

Knowledge and Practice of Menstrual Health and Hygiene among Young People in Jos, Plateau State, Nigeria

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How to cite this paper: Idoko, L.O., Okafor, K.C., Ayegba, V.O., Bala, S. and Evuka, V.B. (2022) Knowledge and Practice of Menstrual Health and Hygiene among Young People in Jos, Plateau State, Nigeria. *Open Journal of Obstetrics and Gynecology*, 12, 292-308.

<https://doi.org/10.4236/ojog.2022.124028>

Received: March 7, 2022

Accepted: April 22, 2022

Published: April 25, 2022

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Abstract

Background: 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. Menstrual health knowledge is regarded as having knowledge of what menstruation is and the need for effective management of health during menstruation and proper menstrual hygiene management. This study seeks to assess the knowledge and practice of menstrual health and hygiene and availability of resources for effective menstrual hygiene management among young people in Jos, Plateau State, Nigeria. **Methodology:** This was a descriptive cross-sectional study carried out among 169 young males and females of Evangelical Church Winning All (ECWA) Theological Seminary, Jos, North, Plateau State, Nigeria. Simple random sampling technique was used in this study and data was collected using an interviewer-administered structured questionnaire. Data analysis was done using the Statistical Package for the Social Science (SPSS) version 20.0. **Findings:** Majority of 70 (41.4%) respondents fall within the age range of 20 - 24 years old, 64 (37.9%) were within 25 - 29 years. There were more females (96, 56.8%) than males (73, 43.2%). Twenty (11.8%) were married, 149 (88.2%) were single. More than three quarters (78.1%) had good knowledge of Menstrual Hygiene. Of this, 64.4% are males and 88.5% are females. 18.3% of respondents had fair knowledge. Of this, 30.1% are males and 9 (9.4%) are females. 6 (3.6%) of respondent's had poor knowledge of menstrual hygiene (4 (5.5%) of males and 2 (92.1%)) of females). Two-thirds of the female respondents had good practice of menstrual hygiene, while a third of the respondents had the poor practice of menstrual hygiene. **Conclusion:** There was good knowledge and practice of menstruation and menstrual hygiene among young people. Knowledge influences prac-

tice and the perception of young people to sensitive concepts like menstrual health and hygiene management. Reproductive health programs that reflect this should be taught in schools and communities.

Keywords

Menstrual Health Menstrual Hygiene, Knowledge, Practice

1. Introduction

Menstruation, or a menstrual period, is the periodic shedding of the lining of a woman's uterus. It is one of the phases of the menstrual cycle. The uterine lining breaks down into a bloody substance. It then passes down through the cervix and exits through the vagina. The process usually lasts from three to five days. The amount of menstrual blood can vary from period to period and from woman to woman [1]. Menstruation is also known by other names like "menses" or "period". It usually starts at the time of puberty which is typically within the period of adolescence and ends at menopause. Menarche is the onset of menstruation and a stage where knowledge of menstrual health and practice of good menstrual hygiene is important as values and life principles are formed; it is an important physiological and psychological milestone in every woman's life and occurs within the range of ages 10 to 16 years and varies from population to population. Studies suggest that menarche tends to appear earlier as the sanitary, nutritional and economic conditions of a society improve [2] [3].

Young people are the population between ages of 10 and 24 years according to the World Health Organization (WHO) definition and United Nations defines youth as those between the age range of 15 and 24 years [4] while the Nigerian Youth Policy 2009, described youths as those within the ages 18 and 35 years [5]. Personal values and principles are mostly developed and shaped at this stage, the knowledge of menstrual hygiene would affect health and social situation of young people [6]. Knowledge of menstrual hygiene in males will help the males give support to the females during their reproductive cycle rather than making jest of them or stigmatizing them. The knowledge and practice of proper menstrual hygiene management by young adults will also set the pace in achieving overall health of the younger generations. As regards the Sustainable development goals, menstrual hygiene management can be seen to be related to goals 3-Good Health and well-being, Goal 4-quality education, Goal 5-gender equality and Goal 8-decent work and economic growth.

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.

Menstrual health knowledge is regarded as having knowledge of what menstruation is and the need for effective management of health during menstruation and proper menstrual hygiene management. This information is highly useful especially at the young age group, before menarche because a girl will be in the know of what menstruation is and how to handle it and therefore be prepared for it. Menstrual hygiene knowledge is having the knowledge of what materials to be used that can be changed as often as necessary for the duration of the menstruation period and the use of soap with water for washing the body as required and having access to facilities for proper disposal after use. Some studies have shown 60.9% of women had good knowledge of menstrual hygiene and 39.9% had good practice of menstrual hygiene respectively [7]. Knowledge of the menstrual cycle and awareness of the likely symptoms associated with it will help a woman be prepared for these periods and the people around her will understand that she is experiencing such changes and so not tag her as being hysterical or sick [8] [9] [10]. Women also will not need to hide under the cover of being sick whenever they are menstruating. Also, the occurrence of reproductive tract infections will decrease as this can affect the health of women greatly. Reproductive Tract Infections are common with improper usage of menstrual management materials [11].

Studies among young people have shown that majority 88.7% had good practice of menstrual hygiene and older age groups had more knowledge than the younger age group [3]. The hygiene related practices of girls and women during menstruation are of considerable importance, as they affect their health by increasing risk of infections especially infections of urinary tract and perineum. The availability and ability to afford sanitary absorbents determine if a girl/woman will use any kind of the sanitary absorbents available. Studies have shown that 44.1% used sanitary pads, and 21.2% used both cloth and sanitary pads [9] [12] [13], 56.8% used soap and water to clean their private part, and 43.2% used only water. Another study reported that majority of girls in a rural girl's school who used old clothes, sanitized the materials by boiling and drying them before reuse [14]. It was evident that such practice was protective against infection.

Clearly, lower socio-economic status, rural residence, and lack of access to information about and money to buy sanitary products for menstrual hygiene are all related factors that affect the practice of good menstrual hygiene [15] [16] [17]. The problem of lack of privacy may be attributed to overcrowding and poor infrastructures of bathrooms and toilets, especially in the rural settings. Toilets may be few with broken doors or defective water supply and sewage.

Menstrual health and hygiene management (MHHM) have an influence on academic performance and other daily activities. In a study done in India, 40% of the girls remained absent from school during their menstruation. This was significantly associated with the type of absorbent used, and lack of privacy at school [15].

The use of toilet roll is not an effective absorbent as this will require frequent change, washing of clothes as it may result to staining of clothes and water and soap might not be readily made available for cleaning. Using of clothes is also not a good absorbent, it can result in staining, bad odor if not properly managed and cleaned with adequate soap and water and it will require use of many clothing materials which at the end is also not cost effective [9] [14].

Parents' educational level was significantly correlated with the menstrual practices [17]. This implies that those from families where parents are educated tend to have better information on menstrual health and hygiene and so their attitude towards menstrual health and hygiene is better because they are informed about the dangers of not practicing good hygiene during menstruation [17]. Those who did not have a prior knowledge of menstrual health and hygiene, practiced use of unhygienic menstrual absorbents like tissue paper, while those who had prior knowledge of menstrual health and hygiene used absorbable sanitary pads. The lack of timely information results in poor knowledge concerning menstrual health and poor menstrual hygiene practices [17]. Factors associated with poor menstrual hygiene practice were age, non-discussions, lack of sanitary pads, lack of latrine privacy, lack of adequate water supply, and teasing by boys. Awareness regarding the need for information about healthy menstrual practices is important not only for the women and girls, but men and boys also need to know the importance of this as colleagues, husbands, brothers, leaders, teachers and classmates to them [14] [17].

Changing pads during nighttime and at school or college is important. Change of napkins/pads at an interval of 3 - 4 hours is considered as a healthy behavior for comfort and to prevent odor, regardless of the extent of staining. Frequent changing of used absorbents will not be effectively practiced if there are no private toilets available, and supply of adequate water supply, and also if the girls and women lack the funds to purchase sufficient number of absorbents that will last through out their menstruation. Socioeconomic status of the selected girls and their age influenced choice of napkins/pads and other practices such as disposal of used napkins, storage place of napkins, change at night and change of used sanitary pads during school or college hours and personal hygiene. The 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 [18].

Girls did not know about menstruation before menarche and only received informal education on menstrual health and hygiene management when they

attained menarche [18]. Girls also skipped school due to fear of personal embarrassment and teasing from others, especially the boys. School girls were unable to practice adequate menstrual hygiene due to lack of preparedness for menarche, access to absorbent materials, water, soap, and privacy while at school [19] [20]. This study therefore is to establish the knowledge and practice of menstrual health and hygiene and availability of resources for effective menstrual hygiene management among young people in Jos, Plateau State.

2. Methodology

This was a descriptive cross-sectional study carried out among young males and females Evangelical Church Winning All (ECWA) Theological seminary, Jos. The sample population constituted of both male and female genders and the sample size for this study was 169.

The (ECWA) Theological seminary, Jos (JETS) is located Off Goodluck Ebele Jonathan Road, FarinGada, Jos North, Plateau state. It was started in 1980 as a higher educational theological institution by the (ECWA). The Theological Seminary comprises an estimated total number of 900 students with about 750 males and 150 females and it offers diplomas, graduate and post graduate programs. The sample size was determined using Cochran's formulae below:

$$n_0 = (Z^2 pq) / e^2$$

where:

p = Estimated proportion of young people who had good practice of Menstrual Hygiene present in the population. p is 88.7% [5].

n_0 = minimum sample size, e = desired level of precision, $q = 1 - p$, z = standard normal deviant at 95% confidence interval.

$$(1.96)^2 \times 0.887 \times (1 - 0.887) / (0.05)^2$$

$$3.8416 \times 0.887 \times 0.113 / 0.0025 = 154.$$

Calculating for attrition

$$10/100 \times 154 = 15.4$$

= 154 + 15.4 = 169.4. Thus, give a sample size of 169 young people.

Simple random sampling technique was used in this study, with the list of all students as the sampling frame. Data was collected using interviewer-administered structured questionnaire. To protect the privacy of the respondents, the questionnaire did not contain personal information of the respondents like names and area of residence. Data collection for each respondent was also done in privacy to ensure confidentiality. Furthermore, to ensure confidentiality, data collected from respondents were kept and stored in privacy, away from public access. The questionnaire was pretested among 10 young people (5 males and 5 females) in Bingham University Teaching Hospital prior to data collection to check for the duration of time it took to interview a person and to check for corrections such as questions not understood, and this was relevant in making corrections after which the questionnaires were then reviewed.

Data analysis was done using the Statistical Package for the Social Science (SPSS) version 20.0 with descriptive statistics, proportions, tables, and diagrams used to illustrate findings from the data collected. The knowledge was based on recall information, and possible recall bias.

The study protocol was submitted to Bingham University Teaching Hospital Ethics Committee before commencement of the study and approval was granted. Permission to carry out the study was also taken from the administrator of ECWA Theological Centre. Informed consent was taken from each participant before commencement. Each respondent was informed that there was no punishment for not participating. Health education was given to each respondent at the end of the session.

Table 1 and **Figure 1** show that 70 (41.4%) of respondents fall within the age range of 20 - 24 years old, 64 (37.9%) were within 25 - 29 years, 24 (14.2%), 24 (14.2%) were within 30 - 34 years, 8 (4.7%) were less than 19 years, 3 (1.8%) were above 35 years. There were more females (96, 56.8%) than males (73, 43.2%). Twenty (11.8%) were married, 149 (88.2%) were single.

Table 1. Distribution of respondents by age, sex, marital status.

Age group	Number	Percentage
<19	8	4.7
20 - 24	70	41.4
25 - 29	64	37.9
30 - 34	24	14.2
>35	3	1.8
Sex		
Male	73	43.2
Female	96	56.8
Marital Status		
Single	149	88.2
Married	20	11.8
	169	100

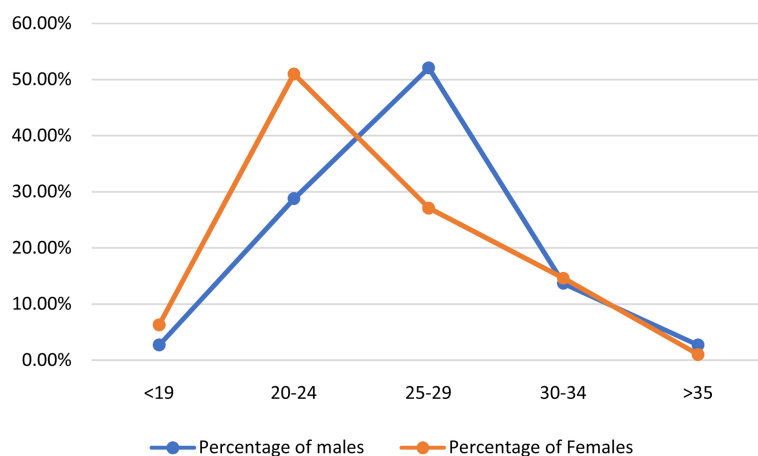


Figure 1. A line graph showing the percentage distribution of the age of respondents.

Table 2 shows that more respondents, 122 (72.2%), have more previous information on menstrual hygiene, while 47 (27.8%) had no previous information on menses.

More respondents, 122 (72.2%), have more previous information on menstrual hygiene, while 47 (27.8%) had no previous information on menses.

Parents, 42 (22.7%), were the major source of information on menstrual health and hygiene, followed by teachers 38 (20.5%), other family members 27 (14.6%), friends 26 (14.1%), social media 2 (1.1%). 47 (25.4%) of the respondents had never heard anything about menstrual hygiene or how to keep clean during menstrual period.

Almost all 160 (94.6%) of respondents know menstruation to be a normal female reproductive phenomenon. 2 (1.2%) said it is a curse from God and 4 (2.4%) had no idea.

Table 3 shows that more respondents, 122 (72.2%), have had previous information on menstrual health and hygiene while 47 (27.8%) have no previous information.

160 (94.6%) have the correct opinion on menstrual flow stating that Menstruation is a normal phenomenon of reproductive health of a female. 3 (1.8%) think it's an illness, 2 (1.2%), believe its curse from God, 4 (2.4%) had no idea.

Table 2. Respondents previous information on menstrual health and hygiene, source of knowledge and opinion on menstruation.

Previous information on menstrual health and hygiene	Number	Percentage
Yes	122	72.2
No	47	27.8
Total	169	100
Source of knowledge on menstrual health and hygiene		
Father/Mother	42	22.7
Other Family Members	27	14.6
Friends	26	14.1
Teacher	38	20.5
Social Media	2	1.1
Others	3	1.6
Respondents with no previous information	47	25.4
Total*	185	100.0
Opinion on menstruation		
Menstruation is a normal phenomenon of reproductive health of a female	160	94.6
Illness/Disease of a female	3	1.8
Curse of God	2	1.2
No idea	4	2.4
Total	169	100

Table 3. Distribution of respondents by sex and previous information on menstrual health and hygiene.

Previous information on menstrual health and hygiene	Males	Females	Total (%)
Yes	60 (49.2)	62 (50.8)	122 (72.2)
No	13 (27.7)	34 (72.3)	47 (27.8)
Opinion on menstruation	Males	Females	Total (%)
Menstruation is a normal phenomenon of reproductive health of a female	69 (43.1)	91 (56.9)	160 (94.6)
Illness/Disease of a female	1 (33.3)	2 (66.7)	3 (1.8)
Curse of God	2 (100.0)	0 (0.0)	2 (1.2)
No idea	1 (25.0)	3 (75.0)	4 (2.4)
Knowledge of need for special hygiene during menstruation	Males	Females	Total
Special hygiene needed	63 (40.9)	91 (59.1)	154 (91.1)
Special hygiene not needed	10 (66.7)	5 (33.3)	15 (8.9)
Total	73 (43.2)	96 (56.8)	169 (100.0)

Majority (154, 91.1%) stated that special hygiene is needed during menstruation while 15 (8.9%) felt no special hygiene is needed during menstruation.

The most stated type of menstrual hygiene needed during menstruation is regular bathing, others include 44 (60.3%), use of sanitary absorbents, 15 (20.5%) frequent change of sanitary absorbents, 8 (11.0%) Frequent washing of clothes and underwear, 3 (4.1%) proper disposal of used absorbents.

Table 4 reveals that majority (165, 97.6%) of the respondents have information on proper disposal of menstrual blood, 4 (2.4%) have no information on menstrual blood.

50 (29.6%) are of the opinion that menstruation is a personal matter to be kept to oneself, while 119 (70.4%) are of the opinion that menstruation is not a personal matter to be kept to oneself

135 (79.9%) of the respondents are of the opinion that sanitary pads should not be bought secretly, while 34 (20.1%) believed sanitary pads should be bought secretly

Majority (140, 82.8%) of the respondents are of the opinion that Females should not stay away from social activities during menstruation. However, that 29 (17.2%) of the male respondents feel otherwise.

Table 5, Figure 2 and **Figure 3** reveal that 132 (78.1%) had good knowledge of Menstrual Hygiene (47 (64.4%) of males and 85 (88.5%) of females. 31 (18.3%) of respondents had fair knowledge of (22 (30.1%) of males and 9 (9.4%) of females. 6 (3.6%) of respondent's had poor knowledge of menstrual hygiene (4 (5.5%) of males and 2 92.1%) of females).

Table 4. Information of disposal of menstrual blood, opinion on personalization of menstruation, and purchase of sanitary pads.

Disposal of menstrual blood	Males	Females	Total (%)
Have information proper disposal of menstrual blood	72	93	165 (97.6)
No information on proper disposal of menstrual blood	1	3	4 (2.4)
Total population interviewed	73	96	169 (100.0)
Opinion	Males	Females	Total
Menstruation is a personal matter to be kept to oneself	15	35	50 (29.6)
Menstruation is not a personal matter to be kept to oneself	58	61	119 (70.4)
Total	73	96	169 (100.0)
Opinion	Males	Females	Total
Sanitary pads should be bought secretly	10	24	34 (20.1)
Sanitary pads should not be bought secretly	63	72	135 (79.9)
Total	73	96	169 (100.0)
Opinion on staying for Social activities	Males	Females	Total
Females should stay away from social activities during menstruation	29 (100.0)	0 (0.0)	29 (17.2)
Females should not stay away from social activities during menstruation	44 (31.4)	96 (68.6)	140 (82.8)
Total	73	96	169 (100.0)

Table 5. Distribution of respondents by sex and knowledge of menstrual health and hygiene.

Knowledge of Menstrual Health and Hygiene	Males	Females	Total
Good Knowledge	47 (64.4)	85 (88.5)	132 (78.1)
Fair Knowledge	22 (30.1)	9 (9.4)	31 (18.3)
Poor Knowledge	4 (5.5)	2 (2.1)	6 (3.6)
Total	73	96	169 (100.0)

3. Practice of Menstrual Hygiene

Table 6 shows that 89 (92.7%) of the females used sanitary pad as absorbent, 30 (31.3%) use cloth/Napkins, 9 (9.4%) use tissue paper, 1 (1.0%) use nothing.

Table 6. Distribution of male respondents by the types of special hygiene required during menstruation.

Type of Hygiene required	Frequency	Percentage
Regular bathing	44	60.3
Use of Sanitary absorbents	25	34.2
Frequent change of sanitary pad	15	20.5
No comment	12	16.4
Frequent washing of clothes and underwear	8	11.0
Proper disposal of used absorbents	3	4.1
Others*	2	2.7
Total**	121	149.2

*Others were those who stated taking of drugs during menstruation and monitoring menstrual cycle. **The total percentage is more than 100% because the male respondents (63) had multiple responses.

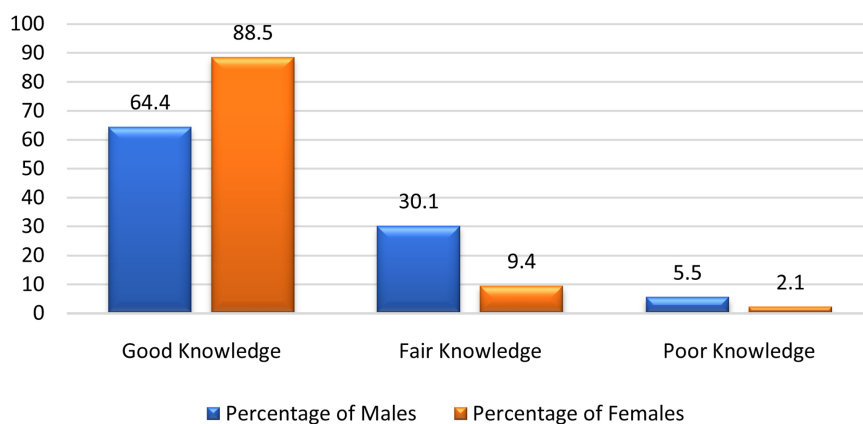
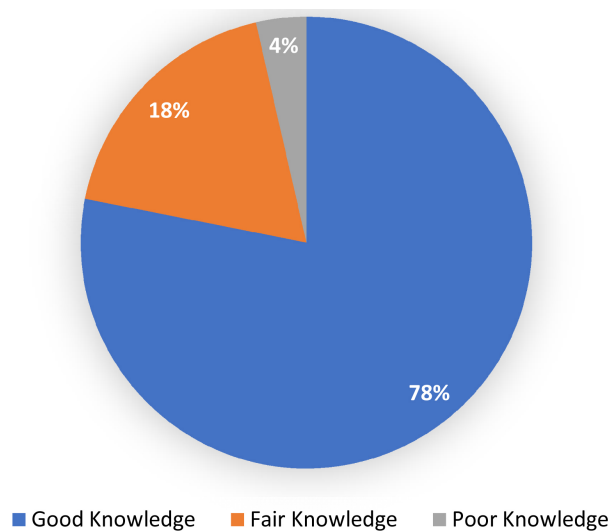
**Figure 2.** A bar chart showing the percentage knowledge of menstrual health and hygiene.**Figure 3.** A pie chart showing knowledge of menstrual health and hygiene.

Table 7 shows that majority (76, 79.2%) of the female respondents wash their bodies after use of any absorbent, 20 (20.8%) do not wash their bodies after use of absorbent.

48 (50.0%) of the female respondents put their used absorbents in disposable polythene bags, 47 (48.9%) burn the absorbent, 25 (26.0%) dump the used absorbents in open refuse, 19 (19.8%) flush the used absorbent in the toilet, 7 (7.3%) bury their used absorbents in the ground.

Table 8 shows that 64 (66.7%) had good practice of Menstrual Hygiene, while 32 (33.3%) had poor practice of Menstrual Hygiene among respondents.

Table 7. Types of absorbents used, washing of body after absorbent use and disposal method.

Type of absorbent	Number	Percentage
Use of Sanitary pad as absorbent	89	92.7
Re-useable cloth/Napkin as absorbent	30	31.3
Use of Tissue paper as absorbent	9	9.4
Use of no absorbent	1	1.0
Total*	129	134.4

Practice of washing of body after use of any absorbent	Number	Percentage
Respondents who wash the body after use of absorbent	76	79.2
Respondents who do not wash the body after use of absorbent	20	20.8
Total	96	100

Method of disposal of used absorbents	Number	Percentage
Disposable polythene bags	48	50.0
Burning	47	48.9
Dumping of used absorbents in open refuse	25	26.0
Flushing of used absorbent in the toilet	19	19.8
Burying in the ground	7	7.3
Total*	146	152

*Total percentages of responses is above 100% because some of the female respondents had multiple responses.

Table 8. Distribution of female respondents by practice of menstrual hygiene.

Practice	Number of Females	Percentage
Good Practice	64	66.7
Poor Practice	32	33.3
Total	96	100

4. Discussion

Most respondents were within the age group 20 - 24 (41.4%) and age group 25 - 29 years (37.9%). This finding depicts the sexually active and working population that requires good health to ensure socioeconomic prosperity and growth of their communities. Thus, knowledge and practice of menstrual hygiene management are important to meet the sexual reproductive health needs of young females.

Three quarters of respondents have had previous information on menstrual hygiene, with parents (22.7%) as the major source of information on menstrual health and hygiene Management (MHHM), followed by teachers (20.5%). This finding is similar to findings from a study done in Tamale, Ghana [21] where 73.4% of respondents stated that they knew what menstruation was before menarche and Sokoto, Nigeria [22] where 56.6% had their source of information from their mothers. This demonstrates the important role of parents and schools in the improving the knowledge and practice of Menstrual Hygiene management among young people.

Almost all (94.6%) of respondents know menstruation to be a normal female reproductive phenomenon which is similar to a study done in Bangalore, Karnataka, India [23]. This knowledge of the fact that menstruation is a normal reproductive process shapes the thoughts and actions of these young people toward accepting and implementing the needed steps towards Menstrual Hygiene Management (MHM). 1.2% of the respondents stated that menstruation is a curse from God. Majority (91.1%) stated that special hygiene is needed during menstruation. These assertions indicated good knowledge. Strangely, this contrasts with a study done [24] in 2009 where 98% of the girls believed that there should be no regular baths during the menstrual cycle due to cultural practices passed down [24]. This disparity may be due to the deep belief in cultural practices among tribal (Gujjar) adolescent girl in Kashmir, India or to the fact that there has been a gradual increase in openness regarding conversation related to menstruation and menstrual hygiene leading to the declaration of May 28 as the World Hygiene day since 2014.

The most stated type of menstrual hygiene needed during menstruation is regular bathing, others include (60.3%), use of sanitary absorbents (20.5%) frequent change of sanitary absorbents, (11.0%) Frequent washing of clothes and underwear (4.1%) and proper disposal of used absorbents. This is similar to finding from studies done in West Bengal, India [16]. This is important forms of menstrual hygiene management (MHM). Majority (97.6%) of the respondents stated the need for proper disposal of menstrual blood and so support in a way, the practice of menstrual hygiene management. This contrasts with a study in Nepal where 40.6% had knowledge regarding menstrual hygiene and while 94% used sanitary pads, only 11.3% disposed it [25]. Poor disposal of sanitary pad causes huge environmental health issues.

Three quarters of respondents do not believe menstruation is a personal mat-

ter to be kept to oneself and that sanitary pads should not be bought secretly. That is, a woman menstruating can be free to talk about it. This is a positive attitude toward menstrual hygiene and health. This is particularly important in cases where some symptoms are experienced during menstruation and the woman needs relief either from activity or through the aid of drugs like analgesics. Speaking out helps because a woman can clearly state how she feels and is not tagged as one malingering. This finding contrasts with a study done in Turkey where 48.8% of the women felt they had to keep their menstruation as a secret [26]. A third of respondents say menstruation is a personal matter to be kept to oneself indicating that a lot more work need to be done to dispel such beliefs which are mostly related to socio-cultural norms, as this can have both health and social consequences for such women and girls. A culture of silence and secretive disposition is developed and passed down to younger generations. This affects their psychological orientation about the topic.

One in five of the respondents stated that menstruating women should stay away from social activities, while 82.8% said menstruating women should not stay away from social activities. This is similar to a study done in India where social and religious restrictions are placed on menstruating women [27]. The reason for such responses could be due to misconceptions concerning menstruation, the display of mismanagement of menstruation due to inadequate facilities or due to cultural or religious beliefs. Looking at the male perspective, one in eight of males are of the opinion that sanitary pads should be bought secretly. Having this opinion would mean that these same people would support the idea that menstruation is a personal matter and that menstruating females should stay away from social activities, consequently affecting the number of school days missed, number of females educated and indirectly the economy of a nation. This practice should be discouraged. Summarily, three fourths of respondents had good knowledge, 18.3% had fair knowledge and 3.6% had poor knowledge based on the questions asked on information about menstruation, the need for special hygiene, types of special hygiene, knowledge on proper disposal of used absorbents and knowledge on menstruating women not staying away from activities. This is in contrast to the study done in Kano, North Western Nigeria in 2010, where only 4.0% of the school girls had good knowledge on menstruation and menstrual hygiene [3]. This disparity may be attributable to different cultures identified.

In this study, two thirds of the female respondents had good practice of menstrual hygiene, while a third of the respondents had poor practice of menstrual hygiene, which is in contrast to a study carried out in Western Nigeria, 2009 [28] where 74.72% of the respondents had poor practice while 25% had good practice [28]. Nine in ten of the females claim that they use sanitary pads as menstrual absorbents. Other respondents used tissue paper (9.4%), re-usable clothes/napkins (31.3%), as absorbent. This, finding is similar to the result from a study done in Kano, Nigeria where out of three hundred and forty-eight par-

ticipants, majority (93.8%) used sanitary pads [9]. Eight in ten of the female respondents wash their body after change of used absorbent, while one in five do not wash their body after use and change of absorbent. This is contrary to a study done in India [12]. The result revealed that 56.8% of the study population wash their private part with soap and water after changing a used menstrual absorbent [12]. The most common method of disposal of used menstrual absorbent was use of disposable polythene bags by 50.0% of the female respondents. This is in contrast to a study done in Swaziland [15] where 71.1% of the respondents wrapped their used napkins with toilet paper, while 26.6% wrapped their used napkins with polythene bags [15]. Sanitary products and polythene bags are made from plastics, which are non-biodegradable and can release their chemical products and toxins into the soil. In the long run, this can reduce plant growth as a result of reduced water and air flow in the soil. The least method was burying in the ground by 7.3%. Other methods were flushing in the toilet (19.8%), dumping in open refuse (26.0%), and burning (48.9%) posed huge public health challenges. Sanitary products when flushed in the toilets get saturated with liquid and swell up, thus resulting in sewage backflow, a serious health hazard in the environment. Burning used sanitary napkins releases fumes containing toxic gases like furans which have negative effects on environment and human health including skin toxicity, immunotoxicity and teratogenicity. The good menstrual habit seen in this study was the fact that majority (79.2%) of the female respondents wash their bodies after use of any absorbent. This plays a huge role in maintaining their menstrual health.

5. Conclusion

In this study, 78.1% had good knowledge of Menstrual Hygiene. Of this, 64.4% are males and 88.5% are females. 18.3% of respondents had fair knowledge. Of this, 30.1% are males and 9 (9.4%) are females. 6 (3.6%) of respondents had poor knowledge of menstrual hygiene (4 (5.5%) of males and 2 (92.1%) of females). Two-thirds of the female respondents had good practice of menstrual hygiene, while a third of the respondents had the poor practice of menstrual hygiene.

Recommendations

1) Knowledge influences practice and the perception of people to concepts even as sensitive as menstrual health and hygiene. To boost the knowledge of this population especially within the male population, programs need to be set by schools in academic curricula and social media for the education and dissemination of information on proper menstrual health and hygiene. This will lead to increased support for females, especially during this special period. The role of pre-menarche training and teaching of both males and females about menstruation by parents will help boost knowledge in future generations.

2) From the study carried out, 33.3% of the female respondents had poor menstrual hygiene practice. Awareness regarding the need for good menstrual

hygiene practice is required. School programs and mass media should emphasize the importance of good menstrual hygiene practice.

3) Government, Policy makers and leaders at the various tiers of Government should also set up a structure where menstrual products can be made available and affordable to females, through measures like removing import duties and value added tax on absorbent materials.

They can also support proper and effective practice of menstrual hygiene through strategies like free sanitary pads in schools. An example of support is that which is being implemented recently in Kenya as Government has said all Kenyan schoolgirls are to be provided with free sanitary pads.

There is a need for parents and schools to encourage and strengthen menstrual hygiene management (MHM) in reproductive health education to empower girls through detailed menstrual hygiene management information in school. This can be done through sexual reproductive and health education curriculum so that girls, boys and teachers are equally informed about menstrual hygiene management and can support girls and women to effectively practice good menstrual hygiene [19] [20].

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Chamberlain, K. (2019) What Is Menstruation? Definition & Cycle. <https://study.com/academy/lesson/what-is-menstruation-definition-cycle.html>
- [2] Kaplowitz, P. (2006) Pubertal Development in Girls: Secular Trends. *Current Opinion in Obstetrics & Gynecology*, **18**, 487-491. <https://doi.org/10.1097/01.gco.0000242949.02373.09>
- [3] Muhammed, L.U., Yusuf, N.W. and Musa, A.B. (2010) Menstruation and Menstrual Hygiene amongst Adolescent School Girls in Kano, Northwestern Nigeria. *African Journal of Reproductive Health*, **14**, 204.
- [4] Health for the World's Adolescents. 2014. <http://apps.who.int/adolescent/second-decade/section2/page1/recognizing-adolescence.html>
- [5] Federal Government of Nigeria (2009) Second National Youth Policy Document of the Federal Republic of Nigeria. http://www.youthpolicy.org/national/Nigeria_2009_National_Youth_Policy.pdf
- [6] Sommer, M. and Ackatia-Armah, N.M. (2012) The Gendered Nature of Schooling in Ghana: Hurdles to Girls' Menstrual Management in School. *Journal of Culture and African Women Studies*, **20**, 63-79.
- [7] Upashe, S.P., Tekelab, T. and Mekonnen, J. (2015) Assessment of Knowledge and Practice of Menstrual Hygiene among High School Girls in Western Ethiopia. *BMC Women's Health*, **15**, Article No. 84. <https://doi.org/10.1186/s12905-015-0245-7>
- [8] Eleen, K., Florence, N.O. and Gaudencia, O. (2018) Menstrual Hygiene Management Practices among Primary School Girls from a Pastoralist Community in Kenya: A

- Cross Sectional Survey. *Pan African Medical Journal*, **31**, Article No. 222. <https://doi.org/10.11604/pamj.2018.31.222.13521>
- [9] Garba, I., Rabi, A. and Abubakar, I.S. (2018) Menstrual Hygiene among Adolescent School Girls in Kano. *Tropical Journal of Obstetrics and Gynaecology*, **35**, 153-157. https://doi.org/10.4103/TJOG.TJOG_81_17
- [10] Sasmita, G. (2017) Knowledge Regarding Menstrual Hygiene among Adolescent Girls. *International Journal of Research in Medical Sciences*, **5**. <https://doi.org/10.18203/2320-6012.ijrms20173534>
- [11] Sumpter, C. and Torondel, B. (2013) A Systematic Review of the Health and Social Effects of Menstrual Hygiene Management. *PLoS ONE*, **8**, e62004. <https://doi.org/10.1371/journal.pone.0062004>
- [12] Shanbhag, D., Shilpa, R., D'Souza, N., Joseph, P., Singh, J. and Goud, B.R. (2012) Perceptions Regarding Menstruation and Practices during Menstrual Cycles among Adolescent Girls in Resource Limited Settings around Bangalore City, Karnataka, India. *International Journal of Collaborative Research on Internal Medicine and Public Health*, **4**, 1353-1362.
- [13] Abdel, H.G., Karima, B. and Sanaa, E.F. (2005) Menstrual Hygiene among Adolescent School Girls in Mansoura, Egypt. *Reproductive Health Matters*, **13**, 147-152. [https://doi.org/10.1016/S0968-8080\(05\)26191-8](https://doi.org/10.1016/S0968-8080(05)26191-8)
- [14] Shabnam, O. and Khyrunnisa, B. (2010) Factors Influencing Hygienic Practices during Menses among Girls from South India—A Cross Sectional Study. *International Journal of Collaborative Research on Internal Medicine and Public Health*, **2**, 411-423.
- [15] Murye, A.F. and Mamba, S.R. (2017) Practices of Managing Menstrual Hygiene by Girls in Public Boarding Schools—The Case of Hhohho Region of Swaziland. *Health Science Journals*, **11**, 534. <https://doi.org/10.21767/1791-809X.1000534>
- [16] Dasgupta, A. (2008) Menstrual Hygiene: How Hygienic Is the Adolescent Girl? *Indian Journal of Community Medicine*, **33**, 77-80. <https://doi.org/10.4103/0970-0218.40872>
- [17] 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. *The Pan African Medical Journal*, **2**, Article No. 9. <https://doi.org/10.4314/pamj.v2i1.51708>
- [18] Joyce, C., Jenala, C. and Anjali, S. (2019) Menstrual Hygiene Management in Rural Schools of Zambia: A Descriptive Study of Knowledge, Experiences and Challenges Faced by Schoolgirls. *BMC Public Health*, **19**, Article No. 16. <https://doi.org/10.1186/s12889-018-6360-2>
- [19] 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: A Journal of Comparative and International Education*, **45**, 589-609. <https://doi.org/10.1080/03057925.2013.871399>
- [20] Boosey, R., Prestich, G. and Deave, T. (2014) Menstrual Hygiene Management amongst Schoolgirls in the Rukungiri District of Uganda and the Impact on Their Education: A Cross-Sectional Study. *The Pan African Medical Journal*, **19**, Article No. 253. <https://doi.org/10.11604/pamj.2014.19.253.5313>
- [21] Evans, P., Kwame, A. and Helene, A.G. (2016) Relationship between Female University Students' Knowledge on Menstruation and Their Menstrual Hygiene Practices: A Study in Tamale, Ghana. *Advances in Preventive Medicine*, **2016**, Article ID: 1056235. <https://doi.org/10.1155/2016/1056235>

- [22] Oche, M.O., Umar, A.S., Gana, G.J. and Ango, J.T. (2012) Menstrual Health: The Unmet Needs of Adolescent Girls' in Sokoto, Nigeria. *Scientific Research and Essays Academic Journals*, **7**, 410-418.
- [23] Shanbhag, D., Shilpa, R., D'Souza, N., Josephine, P., Singh, J. and Goud, B.R. (2012) Perceptions Regarding Menstruation and Practices during Menstrual Cycles among High School Going Adolescent Girls in Resource Limited Settings around Bangalore City, Karnataka, India. *International Journal of Collaborative Research on Internal Medicine and Public Health*, **4**, 1353-1362.
- [24] Dhingra, R., Kumar, A. and Kour, M. (2009) Knowledge and Practices Related to Menstruation among Tribal (Gujjar) Adolescent Girls. *Studies on Ethno-Medicine*, **3**, 43-48. <https://doi.org/10.1080/09735070.2009.11886336>
- [25] Adhikari, P., Kadel, B., Dhungel, S.I. and Mandal, A. (2007) Knowledge and Practice Regarding Menstrual Hygiene in Rural Adolescent Girls of Nepal. *Kathmandu University Medical Journal (KUMJ)*, **5**, 382-386.
- [26] Çevirme, A.S., Çevirme, H., Karaoğlu, L., Uğurlu, N. and Korkmaz, Y. (2010) The Perception of Menarche and Menstruation among Turkish Married Women: Attitudes, Experiences, and Behaviors. *Social Behavior and Personality: An International Journal*, **38**, 381-394.
- [27] Singh, A.J. (2006) Place of Menstruation in the Reproductive Lives of Women of Rural North India. *Indian Journal of Community Medicine*, **31**, 10-14. <https://doi.org/10.4103/0970-0218.54923>
- [28] Funmito, O.F., Akintola, O.F., Ayodele, O.A. (2017) Assessment of Knowledge, Attitude and Practice about Menstruation and Menstrual Hygiene among Secondary High Schoolgirls in Ogbomoso, Oyo State, Nigeria. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, **6**, 1726-1732.