

**RESPONSE TO MENSTRUAL HYGIENE INFORMATION AMONG PRE-MENOPAUSAL  
WOMEN: AN EMPIRICAL STUDY**

**MONEKE, AMAKA JULIET**  
Nnamdi Azikiwe University, Awka, Nigeria  
Email: amyiemonexx@yahoo.com

**EBEZE, UCHE VICTOR (PhD)**  
Lecturer, Nnamdi Azikiwe University, Awka, Nigeria  
Email: ucheebeze@yahoo.com

**OKAFOR, EKENE GODFREY (PhD)**  
Lecturer, Nnamdi Azikiwe University, Awka, Nigeria  
Email: egk.okafor@unizik.edu.ng

**ABSTRACT**

*Given the perceived effects of poor menstrual hygiene on women and the society, this work examined the response to menstrual hygiene information among pre-menopausal women in South East, Nigeria. The study examined the response of the women to menstrual hygiene information and the extent to which they comply with such information. The study is anchored on the Uses and Gratifications theory, based on the premise that women who are exposed to menstrual hygiene information may use the messages to satisfy a variety of health needs and gratifications. The study utilized a mixed approach of both the quantitative and qualitative designs involving the Survey and Focus Group Discussion (FGD). The multi stage probability sampling and purposive sampling techniques were used. The study revealed that many of the women (84.2%) were not influenced by menstrual hygiene information received, suggesting that some of the women are already practicing general body hygiene principles including menstrual hygiene. The study also found that many of the women do not perceive the messages on menstrual hygiene as sufficient to bring about a positive behaviour change (84.2%), implying that some cultural and socio-economic factors influence how they negotiate or accept the information. This work concludes that the attention they give to such information is relatively minimal. The study also concludes that many women do not pay sufficient attention to information on menstrual hygiene, perhaps owing several socio-cultural and environmental variations and these have continued to affect the health of the Nigerian society. The study recommends among others, that mothers and care givers should play an advisory role to female children by teaching them how to safely manage their menstrual cycles and that the women affairs' ministries and establishments in various Federal and State levels should engage in more open advocacy of menstrual hygiene practices and assist women with information and materials on how to manage their menstrual cycles effectively.*

**Keywords:** Response, menstrual Information, menstrual hygiene, menstrual hygiene information

**INTRODUCTION**

Menstrual hygiene is often a neglected aspect of human development in some developing countries especially among women despite the existence of certain menstrual hygiene information in various media of communication. However, menstrual hygiene needs are not only specific and pressing to women and girls in reproductive age but could have some cumulative effects on a given country, calling up the need for adequate information on the management of the menstrual period. In emergencies, the usual lifestyles of affected individuals change and they are confronted with additional stress that could worsen their physical and psychological well-being. Provision of fundamental human requirements such as shelter, food, clean

water and medicines is prioritised, however other needs such as safe menstrual hygiene management that can have profound psychosocial impact if unmet are often neglected (Sommer 2012; Travers, 2015)

There seems to be a disregard of menstrual hygiene practices among women in various parts of Nigeria. Many of these women seem not to be paying adequate attention to Information on Menstrual hygiene management. In some countries, there also seemed to be a lack of attention to menstrual hygiene needs of women. (Budhathoki, Bhattachan, Pokharel, Bhadra, & van Teijlingen, 2017; Lee, 2015). As menstrual hygiene continues to be overlooked, even in community level responses (Sommer, 2012; Krishnan & Twigg, 2016; Alam & Rahman, 2014), there bound to be avoidable reproductive challenges especially in developing countries including Nigeria. Regrettably, the mothers and female family members, who are often the main source of information for most adolescents, may not always have the necessary knowledge and skills for menstrual hygiene management (Chandra-Mouli & Patel, 2017) and they may be misinformed or disinformed, leading to several negative effects and unhealthy behaviours among women. The pre-menopausal women in South East, Nigeria who requires proper menstrual hygiene practices, should be equipped with information on menstrual hygiene. Unfortunately, some environmental factors including interest and choice, could play some role on how the women pay attention to, perceive, and respond to menstrual hygiene information.

Although menstruation is a natural process, it is linked to several misconceptions, negative attitudes, and punitive practices, all of which result in adverse health outcomes (Bobhate, & Shrivastava, 2011). There is a problem when there is paucity of menstrual hygiene information which is a challenge to health, and well-being of women in low- and middle-income countries. The paucity of information can promote lack of good menstrual hygiene, including increased risk of reproductive and urinary tract infections (Chothe, Khubchandani, Seabert, Asalkar, Rakshe, & Firke, 2014; McMahan, Winch, Caruso, Obure, Ogutu, & Ochari, 2011).

Hygiene-related practices of women during menstruation are of importance, as it has a health impact in terms of increased vulnerability to reproductive tract infections (RTI). (Shanbhag, Shilpa, D'Souza, Josephine, Singh & Goud, 2012). Menstruating girls and women, in various countries suffer in silence during menstruation as many restrictions are imposed on them alongside the poor menstrual hygiene practices (Amatya, Ghimire, Callahan, Baral, & Poudel 2018). In some areas, it may be disheartening to discover that some of these menstruating women do not have access to proper toilets, clean water, sanitary napkins/ menstrual pads/tampons or the privacy to change or dispose of menstrual hygiene materials (Sommer & Sahin, 2013). They are sometimes embarrassed to have their periods and they often rely on used, damp, cotton cloths or rags to control menstrual bleeding (Acharya, Yadav, & Baridalyne, 2006). Therefore, increased knowledge about menstruation may help in mitigating the suffering of women (Shanbhag, Shilpa, D'Souza, Josephine, Singh & Goud, 2012).

This situation is also worsened by some mothers in Nigeria who hardly educate their daughters enough about menstrual hygiene (Aniebue, Aniebue, and Nwankwo, 2009). These could ignite disaffection among them towards menstrual hygiene information and possibly promote some socially imposed restrictions against women such as mobility, freedom and access to certain activities. (McMahon Winch, Caruso, Obure, Ogutu & Ochari, 2011; Thakre, Thakre, Reddy, Rathi, Pathak, & Ughade, 2011; Pandey, 2014; Arumugam, Nagalingam, Varman, Ravi, & Ganesan, 2014; Thakur, Aronsson, Bansode, Stalsby Lundborg, Dalvie & Faxelid, 2014; Thapa, & Aro, 2021).

Given that most women are unaware and unprepared for menstruation (Mudey, Kesharwani, Mudey, & Goyal, 2010), and since information is critical in raising the bar of menstrual hygiene among the people; the question then is: how do the south eastern pre-menopausal women perceive the menstrual hygiene information? This work therefore seeks to interrogate the response to menstrual hygiene information among the pre-menopausal women in South East, Nigeria. Specifically, the objectives of the study include:

1. To determine the response of the women to menstrual hygiene Information.
2. To ascertain the extent to which the women comply with menstrual hygiene Information.

## **LITERATURE REVIEW**

Researchers have gained interest in studying menstrual hygiene management (MHM) and sexual and reproductive health education (SRHE) among young women (Bharadwaj & Patkar, 2004; Sommer, Hirsch, Nathanson, & Parker, 2015), but mainly in foreign countries, with very few of such studies in Nigeria, leaving out some gaps on the way the Nigerian women are exposed to menstrual hygiene information and their response towards such information. Studies on the menstrual hygiene management (MHM) remains significant because it affects young girls' school enrollment, retention (Biddlecom, Awusabo-Asare & Bankole, 2009) and overall well being as most young women approach puberty stage (maturity) without preparing themselves due to inadequate information (Dasgupta, & Sarkar, 2008) and many may find it uncomfortable discussing "menses" as it likened to a social taboo. Therefore, menstrual hygiene management (MHM) can satisfactorily provide women with appropriate physical and emotional skills to manage their monthly periods with confidence which will enable women to take good care of their lives, feel positive about themselves and their bodies, and mitigate health problems (Allotey, Diniz, DeJong, Delvaux, Gruskin, & Fonn, 2011; Biddlecom, Awusabo-Asare & Bankole, 2009).

Studies have also confirmed that women and girls from developing countries, experience menstruation without adequate preparation (Dasgupta & Sarkar, 2008); thereby, leading to reports of frightening, confusing and shame-inducing menstrual experiences (Sommer, Ackatia-Armah, Connolly & Smiles 2015). Some of the studies conducted in low- and middle-income countries such as Bhutan, India, Saudi Arabia, and Iran had found that girls receive information on menstruation mainly from their mothers, (Nehulkar, Holambe, & Thakur, 2016; Karout, 2016; Fakhri, Hamzehgardeshi, Hajikhani Golchin & Komili, 2012; Chauhan, Kumar, Marbaniang & Id, 2021) who tend to focus on activities to be avoided during menstruation (Wangmo, Pelzom & Dem, 2014; Pandey, 2014) but extensive information on menstrual hygiene appears to be lacking. Hence, most young women especially those in developing countries may not have adequate information regarding how they should manage their menstrual hygiene (Boakye, David, Aladago, Beweleyir, Bawa, Marian, Salifu, & Asaarik, 2018), calling up the need to interrogate the menstrual hygiene communication among the pre-menopausal women in South East. However, many women may be less informed, less experienced, and less comfortable in accessing reproductive health information and services. The literature has shown that menstrual hygiene practices were affected by cultural norms, parental influence, personal preferences, economic status, and socioeconomic pressures (Lawan, Nafisa & Aisha, 2010). These can alter the menstrual beliefs of people, meaning the misconceptions and attitudes towards menstruation within a given culture or religion, which are very instrumental to menstrual hygiene management (Umeora & Egwuatu, 2008; Aniebue, Aniebue, & Nwankwo, 2010).

Besides, due to cultural expectations and restrictions, many girls are not adequately informed about the realities of menstruation and they feel subnormal, diseased, or traumatized (Deo & Ghattargi, 2005). For instance, in many parts of the developing countries, a culture of silence surrounds the topic of menstruation and related issues (Suneela, Nandini, & Ragini, 2001; Olayinka, & Akinyinka, 2004); as a result, many young girls lack sufficient information regarding menstrual hygiene. This may result in incorrect and unhealthy behaviour during their menstrual period (Lawan, Nafisa, & Aisha, 2010). Also, some mothers in developing countries may not possess adequate information and skills with which to share menstrual hygiene to their female children.

Although studies on how poor menstrual hygiene management affect labour market and education had produced mixed results (Herrmann, & Rockoff, 2013; Ichino, & Moretti, 2009; Oster & Thornton, 2011), recent evidence suggests that there is a significant relationship between poor communication on menstrual hygiene Management and negative outcome on the society (Miuro, Rutakumwa, Nakiyingi-Miuro, Nakuya, Musoke, Namakula, Francis, Torondel, Gibson, & Ross, 2018). Scholars had also confirmed that insufficient information and opportunities to practice healthy menstrual hygiene has recently received attention as a barrier to education for women in low- and middle-income countries (Sommer, Caruso, Sahin, Calderon, Cavill & Mahon, 2016). Studies have also found that poor menstrual hygiene information, poor sanitation in schools and absence of access to good quality sanitary products can result in lower enrolment in schools, increased absenteeism, and dropout among girls (Chandra-Mouli & Patel, 2017). For instance, the absence of sufficient water, sanitation, and hygiene make girls, as well as female instructors, miss school during menstruation (Goli, Sharif, Paul, Salve, 2020).

Although menstrual hygiene practice is a pressing issue, not much attention has been given to this subject by scholars within the African context especially in southeastern Nigeria, where it is common these days to find women and girls who lack the essential knowledge, skills, services, and products or support for their well-being during menstruation. This is perhaps due to lack of the essential information, calling up the need for adequate information on menstrual hygiene (World Bank Group (2018). Therefore, this study is designed to address the exposure and response of pre-menopausal women in South East, to menstrual hygiene information.

Existing literature has found the response of some women to menstrual hygiene information to be quite unsatisfactory (Shanbhag, Shilpa, D'Souza, Josephine, Singh & Goud, 2012). The implication is that some women in other climes pay limited attention to menstrual hygiene information and perhaps do not put such information into practice. It also been established in the literature that age, staying with both parents, staying with mother only, access to funds and having adequate knowledge of menstruation are strong main determinants of good menstrual hygiene management practices as well as predictors of knowledge of menstrual hygiene management among adolescent girls (Yendi Municipality Boakye-Yiadom, Aladago, Beweleyir, Mohammed, Salifu, & Asaarik, 2018; Boakye-Yiadom, Aladago, Beweleyir, Mohammed, Salifu, & Asaarik 2018). The implication is that young female children who enjoy the luxury of being monitored by their parents or mothers and obtain some kinds of menstrual hygiene information from them, are more likely than those without such privileges to respond to information on menstrual hygiene. While some parents may be unwilling to share such information with their female children, the literature suggest that parents or mothers are quite powerful in assisting their female children become more knowledgeable on menstrual hygiene management.

It has also been established that significantly, more number of girls from urban areas use sanitary napkins during menstruation unlike their counterparts in rural areas and that awareness about adolescent health clinic is significantly more among urban girls (Choudhary & Gupta, 2019). Some school girls have good practices of menstrual hygiene albeit having fair knowledge of the subject (Lawan, Nafisa, & Aisha, 2010), probably as a result of the environment where the schools are located and the level of information made available to the students. In a resource limited settings in area around Bangalore city, it was found that the actual knowledge regarding the process of menstruation as well as the Personal hygiene practices of women were found to be unsatisfactory, and that there is avoidance of certain foods and practices during the time of menstruation alongside some cultural factors (Shanbhag, Shilpa, D'Souza, Josephine, Singh & Goud, 2012). In a study by Belayneh, & Mekuriaw (2019) among the adolescent school girls in southern Ethiopia, it was established the school girls had poor knowledge of menstruation. This study therefore sets out to interrogate the exposure and response to menstrual hygiene information among the pre-menopausal women in south east, Nigeria.

## **EMPIRICAL REVIEWS**

Lawan, Nafisa, and Aisha (2010) examined the knowledge and practices of adolescent school girls in Kano, Nigeria about menstruation and menstrual hygiene. Data was collected quantitatively and analyzed using Epi info version 3.2.05. A cross-sectional design was used to study a sample of 400 adolescent female secondary school students (10-19 years old) estimated using an appropriate sample size formula for descriptive studies. The students were selected using the multistage sampling technique to study the secondary schools within the eight metropolitan LGAs of Kano State stratified into mixed public school; mixed private school; girls' only public schools and girls' only private schools; and a school was randomly chosen from each of the four categories using simple random sampling. This study observed that the majority of the school girls examined incidentally had good practices of menstrual hygiene albeit having fair knowledge of the subject. The study then recommend that the government should not relent in its efforts to institutionalize sexuality education in both public and private secondary schools and in tertiary institutions of learning in Nigeria; the electronic and print media, community organizations and faith-based organizations should serve as veritable means of disseminating these messages; and the government and/or schools administrations should compliment these provisions. The study was able to reveal the knowledge and practices of adolescent school girls in Kano, Nigeria about menstruation and menstrual hygiene using

the quantitative data but the current study explored the perception and response to menstrual hygiene among the pre-menopausal women in South East, Nigeria.

UNICEF (2015) carried out a study to determine current knowledge, attitude, practices and school environmental challenges affecting menstrual health management among in-school girls in junior secondary school and out of-school girls in three states in Nigeria. The study was conducted nationally, using a descriptive, explorative and cross-sectional design. Qualitative and quantitative data were collected in 12 schools randomly selected from both rural and urban communities in three geo-political zones in Nigeria. Qualitative methods included focus group discussion for mothers, girls and boys; in-depth interviews for in-school and out of- school girls; and key informant interviews for school principals, teachers, and participants from the Zonal Directors' of Education, Chairmen States' Universal Basic Education Board and Chairmen School Based Management Committee /Parents Teachers Association. Findings from this study showed that menstruating school girls in Nigeria faced many challenges which affected their ability to manage their menstruation in a dignified and hygienic way. The findings showed that availability and adequacy of WASH facilities, adequacy and flow of Information on MHM and access to materials for hygienic management of menstruation all impacted girls' experience of menstruation. The study recommended for the provision of appropriate and adequate water, sanitation and hygiene facilities in schools; support to access affordable reusable sanitary pads and mobilization of policy and decision makers to promote open discussion of menstrual hygiene management to reduce stigma. The study was targeted at the in-school girls in junior secondary school and out of-school girls in three states in Nigeria. However, this current study is focused on the response of women to menstrual hygiene information.

Boakye-Yiadom, Aladago, Beweleyir, Mohammed, Salifu, & Asaarik (2018) examined the knowledge, attitudes, and practices of menstrual hygiene management among both premenarcheal and post-menarcheal adolescent students in basic schools in the Yendi Municipality in Ghana. The study was cross sectional and used quantitative research methods. They used Semi-structured questionnaires to collect data from the female adolescent students aged 10-19 years. A total of 412 female adolescents from 9 basic schools in the Yendi Municipality participated in the study. Students were scored for their level of knowledge, attitude and practices of menstrual hygiene management. The study found that although awareness of menstruation was universal, the Likert scores showed that 67.5% had adequate knowledge of menstrual hygiene management. About a tenth (13.6%) of the adolescent female students had a positive attitude towards menstrual hygiene management and a third (31.1%) practised good menstrual hygiene management. They found that older age and living with both parents were the main predictors of knowledge of menstrual hygiene management. Similarly, age, staying with both parents, staying with mother only, access to funds and having adequate knowledge of menstruation were the main determinants of good menstrual hygiene management practice found among adolescent girls in basic schools in Yendi Municipality. The study concludes that more than half of the respondents have adequate knowledge but their awareness and knowledge did not translate to positive attitude towards good menstrual hygiene management practices due to negative socio-cultural norms and practices among others, that tend to stigmatise menstruation. The study was focused on ascertaining the knowledge, attitudes, and practices of menstrual hygiene management among both premenarcheal and post-menarcheal adolescent students in basic schools in the Yendi Municipality in Ghana but the current study is focused on the perception and response to menstrual hygiene information among the pre-menopausal women in south east Nigeria

In 2019, Khatuja, Mehta, Dinani, Chawla and Mehta conducted a study on "Menstrual health management: Knowledge and practices among adolescent girls." The focus of the study was to assess the knowledge and attitude of adolescent girls regarding menstruation and menstrual hygiene in North Delhi, India. Using the survey research method, the study sought the opinions of 340 adolescent girls aged 12-19 years, belonging to an urban slum area of Delhi. The study found that the source of information about menstruation in majority of the cases was the mother (60%). Only 48% girls knew about menstruation before menarche and 24% girls knew of uterus as the organ for menstruation. 71% of the girls used sterile sanitary napkins as absorbent. Satisfactory changing of pads (2pads/day) was done by 68% and 77% girls cleaned the genitalia satisfactorily (2 times/day). 41% of the girls were aware of the fact that unhygienic use of pad could be a source of genital infection and 8% had vaginal discharge. Social restrictions during menses in the form of religious activities drop out from school, avoiding certain foods etc. were practiced in many families. The study concluded that

although the menstrual practices appear to be generally satisfactory, knowledge regarding menstrual hygiene is worrisome, as a lot of the girls are unaware of menarche and physiology of menstruation. The study recommended for the inclusion of such information in the school curriculum and wider coverage in mass media to help bridge the gap. The study was able to examine the knowledge and attitude of adolescent girls regarding menstruation and menstrual hygiene but the current study explored the response of women in south east to menstrual hygiene information.

Michael, Iqbal, Haider, Khalid, Haque, Ishaq, Saleem, Hassali & Bashaar (2020) researched on “Knowledge and practice of adolescent females about menstruation and menstruation hygiene” visiting a public healthcare institute in Quetta, Pakistan. The aim of the study was to assess menstruation-related knowledge and practices of adolescent females visiting a public health care institute in Quetta city, Pakistan. A questionnaire-based cross-sectional survey was conducted. Nine hundred and twenty-three female adolescents attending general out-patient departments of Mohtarma Shaheed Benazir Bhutto Hospital Quetta, Balochistan, were approached for data collection. Demographic characteristics revealed that the mean age of the respondents was 15 years and mothers’ (67%) were the main source of menstruation-related information. The majority (77.7%) of the respondents never had a class or session regarding menstruation-related education in their schools. About 44% knew that menstruation is a physiological phenomenon while 60.2% knew that menstrual blood comes from the vagina. Nearly 40% of the study respondents missed schools because of menarche. The use of absorbent material was frequent (90%) among the adolescent females and 68.7% used commercially available sanitary napkins/pads. Although more than half of the respondents (58.2%) were not taking baths during menstruation, 80.5% clean their genitalia with water during menstruation. This study looked at Knowledge and practice of adolescent females about menstruation and menstruation hygiene a public healthcare institute in Quetta, Pakistan but this current study looked at how women in south eastern part of Nigeria respond to menstrual hygiene information.

Habtegiorgis, Sisay, Kloos, Malede, Yalew, and Arefaynie (2021) examined the extent of good menstrual hygiene practices and associated factors among high school girls in Dessie City, Amhara Region, northeastern Ethiopia. This was based on the authors’ observations that poor menstrual hygiene practices influence school girls’ dignity, well-being and health, school-absenteeism, academic performance, and school dropout in developing countries. The authors employed a school-based cross-sectional study to examine 546 randomly selected high school students in Dessie City, northeastern Ethiopia. The study revealed that 53.9% of the respondents reported good menstrual hygiene practices. According to the study, educating of high school student mothers about MHP should be a priority intervention area to eliminate the problem of menstrual hygiene among daughters. Furthermore, in order to improve the MHP among high school girls, the authors suggested that attention is needed to improve knowledge regarding menstruation among high school girls, and to encourage high school girls’ families to support their daughters by buying sanitary pads and promoting discussions among friends about menstrual hygiene. They also argued that schools need to focus on making the school environment conducive to managing menstrual hygiene by increasing awareness of safe Menstrual Hygiene Practices and providing adequate water/sanitation facilities. The study concludes that more than half of high school girls had good menstrual hygiene practices. This study was able to address the extent of good menstrual hygiene practices and associated factors among high school girls in Dessie City, Amhara Region, northeastern Ethiopia but this current study is focused on menstrual hygiene information among the Nigerian women in south east, Nigeria, ie how they respond to the information.

The empirical literature has shown the need for increased information spread among women on menstrual hygiene as well as the need for mothers to always educate their children on menstrual hygiene practices. The literature also suggests that women and girls should be more eager in responding proactively to information on menstrual hygiene while the various communication platforms should intensify their efforts in championing the spread of such information.

## **USES AND GRATIFICATIONS THEORY**

Uses and Gratifications Theory (UGT) is the communication theory upon which the study was anchored. This is because the theory explains how users of any media contents deliberately make certain choices based on how, when and in what dimensions they use media content and what kind of gratifications they derive in the process. The theory applies to the study based on the argument that the women Nigerian women in south east, who are exposed to menstrual hygiene information may use the messages to satisfy a variety of health and information needs as well as other gratifications. Some may find the messages useful in addressing the challenge of poor menstrual hygiene practices and some may find the messages entertaining, educating, informative and addressing some personal needs of the women.

**METHODOLOGY**

The study adopted both the quantitative and qualitative designs. They include the ‘survey’, and ‘focus group discussion’. The questionnaire and FGD Guide served as instruments for data collection. The study population is the pre-menopausal women in south east. Since there is nonexistent population for that category of women, the study adopted the population of women in south east, Nigeria which is 8,210,604, as at the 2006 Nigerian population census. A sample size of 663 respondents was used based on the sample size table worked out by Krejcie and Morgan (1970). The Multi stage probability sampling technique was employed for the survey involving the random selection of three States in South East, (Ebonyi, Abia and Enugu), selection of local government areas, from each of the senatorial zones in the three chosen states, selection of towns to represent each of the selected local government areas and sampling of the respondents within the villages in each of the selected towns. The Focus Group was conducted in the three selected States (Anambra, Enugu and Ebonyi) and was organized such that four (4) participants were selected from each of the States which amounted to twelve (12) FGD participants, who are relatively enlightened and also exposed to menstrual hygiene information.

**RESULTS**

**RESPONSE TO MENSTRUAL HYGIENE INFORMATION**

**Table 1**

*Reacting to Information on Menstrual Hygiene?*

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid percent</b>
Yes	315	52.9	52.9
No	281	47.1	47.1
<b>Total</b>	<b>596</b>	<b>100.0</b>	<b>100.0</b>

Source: Field Survey (2022)

This table reveals the data on whether the women react to information on menstrual hygiene. It was found that more than half of the respondents (52.9%) react to information on menstrual hygiene. This may involve taking some recommended actions. It was also found that other respondents (47.1%) do not react to these messages in any way. It can be perceived that since some of the women are already used to their menstrual cycle and decide precisely how to manage their periods, they become ambivalent to these menstrual hygiene information.

**Table 2**

*Conceived notions on Menstrual Hygiene Information*

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>	<b>Valid percent</b>
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They are propaganda	4	7	7
They are truthful	558	93.6	93.6
Government	1	2	2
Deception			
Undecided	33	5.5	5.5
<b>Total</b>	<b>596</b>	<b>100.0</b>	<b>100.0</b>

Source: Field Survey (2022)

This table shows the respondents' conceived notions on menstrual hygiene Information. The study established that majority of the women, find the menstrual hygiene information truthful (93.6). However, only a very few of them, find the messages to be propaganda (7%) and very hardly, government deception (2%). The implication of these is that the women mainly regard the menstrual hygiene messages as truthful information.

**Table 3**  
*Believe the messages on Menstrual Hygiene?*

Variables	Frequency	Percent	Valid percent
Yes	596	100.0	100.0
No	--	--	--
<b>Total</b>	<b>596</b>	<b>100.0</b>	<b>100.0</b>

Source: Field Survey (2022)

This table shows that all the respondents believe the messages on Menstrual Hygiene. This could be based on the contention that the overall hygiene of women is paramount especially during their menstrual cycle. This can help prevent possible infections or complications that may arise when they fail to observe the menstrual hygienic principles.

**Table 4**  
*Perceiving the Messages on Menstrual Hygiene as sufficient for a positive behaviour change?*

Variables	Frequency	Percent	Valid percent
Yes	94	15.8	15.8
No	504	84.2	84.2
<b>Total</b>	<b>596</b>	<b>100.0</b>	<b>100.0</b>

Source: Field Survey (2022)

The table presents data on whether the respondents perceive the messages on menstrual hygiene as sufficient for a positive behaviour change. The data shows that women mainly do not perceive the messages on menstrual hygiene as sufficient to bring about a positive behaviour change (84.2%). Rather, only a few of them (15.8%) hold a contrary view. This suggest that some cultural and socio economic effects influence how the women negotiate or accept information on menstrual hygiene. The response to menstrual hygiene information were also obtained by some of the women in the FGD as follows:

**Participant 2:** I think that menstrual hygiene deals with information about how to keep oneself clean and safe for procreation and for overall wellbeing of an individual and the society. If this is so, it has to be considered very serious. Personally, I give priority to menstrual hygiene issues and I try to educate my little kids on how they should manage their periods better.

**Participant 4:** Yes, menstrual hygiene should be considered very important within the society but who do you blame when there is an unfavourable economic situation? Who



cares about how the poor and the less privileged in the society manage their menstrual periods?

These excerpts show that the women give attention to issues regarding their menstrual hygiene but some are already aware of the need to maintain good hygiene, therefore, they attempt to observe some menstrual hygienic principles. They also point at the need for the government and concerned bodies to consider the plights of the poor and the less privileged members of the society.

### COMPLIANCE WITH MENSTRUAL HYGIENE INFORMATION

**Table 5**  
*Influenced by Information received on Menstrual Hygiene?*

Variables	Frequency	Percent	Valid percent
Yes	94	15.8	15.8
No	502	84.2	84.2
<b>Total</b>	<b>596</b>	<b>100.0</b>	<b>100.0</b>

Source: Field Survey (2022)

This table reveals the practice of information received on menstrual hygiene among the women. It was established that majority of the women (84.2%) were not influenced by information on menstrual hygiene while only a few of them (15.8) were influenced by it. This suggests that some of the women are already practicing general body hygiene principles including menstrual hygiene, and therefore do not get influenced by the messages on menstrual hygiene. However, some (15.8%) admitted to have been influenced by the received menstrual hygiene information which could have affected the way they manage their menstrual cycles. It was also observed that hygiene practices among the women are considerably personal, including proper management of menstrual cycle as they have their unique ways of maintaining good hygiene and healthy menstrual periods.

**Table 6**  
*Observing Menstrual Hygiene, owing to Exposure to the Messages?*

Variables	Frequency	Percent	Valid percent
Yes	30	5	5
No	566	95	95
<b>Total</b>	<b>596</b>	<b>100.0</b>	<b>100.0</b>

Source: Field Survey (2022)

This table presents information on whether the respondents observe menstrual hygiene owing to their exposure to menstrual hygiene information. The study revealed that 95% of the respondents do not observe the hygiene owing to the messages and that only 5% of them do so. The result implies that the messages on menstrual hygiene could hardly result in a behaviour change among the people. The FGD was also able to point out how the participants comply with messages on menstrual hygiene. The excerpts are given below:

**Participant 8:** I strongly believe that once someone is already armed with information on menstrual hygiene at the inception of the menstrual cycle, and have grown to become adults, many may no longer seek to obtain further information

**Participant 8:** She is right. One of the most difficult and embarrassing experiences in the life of any young woman is the usually the beginning of their menstrual cycles. Many seem to be taken unawares and immediately the person becomes used to the situation, there is likelihood that the person will hardly go about asking or seeking information on menstrual hygiene. This however, does not prevent the person from reading information on the subject from other sources.

**Participant 1:** I think the issue about menstrual hygiene is personal. Yes. Since many people already have some knowledge on how to manage their menstrual hygiene, they may no longer seek further information on menstrual hygiene.

This study revealed that knowledge of menstrual hygiene is already cultured among the women from the early stage of their menstrual experiences. Some of these women grow with the consciousness of good hygiene and then take cognizance of possible dangers of poor hygiene. Although they sometimes seek information on menstrual hygiene, they are largely confident that they are healthy and safe.

## **DISCUSSION OF FINDINGS**

It was established in this study, that majority of the women (95%) observe hygiene but not essentially because of the menstrual hygiene information received from the media, suggesting that some of the women are already practicing general body hygiene principles including menstrual hygiene. Also slightly above half of the respondents (52.9%) react both favourably or unfavourably to information on menstrual hygiene, implying also that since some of the women are already used to their menstrual cycle, they are more likely to remain ambivalent to these menstrual hygiene information. Also, many of the women do not perceive the messages on menstrual hygiene as sufficient to bring about a positive behaviour change (84.2%), implying that some cultural and socio economic effects may influence how they negotiate or accept the information. The study revealed that many women already have some foundational knowledge on how to manage their menstrual hygiene. They believe the messages on Menstrual Hygiene, which could be likened to the fact that the overall hygiene of women is paramount especially during their menstrual cycle and can help prevent possible infections or complications that may arise when they fail to observe some menstrual hygienic principles. It was also found that more than half of the women (53%), experience the scarcity of materials for managing their menstrual flows, suggesting a prevalence of period poverty among majority of women in south east Nigeria. As some women who are young, in schools, unemployed or vulnerable may not be able to afford the adequate menstrual hygiene materials, the effects may result in health crises. These support the existing literature which argues that in some places, especially in the rural areas, women do not have access to sanitary products, know very little about the types and method of using them or are unable to afford such products due to high cost (Rajanbir, Kanwaljit & Rajinder, 2018).

However, majority of the women (84.2%) were not influenced by information on menstrual hygiene, which suggests that some of the women are already practicing general body hygiene principles including menstrual hygiene, and therefore do not get influenced by the messages on menstrual hygiene. However, few of the women (15.8%) admitted to have been influenced by the information received on menstrual hygiene which could have affected the way they manage their menstrual cycles. It was also observed that hygiene practices among the women are considerably personal, including proper management of menstrual cycle. This also suggests that majority of these women have unique ways of maintaining good hygiene. Similarly, the FGD showed that the women give attention to issues regarding their menstrual hygiene but some of them are already aware of the need to maintain good hygiene and then attempt to observe some menstrual hygiene principles. The women also pointed at the need for the government and concerned bodies to consider the plights of the poor and the less privileged members of the society. As part of measures of improving the communication of menstrual hygiene, the internet (social media) (49.5%), Schools (15.6%), and radio (14.4) emerged as the three most recommended communication media by these women for conveying the menstrual hygiene information. Also prominent are: Handbills (5.4%), Calendars (4.7%), Community Theatre (2.3%) Fliers (2.9%), Television (2.0%) and others. Only slightly above one third of the women (37.4%), believe that increased menstrual hygiene information among them can reduce the prevalence of period poverty but a greater number of them (62.6%) hold contrasting views. This result may connote that the menstrual hygiene information is likely received by the people based on certain personal, economical, cultural and environmental factors.

Some women specified that there was a time when they were unable to procure the best materials with which to manage their menstrual absorbents. One of the FGD participants recounted how she was using rough books and pieces of paper, also affirming that she had witnessed where some people wash their old cloths or rags and use them as menstrual absorbents. This supports the existing literature that the inaccessibility of these basic menstrual hygiene management materials leaves women susceptible to unhygienic practices such

as the utilization of paper, old clothes, dried leaves, or socks (House, Mahon & Cavill, 2012; Rheinlander & Wachira, 2015). Such Products could expose women to a heightened risk for urogenital infections, such as urinary tract infections and bacterial vaginosis, skin irritation, vaginal itching, and white or green discharge (Das, Baker & Dutta, 2015; Hennegan, Dolan, Wu, Scott, Montgomery, 2016). Another participant lamented on the harsh economic realities in recent times which affect women, especially those in rural areas with very minimal source of income. The participants recognized some possible solutions to improving the spread of menstrual hygiene information and the challenge of period poverty. Among the solutions they preferred are: Calling on the government to take a helpful move by providing some menstrual materials to women, especially the poor in rural communities; effective use of menstrual materials, sensitization of women, especially the younger ones on ways to adequately manage their menstrual periods, and provision for such teachings or courses specifically for women. This study further established that knowledge of menstrual hygiene is already cultured among the women from the early stage of their menstrual experiences and some grow with the consciousness of good hygiene, taking cognizance of the dangers of poor menstrual hygiene.

### **CONCLUSION**

The study concludes that many of the women do not pay sufficient attention to information on menstrual hygiene, perhaps owing to several socio-cultural and environmental variations which has continued to affect the health and survival of the Nigerian society.

### **RECOMMENDATIONS**

The study therefore recommends as follows:

- i. All mothers and care givers should play an advisory role to the female children by teaching them how to safely manage their menstrual cycles
- ii. The women ministries and establishments in various Federal and State levels should engage in more open advocacy for menstrual health and assist the women with information on the how to manage their menstrual cycles effectively.

### **REFERENCES**

- Acharya, A., Yadav K, & Baridalyne N. (2006) Reproductive tract infections/ sexually transmitted infections in rural Haryana: experiences from the family health awareness campaign. *Indian Journal of Community Medicine*. 2006;31(4):274–6.
- Allotey, P. A., Diniz, S., DeJong, J., Delvaux, T., Gruskin, S., & Fonn, S. (2011). Sexual and reproductive health and rights in public health education. *Reproductive Health Matters*, 19(38), 56–68. [https://doi.org/10.1016/S0968-8080\(11\)38577-1](https://doi.org/10.1016/S0968-8080(11)38577-1)
- Amatya P., Ghimire S, Callahan K.E, Baral B.K., Poudel K.C. (2018). Practice and lived experience of menstrual exiles (Chhaupadi) among adolescent girls in far western Nepal. *PLoS One*;13(12):e0208260.
- Aniehue, P. Aniehue, & Nwankwo, T. (2010). “The impact of premenarcheal training on menstrual practices and hygiene of Nigerian school girls,” *Pan African Medical Journal*, vol. 2, no. 9, 2010.
- Arumugam, B, Nagalingam, S., Varman P., Ravi, P., & Ganesan, R. (2014). Menstrual hygiene practices: Is it practically impractical? *Int J Med Public Health*. (2014) 4:472. doi: 10.4103/2230-8598.144120
- Belayneh, Z, & Mekuriaw, B. (2019). Knowledge and menstrual hygiene practice among adolescent school girls in southern Ethiopia: a cross-sectional study. *BMC Public Health*. 2019 Nov 29;19(1):1595. doi: 10.1186/s12889-019-7973-9. PMID: 31783741; PMCID: PMC6884885.

- Bharadwaj, S., & Patkar, A. (2004). *Menstrual hygiene and management in developing countries: Taking stock*. Junction Social. <https://www.ircwash.org/sites/default/files/Bharadwaj-2004-Menstrual.doc>
- Biddlecom, A., Awusabo-Asare, K., & Bankole, A. (2009). Role of parents in adolescent sexual activity and contraceptive use in four African countries. *International Perspectives on Sexual and Reproductive Health*, 35(2), 72–81. <https://doi.org/10.1363/3507209>
- Boakye, A., David, Y., Aladago, A., Beweleyir, J., Bawa, H., Marian, M., Salifu, F., & Asaarik, M. (2018). Assessing the knowledge, attitude and practice of menstrual hygiene management among junior high schools adolescent females in the Yendi Municipality in the Northern Region of Ghana. *European Scientific Journal*, 14(36), 1857–7881. Retrieved from <https://doi.org/10.19044/esj.2018.v14n36p467>
- Boakye-Yiadom, A; Aladago, D. A.; Beweleyir, J.; Mohammed, H. B.; Salifu, M. F. & Asaarik, M. (2018). Assessing the Knowledge, Attitude and Practice of Menstrual Hygiene Management Among Junior High Schools Adolescent Females in the Yendi Municipality in the Northern Region of Ghana. *European Scientific Journal December 2018 edition* Vol.14, No.36 ISSN: 1857 – 7881 (Print) e - ISSN 1857- 7431 Doi: 10.19044/esj.2018.v14n36p467 URL:<http://dx.doi.org/10.19044/esj.2018.v14n36p467>
- Bobhate P.S. & Shrivastava S.R. (2011). A cross sectional study of knowledge and practices about reproductive health among female adolescents in an urban slum of Mumbai. *Journal of Family Reproductive Health*. 2011; 5 (4):119–26.
- Budhathoki S.S., Bhattachan M., Pokharel P.K., Bhadra M., & van Teijlingen E. (2017). Reusable sanitary towels: promoting menstrual hygiene in post-earthquake Nepal. *Journal of Family Planning & Reproductive Health Care*.43:157–9.
- Chandra-Mouli, V., & Patel, S.V., (2017). Mapping the knowledge and understanding of menarche, menstrual hygiene and menstrual health among adolescent girls in low- and middle-income countries. *Reproductive Health*, 14(1):30.
- Chauhan S., Kumar, P., Marbaniang S.P., & Id,S.S. (2021) Examining the predictors of use of sanitary napkins among adolescent girls: A multi-level approach. *PLoS ONE*. (2021) 30:e0250788. doi: 10.1371/journal.pone.0250788
- Chothe V., Khubchandani J., Seabert D., Asalkar M., Rakshe S & Firke A, (2014). Students’ perceptions and doubts about menstruation in developing countries: A case study from India. *Health Promotion Practice*. 2014; 15(3):319–26. <https://doi.org/10.1177/1524839914525175> PMID: 24618653
- Choudhary N. & Gupta, M.K.(2019). A comparative study of perception and practices regarding menstrual hygiene among adolescent girls in urban and rural areas of Jodhpur district, Rajasthan. *J Family Med Prim Care* 2019;8:875-80.
- Das P., Baker, K.K., & Dutta, A. (2015). Menstrual Hygiene Practices, WASH Access and the Risk of Urogenital Infection in Women from Odisha, India. *PLOS ONE*. 2015;10(6): e0130777.
- Dasgupta, A. & Sarkar, M. (2008). Menstrual hygiene: how hygienic is the adolescent girl? *Indian Journal of Community Medicine*, 2008; 33(2):77-80.

- Deo, D. S. & Ghattargi, C. H. (2005). "Perceptions and practices regarding menstruation: a Comparative study in urban and rural adolescent girls," *Indian Journal of Community Medicine*, vol. 30, pp. 33-34, 2005.
- Fakhri M., Hamzehgardeshi Z., Hajikhani Golchin N.A., & Komili, A. (2012). Promoting menstrual health among persian adolescent girls from low socioeconomic backgrounds: A quasi-experimental study. *BMC Public Health*. (2012) 12:2–6. doi: 10.1186/1471-2458-12-193
- Goli S., Sharif N., Paul S. & Salve P.S. (2020). Geographical disparity and socio-demographic correlates of menstrual absorbent use in India: A cross-sectional study of girls aged 15–24 years. *Children and Youth Services Review*. 2020; 117:105283.
- Habtegiorgis Y., Sisay T., Kloos H., Malede A., Yalew M., & Arefaynie M. (2021). Menstrual hygiene practices among high school girls in urban areas in Northeastern Ethiopia: A neglected issue in water, sanitation, and hygiene research. *PLoS ONE* 16(6): e0248825. <https://doi.org/10.1371/journal.pone.0248825>
- Hennegan, J., Dolan, C., Wu, M. et al. (2016) Measuring the prevalence and impact of poor menstrual hygiene management: a quantitative survey of schoolgirls in rural Uganda. *BMJ Open*; (6)12. doi:10.1136/
- Herrmann, M.A. & Rockoff, J.E. (2013). Do menstrual problems explain gender gaps in absenteeism and earnings? Evidence from the national health interview survey. *Labour Econ*. 2013, 24, 12–22.
- House, S., Mahon, T., & Cavill, S. (2012). Menstrual Hygiene Matters; A Resource for Improving Menstrual Hygiene Around the World. *First Edit, Tech. Rep., WaterAid*, London UK:2012.
- Ichino, A. & Moretti, E. (2009). Biological Gender Differences, Absenteeism, and the Earnings Gap. *Am. Econ. J. Appl. Econ*. 2009, 1,183–218.
- Karout, N. (2016). Knowledge and beliefs regarding menstruation among Saudi nursing students. *Journal of Nursing Education Pract*. (2016) 6:23–30. doi: 10.5430/jnep.v6n1p23
- Krejcie, R.V., & Morgan, D.W., (1970). *Determining Sample Size for Research Activities. Educational and Psychological Measurement*. <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/2041-210X.12860>
- Lawan, U.M.; Nafisa, W. Y. & Aisha, B. M. (2010). Menstruation and Menstrual Hygiene amongst Adolescent School Girls in Kano, Northwestern Nigeria. *African Journal of Reproductive Health* Sept. 2010 (Regular Issue); 14(3): 201-207).
- Lee, B. (2015). *Nepal Earthquake: Push For Immediate Relief Leaves Menstrual Hygiene Behind*. International Business Times. Available from: <http://www.ibtimes.com/nepal-earthquake-pushimmediate-relief-leaves-menstrual-hygiene-behind-1905601>
- McMahon, S. A., Winch, P. J., Caruso, B. A., Ogutu, E. A., Ochari, I. A., & Rheingans, R. D. (2011). The girl with her period is the one to hang her head: Reflections on menstrual management among schoolgirls in rural Kenya. *BMC International Health and Human Rights*, 11(1), 7. Retrieved from <https://doi.org/10.1186/1472-698X-11-7>
- Michael, J., Iqbal, Q., Haider, S., Khalid, A., Haque, N., Ishaq R, Saleem F, Hassali M.A. & Bashaar M. (2020) Knowledge and practice of adolescent females about menstruation and menstruation hygiene visiting a public healthcare institute of Quetta, Pakistan. *BMC women's health*. 2020;20(1):1-8.

- Miir, G.; Rutakumwa, R.; Nakiyingi-Miir, J.; Nakuya, K.; Musoke, S.; Namakula, J.; Francis, S.; Torondel, B.; Gibson, L.J.; Ross, D.A. (2018). Menstrual health and school absenteeism among adolescent girls in Uganda (MENISCUS): A feasibility study. *BMC Women's Health* 2018, 18, 1–13.
- Mudey, A.B, Kesharwani, N., Mudey, G.A & Goyal, R.C. (2010) "A cross-sectional study on awareness regarding safe and hygienic practices amongst school going adolescent girls in rural area of Wardha district, India," *Global Journal of Health Science*, (2)2 225–231.
- Nehulkar P, Holambe V, Thakur N. (2016). Knowledge, attitude and practices of adolescent girls regarding menstruation : A community based cross sectional study. *Int J Recent Trends Sci Technol*. (2016) 17:266–9. Available at: [https://www.statperson.com/Journal/ScienceAndTechnology/Article/Volume17\\_Issue3/17\\_3\\_26](https://www.statperson.com/Journal/ScienceAndTechnology/Article/Volume17_Issue3/17_3_26).
- Olayinka, O. O. & Akinyinka, O. O. (2004) Unmet Need for Sexuality Education among Adolescent Girls in Southwest Nigeria: A Qualitative Analysis. *African Journal of Reproductive Health*. Dec 2004 ; 8 (3) : 27-37.
- Oster, E. & Thornton, R. (2011). Menstruation, Sanitary Products, and School Attendance: Evidence from a Randomized Evaluation. *Am. Econ. J. Appl. Econ.* 2011, 3, 91–100.
- Pandey A. (2014). challenges experienced by adolescent girls while menstruation in kathmandu, valley: A qualitative study. *J Community Med Health Educ* [Internet]. (2014) 04:41–5. doi: 10.4172/2161-0711.1000285
- Rajanbir, K. Kanwaljit K. & Rajinder K. (2018). Menstrual Hygiene, Management, and Waste Disposal: Practices and Challenges Faced by Girls/Women of Developing Countries. Hindawi. *Journal of Environmental and Public Health Volume* 2018. <https://doi.org/10.1155/2018/1730964>
- Rheinlander T, & Wachira M. (2015). Emerging Issue Brief: Menstrual Hygiene an Ancient - but Ignored Global Health Problem of All Women. *Global Health Minders*; 2015. Available at :<http://ghmmenstrualhygienebrief>.
- Shanbhag D, Shilpa R, D'Souza N, Josephine P, Singh J, & Goud BR (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 & Public Health*. Vol. 4 No. 7 (2012)
- Siebert, F.S., Peterson, T. & Schramm, W. (1956) *Four Theories of the Press*. University of Illinois Press, Urbana III.
- Mahon, T., & Fernandes, M., (2010) Menstrual hygiene in South Asia: a neglected issue for WASH (water, sanitation, and hygiene) programs, *Journal of Gender & Development*, 18 (1: Water), 99-113.
- Sommer M. (2012). Menstrual hygiene Management in Humanitarian Emergencies: gaps and recommendations. *Waterlines*. 31(1&2):83–104.
- Sommer, M. & Sahin, M (2013): Overcoming the Taboo: Advancing the Global Agenda for Menstrual Hygiene Management for Girls. *American Journal of Public Health* 103:9. 1556-1559 <http://dx.doi.org/10.1111/j.1542-4774.2012.01090.x>.
- Sommer, M., Ackatia-Armah, N., Connolly, S., & Smiles, D. (2015). A comparison of the menstruation and education experiences of girls in Tanzania, Ghana, Cambodia and Ethiopia. *Compare*, 45(4), 589–609.

- Sommer M, Caruso BA, Sahin M, Calderon T, Cavill S, & Mahon T. (2016) A time for global action: addressing girls' menstrual hygiene management needs in schools. *PLoS Med.* 2016; 13(2):e1001962. <https://doi.org/10.1371/journal.pmed.1001962> PMID: 26908274
- Sommer M., Hirsch J.S., Nathanson C., & Parker R.G. (2015) Comfortably, Safely, and Without Shame: Defining Menstrual Hygiene Management as a Public Health Issue. *Am J Public Health* 105(7):1302–1311. pmid:25973831
- Suneela G, Nandini S. & Ragini, S. (2001). Socio-cultural Aspects of Menstruation in an Urban Slum in Delhi, India. *Reproductive Health Matters.* 2001; 9 (17): 16-25.
- Thakre S.B., Thakre S.S., Reddy M., Rathi N., Pathak K., & Ughade S. (2011). Menstrual hygiene: Knowledge and practice among adolescent school girls of Saoner, Nagpur District. *Journal of Clinical Diagnostic Research.* (2011) 5:1027–33. Available online at: <https://www.ircwash.org/sites/default/files/Thakre-2011-Menstrual.pdf>
- Thakur H., Aronsson A., Bansode S., Stalsby Lundborg C., Dalvie S. & Faxelid E. (2014). Knowledge, practices, and restrictions related to menstruation among young women from low socioeconomic community in Mumbai, India. *Front Public Health* 2:1–7. doi: 10.3389/fpubh.2014.00072
- Thapa, S. & Aro, A.R. (2021) 'Menstruation means impurity': multilevel interventions are needed to break the menstrual taboo in Nepal. *BMC Womens Health* (2021) 1–5. doi: 10.1186/s12905-021-01231-6
- Travers C.L. (2015). *No one cares we're bleeding: the place of menstrual management in humanitarian response [dissertation]*. Uppsala: Uppsala Universitet.
- Umeora O. U. & Egwuatu, V. E. (2008). "Menstruation in rural Igbo women of south east Nigeria: attitudes, beliefs and practices." *African Journal of Reproductive Health*, vol. 12, no. 1, pp. 109–115, 2008.
- UNICEF (2015). *An Assessment of Menstrual Hygiene Management in Secondary Schools. Anambra, Katsina and Osun States.* Nigeria: 2015
- Wangmo D., Pelzom S. & Dem T. (2014). *National Formative Study on Sanitation and Hygiene Behaviours.* Bhutan. Bhutan: Ministry of Health (2014).
- World Bank Group (2018). *Menstrual hygiene management enables women and girls to* ...[www.worldbank.org/news/feature/2018/05/25](http://www.worldbank.org/news/feature/2018/05/25)