



ATTITUDE AND PRACTICE OF MENSTRUAL HYGIENE AMONG SCHOOL GIRLS IN NORTH EASTERN, NIGERIA.

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Abstract

Menstrual hygiene management is an essential component of adolescent reproductive health that significantly influences the health, psychosocial well-being, and educational outcomes of school girls. Despite its importance, inadequate menstrual hygiene knowledge, poor attitudes, and unsafe practices remain concerns among female adolescents in North Eastern Nigeria. This study assessed the attitude and practices of menstrual hygiene among female secondary school students in the region. A descriptive survey research design was adopted, involving 340 female students drawn from selected secondary schools. Data were collected using a structured questionnaire and analyzed using descriptive statistics (mean and standard deviation) and one-sample t-test at a 0.05 level of significance. The findings revealed that the respondents demonstrated a positive attitude towards menstrual hygiene management, with an aggregate mean score of 3.18, which exceeded the benchmark mean of 2.50. The students recognized the importance of menstrual hygiene, supported its prioritization in schools, and expressed confidence in managing menstruation. Similarly, menstrual hygiene practices were found to be adequate, with an aggregate mean score of 3.33, indicating regular use of sanitary materials, frequent changing of absorbent products, proper disposal of used menstrual materials, daily bathing, and wearing clean underwear. Inferential analysis showed that both attitude ($t = 21.984, p < 0.05$) and practice ($t = 27.050, p < 0.05$) were significantly positive among the respondents, leading to the rejection of the null hypotheses. The study concluded that female secondary school students in North Eastern Nigeria possess significantly positive attitudes and adequate menstrual hygiene practices. It recommended that school authorities and relevant stakeholders strengthen menstrual hygiene education through continuous orientation programmes, improve access to menstrual hygiene facilities, and integrate menstrual hygiene management into the school curriculum to sustain positive attitudes and practices among adolescent girls.

Introduction

Menstrual hygiene is one of the reproductive health components which are not addressed in most secondary schools in North Eastern Nigeria. Lack of knowledge and poor personal hygienic practices during menstruation can lead to various gynecological problems in the reproductive life of girls. Therefore, to manage menstrual complications, essential reproductive health services and youth friendly services should be well addressed including access to water and sanitation. There is also a need for female adolescent students to have a greater awareness of good menstrual hygiene practices according to Sustainable Sanitation Alliance (SuSana, 2018). Attitude in a layman word is concerned with one's feeling toward an object, person or thing. Attitude is defined as mental and neutral state of readiness organized through experience, exerting a directive or dynamic influence upon the individual's responses to all objects and situations, which it relates.



Attitude serves as a primary function of bringing together the diverse experiences to which an individual is exposed and forming them into a cohesive organized whole. Attitudes that are related to menstrual hygiene (MH) are termed menstrual hygiene attitudes. The attitude can be positive or negative. Positive attitude can enhance good health while negative attitude can also lead to reproductive tract infections. It is therefore expected that the female adolescent school girls should have positive attitudes with resultant positive practice. There is a substantial lacuna in the knowledge about menstrual hygiene among adolescent girls. The attitudes towards menstruation and menstrual hygiene (MH) is crucial in adolescence and modified by socio-demographic and economic factors, such as parental, societal, cultural, tribal, and school-related influences. In some climes, a menstruating female is excluded from associating with others and barred from societal and religious functions, this condition exerts a psycho-social apprehension in the female adolescent school girls who have just started menstruation.

Statement of the Problem

The major challenges of menstrual hygiene are mostly manifested through inadequate knowledge, attitude and practice on menstrual hygiene among adolescent school girls and the awareness of these adolescent school girls has not been investigated. This led to major complain from schools about constant sicknesses during menstruation and absenteeism from classes. This situation appears to be aggravated by throwing used sanitary pads around school environment and careless handling of the used menstrual pads by the girls. It seems that the girls do obtained their sanitary pads from schools' Management and partly supported by some NGOs. The interactions the Researcher had with the girls tend to suggest that the supply of these pads is inadequate, thus leading to staining of their clothes and seats during their menstrual period. This might have been worsened by inadequate water and sanitation facilities in the schools. Poor menstrual hygiene could lead to physical health problems such as reproductive and urinary infections, it could also affect psycho-social well-being of adolescent schoolgirls for example increased stress levels, fear, discomfort, smelling, embarrassment, and social exclusion during menstruation that impart negative consequences on their education and social lives. Therefore, this study seeks to investigate the menstrual hygiene related attitude and practice among school girls of SS1 to SS3 in North Eastern Nigeria.

Objectives of the Study

The objectives are to determine the:

1. Attitude towards Menstrual hygiene among school girls in North Eastern Nigeria.
2. Practice of menstrual hygiene among school girls in North Eastern Nigeria.

Research Questions

The study answered the following research questions:

1. Do school girls have positive attitude towards menstrual hygiene in North Eastern Nigeria?
2. Do school girls have good practice of menstrual hygiene in North Eastern, Nigeria?

Hypotheses

The following hypotheses were tested:

H₀₁: There is no significant difference in the attitude of school girls towards menstrual hygiene



in North Eastern, Nigeria.

H02: There is no significant difference in the practice of menstrual hygiene among School girls in North Eastern Nigeria.

Results

Research Question one: Do school girls have positive attitude towards menstrual hygiene in North Eastern Nigeria? To examine the attitude towards menstrual hygiene among school girls, a number of items were suggested on which the female students expressed their opinions.

Opinions of the female students on attitude towards menstrual hygiene.

Sn	Attitude towards menstrual hygiene	SA	A	D	SD	Mean	Std. Dev.
1	I think managing periods hygienically is important for health and wellbeing.	220(64.7)	107(31.5)	8(2.4)	5(1.5)	3.59	0.614
2	I am comfortable discussing menstruation openly with peers and teachers.	108(31.8)	125(36.8)	79(23.2)	28(8.2)	2.92	0.936
3	Menstrual hygiene should be prioritized at school like other health issues.	127(37.4)	151(44.4)	35(10.3)	27(7.9)	3.11	0.885
4	I do not feel ashamed about having periods.	171(50.3)	114(33.5)	39(11.5)	16(4.7)	3.29	0.849
5	I feel confident handling my periods at school each month.	143(42.1)	97(28.5)	51(15.0)	49(14.4)	2.98	1.072
Aggregate mean						3.18	0.571

(Benchmark = 2.50)

Expressed opinions in Table 4.3 revealed that the female students have adequate and positive attitude towards menstrual hygiene management. As indicated in the table, 64.7% and 31.5% of the respondents strongly agreed and agreed respectively with the suggestion that they were of the view that managing periods hygienically is important for health and wellbeing. Only 2.4% and 1.5% of the respondents disagreed and strongly disagreed with the suggestion. The mean score of 0.59 with a standard deviation of 0.614 clearly suggested that the expressed opinion could be considered as a consensus. Most respondents were comfortable in discussing menstruation with their peers and their teachers. In the table, 31.8% and 36.8% strongly agreed and agreed respectively with this positive attitude towards menstruation. But 23.2% and 8.2% of the female students disagreed and strongly disagreed with the comfort of discussion on menstruation with peers and teachers. The mean score of 2.92 was however higher than the midpoint average of 2.50 used as the benchmark. In furtherance of the positive attitude towards menstrual hygiene, 37.4% and 44.4% of the respondents strongly agreed and agreed respectively that menstrual hygiene should be prioritized at school like other health issues. Only 10.3% and 7.9% of the respondents disagreed and strongly disagreed with such prioritization of menstrual hygiene management in the schools. The mean score of 3.11 clearly showed that most of the female students were in support of the prioritization of menstrual hygiene management in the schools. This opinion could



explain why 50.3% and 33.5% of the respondents strongly agreed and agreed respectively that they were not ashamed about having menstrual periods. The mean score was 3.29 with only 11.5% and 4.7% disagreeing and strongly disagreeing with the suggestion that they were not ashamed about menstrual periods. The respondents were therefore confident of handling menstrual periods at school each month as indicated by 42.1% and 28.5% of the female students who strongly agreed and agreed respectively with the suggestion in the table. But 15.0% and 14.4% of the female student disagreed and strongly disagreed with such confidence in handling of the menstrual hygiene in the school. From the expressed opinion and aggregate mean score of 3.18 and with a standard deviation of 0.571, it could be concluded that school girls have adequate and positive attitude towards menstrual hygiene in North Eastern Nigeria.

Research Question two: Do school girls have good practice of menstrual hygiene in North Eastern Nigeria? To determine the practices of menstrual hygiene among the girls in the selected Boarding Secondary School within the metropolis, their opinions on suggested items were rated and scored as summarized in.

Opinions of respondents on practices of menstrual hygiene

S n	Practices of menstrual hygiene	SA	A	D	SD	Mea n	Std. Dev.
1	I use commercial sanitary pads, tampons, or menstrual cups.	159(46.8)	95(27.9)	57(16.8)	29(8.5)	3.13	0.981
2	I change my absorbent products at least 2-3 times daily.	183(53.8)	133(39.1)	15(4.4)	9(2.6)	3.44	0.704
3	I properly dispose used absorbents in designated bins.	159(46.8)	124(36.5)	34(10.0)	23(6.8)	3.23	0.887
4	I bathe daily using soap and water.	208(61.2)	101(29.7)	17(5.0)	14(4.1)	3.48	0.774
5	I wear clean underwear each day.	196(57.6)	102(30.0)	16(4.7)	26(7.6)	3.38	0.889
Aggregate mean						3.33	0.567

(Benchmark = 2.50)

Opinions expressed in the table revealed that 46.8% and 27.9% of the respondents strongly agreed and agreed respectively that they used commercial sanitary pads, tampons, or menstrual cups for the management of menstrual hygiene. But 16.8% and 8.5% of the respondents disagreed and strongly disagreed with such practices. The table revealed that 53.8% and 39.1% of the respondents strongly agreed and agreed respectively that they changed absorbent products at least 2-3 times daily in the management of the menstrual hygiene. Only 4.4% and 2.6% of the respondents disagree and strongly disagreed with the frequency of such changes in the menstrual hygiene management. The mean score was 3.44 with a standard deviation of 0.704. And 46.8% along with 36.5% of the respondents strongly agreed and agreed with the suggestion that they properly disposed used absorbents in designated bins. The mean score was 3.23 with only 10.0% and 6.8% disagreeing and strongly disagreeing with the suggestion respectively In what could be described as adequate practices, 61.2% and 29.7% of the respondents strongly agreed and agreed that they bathe daily using soap and water. The mean score for the suggestion was 3.48



with a standard deviation of 0.774. Only 5.0% and 4.1% of the respondents disagreed and strongly disagreed with the suggestion. And 57.6% along with 30.0% of the respondents strongly agreed and agreed respectively that they usually wear clean underwear each day for effective practices of menstrual hygiene. Only 4.7% and 7.6% of the respondents disagreed and strongly disagreed with the suggestion. The mean score for the item was 3.38 and it was higher than the benchmark (2.50). From the expressed opinions, and the aggregate mean score of 3.33 for the table, it could be concluded that the respondents practiced adequate menstrual hygiene in the selected Boarding Secondary Schools within the metropolis.

Hypotheses

A number of hypotheses formulated to give statistical validation to the solution proffered for the research questions in establishing the level of attitude and practices of menstrual hygiene among Schools in North Eastern Nigeria were tested at the probability level of 0.05. The hypotheses were tested with one sample t-test because of the univariate nature of the tests. The tests were carried out at the probability level of 0.05 as follows: *Hypothesis I: Attitude towards menstrual hygiene among School girls in North Eastern Nigeria is not significant.*

The mean scores on attitude towards menstrual hygiene among School girls assessed in the table were compared with the benchmark towards establishing the attitude of the students in this test. The result of the one sample t-test used for the hypothesis is summarized in the table below.

One sample t-test on attitude towards menstrual hygiene among School Girls

Variables	N	Mean	Std. Dev.	Std. Error	t-value	df	p-value
Attitude	340	3.18	0.571	0.031	21.984	339	0.000
Test mean	340	2.50	0.000	0.000			

(Critical value of $t=1.96$, $P < 0.05$, H_0 rejected)

The result in Table revealed that respondents had a positive and significant attitude towards menstrual hygiene management in the selected Schools in North Eastern Nigeria. This is indicated with an observed t-value of 21.984 obtained at 339, degree of freedom (df) compared to the critical value of 1.96 indicated at the bottom of the table. The p-value obtained in the test was 0.000 ($p < 0.05$). These observations provided enough evidence to reject the null hypothesis. The null hypothesis states that, attitude towards menstrual hygiene among School girls in North Eastern Nigeria is not significant and is therefore rejected. In other words, the school girls have adequately significant attitude towards menstrual hygiene management in the selected Schools in North Eastern Nigeria.

Hypothesis II: Practices of menstrual hygiene among School girls in North Eastern Nigeria is not significant.

The scores on practices of menstrual hygiene among School girls assessed in the table were compared with the test mean (2.50) used as the benchmark for decision in the test of this hypothesis. The result of the one sample t-test procedure used in the test is summarized in Table

One sample t-test on practices of menstrual hygiene among School girls

Variables	N	Mean	Std. Dev.	Std. Error	t-value	df	p-value
Practices	340	3.33	0.567	0.031	27.050	339	0.000



Test mean	340	2.50	0.000	0.000
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(Critical value of $t=1.96$, $P < 0.05$, H_0 rejected)

The result of the test revealed that the practices of School girls on menstrual hygiene management was significantly adequate. This indicated with a mean score of 3.33 compared with the test mean of 2.50. The observed mean (3.33) is significantly higher than the midpoint average (2.50). The observed t -value for comparing the two mean is 27.050 and the p -value observed for the test was 0.000 ($p < 0.05$) obtained at the 339, degree of freedom (df). These observations provided sufficient evidence for rejecting the null hypothesis. The null hypothesis that, practices of menstrual hygiene among School Girls in North Eastern Nigeria is not significant and is therefore rejected. In other words, the selected female school girls adequately and significantly practiced menstrual hygiene in the selected Schools in North Eastern Nigeria.

Discussion

The study revealed that the female students have adequate and positive attitude towards menstrual hygiene management. It was found that that they were of the view that managing menstrual periods hygienically is important for health and wellbeing and were comfortable in discussing menstruation with their peers as well as with their teachers. The study revealed that the female students were of the view that menstrual hygiene should be prioritized at school like other health issues in the school and were not ashamed about having menstrual periods. It was found that the female students were confident of handling menstrual periods at school. In the test of significance of the expressed opinion, the expressed attitude was found to be adequately positive and significant towards menstrual hygiene by the selected female students involved in the study. The finding of this study contradicted the findings of Chipfuwa *et al.*, (2019) who reported from a study in Zimbabwe, that adolescent girls had negative attitudes towards menstruation due to the lack of adequate facilities and resources for menstrual hygiene in schools.

This study found the practices of menstrual hygiene by the female students to be significant and adequate. The finding revealed that the respondents used commercial sanitary pads, tampons, or menstrual cups for the management of menstrual hygiene and changed absorbent products at least 2-3 times daily in the management of the menstrual hygiene. The study revealed that they properly disposed used absorbents in designated bins and bathe daily using soap and water. It was revealed that they usually wear clean underwear each day for effective practices of menstrual hygiene. The observed findings revealed that the female school girls adequately practiced effective menstrual hygiene in the selected Schools in Northeastern. The finding of this study is consistent with Susana, (2018) who reported that need for female adolescent students to have a greater awareness of good menstrual hygiene practices. The finding of this study contradicted the report of George, Ehiri, Otieno & Ezeanolue, (2015) who found from a study in Uganda, that adolescent girls had poor menstrual hygiene practices due to lack of resources such as clean water and sanitary pads. The finding here support findings from a previous study by Oche *et al.*, (2017) who reported that personal hygiene practices during menstruation include regular changing of sanitary products (every 4-6 hours), washing hands before and after handling menstrual materials, and maintaining genital hygiene

Conclusion

From the assessment of Attitude and practices of menstrual hygiene among schoolgirls in Northeastern, the researcher wishes to conclude with the followings.



Female School Girls students have adequate of menstrual hygiene in Northeastern Nigeria. The attitude of School girls towards menstrual hygiene management is positive and significant. Female School girls adequately practiced effective menstrual hygiene in the metropolis.

Recommendations

Based on the findings from the data analyzed, the researcher would want to recommend as follows:

1. The concerned authority should enthrone menstrual hygiene as a necessity through periodic orientation among girls in the schools.
2. There is a need for continuous encouragement among the girls by their respective school authorities on effectiveness of menstrual hygiene management in the schools.
3. Menstrual hygiene could be included in the school curriculum to disabuse the negative connotation associated with it by certain cultures.

References

- Abiiyoye Kuteyi, T. B., (2010). Menstrual knowledge and practices amongst secondary school girls in Illefe, Nigeria. *The Journal of the Royal Society for the Promotion of Health*. 120 (1), 23–26
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control* (pp. 11-39). Springer.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.
- Albarracin, D., Johnson, B. T., Fishbein, M., &Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. *Psychological bulletin*, 127(1), 142.
- Ali, R. O., & Rizvi, Y. M., (2010). *Menstrual knowledge and practices of female adolescents in urban Karachi, Pakistan*. *Journal of adolescence*. 33 (4), 531–541.
- Bashirian, S., Hidarnia, A., Allahverdipour, H., Hajizadeh, E., & Momtazi, S. (2015). Factors associated with intention to HIV testing among Iranian college students: application of the theory of planned behavior. *Journal of research in health sciences*, 15(2), 96-101.
- Carlsin, T., & Wilson, R., (2011). *Menstrual management and women who have intellectual disabilities: Service providers and decision-making*. *Journal of Intellectual and Developmental Disability*. 21:39–57.
- Check J., Schutt R. K. Survey research. In: J. Check, R. K. Schutt., editors. *Research methods in education*. Thousand Oaks, CA:: Sage Publications; 2012. pp. 159–185. [[Google Scholar](#)] [[Ref list](#)]
- Chipfuwa, T., Mvududu, K., & Chizimbi, T. (2019). Understanding menstruation experiences and hygiene practices among young girls: Lessons from rural school settings in Zimbabwe. *BMC Public Health*, 19(1), 1-7.
- Das, P., Baker, K. K., Dutta, A., Swain, T., Sahoo, S., & Das, B. S. (2015). Menstrual hygiene practices, WASH access and the risk of urogenital infection in women from Odisha, India. *PlosONE*, 10(6), e0130777.
- Dasgupta A and Sarkar M 2008. Menstrual Hygiene: How Hygienic is the Adolescent Girl? *Ind. J. Comm. Med.*, 33(2): 77-80.
- Fehintola, F. O. *et al.* (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), p. 1726. doi: 10.18203/2320-1770.ijrcog20171932.
- Funmito Omolola Fehintola¹, Akintunde Olusegun Fehintola², Ayodele Olatayo Aremu³, Ajibola Idowu³, Olumuyiwa A Ogunlaja⁴, Idowu Paulina Ogunlaja (2017): *Assessment of knowledge, attitude and practice about menstruation and menstrual hygiene among secondary high school girls in Ogbomoso, Oyo state, Nigeria*.
- Gao, J., Wang, Y., & Zhou, X. (2016). Theory of planned behavior study of oral hygiene behavior among Chinese university students. *BMC Oral Health*, 16(1), 1-7.
- George, J., Ehiri, J., Otieno, T., & Ezeanolue, E. (2015). Factors associated with menstrual hygiene practices among adolescent girls in low- and middle-income countries: A systematic review. *BMC Public Health*, 15(1), 1-17.
- George, J., Ehiri, J., Otieno, T., & Ezeanolue, E. (2015). Factors associated with menstrual hygiene practices among adolescent girls in low- and middle-income countries: A systematic review. *BMC Public Health*, 15(1), 1-17.
- Gumaga, Y., Kwamiearye U., (2012). Menstrual characteristics in some adolescent girls in Accra, Ghana. *Ghana Medical Journal*. 46(1): 20 – 22.
- Haver, J., Caruso, B. A., Ellis, A., Villasenor, J. M., & Andes, K. L. (2016). Mountain of shame: a meta-analysis on menstrual hygiene management in India. *PlosONE*, 11(6), e0155082.
- Hennegan, J., Dolan, C., Wu, M., Scott, L., & Montgomery, P. (2020). Measuring the prevalence and impact of poor menstrual hygiene management: a quantitative survey of schoolgirls in rural Uganda. *BMJ Open*, 10(6), e039052.
- Jacquelyne.V., (2013). Review of Menstrual Hygiene Management among Adolescent Schoolgirls in Sub-Saharan Africa. *African Journal of Medical Sciences*. 6–13. View at: [Publisher Site](#) | [Google Scholar](#)
- Kajang Y. Gorah, Elizabeth a. Haruna, janda J. Ufwil (2020) *Knowledge, Attitudes and Practices of Menstrual Hygiene Management of Female Students in Bokkos Local Government Area of Plateau State; Nigeria* University of Jos, Nigeria.
- Kajang, gorah, elizabeth, haruna, janda and ufwil(2020):knowledge, attitudes and practices of menstrual hygiene management of female students in bokkos local government area of plateau state; Nigeria.
- Kamaljit, K., Gupta, H., & Kapil, U. (2017). Perception and practices of adolescent girls regarding menstruation: A comparative study in urban and rural areas of Delhi, India. *Journal of Family Medicine and Primary Care*, 6(1), 68-73.
- Kamath, R., Ghosh, A., Lena, A., Babu, P., & Chandrasekaran, V. (2016). A study on knowledge and practices regarding menstrual hygiene among rural and urban adolescent girls in Udupi Taluk, Manipal, India. *Global journal of medicine and public health*, 5(2), 1-10.
- Kaur, R., Kaur, K., & Kaur, R. (2018). Menstrual hygiene, management, and waste disposal: practices and challenges faced by girls/women of developing countries. *Journal of Environmental and Public Health*, 2018.
- Khana, L.A., Goyal, T.U., & Bhawsar, C., (2015). Menstrual practices and reproductive problems: a study of adolescent girls in rajasthan. *Journal of health management*. 7:91–107.
- Kiirk, D., & Sommer, E., (2014). *Menstruation and body awareness: linking girls' health with girls' education*. Royal tropical institute (KIT), special on gender and health. 9:1–22.
- Kirk .J and Sommer .M, “Menstruation and body awareness: linking girls' health with girls' education,” Royal Tropical Institute (KIT), Special on Gender and Health, pp. 1–22, 2006.



- Kluess, H.A., Thomsen, N.T., & Seebach, E. (2010). Application of theory of planned behavior in predicting hand hygiene behaviours in a student population. *International Journal of Consumer*
- Kuhlmann, 15.A. S A. S; K. Henry, and L. L. Wall, “Menstrual hygiene management in resource-poor countries,” *Obstetrical & Gynecological Survey*, vol. 72, no. 6, pp. 356–376, 2017.
- Kumar, D., & Khingra, T., (2009). *Knowledge and practices related to menstruation among adolescent girls*. *Ethnology Medicine*. 3:43-8.
- Matovu, T.J., (2011). Pubescent girls’ menstrual experiences and implications for their schooling: a Ugandan case study. *International Institute of Graduate Studies*. 2: 8 – 12.
- Morgan, L., Aguilar, S., Nyothach, E., Nicholas, J., Obor, D., Odhiambo, F., . . . Phillips-Howard, P. (2018). Menstrual hygiene management among adolescent schoolgirls in low- and middle-income countries: Research priorities. *Global Health Action*, 11(sup2), 1-10.
- Mutunda, A. “Factors impacting on the menstrual hygiene among school going adolescent girls in Mongu district, Zambia,” *Sch Public Heal Univ West Cape.*, pp. 1–81, 2013.
- Mwiita, C., (2010). Experiences and problems with menstruation among poor women and schoolgirls in Nairobi, Kenya. *Sustainable Sanitation Alliance*. 8: 14 – 16.
- Narayan, K. A., Srinivasa, D. K., Pelto, Y., & Veerammal, S. (2001). Puberty rituals, reproductive knowledge and health of adolescents schoolgirls in South Asia. *Asia-Pacific Population Journal*, 16(2), 225–238.
- Nkechi Ibeagha (2022) *Knowledge, Attitude and Practice of Menstrual Hygiene among Public Secondary School Students* in Akinyele Local Government Area of Oyo State.
- Oche, M. O., Umar, A. S., Gana, G. J., & Ango, J. T. (2017). Menstrual hygiene management among adolescent schoolgirls in Sokoto, Nigeria. *International Journal of Adolescent Medicine and Health*, 30(2).
- Pathaki, D & Subhish A., (2011). *Menstrual Hygiene: Knowledge and Practice among Adolescent School Girls of Saoner, Nagpur District*. *Journal of Clinical and Diagnostic Research*. 5(5):1027-1033
- Phillips-Howard, P. A., Caruso, B., Torondel, B., Zulaika, G., Sahin, M., Sommer, M., & Wright, R. (2016). Menstrual hygiene management among adolescent schoolgirls in low-income countries: research priorities. *Global Health Action*, 9(1), 33032.
- Pilitteri, R. L., (2011). *School menstrual hygiene management in Malawi*. More than toilets sanitation and hygiene applied research for equity. 4:56 – 57.
- Popoola Margaet O., MBBS, MPH Popoola Olayinka B., MBBS, FMCS, Mohammed Bello, FWACS,
- Anisa Abubakar, FWACS Jimoh Aminat O., MBBS (2023). *Knowledge, Attitude and Practice of Menstrual Hygiene Amongst Female Secondary School Students* in Kaduna State.
- Pravin, A., & Keirti K., (2011). *A community-based study on menstrual hygiene among adolescent girls*. *Indian Journal of Maternal Child Health*. 13 (3): 1-6
- Rajan, D., & Kalaivani, S. (2017). Menstrual hygiene management among adolescent girls in India: a systematic review and meta-analysis. *Journal of Pediatric and Adolescent Gynecology*, 30(2), 111-122.
- Rasmusin, H.J., (2011). *Lack of prayer: ritual restrictions, social experience, and the anthropology of menstruation among the Tuareg*. *American Ethnologist*. 18: 751–69. review. *BMC Public Health*, 15(1), 1-17.



- Rathii, P., & Pathik, K., (2011). *Menstrual hygiene: Knowledge and practice among adolescent school girls of Saoner, Nagpur District*. Journal of Clinical Diagnosis Research 5:1027-33.
- Rhodes, R. E., & Conner, M. (2010). Affect and physical activity behavior change: A review of the evidence. Journal of sport and exercise psychology, 32(6), 800-819.
- Rhodes, R. E., Courneya, K. S., & Jones, L. W. (2005). Personality and social cognitive influences on exercise behavior: adding the activity trait to the theory of planned behavior. Journal of Sport and Exercise Psychology, 27(3), 365-380.
- Sahoo, K. C., Hulland, K. R., Caruso, B. A., Swain, R., Freeman, M. C., Panigrahi, P., ... & Dreibelbis, R. (2015). Sanitation-related psychosocial stress: a grounded theory study of women across the life-course in Odisha, India. Social Science & Medicine, 139, 80-89.
- Sanober Fazal Shah et.al (2023). *knowledge, attitude and practice regarding menstrual hygiene among girls* in Ghiwer, Gilgit, Pakistan.
- Setia MS. (2016). Methodology series module 2: Case-control studies. *Indian J Dermatol*. B;61:146–51. [PMC free article] [PubMed] [Google Scholar]
- Sinden, J. (2015) *WASH in Schools for Girls - Voices from the field: 'Advocacy and capacity building for menstrual hygiene management through WASH in schools programmes'*. New York.
- Singleton R. A., Straits B. C. *Approaches to social research*. New York: Oxford University Press; 2009. [Google Scholar] [Ref list]
- Sommer M, Sahin M. Overcoming the taboo: advancing the global agenda for menstrual hygiene management for schoolgirls. *Am J Public Health*. 2013;103:1556-9.
- Sommer, M. 2010. Integrating Menstrual Hygiene Management Into School Water Sanitation and Hygiene Agenda, The Future Of Water, Sanitation And Hygiene: Innovation, Adaption and Engagement In A Changing World, Loughborough, UK: WEDC.
- Sommer, M., Caruso, B. A., Sahin, M., Calderon, T., Cavill, S., Mahon, T., ... & Phillips-Howard, P. A. (2015). A time for global action: addressing girls' menstrual hygiene management needs in schools. *PlosMedicine*, 13(2), e1001962.
- Sommer, M., Caruso, B. A., Sahin, M., Calderon, T., Cavill, S., Mahon, T., ... & Phillips-Howard, P. A. (2016). A time for global action: addressing girls' menstrual hygiene management needs in schools. *PlosMedicine*, 13(2), e1001962.
- Sontyo Jimin, Iwuala Felix, Lannap Faith, Oke Olufemi, Ayeni Olugbenga, Grace Kumolu and Olakunle Osinowo (2023) *Knowledge, Attitude and Practices of Menstrual Hygiene Management* among Orphan and Vulnerable Adolescents in Lagos State
- Ssewanyana D, Bitanihirwe BK. Menstrual hygiene management among adolescent girls in sub-Saharan Africa. *Global Health Promot* 2019;26(1):105- 108. <https://doi.org/10.1177/1757975917694597> Studies, 34(6), 683-691.
- Surapaneni, M. D., Kumar Dasari, S., Pant, H. K., & Rout, D. (2018). Menstrual hygiene management among adolescent girls in urban slums: A community-based study. *Journal of Family Medicine and Primary Care*, 7(3), 668-672.
- Sustainable Sanitation Alliance (susana). London School of Hygiene and Tropical Medicine Barriers and facilitators of school-based menstrual hygiene promotion in Cambodia: policy, implementation and water, sanitation and hygiene (WASH) school environment, June, 2018.

Teachers. Asmara

Ten V.A. 2007. Menstrual Hygiene: A Neglected Condition for the Achievement of Several



- Millennium Development Goals, European Commission -Europe Aid.
- Thérèse M, Maria F 2010. Menstrual Hygiene in South Asia: A neglected issue for WASH (water, sanitation and hygiene) programme. *Gender & Development* 18: 99-113
- Tiwari H, Oza UN, Tiwari R. Knowledge, attitudes and beliefs about menarche of adolescent girls in Anand district, Gujarat. *East Mediterr Health J.* 2006;12(3-4):428-33.
- Torondel. B, Sinha. J, Mohanty R. et al., “Association between unhygienic menstrual management practices and prevalence of lower reproductive tract infections: a hospital-based cross-sectional study in Odisha, India,” *BMC Infectious Diseases*, vol. 18, no. 1, p. 473, 2018.
- Umeori, O.R., & Egwuati, E., (2008). *Menstruation in rural Igbo Women of South East Nigeria: Attitudes, Beliefs and Practices*. *African Reproductive Health*. 12(1): 109-115.
- Unicef for every child (2017) Menstrual Hygiene Management (MHM) A Booklet for UNICEF, “WASH in Schools (Empowers Girls’ Education) oceedings of the Menstrual Hygiene Management in Schools Virtual Conference 2014,” 2014
- UNICEF. (2018). Guidance on Menstrual Health and Hygiene. Retrieved from <https://www.unicef.org/wash/files/UNICEF-Guidance-menstrual-health-hygiene-2018.pdf>
- Van Eijk, A. M., Sivakami, M., Thakkar, M. B., Bauman, A., Laserson, K. F., Coates, S., & Phillips-Howard, P. A. (2016). Menstrual hygiene management among adolescent girls in India: A systematic review and meta-analysis. *BMJ Open*, 6(3), e010290.
- Vaughn, T.J., (2013). Review of Menstrual Hygiene Management among Adolescent Schoolgirls in Sub-Saharan Africa. *African Journal of Medical Sciences*. 6 – 13. View at: [Publisher Site](#) | [Google Scholar](#)
- Wateraid. (n.d.). Menstrual Hygiene Management. Retrieved from <https://www.wateraid.org/us/what-we-do/menstrual-hygiene-management>
- Yusuf L. Um, M. W., and A. B. Musa, “Menstruation and menstrual hygiene amongst adolescent school girls in Kano,” *African journal of reproductive health*, vol. 14, no. 3, pp. 201–207, 2010.
- Zegeye DT, Megabiaw B, Mulu A. Age at menarche and the menstrual pattern of secondary school adolescents in northwest Ethiopia. *BMC Women’s Health*. 2009;9:29.

