents as individuals in the 10 to 19 years age group (WHO, 2023). Adolescent is an essential period where females are preparing and adjusting themselves to manage their menstrual bleeding in safe and clean way (Ayele and Berhan, 2013). Numerous studies, particularly from low-income countries, show that a very high number of girls start menstruating without having any idea what is happening to them or why (Belayneh and Mekuriaw, 2019; Chinyama et al, 2019; Jothy and Kalaiselv, 2012). Even the little information they receive most commonly from religious institutions, peers and family members is often selective and surrounded by misperceptions (Sommer, et al, 2015). This is because parents find it difficult to speak of sensitive and sexual issues with their children, even while admitting it is also their responsibility (Fehintola et al, 2017).

Globally, at least 500 million women and girls lack adequate facilities for menstrual hygiene management (MHM). Inadequate WASH facilities, particularly in schools pose as a major obstacle to girls. Growing body of evidence shows that girls' inability to manage their menstrual hygiene in schools' results in school absenteeism, which in turn has severe consequences on their lives and the society (World Bank, 2018). Poor MHM may increase a woman's susceptibility to reproductive tract infections (RTIs) (Belayneh and Mekuriaw, 2019; Fehintola et al, 2017; Kuhlmann et al, 2017).

Studies in Africa have found out the use of sanitary pads as low as 18 % amongst Tanzanian women with the remainder using cloth or toilet paper (Fehintola, 2017). Studies of Nigerian schoolgirls have found between 31 and 56 % using toilet tissue or cloth to absorb their menstrual blood as opposed to menstrual pads (Aniebue et al, 2009)

Currently in Nigeria, there are 18.5 million out-of-school children. Of this number, 60% are girls which amount to over 10 million girls. This therefore implies that only about 8 million girls are privileged to be in school (UNICEF, 2022). Adequate education on menstruation and its surrounding practices will help curb the excesses of these issues regarding menstruation (Nnennaya et al 2021; Esan et al,2023; Ilo et al., 2016).

In Cross River State, an exploratory study on menstruation and menstrual hygiene knowledge among adolescents in urban and rural secondary schools revealed that there is a significant difference in knowledge of menstruation and menstrual hygiene practices between students in urban schools and their counterparts from rural schools (Edet, Bassey, Essienumoh & Ndep 2020).

In the light of the above, this study is necessary to assess the knowledge regarding menstruation and to determine the attitude and menstrual hygiene practices among in- school and out- of- school adolescent girls in Cross River State, Nigeria.

Objectives

1. Determine knowledge level on menstruation among in and out-of-school adolescent girls residing Cross River State, Nigeria.
2. Determine adolescent girl's attitude towards menstruation in Cross River State, Nigeria.
3. Examine the menstrual hygiene practices among adolescent Cross River State, Nigeria.

Research hypotheses

1. There is no statistically significant association between adolescent girls' knowledge of menstruation and their school status (in-school and out-of-school).
2. There is no statistically significant association between adolescent girls' attitude towards menstruation and their school status (in-school and out-of-school).

METHODOLOGY

3.1 Study design

This study was carried out using a cross-sectional, descriptive study design to determine the menstrual hygiene knowledge, attitude and practices among adolescent girls residing in Cross River state, Nigeria.

3.2 Study population

The study population comprised of 422 in-school and out-of-school adolescent girls who have attained menarche aged 10 to 19 years in both Calabar Municipality and Yakurr Local Government Areas.

3.3 Sample size determination

3.3.1 The quantitative part of the study:

The sample size for the quantitative part of this study was determined using the Fisher's formula (1945) which is given as;

$$n = \frac{Z^2Pq}{d^2}$$

Where n = Sample size

Z = 1.96 (i.e. 95% confidence interval)

d = 0.05 (acceptable margin of error)

p = Assuming 50% = 0.5 (From the literature search, the prevalence of awareness of menstruation among adolescent girls is 50%) (Choudhary & Gupta, 2019)

q = 1-P =1-0.5 = 0.5 (proportion of adolescent girls without adequate knowledge of menstruation)

Therefore,

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2}$$

$$= \frac{0.9604}{0.0025}$$

n = 384.16

= 384

Using Fisher's formula (1945) with an error of 5% and confidence level of 95%, the sample size will be 384.

To calculate for bias and non-response, the sample size was increased by 10%

$= \frac{10}{100} \times 384 = 38.4$ (non-response)

384 + 38 = 422

The qualitative part of the study:

Focus Group Discussions (FGDs): Four communities were randomly selected and in each of the selected communities, one FGD was conducted and purposive sampling method was used to select the participants for the FGD in the study areas. Each FGD comprised of 10 participants.

Ethical Considerations/ approval

Ethical approval was obtained from the Cross River State Health Research Ethics Committee, Ministry of Health with the approval number CRS/MH/HREC/021/Vol.V1/211.

Inclusion criteria

Eligible participants for both the quantitative and qualitative component of the study were in and out-of-school adolescent girls aged 10 to 19 years. The selection criteria were irrespective of girls' educational status, religion, culture, economic and social status.

Exclusion criteria

Girls within the accepted age range who had not attained menarche were not included in this study.

Sampling procedures:

Quantitative methodology: In this study, multi-stage random sampling technique was employed in the selection of LGAs, wards, communities, streets, households and respondents. The procedure is described as follows;

Stage 1: Selection of LGAs

Using simple random sampling by ballot method, Calabar Municipality and Yakurr Local Government Areas were selected for the study.

Stage 2: Selection of wards

Yakurr LGA has a total of 13 wards and Calabar Municipality has a total of 10 wards. Using purposive sampling technique, 4(Ijom, Ijiman, Abanappai, and Idomi) out of 13 wards were selected in Yakurr, and 4 (wards 5, 7, 8 & 9) out of 10 wards were selected in Calabar Municipality.

Stage 3: Selection of communities

In each of the selected wards, simple random sampling technique was employed to select four (4) communities using the ballot method. Numbers were assigned to each community that make up the selected ward, folded in a paper and put in a basket. It was vigorously mixed. The first four communities picked in each selected ward were involved in the study (i.e four communities were selected from each of the 4 wards earlier picked in Yakurr and four communities were also selected from each of the 4 wards picked in Calabar Municipality). At the end of the exercise, a total number of 16 communities were picked in Yakurr (i.e. 4x4=16) and 16 communities in Calabar Municipality (i.e. 4x4=16) were picked to have a total number of 32 communities.

Stage 4: Selection of streets

In each of the selected communities, 2 streets were selected using simple random sampling technique to have a total of 64 streets (32 communities' x 2). A sampling frame comprising of all streets in each of the selected LGAs was collected from the information department of the LGA and two (2) streets were randomly selected.

Stage 5: Selection of households

In each of the selected streets, systematic sampling was employed in the selection of 8 households per street in Yakurr (i.e. 32 streets x 8 households= 256 households) and 8 households per street in Calabar Municipality (i.e. 32 streets x 8 households=256 households), i.e 256 households in Yakurr and 256 households in Calabar Municipality, making it a total of 512 households. The interval (K^{th} term) for each community was found by dividing the total number of enumerated households by 8 (participating households) for both LGAs respectively. In each street, the first household was randomly selected and only households that had adolescent girls aged 10 to 19years were selected. Where there were no adolescent girls within the age range in an identified household, the next household was selected before the skip.

Stage 6: Selection of respondents

In each household, one adolescent girl respondent within the age range of 10 to 19 years was selected. In households where there was more than one adolescent girl, ballot method was used to select the one that would participate. The adolescent girl who picked number one was selected. This procedure was used in all the selected wards until 422 study participants were duly recruited.

Qualitative methodology:

Focus Group Discussion: For the FGDs, participants were recruited into the study purposively. FGD was conducted in the four (4) wards earmarked for this study. In each ward, 10 adolescent girls were recruited to participate in the FGD, making it a total of 40 participants for the FGD. One FGD was conducted per selected community, making it a total of 4 FGDs for the study.

Instruments for data collection (Assessment and intervention phase):

Questionnaire: A semi-structured interviewer administered questionnaire adapted from "Menstrual Hygiene Management of Adolescent School Girls and Nuns" by (UNICEF, 2018) was used. The questionnaire had five sections. Section-A covered the socio-demographic characteristics; Section-B obtained information on adolescent girl's knowledge of menstruation; Section-C explored their attitudes towards menstruation;

Section-D gathered information on the menstrual hygiene practices among adolescent girls and Section-E obtained information on the available menstrual health services and adolescent girls utilization of the services in the study areas.

METHOD OF DATA ANALYSIS:

Quantitative data

Statistical Product and Service Solution (SPSS version 26.0) was used to enter and analyse the quantitative data that was obtained from this study. Descriptive results were presented on tables and figures as frequencies and percentages. Pearson Chi-Square (χ^2) and student t- test statistic were employed to test statistical association between variables at 5% level of significance, with a $P \leq 0.05$ considered as statistically significant. The respondents' level of knowledge of menstruation was investigated using a set of ten questions and each correct answer obtained 1mark while each wrong answer got a score of 0. Respondents that scored 0-3 marks were grouped as having low level of knowledge; 4-6 for moderate knowledge; and 7-10 for high knowledge. Attitudes and practices were analysed and presented on tables as frequencies and percentages.

Qualitative data

Qualitative data was analysed through labelling and organization of the data to identify different themes and to establish the relationship between them. Deductive coding was applied where the researcher started with a set of pre-defined set of codes, after which the codes were then assigned to the qualitative data. The codes were then organized into hierarchical coding frames based on how they related to one another and according to identified patterns. Coders cognitive bias was avoided as the researcher had coding guidelines in place to keep coding reliable, consistent and accurate. Qualitative results were presented as themes and quotes.

RESULTS

Socio-demographic characteristics of respondents

A total number of 422 copies of questionnaire were administered to the study participants by the researcher, and 422 copies were retrieved. As shown on table 4.1 below, most 157 (37.4%) of the respondents were within the age group of 17-19 years while 119 (28.2%) were within the age group of 10-13 years with mean age of the respondents as 14years. Majority 367 (87%) of the respondents were single with majority 374 (88%) of them Christians. Slightly above half 225 (53.3%) had attained secondary education with majority 318 (75.4%) of them in-school. Most 258 (61.1%) of the respondents lived with their parents.

Respondents' knowledge level of menstruation

Table 4.2 show that majority 366(86.7%) of the respondents knew that menstruation is the natural shedding of blood while 10 (2.4%) did not know exactly what it was. Majority 299 (71.1%) of them indicated that hormones were the cause of menstruation while 31(7.3%) did not know. Close to half 196 (46.9%) of the respondents indicated that their source of information on menstruation was their mother with greater than half 241 (57.4%) of the respondents tagged menstrual blood as impure. Overall, majority 315 (74.6%) of the respondents had high knowledge of menstruation.

Table 4.1: Socio-demographic distribution of respondents

Variables	Frequency (n = 422)	Percentage (%)
Age (in years)		
10-13	119	28.2
14-16	145	34.4
17-19	158	37.4
Marital status		
Single	367	87.0
Married	20	4.7
Divorced	10	2.4
Co-habiting	25	5.9
Religion		
Christianity	374	88.6
Islamic	18	4.3
Traditional	11	2.6
No religion	19	4.5
Education		
No formal education	39	9.2
Primary education	60	14.2
Secondary education	225	53.3
Tertiary education	98	23.3
Currently in school		
Yes	318	75.4
No	104	24.6
Caregiver		
Parent/family	258	61.1
Guardian	119	28.2
Alone	19	4.5
Others	26	6.2

Table 4.2: Respondents' knowledge of menstruation

Variables	Frequency (n = 422)	Percentage (%)
What is menstruation?		
Natural shedding of blood	366	86.7
Disease	6	1.4
Curse from God	17	4.0
Don't know	23	5.5
Others	10	2.4
Cause of menstruation		
Hormones	296	70.1
Caused by disease	46	11.0
Curse from God	37	8.8
Don't know	31	7.3
Others	11	2.6
Non-response	1	0.2
Source of information on menstruation		
Mother	196	46.4
Teacher	136	32.2
Friends	42	10.0
Books	8	1.9
Media	11	2.6
Others	25	6.0
Non-response	4	0.9
Menstrual blood is impure		
Yes	241	57.1
No	107	25.4
Don't know	47	11.1
Others	25	5.9
Non-response	2	0.5
Level of menstrual knowledge		
High	315	74.6
Moderate	71	16.8
Low	36	8.5

Respondent's attitude towards menstruation

Table 4.3 reveals that most 136 (32.2%) of the respondents disagreed to missing activities during menstrual periods while 80 (19.0%) agreed. Most 174 (41.2%) of the respondents strongly agreed that menstruation is something they just had to tolerate because they had no choice compared to 27 (6.4%) who strongly disagreed. Most 119 (28.2%) of the respondents agreed that it is important to buy sanitary pads without being seen while 106 (25.1%) of them strongly disagreed about the misconception. On mood swing, most 149 (35.3%) of the respondents agreed that they easily get upset during menstrual flow while 22 (5.2%) of them strongly disagreed that they easily get upset.

Respondents' menstrual hygiene practices

Table 4.4 show that majority 360 (85.3%) of respondents indicated that they used disposable sanitary pads during menstruation, while 12 (2.8%) of them used other materials like newspapers and leaves during menstruation. A high proportion 370 (87.7%) of the respondents had their bath during their menstrual flow while 24 (5.7%) did not. On how frequent they changed their sanitary pads during menstrual flow in a day, most 190 (45.1%) of them indicated changing three times daily, while 24 (5.7%) of them indicated once daily. Result also revealed that close to half 209 (49.5%) of the respondents disposed their menstrual waste in dustbins, while 17 (4.0%) have other ways in which they dispose. As a way of relieving their menstrual pain, 160 (37.9%) indicated that they take pain relief drugs while 22 (5.2%) avoid food. Majority 319 (75.6%) of the respondents indicated that they washed their hands whenever they changed their sanitary pads while 18 (4.3%) did not remember if they washed their hands.

Table 4.3: Respondents' attitude towards menstruation

Variables	Frequency (n = 422)	Percentage (%)
I miss activities during my period		
Strongly disagree	134	31.8
Disagree	136	32.2
Neutral	33	7.8
Agree	80	19.0
Strongly agree	39	9.2
Menstruation is just something I tolerate		
Strongly disagree	27	6.4
Disagree	25	5.9
Neutral	80	19.0
Agree	116	27.5
Strongly agree	174	41.2
It is important to buy sanitary pad without being seen		
Strongly disagree	106	25.1
Disagree	96	22.7
Neutral	38	9.0
Agree	119	28.2
Strongly agree	63	15.0
Easily upset during menstrual periods		
Strongly disagree	22	5.2
Disagree	94	22.3
Neutral	52	12.3
Agree	149	35.3
Strongly agree	105	24.9

Table 4.4: Respondents' menstrual hygiene practices

Variables	Frequency (n = 422)	Percentage (%)
Type of absorbent used during menstruation		
Disposable sanitary pad	360	85.3
Rag/used cloth	18	4.3
Toilet roll	17	4.0
Napkin	15	3.6
Others	12	2.8
Bathing often during menstrual period		
Yes	370	87.7
No	24	5.7
Can't remember	28	6.6
How often is absorbent changed in a day?		
Once	24	5.7
Two times	133	31.5
Three times	190	45.1
Four times	47	11.1
More than four times	28	6.6
Method of disposal of used sanitary pads		
Dust bin	209	49.5
Toilet	90	21.3
Open field	41	9.7
Burning	65	15.4
Others	17	4.0
Ways of handling menstrual pain		
Exercise	106	25.1
Pain reliever	160	37.9
Hot bath	89	21.1
Avoid food	22	5.2
None	45	10.7
Washing of hands with soap and water after change of used pad		
Yes	319	75.6
No	24	5.7
Sometimes	61	14.5
Can't remember	18	4.3

Table 4.5 reveals that most 269 (63.7%) of the respondents indicated that they never visited the health facility for menstrual health problems while 35 (8.3%) did not remember if they ever visited the health facility for menstrual problems. On availability of health facility where adolescent girls' can report to when they have menstrual problems, most 160 (37.9%) of them indicated that there was no health facility while 13 (3.1%) indicated that there were dispensaries patent shops and medicine hawkers. Most 205 (48.6%) of the respondents that visited the health facility indicated that there was no menstrual health service available while 19 (4.5%) indicated that information on menstrual health was available. Among those that visited the health facility, most 54(12.8%) of them visited twice while 22(5.2%) indicated that they visited many times. Close to half 176 (41.7%) of them could not remember if they were satisfied with the quality of services rendered to them at the facilities while 99 (23.5%) were not satisfied with the services that they received.

Table 4.5: Respondent's utilization of available menstrual health services

Variables	Frequency (n = 422)	Percentage (%)
Ever visited a health facility for menstrual problems		
Yes	117	27.7
No	269	63.7
Can't remember	35	8.3
Non-response	1	0.3
Type of health facility available		
Government	148	35.1
Youth-friendly	22	5.2
Private	79	18.7
None	160	37.9
Others	13	3.1
Number of times respondents have visited the facilities		
Once	41	9.7
Twice	54	12.8
Many times	22	5.2
Never	305	72.3
Comfortable with the services rendered in the facility		
Yes	147	34.8
No	99	23.5
Can't remember	176	41.7
Available menstrual health services		
Pain relief medications	56	13.3
Menstrual materials	70	16.6
Referral services	72	17.1
Information	19	4.5
None	205	48.5

Qualitative result

Adolescent girls' most important menstrual need

Sanitary pads, WASH facilities, pain medications, emerged as the most important needs of adolescent girls.

"I wish we can get free sanitary pads during our period because the sanitary pads sold here are very expensive and we can barely afford it" (FGD Participant).

"Sometimes, we need to trek to a far distance to fetch water to bath during our periods. If nobody is around to give us money to fetch, we end up not bathing which makes us feel irritated because of the blood. We would really love to keep ourselves clean while menstruating" (FGD Participant)

"I feel so much pain when I'm menstruating, I would like to have free drugs that will stop the pains. It even affects my productivity while in school" (FGD Participant).

Adolescent girls' information on menstruation

Some of the study participants said that they were not informed about menstruation before menarche. They reported to have passively heard about menstruation from their sisters for the first time, and this was because they were frequently sent by their sisters to buy sanitary pads.

"Nobody told me about menstruation. I only got to know about it when I asked my sister the use of the sanitary pad she sent me to buy every month. She answered that I will get to know very soon when I grow up" (FGD Participant)

A few of them said that they had weird conversations about menstruation after menarche and they were told that if they ever had contact with a boy, they would get pregnant.

"The first time I saw blood in my pant, my mother gave me a pieces to put in my private part. She warned me not to go close to any boy; she told me that I will get pregnant if I do" (FGD participant)

"My mum took me into the room and explained to me that I am now a woman. She said that I will be able to give birth to a child now that I have started seeing my monthly period. But she said I will have to finish school first before I think of that" (FGD participant)

"When I started menstruating, my aunt told me to ensure that I have my bath before and after school every day. She said I should do this in order to avoid bad odour. She also informed me that changing my sanitary pad as soon as I notice that it is soaked with blood will prevent me from having infection" (FGD participant)

Some participants also stressed that they did not get any information at all, even in school. They however, explained that some strangers visited their schools and gave information on menstruation and shared free sanitary pads.

"Strangers come around our school but once in a year. They teach us about menstruation and how to sew pad with pieces" (FGD Participant)

Test of hypotheses

Null hypothesis 1: There is no statistically significant association between adolescent girls' knowledge of menstruation and school status (in-school and out-of-school).

Table 4.6 shows result of Chi-square analysis performed at 95% confidence interval to test the association between adolescent girls' knowledge of menstruation and their current school status (in-school and out-of-school). There was a statistically significant association between adolescent girls' knowledge of menstruation and their school status, χ^2 (2, N = 422) = 11.45, p = 0.03. Majority 249(78.3%) of the adolescent girls' with high knowledge of menstruation were in-school while most 16(15.4%) of them with low knowledge of menstruation were out-of- school.

Null hypothesis 2: There is no statistically significant association between adolescent girls' attitude towards menstruation and school status (in-school and out-of-school).

Table 4.7 shows result of Chi-square analysis to test the association between adolescent girls' attitude towards menstruation and school status (in-school and out-of-school) at confidence interval of 95%. There was no statistically significant association between adolescent girls' attitude towards menstruation and their current school status (in-school or out of school). χ^2 (1, N = 422) = 1.917, p = 0.166. The null hypothesis was failed to be rejected.

Table 4.6: Association between respondents' knowledge variable vs school status

Variables	Knowledge			**Total**	**Pearson's Chi-square (x^2)**	**Df**	**p-value**
	Low	Moderate	High				
School status							
In-school	20(6.3%)	49(15.4%)	249(78.3%)	318(100.0%)			
Out-of-school	16(15.4%)	22(21.1%)	66(63.5%)	104(100.0%)	11.449	2	0.003*

*Statistically significant based on p-value < 0.05

Table 4.7: Association between respondents' attitude variable vs school status

Variables	Attitude					
	Negative	Positive	**Total**	Pearson's Chi-square (x^2)	Df	p-value
School status In-school	135(42.3%)	184(57.7%)	**319(100.0%)**	1.917	1	0.166
Out-of-school	35(34.0%)	68(66.0%)	**103(100.0%)**			

DISCUSSION

This study was conducted to determine the menstrual hygiene knowledge, attitude and practices of adolescent girls residing in Cross River State, Nigeria. The mean age of 14.5 with a range of 10 (10 to 19 years) found among respondents in this study is similar to 14.4 years obtained in a similar study by Edet et al., (2020) in Cross River State. Result of this study revealed that generally, majority 315 (74.6%) of the adolescent girls in Cross River State had high knowledge of menstruation. This is not consistent with the result by Belayneh and Mekuriaw (2019) in their study on Knowledge and menstrual hygiene practice among adolescent school girls in southern Ethiopia where they found that generally, 68.3% of adolescent school girls in Gedeo zone had poor knowledge regarding menstrual bleeding and the finding by Ugbelu and Onunze (2021) among in-school female adolescents in Agbani Education Zone, Enugu State that in-school female adolescents possessed moderate level of knowledge (47. 1%) of menstruation. Uzoechi et al, (2023) Also reported a dissimilar result to this study in their systematic review on menstruation among in-school adolescent girls and its literacy and practices in Nigeria where 82.6 % of the adolescent indicated poor knowledge regarding menstruation. The possible explanation for this difference might be the measurement techniques studies used to assess level of knowledge and the socio-cultural differences of study participants. However this result is similar to that of Fehintola et al, (2017) where overall, more than half 55.92% of the respondents in Ogbomosho Oyo State, Nigeria had good knowledge of menstruation and menstruation hygiene. This similarity might be due to similarity in major age group of respondents in the two studies. Among those adolescent girls with high knowledge of menstruation most 249 (78.3%) of them were in-school. This is not surprising as more than half of the respondents were in secondary school where some of their subjects cover puberty where menstruation is treated. This is supported by the findings by Boakye-Yiadom et al., (2018) where majority (91%) of the participants also received information on MHM in school. This has spotlighted a big gap in the knowledge of menstruation between in- school and out- of –school adolescent girls in this area and call for urgent need to support and promote community-based menstrual health programs to level up this gap.

Close to half 196 (46.9%) of the respondents indicated that their source of information on menstruation was their mother and had heard about menstruation before menarche. This is similar to results from a study conducted by Fehintola et al., (2017), on assessment of knowledge, attitude and practice about menstruation and menstrual hygiene among secondary high school girls in Ogbomoso, Oyo state, Nigeria where 41.83% stated that their major source of information on menstruation was their mother. Soki et al, (2016) also reported a similar but higher result to this study in their study on the role of mothers in informing girls about puberty: a meta-analysis study, where 81.1% of the respondents reported that their mothers were the only source of information about menstruation prior to menarche. While this call for the need to educate mothers more on MHM to provide more quality information to girls in this area, it also reveal the urgent need to engage fathers on MHM issues to be able to provide true and timely menstrual information to their daughters when mothers are not present or in combination. But on the contrary, a study conducted by El-Gilany et al, (2005) in Mansoura, Egypt showed media to be the main source of information.

Out of 422 respondents interviewed in this study, 360 (85.3%) adolescent girls reported that they use disposable sanitary pads during menstruation with most 190 (45.1%) of them changing the pads three times daily. This does not corroborate with the result of a comparative study that was carried out by Choudhary and Gupta, (2019) which revealed that 47 (20%) urban adolescent girls used only cloth during their menstruation. In a study conducted by Ilo et al., (2016) on menstrual hygiene practices and sources of menstrual hygiene information among adolescent secondary school girls in Abakaliki education zone of Ebonyi State, showed that 46.9% used rags (cloths torn from old cottons), 8.5% used pieces of new clothes, only 12.3% use sanitary pads.

However, this study is consistent with the report of Fajola et al, (2023) on menstrual hygiene practices and associated factors among female secondary school students in an Urban Local Government Area of Nigerias's Niger Delta where 74.3% were using disposable sanitary pads. The study by Fehintola et al, (2017) reported that 55% of respondents changed the absorbent material once a day during menses which is not consistent with this study. Ha and Alam, (2022) reported a supportive result to the result of this study in their study on menstrual hygiene management practice among adolescent girls: an urban- rural comparative study in Rajshahi division, Bangladesh where nearly half 48.5% of the adolescents changed their absorbent materials three times a day. Satisfactory changing of pads (>2 pads/day) was done by 68% (n = 233) girls was reported by Mehta et al, (2019). The high use of disposable sanitary pad may be because of involvement girls in urban areas and is commendable. However, some of them complained of increasing cost of sanitary pads and felt that sanitary pads are given to them free to prevent them from resorting to using other materials. The use of reusable materials during menstruation increases the risk of reproductive and urinary tract infection if not properly cleaned and dried. This is supported by the result of a study by Torondel et al, 2018 among women of reproductive age in Odisha, India where women with BV or Candida infections were more likely to use reusable cloths more frequently than those without these infections (P<0.014 and <0.001 respectively). Similarly, women changing absorbents less frequently were more likely to have a BV infection.

Result also revealed that close to half 209 (49.5%) of the respondents disposed their menstrual waste in waste bins. In a survey by Mahon and Fernandes (2010), 43% of the respondents reported that they dispose their absorbent materials by burying it; 35% throw them into other waste and 19% burn the materials and is not consistent with the result of this study. But similar to the result by Dasgupta and Sarkar (2008), 57.5% of girls properly disposed their waste by wrapping in a paper and throwing into solid waste bin. The practice of not wrapping the absorbent materials and disposing it in the open is unsightly and can lead to breeding place for insects and vermites.

Majority of the participants 370 (87.7%) affirmed to having their bath often during menstrual periods. This is consistent with report by Belayneh and Mekuriaw (2019) where more than half (69.5%) although less than the figure of this study, clean their external genitalia with water and soap. Onubougu et al, (2024) in their study on menstruation hygiene practices of adolescent secondary school girls in rural Anambra communities reported a similar result with 88.6% of the adolescents having their bath two or more times in a day during their menstrual period.

Even as some of the girls were told by their parents or guardians to have their bath to avoid them from having bad body odour, some of them still face the challenge of limited access to water which made them to stay a day without having their bath. This shows that there still exist gap in availability of WASH facilities in the area.

Most 136 (32.2%) of the respondents disagreed to missing activities during menstrual periods while 80 (19.0%) agreed. This is consistent with the result Fehintola et al, 2017 who reported that a few of the respondents were absent from school during their menstruation. Not consistent with the result of this study is the report by Method et al, 2024 of their study on challenges faced by adolescent girls on menstrual hygiene management at Siha, Kilimanjaro, Tanzania where 34.5% of student living in urban areas reported missing school due to menstruation. In another study conducted in Bangladesh among school girls, 41% reported missing school during period (Alam et al, 2017). This may be because there are no cultural restrictions on girls who are menstruating in this area rather they are encouraged to get involved even during their period. However some of them reported loss of concentration during activity due to pain from menstruation and appealed for provision of free pain relievers.

Conclusion

The study concludes that majority of the adolescent girls in Cross River State had high knowledge of menstruation but that did not translate into the attitude of some of the adolescent girls towards menstruation. However, majority of them were displaying good hygiene practice. Although, the girls have high knowledge as well as good menstrual hygiene practice, efforts have to be put into ensuring that adolescent girls are well educated on meaning of menstruation, importance of good menstrual hygienic practice in schools but particularly for out-of-school girls as it showed in this study that out- of-school adolescent girls were deficient in knowledge of menstruation as compared to their in-school counterparts.

REFERENCES

Alam, M.U., Luby, S.P., Halder, A.K., Islam, K., Opel, A., Shoab, A.K., Gosh, P.K., Rhaman, M., Mahon, T and Unicmb, L., 2017. Menstrual hygiene management among Bangladeshi adolescent schoolgirls and risk factors affecting school absence: results from a cross sectional survey. BMJ Open,7(7). doi:10.1136/bmjopen-2016-015508

Aniebue, U.U; Aniebue, P.N and Nwankwo, T.O., 2009. The impact of pre-menarcheal training on menstrual practices and hygiene of Nigerian school girls. Pan Afr Med J. 2:9.

Ayele, E, and Berhan, Y., 2013. Age at menarche among in-school adolescents in Sawla town, South Ethiopia. Ethiop J Health Sci., 23(3):189–200.

Boakye-Yiadom, A., Aladago, D. A., Beweleyir, J., Mohammed, H. B., Salifu, M. F., and Mathias, A., 2018. Assessing the knowledge, attitudes and practice of menstrual hygiene management among junior high school's adolescent females in Yendi Municipality in the Northern Region of Ghana. European Scientific Journal, 14, (36).

Chinyama, J., Chipungu, J; Rudd, C; Mwale, M; Verstraete, L; Sikamo, C; Mutale, W; Chilengi, R; Sharma, A., 2019. Menstrual hygiene management in rural schools of Zambia: a descriptive study of knowledge, experiences and challenges faced by schoolgirls. BMC Public Health, doi: 10.1186/s12889-018-6360-2.

Choudhary, N., and Gupta, M. K., 2019. A comparative study of perception and practices regarding menstrual hygiene among adolescent girls in urban and rural areas of Jodhpur district, Rajasthan. Journal of Family Medicine and Primary Care, 8(3), 875.

Dasgupta, A., and Sarkar, M., 2008. Menstrual hygiene: How hygienic is the adolescent girl? Indian Journal of Community Medicine, 33(2), 77–80.

Edet O. B., Bassey, P. E. M., Essienumoh, E. E., and Ndep, A. O., 2020. An exploratory study of menstruation and menstrual hygiene knowledge among adolescents in urban and rural secondary schools in Cross River State, Nigeria. African Journal of Biomedical Research, 23 (3).

El-Gilany, A.H; Badawi, K and El-Fedawy, S., 2005. Menstrual Hygiene among Adolescent schoolgirls in Mansoura, Egypt. Reproductive Health Matters, 13:147-52.

Esan, D.T., Tola, Y.O., Akingbade, O., Ariyo, S.A., Ogunniyi, B.I and Agbana, R.D., 2023. Knowledge and Practice of Menstrual Hygiene among Female Undergraduates at a Private Tertiary Institution in Nigeria. Pacific Rim International Journal of Nursing Research,27(4):798-810.doi:10.60099/prijnr.2023.262984

Fajola, A., Alali, A., Olabumuyi, O., Ogbimi, R and Alamina, F., 2023. Menstrual Hygiene Practices and Associated Factors among Female Secondary School Students in An Urban Local Government Area of Nigerias's Niger Delta. The Nigerian Health Journal,23(4):889-887.

Fehintola, F. O., Fehintola, A. O., Aremu, A. O., Idowu, A., Ogunlaja, O. A., and Ogunlaja, I. P., 2017. Assessment of knowledge, attitude and practice about menstruation and menstrual hygiene among secondary high school girls in Ogbomoso, Oyo State, Nigeria. International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 6(5), 1727.

Ha, M.A.T. and Alam, M.Z., 2022. Menstrual hygiene management practice among adolescent girls: an urban- rural comparative study in Rajshahi division, Bangladesh. BMC Women's Health, 22(86). https://di.org/10.1186/s12905-022-01665-6

House, S., Mahon, T., and Cavill, S., 2012. Menstrual hygiene matters: A resource for improving menstrual hygiene around the world, London: WaterAid.

Ilo, C. I., Nwimo, I. O., and Onwunaka, C., 2016. Menstrual hygiene practices and sources of menstrual hygiene information among adolescent secondary school girls in Abakaliki education zone of Ebonyi state. Journal of Education and Practice, 7(31), 89.

Jothy, K and Kalaiselv, I.S., 2012. Is menstrual hygiene and management an issue for the rural adolescent school girls? Elixir Int J., 44:7223-8.

Khatuja, R; Mehta, S; Dinani B, Chawla, D; and Mehta, S., 2019. Menstrual health management: Knowledge and practices among adolescent girls. Trop J Obstet Gynaecol, 36:283-6.

Kuhlmann, A.S., Henry, K and Wall, L.L., 2017. Menstrual Hygiene Management in Resource-poor countries. Obstet Gyneacol Sur, 72(6):356-376. Doi 10.1097/OGX.0000000000000443

Mahon, T., and Fernandes, M., 2010. "Menstrual hygiene in South Asia: A neglected issue for WASH (water, sanitation and hygiene) programmes,". Gender and Development, 18, (1): 99– 113, 2010.

Method, A., Hassan, J., Asenga, O., Kamugisha, P., Kawishe, T., Luchagura, F., Msaka, P., Singu, M and Bintabara, D., 2024. Challenges faced by adolescent girls on menstrual hygiene management: School-Based study, Siha, Kilimanjaro, Tanzania. PLOS Global Public Health,4(6). Doi:10.1371/journal.pgph.0002842

Nnennaya, E.U., Atinge, S., Dogara, S.P and Ubandoma, R.J., 2021. Menstrual Hygiene management among adolescent school girls in taraba state, Nigeria. Afri Health Sci,21(2):842-851.doi:10.4314/ahs.v21i2.45

Onubougu, C.U., Umeh, U.M., Mbachu, C.N.P., Nwazor, O.C., Ofiaeli, O.C., Nwadgara, N.E., Chilaka, U.J., Ijezie, N.A and Ajator, C.C., 2024. Menstruation hygiene practices of adolescent secondary school girls in rural Anambra communities. Sage Journals, 20. https://doi.org/10.1177/17455057241228204

Sommer, M; Ackatia-Armah, N; Connolly, S and Smiles, D., 2015. A comparison of the menstruation and education experiences of girls in Tanzania, Ghana, Cambodia and Ethiopia. Compare, 45(4):589–609.

Sooki, Z., Shariati, M., Chaman, R., Khosravi, A., Effatpanah, M and Keramat, A., 2016. The Role of Mothers in Informing Girls About Puberty: A Meta-Analysis study. Nursing and Midwifery Studies, 5(1).doi:10.17795/nmsjournal30360.

Torondel, B., Sinha, S., Mohanty, J.R., Swain, T., Sahoo, P., Panda, B., Nayak, A., Bara, M., Bilung, B., Coming, O., Panigrahi, P and Das, P., 2018. Association between unhygienic menstrual management practices and prevalence of lower reproductive tract infections: a hospital-based cross-sectional study in Odisha, India. BMC Infect Dis.18(1):473.doi:10.1186/s12879-0183384-2

United Nations Children Fund., 2022. The Challenge: One in every five of the world's out-of-school children is in Nigeria. Retrieved, January, 5th, 2023 from https://data.unicef.org/nigeria/education

Uzoechi, C.A., Parsa, A.D., Mahmud, I., Alasqah, I and Kabir, R., 2023. Menstruation among In-School Adolescent Girls and Its Literacy and Practices in Nigeria: A systematic Review. Medicina (Kaunas),59(12):2073. Doi:10.3390/medicina59122073

World Bank., 2018. Menstrual hygiene management enables women and girls reach their full potential. Retrieved September, 25th, 2019, from https://www.worldbank.org

World Health Organization., 2023. World health statistics. WHO Press, 20 Avenue Appia, 1211 Geneva 27, Switzerland. www.who.info

Zelalem Belayneh and Birhanie Mekuriaw, 2019. Knowledge and menstrual hygiene practice among adolescent school girls in Southern Ethiopia: a cross-sectional study. BMC Public Health, 2019. 19:1595. https://doi.org/10.1186/s12889-019-7973-9