MENSTRUAL HYGIENE AND RELATED PERSONAL HYGIENE PRACTICES AMONG ADOLESCENT GIRLS IN SECONDARY SCHOOLS IN UDENU LOCAL GOVERNMENT AREA, ENUGU STATE

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Abstract
Menstrual hygiene practices among girls in Africa due to Water, Sanitation and Hygiene (WASH) interventions aimed at keeping girls in school by the provision of sanitary materials, water, soap and privacy to minimize school absenteeism due to menstruation. The study investigated menstrual hygiene practices among female secondary school students in Udenu LGA of Enugu State. Four specific objectives were formulated with four corresponding research questions and three null hypotheses were postulated to guide the study. The descriptive survey research design was adopted for the study. The population for the study comprised of two thousand, four hundred and twenty-one (2,421) female secondary school students in Udenu LGA of Enugu State. The sample for the study consisted of 400 female secondary school students and a two-stage sampling procedure was used, employing appropriate sampling techniques at each stage to select the sample. The instrument used for data collection was a researcher-designed questionnaire titled MHPQ. The instrument was validated by three experts from the Department of Human Kinetics and Health Education. Frequencies and percentages were used for answering the research questions while chi-square statistics were used to test the null hypotheses at 0.05 level of significance. The findings revealed that female secondary school students in Udenu LGA of Enugu State had moderate menstrual hygiene practice of (59.0%). Also, female secondary school students irrespective of class level had moderate level menstrual hygiene practice (JSS 1–3=65.9; SSS 1–3=66.0) while ages 15-19years had high level menstrual hygiene practice (75.4%). There is a significant difference in menstrual hygiene practices among female secondary students in Udenu LGA Enugu based on class level. The study recommended among others that health educators should try as much as possible to organize seminars and workshops for female secondary school students on menstrual hygiene practice. Also, that promoting maternal education is mandatory and should be part of government-level public health policy to prevent related health issues.

Keywords: Menstrual, Hygiene practice, Female Secondary School Students

Menstruation is a normal physiological process of girls at their reproductive age. The onset of menses takes place during adolescent period in which dominant physiological and emotional changes take place (Ayele & Berhan, 2013). Worldwide, inappropriate management of menstruation affects girls and women in developing countries (Sommer, &Sahin, 2013; Sommer, Caruso et al., 2016). In developing countries, approximately 12.3% to 75% of girls cannot access or afford clean sanitary materials, and they use low-quality products such as new or old clothes, cotton wool, toilet paper, underwear alone, and sponges (Enzler, 2019; Fisseha, Kebede, et al., 2017, Kuhlmann, Henry, et al., 2017). According to a United Nations International Children Emergency Fund (UNICEF) report, 10% of school-age African girls do not attend school during menstruation (Education, 2014). A study performed in five sub-Saharan African countries showed that the majority of adolescent girls reported a lack of safe, private, clean toilets and washing facilities at schools (Tamiru, Mamo, et al.,2015).

Menstruation is a natural process, but in most parts of the world it is a taboo and rarely talked about. It has also been largely neglected by the WASH (Water, Sanitation and Hygiene) sector and other sectors focusing on sexual and reproductive health as well as education. Women and girls in many nations are faced with the challenges of menstruation (Sommer, Hirsch, Nathanson, & Parker, 2015). The World Bank (2018) reported that at least 500 million women and girls globally lack adequate facilities for menstrual hygiene management.

Menstrual hygiene practices among girls in Africa are also a thing of concern. It is because of this that Water, Sanitation and Hygiene (WASH) interventions are aimed at keeping girls in school by the provision of sanitary materials, water, soap and privacy to minimize school absenteeism due to menstruation (Chinyama et al., 2019). Also, studies in Africa have found that the use of sanitary pads is as low as 18 per cent amongst Tanzanian girls with the remainder using cloth or toilet paper (Baisley et al., 2009). A study conducted in Ethiopia showed that, though most (92%) students were aware of menstruation before menarche, their utilization of sanitary napkins was low at 37.6 per cent and a significant proportion, 62.4 per cent were using rags and pieces of cloth (Zegeye, Megaiaw, &Mulu, 2009) eleven percent (11%) of girls in Ethiopia change their menstrual cloths ones a day (Sarah & Therese, 2012). Most girls are at risk of contracting genitourinary tract infections due to their unhygienic practices during their menstruation period (Annable et al., 2010). In most traditional settings including African societies, the topic of menstruation is largely treated as a taboo, and is rarely discussed publicly. This is because of the prevalent misconceptions; one of which is that menstruation is considered impure in some societies (Yagnik, 2015). Menstrual hygiene has become a problem in most communities since it is not something talked about frequently. This culture of silence and many misconceptions and taboos surrounding menstruation together with lack of sexuality education in most schools has made access to information regarding menstruation and menstrual hygiene limited and, in some cases, non-existent. Lack of appropriate information on menstrual health and menstrual hygiene and inadequate access to an effective method of collecting/absorbing menstrual blood flow as well as lack of adequate sanitation and privacy, especially in public spaces to enable good menstrual hygiene practices presents a huge public health problem (Idoko, Okafor, Ayegba, Bala, &Evuka, 2022).

In Nigeria, poor menstrual hygiene practices still exist. Meanwhile, majority of secondary school girls in Nigeria are adolescent because they fall within the age bracket of 10-19 years as stated by World Health Organization (2009). They represent a significant segment (44.8%) of the country's population. Studies in Nigeria school girls have found between 31 and 56 per cent using toilet tissue or cloth to absorb their menstrual blood as opposed to menstrual pads (Adinma, &Adinma, 2008; Aniebue, Aniebue, &Nwankwo, 2009). However, it is surrounded with social taboos, myths and supernatural beliefs. The poor understanding of menstruation may lead to unsafe hygienic practice that intern increases the risk of reproductive and genito-urinary tract infections, cervical cancer, school drop-out, poor academic performance and overall poor quality of life (Wall, Belay, Bayray, Salih&and Gabrehiwot, 2016). Despite such clinical and academic effects, the knowledge and hygienic practice of adolescent girls towards menstruation is not well addressed in Africa, particularly among school adolescent girls (Sommer, Ackatia-Armah, Connolly & Smiles, 2015).According to Abioye-Kuteyi (2000), poor awareness, cultural beliefs, poverty and lack of privacy lead to poor menstrual practices in Nigeria. Ahmed and Yesmin (2008) observed that poor girls and women in many countries, Nigeria inclusive cannot afford purpose made sanitary pads or napkins. Instead, the vast majority of them that were studied used rags. This practice according to the authors is responsible for a significant proportion of illness and infections associated with female reproductive health.

Menstrual hygiene deals with the special health care needs and requirements of women during monthly menstruation or menstrual cycle. Menstrual hygiene is the practice of using clean materials to absorb menstrual blood that can be changed privately, safely hygienically, and as often as needed throughout the duration of the menstrual cycle (Garba, Rabiu, &Abubakar, 2018). Menstrual hygiene is personal hygiene during menstruation. Menstrual hygiene deals with the special health care needs and requirements of women during monthly menstruation or menstrual cycle (Lawan, Yusuf & Musa, 2010). The periodic shedding of the lining of a woman's uterus is referred to as Menstruation, or a menstrual period. Over a period of three to five days, the uterine lining breaks down into a bloody substance. It then passes down through the cervix and exits through the vagina (Chamberlain, 2019). These areas of special concern include choice of the best "period protection" or feminine hygiene products; how often and when to change the feminine hygiene products; bathing care of the vulva and vagina as well as the supposed benefits of vaginal douching at the end of each menstrual period (Lawan, Yusuf & Musa, 2010). Provisions of good menstrual hygiene include homemade remedies like pieces of cotton cloth which are either placed on a woman's undergarment or on a home-made belt that wraps around the waist. These cloths can be washed, dried and used again but are not hygienic and should be discouraged. Available commercial products for women's hygiene during menstruation include pads, tampons and cups (Lawan, Yusuf & Musa, 2010). Menstrual hygiene is fundamental to the dignity and wellbeing of women and girls and in this study, menstrual hygiene is an important part of the basic hygiene, sanitation and reproductive health services to which every woman and girl has a right (House, Mahon & Cavil, 2012). Even though menstruation is a natural process, there is need for adequate knowledge and practices which will help reduce adverse health outcomes. In the context of this study, menstrual hygiene is the practice of using clean materials to absorb menstrual blood hygienically throughout the duration of the menstrual cycle by female secondary school students in Udenu LGA of Enugu State.

Practice is an act that is done habitually or customarily. Sally (2004) asserted that practice is an established way of doing things especially one that is developed through experiences and knowledge. Horney (2006) opined that practice is a method, procedure or process used in a particular field or profession. Amoran and Onwube (2013) stated that practice is the actual application of an information or use of plan. The authors further maintained that practice involves the act of rehearsing behaviour over and over or engaging in an activity again and again. Practice in the context of this work is the act of engaging in activities which help to improve the health of in-school female adolescents during menstruation. Menstrual hygiene practice is described as using clean menstrual material, washing the body as needed with soap and water, and having access to facilities to dispose of used materials (Biran, Curtis, et al., 2012). Menstrual hygiene practices include bathing at least twice daily during menses, use of sanitary pads, changing of sanitary pads at least three times daily or as often as needed (some have heavy flow while others do not), washing/cleaning the vulva at each change of menstrual pad, among others.

The concept of adolescents has been variously defined. Samuel (2006) describes adolescents as persons or individuals transiting from childhood, capable of begetting an offspring because of their sexual maturity. Adolescents are individuals within the age of 10 and 19 years in a transitional phase of growth and development between childhood and adulthood (Garba, Rabiu, &Abubakar, 2018). However, most adolescent girls (girls with age ranges of 10 to 19 years old) enter to their puberty stage (maturity) without preparing themselves due to the shortage of adequate information. Most women are uncomfortable to discuss regarding "menses" as it is has a social taboo and adolescent girls could not have access to gain adequate information (Wall, Belay, Bayray, Salih, & Gabrehiwot, 2016;). Even the little information

they receive most commonly from religious institutions, peers, family member is often selective and surrounded by misperceptions (Sommer, Ackatia-Armah, Connolly & Smiles, 2015). In this study, adolescents are individuals of ages 10-19 years attending secondary schools in Udenu LGA, Enugu State. Individuals within this age range and above are chosen for this study in order to examine their menstrual hygiene knowledge, attitude and practice because nothing seem to be known as regards their knowledge, attitude and practice of menstrual hygiene. This study however, focused on adolescents who are currently enrolled into secondary schools in Udenu LGA, Enugu State. They are known as in-school adolescents. In-school adolescent girls are a collection of young students. According to Midrange (2006), in-school adolescents are a set of learners who have enrolled in an educational institution(s). Saaku (2017) defined them as a group of secondary school females or youth encompassing early, middle and late adolescents. In-school adolescent girls are a collection of young students. In this study, in-school female adolescent girls are a collection or group of females between the ages of 10-19 years who are attending secondary school in Udenu LGA, Enugu State.

This study was conducted in Udenu is a Local Government Area located in Enugu State. Udenu LGA headquarters is located in Obollo-Afortown and consists of twenty-five communities. Its headquarters is in the town of Obollo-Afor (or Obolo). Udenu LGA has an area of 248 km^2 (96 sq mi) and a population of 178,466 at the 2006 census (2006 national census). The natives are majorly Christians but there are still those who practice traditional religion. Udenu LGA is predominantly rural LGA with many secondary school girls; these girls like their counterparts in other parts of the nation may encounter many challenges on issues relating to their sexuality, especially menstruation, its knowledge, attitude and practice. This arise the need for the present study to ascertain the menstrual hygiene knowledge, attitude and practice of in-school adolescents in Udenu LGA, Enugu State. The menstrual hygiene practices adopted by in-school adolescents may be influenced by certain socio-demographic factors.

Socio-demographic factors are those variables that could influence the outcome of events. They refer to the variables that can in one way or the other affect the outcome of a phenomenon. They are also those factors that can affect the results and findings of research works. Lawan, Nafisa and Aisha (2010) carried out a study on menstrual hygiene amongst Adolescent School Girls in Kano, Northwestern Nigeria; they considered Age, type of school, religion. In the course of this study, socio-demographic factors are those variables that affect menstrual hygiene practices of female in-school adolescents. The main factor includes academic class level.

Academic class level refers to the stage at which an individual is in her academic pursuit. It is a socio-demographic factor capable of affecting menstrual hygiene knowledge, attitude and practices of female in-school adolescents (Parajuli, Paudel, &Shrestha, 2016). In most secondary schools, there are classes from J.S.S 1 to 3 for the Junior Secondary and also S.S.S 1 to 3 for the Senior Secondary. As an individual progress from one level to another, she learns, understands and passes the subjects expected of her. In the Junior Secondary, Health and Physical Education which is basically the only health related subjects they offer has more topics in sports and games neglecting the health aspect. But coming to the senior secondary, there are so many health related subjects namely, Health Science, Biology, Reproductive Health, Environmental Health and so on that exposes students to the world of menstruation, menstrual hygiene as well as to menstrual hygiene practices as the case may be. This is to say that students in the senior secondary may have more knowledge, better attitudes and practices of menstrual hygiene than those in the junior secondary. Several studies have identified class level as a socio-demographic factor affecting menstrual hygiene knowledge, attitude and practices (Ali, &Rizvi, 2010; Sushedna, &Dasgupta, 2010; Belayneh, & Mekuriaw, 2019).

This study examines if academic class level is capable of influencing menstrual hygiene practice of in-school adolescents. Maternal education can also be a factor that influences menstrual hygiene practice.

Maternal education refers to the level of education a mother attained. It is a demographic factor that can affect menstrual hygiene practice of an adolescent girl. A study by Anbesu and Asgedom(2023) on Menstrual hygiene practice and associated factors among adolescent girls in sub-Saharan Africa, adolescent girls from urban settings who were able to afford menstrual sanitary products and from educated mothers were associated with good menstrual hygiene practices. The odds of menstrual hygiene practice among adolescent girls from educated mothers were 2.33 times higher than those among their counterparts. Also, Priya, et al.,(2017) on the Study of menstrual hygiene and related personal hygiene practices among adolescent girls in rural. Majority of the girls(32.1%) reported their mothers to be the primary source of information on menarche and menstrual hygiene. This study examines if maternal education have influence on the menstrual hygiene practice of in-school adolescents.

Purpose of the Study

The purpose of this study was to ascertain the practice of menstrual hygiene among female secondary school students in Udenu Local Government Area, Enugu State. Specifically, the study sought to determine the:

1. menstrual hygiene practice of female secondary school students in Udenu LGA, Enugu State;
2. menstrual hygiene practice of female secondary school students in Udenu LGA, Enugu State based on class level.
3. menstrual hygiene practice of female secondary school students in Udenu LGA, Enugu State based on age
4. menstrual hygiene practice of female secondary school students in Udenu LGA, Enugu State based on maternal education

Research Questions

The following research questions were posed to guide the study:

1. What are the menstrual hygiene practices of female secondary school students in Udenu LGA, Enugu State?
2. What are the menstrual hygiene practices of female secondary school students in Udenu LGA, Enugu State based on class level.
3. What is the menstrual hygiene practice of female secondary school students in Udenu LGA, Enugu State based on age
4. menstrual hygiene practice of female secondary school students in Udenu LGA, Enugu State based on maternal education

Hypotheses

The following hypotheses were postulated to guide the study, and were tested at 0.05 level of significance:

1. There is no significant difference in the menstrual hygiene practices of female secondary school students in Udenu LGA, Enugu State based on class level.
2. There is no significant difference in the menstrual hygiene practices of female secondary school students in Udenu LGA, Enugu State based on age.

3. There is no significant difference in the menstrual hygiene practices of female secondary school students in Udenu LGA, Enugu State based on maternal education.

Methods

The study employed a descriptive survey research design to achieve its purpose. The descriptive survey research design is a type of study that analyses data from a population, or from a representative subset. Descriptive survey research design according to Cohen, Manion and Morrrison (2011) is a research design that produces a snapshot of the population in a given period of time. The population for the study consisted of all female in-school adolescents in all the 16 secondary schools in Udenu LGA of Enugu State. Their total population is 2,421 for the 2020/2021 academic session. This is according to the statistics made available from Udenu Post Primary Education Board, Enugu State (2021).

The sample for the study was 400 female in-school adolescents. This is in line with the suggestion of Cohen, Manion and Morrison (2011), that when a population size is 2,000 and above at 95 percent confidence level (5% interval), the sample size should be 322 and above. The sample size was drawn in two stages. Stage one involved selecting of ten (10) female or mixed secondary schools from the sixteen. The second stage also involved using simple random sampling of balloting without replacement to select forty (40) female in-school adolescents from each of the ten secondary schools sampled in stage one. This gave a total of 400female in-school adolescents to be used for the study.

The instrument for data collection consisted of a researcher-designed instrument titled "Menstrual Hygiene Practice Questionnaire" (MHPQ). The MHPQ comprised of four sections of A, and B, Section A sought information on the socio-demographic data of the respondents with double response options. Section B sought information on the practice of menstrual hygiene with dichotomous response options of Yes and No.

The face validity of the instrument was established by giving copies of the instrument, the purpose of the study with its specific objectives and research questions as well as hypotheses to three experts in the Department of Human Kinetics and Health Education, University of Nigeria, Nsukka. Their constructive criticism, corrections and suggestions were used to modify and improve the final draft of the instrument before its use in the present study.

The reliability of the instruments was established using Cronbach Alpha method of reliability to determine the internal consistency of MHPQ. Twenty copies of the instrument were administered to twenty female in-school adolescents in Nsukka LGA because of their similar characteristics with the study area. The reliability of the instruments was calculated using split-half method to obtain 0.82. Cohen, Manion and Morrison (2011) maintained that if the correlation co-efficient index obtained is 0.7 and above, the instrument was considered reliable for the study

In order to gain access to the respondents, letter from head of department of Human Kinetics and Health Education was presented to the principals of the secondary schools in Udenu LGA of Enugu State seeking for permission to carry out the study in their schools. Copies of the MHPQ were administered to female in-school adolescents by the researcher in their classrooms. The class teachers of the various classes acted as research assistants for the researcher. The research assistants were briefed on the methods of administering the questionnaire. The female in-school adolescents were asked to supply correct information. The questionnaires administered were collected on the spot by the researcher when the female in-school adolescents have supplied all the necessary information required. The returned copies of the completed questionnaires were properly cross-checked for completeness of responses. Four hundred (400) copies of the questionnaire were distributed with return rate of 92.3 per cent (369 copies). The information from copies of the questionnaires were coded and analyzed

using Internal Business Machine Statistical Package for Social Sciences, IBM-SPSS (version 23 statistics for windows). Research questions on practice of menstrual hygiene were also answered using frequencies and percentages. Chi-square statistics were used to test the null hypotheses.

Results

Table1

Socio-demographic factors of respondents (n=369):

Variables	**f**	**%**
Age		
9-11years	206	55.80
18 – 19 years	163	44.20
Class level		
JSS 1-3	149	40.40
SSS1-3	220	59.60
Maternal education status		
No formal Education	260	70.50
Formal Education	109	29.50

Table 1 shows the socio-demographic factors of the respondent.

Table 2: Percentage Responses on Menstrual Hygiene Practices of Female Secondary School Students in Udenu LGA, Enugu State(n=369)

S/N	**Menstrual Hygiene Practices**	**YES f(%)**	**NO f(%)**
1.	I clean my vagina/vulva with water only each time I change menstrual pad/absorbent	214(58.0)	155(42.0)
2.	I clean my vagina/vulva with water and soap each time I change menstrual pad/absorbent	199(53.9)	170(46.1)
3.	I use menstrual pad throughout my flow	236(64.0)	133(36.0)
4.	I wash my sanitary pad twice during menses	232(62.9)	137(37.1)
5.	I use napkin/tissue in place of sanitary pad	199(53.9)	170(46.1)
6.	I anticipate my menses every month and get prepared for it	228(61.8)	141(38.2)
7.	I change my sanitary pad 2 to 3 times daily during menses	214(58.0)	155(42.0)
	Cluster %	**59.0**	**41.1**

Key: 0–39%=Low practice; 40%-69%=Moderate practice; 70% and above=High practice.

Results in Table 2 showed moderate practice (59.0%) of menstrual hygiene among female secondary school students in Udenu LGA, Enugu State. Specifically, Table 2 showed that 64. 0 per cent use menstrual pad throughout the flow, 62.9 per cent wash sanitary pad twice during menses, 61.8 per cent anticipate menses every month and get prepared for it, 58.0 per cent clean the vagina/vulva with water only each time menstrual pad/absorbent is changed, 58.0 per cent change sanitary pad 2 to 3 times daily during menses, 53.9 use napkin/tissue in

place of sanitary pad, and 53.9 per cent clean the vagina/vulva with water and soap each time menstrual pad/absorbent is changed.

Table 3: **Percentage Responses on Menstrual Hygiene Practices of Female Secondary School Students in Udenu LGA, Enugu State based on age (n=369)**

S/N	Menstrual Hygiene Practices	9-14 (206) YES f(%)	9-14 (206) NO f(%)	15-19 (163) YES f(%)	15-19 (163) NO f(%)
1.	I clean my vagina/vulva with water only each time I change menstrual pad/absorbent	110(70.5)	96(29.5)	130(71.4)	33(28.6)
2.	I clean my vagina/vulva with water and soap each time I change menstrual pad/absorbent	99(48.1)	107(51.9)	121(74.2)	42(25.8)
3.	I use menstrual pad throughout my flow	101(49.0)	105(51.0)	105(64.4)	58(35.6)
4.	I wash my sanitary pad twice during menses	73(35.4)	133(64.6)	92(56.4)	71(43.6)
5.	I use napkin/tissue in place of sanitary pad	131(63.6)	75(36.4)	85(52.2)	78(47.8)
6.	I anticipate my menses every month and get prepared for it	98(47.6)	108(52.4)	124(76.1)	39(23.9)
7.	I change my sanitary pad 2 to 3 times daily during menses	110(53.4)	96(46.6)	135(82.8)	28(17.2)
	Cluster %	**52.5**	**47.5**	**68.2**	**31.8**

Key0–39%=Low practice; 40%-69%=Moderate practice; 70% and above=High practice.

Results in Table 3 showed that the percentages of respondents that practice menstrual hygiene based on age. The table indicated that percentages of respondents within the age 15-19 years practice menstrual hygiene more (68.2%) than the respondent within age 9-14 (52.5%). The percentages of respondents in both age groups have moderate practice of menstrual hygiene.

Table 4: **Percentage Responses on Menstrual Hygiene Practices of Female Secondary School Students in Udenu LGA, Enugu State Based on Class Level (n=369)**

S/N	Menstrual Hygiene Practices	JSS 1 – 3 (149) YES f(%)	JSS 1 – 3 (149) NO f(%)	SSS 1 – 3 (220) YES f(%)	SSS 1 – 3 (220) NO f(%)
1.	I clean my vagina/vulva with water only each time I change menstrual pad/absorbent	105(70.5)	44(29.5)	157(71.4)	63(28.6)
2.	I clean my vagina/vulva with water and soap each time I change menstrual pad/absorbent	82(55.0)	67(45.0)	138(62.7)	82(37.3)
3.	I use menstrual pad throughout my flow	91(61.2)	58(38.9)	128(58.2)	92(42.8)
4.	I wash my sanitary pad twice during menses	105(70.5)	44(29.5)	157(71.4)	63(28.6)

5.	I use napkin/tissue in place of sanitary pad	102(68.5)	47(31.5)	145(65.9)	75(34.1)
6.	I anticipate my menses every month and get prepared for it	111(74.5)	38(25.5)	165(75.0)	55(25.0)
7.	I change my sanitary pad 2 to 3 times daily during menses	91(61.2)	58(38.9)	128(58.2)	92(42.8)
	Cluster %	**65.9**	**34.1**	**66.0**	**34.0**

Key0–39%=Low practice; 40%-69%=Moderate practice; 70% and above=High practice.

Results in Table 4 showed that the percentage of respondents that practice menstrual hygiene are the same based on class level (JSS 1–3=65.9; SSS 1–3=66.0). The table also indicated that the percentages of respondents on class level SSS1-3 is slightly higher (66.0%) in their practice menstrual hygiene, than respondents on class level JSS (65.9%).

Table 5: **Percentage Responses on Menstrual Hygiene Practices of Female Secondary School Students in Udenu LGA, Enugu State Based on maternal education status**

S/N	Menstrual Hygiene Practices	No formal (260)		formal (109)	
		YES f(%)	NO f(%)	YES f(%)	NO f(%)
1	I clean my vagina/vulva with water only each time I change menstrual pad/absorbent	75(28.8)	185(71.2)	95(87.2)	14(12.8)
2	I clean my vagina/vulva with water and soap each time I change menstrual pad/absorbent	120(46.2)	140(53.8)	85(78.0)	24(22.0)
3	I use menstrual pad throughout my flow	70(26.9)	190(73.1)	98(89.9)	11(10.1)
4	I wash my sanitary pad twice during menses	110(42.3)	150(57.7)	75(68.8)	34(31.2)
5	I use napkin/tissue in place of sanitary pad	131(50.4)	129(49.6)	35(32.1)	74(67.9)
6	I anticipate my menses every month and get prepared for it	65(25.0)	195(75.0)	97(89.0.)	12(11)
7	I change my sanitary pad 2 to 3 times daily during menses	85(32.7)	175(67.3)	98(89.9)	11(10.1)
	Cluster %	**36.0**	**64.0**	**76.4**	**23.6**

Key0–39%=Low practice; 40%-69%=Moderate practice; 70% and above=High practice.

Result in Table 5showed that the percentage of respondents that practice menstrual hygiene based on maternal education status. The percentage of respondents that practice menstrual hygiene based on formal maternal education status has high practice of menstrual hygiene (76.4%), while those with no formal maternal education has low practice of menstrual hygiene (36.0%).

Hypothesis one.

There is no significant difference in the menstrual hygiene practices of female secondary school students in Udenu LGA, Enugu State based on age. Data testing this hypothesis are contained in Table 6

Table 6: **Summary of Chi-square Analysis on Menstrual Hygiene Practice among Female Secondary School Students in Udenu LGA, Enugu State Based on age(n=369)**

		Menstrual Hygiene Practice					
		True	False				
Age	**N**	**O (E)**	**O (E)**	χ^{2cal}	**Df**	χ^{2crt}	**Decision**
9-14 years	206	108 (127.8)	98(78.2)	18.32	1	3.82	Rejected
15-19 years	163	121(101.2)	42 (61.8)				

*Significant P< 0.05

Table 6 showed that there is a significant difference in menstrual hygiene practices among female secondary school students in Udenu LGA, Enugu State based on age (χ^{2cal}=18.32 χ^{2crit}=3.82). Since, the χ^{2cal}=18.32 is greater than χ^{2crit}=3.84 at .05 level of significance; the null hypothesis was rejected. Hence, menstrual hygiene practices among female secondary school students in Udenu LGA, Enugu State was based on age.

Hypothesis Two.

There is no significant difference in the menstrual hygiene practices of female secondary school students in Udenu LGA, Enugu State based on class level. Data testing this hypothesis are contained in Table 7.

Table 7: **Summary of Chi-square Analysis on Menstrual Hygiene Practice among Female Secondary School Students in Udenu LGA, Enugu State Based on Class Level(n=369)**

		Menstrual Hygiene Practice					
		True	False				
Class Level	**N**	**O (E)**	**O (E)**	χ^{2cal}	**Df**	χ^{2crit}	**Decision**
JSS 1 – 3	149	105 (91.5)	32 (24.5)	2.01	1	3.82	Not rejected
SSS 1 – 3	220	123 (101.5)	52 (31.5)				

*Significant P< 0.05

Table 7 showed that there is no significant difference in menstrual hygiene practices among female secondary school students in Udenu LGA, Enugu State based on class level (χ^{2cal} =2.01; χ^{2crit} =3.82). Since, χ^{2cal} =2.01 is greater than χ^{2crit} =3.82 at .05 level of significance; the null hypothesis was not rejected. Therefore, menstrual hygiene practices among female secondary school students in Udenu LGA, Enugu State do not depend on class level.

Hypothesis Three.

There is no significant difference in the menstrual hygiene practices of female secondary school students in Udenu LGA, Enugu State based on maternal education status. Data testing this hypothesis are contained in

Table 8: **Summary of Chi-square Analysis on Menstrual Hygiene Practice among Female Secondary School Students in Udenu LGA, Enugu State Based on maternal education status(n=369)**

Maternal education status	N	Menstrual Hygiene Practice		χ^{2cal}	df	χ^{2crit}	Decision
		True O (E)	False O (E)				
No formal	260	125 (147.3)	135(11.7)	26.3	1	3.82	Reject
Formal	109	84 (61.7)	25 (47.3)				

*Significant P< 0.05

Table 8 showed that there is significant difference in menstrual hygiene practices among female secondary school students in Udenu LGA, Enugu State based on maternal education status (χ^{2cal}=26.3; χ^{2crit}=3.82.). Since, χ^{2cal} is greater than χ^{2crit}at .05 level of significance; the null hypothesis was rejected. Therefore, there is significant difference in menstrual hygiene practices among female secondary school students in Udenu LGA, Enugu State based on maternal education status.

Discussion

Table 2 showed moderate practice (59.0%) of menstrual hygiene among female secondary school students in Udenu LGA, Enugu State. The findings were expected not surprising, the practice of menstrual hygiene through; use of menstrual pad throughout the flow, wash sanitary pad twice during menses are not commonly practiced, may be due to lack of good water source, finance and lack of knowledge. This finding was in line with, the findings of Garba, Rabiu and Abubakar (2018) on menstrual Hygiene among Adolescent School Girls in Kano showed that 44.1% used sanitary pads, and 21.2% used both cloth and sanitary pads, 56.8% used soap and water to clean their private part, and 43.2% used only water. The hygiene related practices of adolescent girls during menstruation are of considerable importance, as it affect their health by increasing risk of infections especially infections of urinary tract and perineum.

Table 3 showed that percentages of respondents within the age 15-19 years practice menstrual hygiene more than those within age 9-14years. Table 6 showed that there is significant difference in menstrual hygiene practices among female secondary school students in Udenu LGA, Enugu State based on age. This finding is expected not surprising, because it is expected that as one is increasing in age, more knowledge will be acquired, that will positively influence some practices such as menstrual hygiene practice. This finding was in agreement with the findings ofJoyce, Jenala and Anjali (2019) on Menstrual Hygiene Management in Rural Schools of Zambia, older girls had better hygienic practices than the younger girls. A variety of factors are known to affect menstrual behaviors most influential being level of knowledge of menstrual health and hygiene, age and socioeconomic status.

Table 4 showed that the percentage of respondents that practice menstrual hygiene are the same based on class level (JSS 1–3=65.9; SSS 1–3=66.0). Table 7 showed that the menstrual hygiene practices among female secondary school students in Udenu LGA, Enugu State does not depend on class level. This finding is not expected, it is surprising because it is expected that

the senior class should practice menstrual hygiene more than junior class. These authors, Kamaljit, Arora, Singh and Neki (2012); Sommer, &Sahin, (2013) opted that this is possibly explained by the fact that girls with elder age can have a better opportunity to share more information, gain adequate knowledge regarding menstrual hygiene, and prepare themselves to demonstrate safe hygienic practice during their menstruation period as compared to girls with lower ages in junior class.

Table 5 showed that the percentage of respondents that practice menstrual hygiene based on maternal education status. The percentage of respondents that practice menstrual hygiene based on formal maternal education status has high practice of menstrual hygiene (76.4%), while those with no formal maternal education has low practice of menstrual hygiene (36.0%). Also, Table 8 showed that there is significant difference of menstrual hygiene practices among female secondary school students in Udenu LGA, Enugu State based on maternal education status. The findings are expected not surprising, because an educated mother has the privilege of having some basic knowledge which may include menstrual hygiene knowledge. The findings were in agreement with the findings by Anbesu and Asgedom (2023) adolescent girls from urban settings who were able to afford menstrual sanitary products and from educated mothers were associated with good menstrual hygiene practices.

Conclusion

Based on the finding, the study concluded that majority of female secondary school student in Udenu have moderate menstrual hygiene practice, which may be as a result of lack of good water source, finance and lack of knowledge therefore it is important that water and necessary information about menstrual hygiene is made known to adolescent girls through their schools. Both age groups need more tutorial on menstrual hygiene practice, especially the younger age group 9-14years to help them prevent diseases associated with poor menstrual hygiene practices. In fact, basic practice about menstrual practice should be made known to the public for all to benefit both educated and non-educated parent. That is promoting maternal education should be mandatory and should be part of government-level public health policy to prevent related health issues. The government should also provide basic amenities such as pipe borne water, good toilet system to schools in rural area to enable female students to manage themselves during menstrual period.

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