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Source: *African Journal of Reproductive Health / La Revue Africaine de la Santé Reproductive*, Vol. 14, No. 3 (September 2010), pp. 201-207

Published by: [Women's Health and Action Research Centre \(WHARC\)](#)

Stable URL: <http://www.jstor.org/stable/41329741>

Accessed: 12-11-2015 18:22 UTC

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ORIGINAL RESEARCH ARTICLE

Menstruation and Menstrual Hygiene amongst Adolescent School Girls in Kano, Northwestern Nigeria

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Abstract

This study examined the knowledge and practices of adolescent school girls in Kano, Nigeria around menstruation and menstrual hygiene. Data was collected quantitatively and analyzed using Epi info version 3.2.05. The mean age of the students was 14.4 ± 1.2 years; majority was in their mid adolescence. The students attained menarche at 12.9 ± 0.8 years. Majority had fair knowledge of menstruation, although deficient in specific knowledge areas. Most of them used sanitary pads as absorbent during their last menses; changed menstrual dressings about 1-5 times per day; and three-quarter increased the frequency of bathing. Institutionalizing sexuality education in Nigerian schools; developing and disseminating sensitive adolescent reproductive health messages targeted at both parents and their adolescent children; and improving access of the adolescents to youth friendly services are veritable means of meeting the adolescent reproductive health needs in Nigeria (*Afr. J. Reprod. Health* 2010; 14[3]: 201-207).

Résumé

Mensuration et l'hygiène menstruelle chez les étudiantes adolescentes à Kano, au nord du Nigéria. Cette étude a examiné la connaissance et les pratiques des étudiantes adolescentes à Kano, au Nigéria à l'égard de la menstruation et l'hygiène menstruelle. Des données ont été recueillies quantitativement et ont été analysées à l'aide de la version info Epi 3, 2,05. L'âge moyen des étudiantes était $14 \pm 1,2$ ans. La majorité étaient dans la mi-adolescence. Les étudiantes ont subi la première apparition des règles à l'âge de $12,9 \pm 0,8$ ans. La majorité avaient une connaissance considérable de la menstruation, quoique insuffisante, dans les domaines des connaissances spécifiques. La plupart des étudiantes se servaient des serviettes hygiéniques comme des absorbants pendant leurs dernières menstruations; elles changeaient les pansement menstruels à peu près 1-5 fois par jour; et trois quarts ont augmenté la fréquence des besoins. L'institutionnalisation de l'éducation sexuelles dans les écoles nigérianes, le développement et la diffusion des messages sensibles de santé de la reproduction chez les adolescentes qui visent à la fois les parents et leurs enfants adolescentes et l'amélioration de l'accès aux services qui favorisent les jeunes gens par les adolescentes sont de vrais moyens pour satisfaire les besoins de santé de la reproduction chez les adolescents au Nigéria (*Afr. J. Reprod. Health* 2010; 14[3]:201-207).

Key words: Menstruation; menstrual hygiene; adolescents; school girls.

Introduction

Adolescents are a large and growing segment of the world's population. More than half of the world's population is below the age of 25, and one in every two young people in the world is adolescent¹. During adolescence, young people develop their adult identity, move toward physical and psychological maturity. Physiologically, the hypothalamus produces growth hormone and gonadotropins which initiates pubertal changes². Menstruation, the periodic vaginal bleeding that occurs with the shedding of the uterine mucosa is one of the signs of puberty, and occurs one or two years following appearance

of secondary sexual characteristics³. Once established, every mature female menstruates on the average 3-5 days (minimum 2 days, maximum 7 days) each month until menopause⁴. A woman's period may not be the same every month and it may not be the same as that of other women. Periods can be light, moderate or heavy and the length of the period also varies⁵. If poorly managed, menstrual period may be accompanied by discomfort, reproductive tract infection, smelling and embarrassment among others⁶.

Menstrual hygiene deals with the special health care needs and requirements of women during monthly menstruation or menstrual cycle⁷. These

African Journal of Reproductive Health Sept. 2010 (Regular Issue); 14(3): 201

areas of special concern include choice of the best "period protection" or feminine hygiene products; how often and when to change the feminine hygiene products; bathing care of the vulva and vagina as well as the supposed benefits of vaginal douching at the end of each menstrual period⁷. Provisions for good menstrual hygiene include home-made remedies like pieces of cotton cloth which are either placed on a woman's undergarment or on a home-made belt that wraps around the waist. These cloths can be washed, dried and used again^{7,8}. Available commercial products for women's hygiene during menstruation include pads, tampons and cups⁸.

Although adolescence is a healthy period of life, many adolescents are often less informed, less experienced, and less comfortable accessing reproductive health information and services than adults¹. In many parts of the developing countries, a culture of silence surrounds the topic of menstruation and related issues^{9,10}; as a result many young girls lack appropriate and sufficient information regarding menstrual hygiene. This may result in incorrect and unhealthy behaviour during their menstrual period. Also, many mothers lack correct information and skills to communicate about menstrual hygiene which they pass on to their children, leading to false attitudes, beliefs and practices in this regard¹. Recent discuss on the introduction of sexuality education into secondary schools in Nigeria generated a lot of tension amongst parents and religious scholars particularly in northern parts of the country.

Learning about hygiene during menstruation is a vital aspect of health education for adolescent girls as patterns that are developed in adolescence are likely to persist into adult life. It was against this background that this study was planned to evaluate adolescent secondary school girls' knowledge of menstruation and menstrual hygiene, as well as their practices of menstrual hygiene. It was envisaged that findings from the study will be a pointer to some adolescence reproductive health needs in northern Nigeria, and will also provide foundation for policy makers and programme managers to make rational decision on improving adolescence reproductive health in Nigeria.

Methodology

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 studies¹¹. The field work was conducted in October and November 2009. The students were selected using the multistage sampling technique: A list of all secondary schools within the eight metropolitan LGAs of Kano State was compiled and was 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 resulted in the selection of Samadi International School (Mixed private); Maryam Abatcha Girls' Secondary School (Girls' only public); Maitama Sule Girls' Academy (Girls' only public) and Federal Government College (FGC) Kano (Mixed public). Systematic sampling method was used at the next stage to select 100 eligible students from each of the selected schools. This was achieved using a sampling interval (S.I) of 3, 9, 2 and 5 for Samadi, Maryam Abatcha, Maitama Sule and FGC respectively. The sampling intervals were obtained by dividing the number of eligible students in each school by the required sample (100). This was used for the respective schools to recruit subjects until the required sample was completed. Permission and ethical clearance for the study were obtained from Ministry of Education Kano State and the Institutional Review Board of Aminu Kano Teaching Hospital respectively; and informed consent was sought and obtained from the students before the interviews. Data on the students' knowledge of menstruation and menstrual hygiene and their practices of menstrual hygiene was collected using pretested self administered questionnaires. Generated data were entered into the computer system and analyzed using Epi-info 3.2.05 computer statistical software. Quantitative data were summarized using mean and standard deviation, whereas qualitative data were summarized using percentages and frequencies.

The students' knowledge and practices were scored using a scoring system adopted from a past study¹². Each correct response under knowledge attracted one point, whereas any wrong or don't know answer attracted no mark. In scoring the students' practices of menstrual hygiene however, students that used sanitary pad during their last menstruation (adjudged best product for adolescents) were scored two (2) points whereas those that used any other sanitary method were scored one (1) point. Correct responses for the other questions under practice attracted one (1) point each and the wrong answers attracted no mark. This gave a total score of six (6) points for practice and 15 points for knowledge. Respondents that scored 0-4 points under knowledge were adjudged as having poor knowledge; whereas those that scored 5-8 and 9-12 were adjudged as having fair and good knowledge respectively. Similarly those students that scored 4-6 points and 0-3 points under practice were adjudged as having good and poor practices respectively.

Results

All the 400 school girls that were approached to participate in the study responded positively giving a response rate of 100%.

Table 1. Socio-demographic characteristics of respondents.

Characteristics	Frequency (n = 400)	Percent (%)
Age group		
10 – NP	78	19.5
N4 – NR	262	65.5
NT – N9	60	15.0
Ethnicity		
Hausa	293	73.2
Fulani	86	21.5
Yoruba	10	2.5
Igbo	2	0.5
Others	9	2.3
Religion		
Islam	392	98.0
Christianity	8	2.0
Marital status		
Married	8	2.0
Single	392	98.0

* Others include Kanuri; Idoma; Igbira.

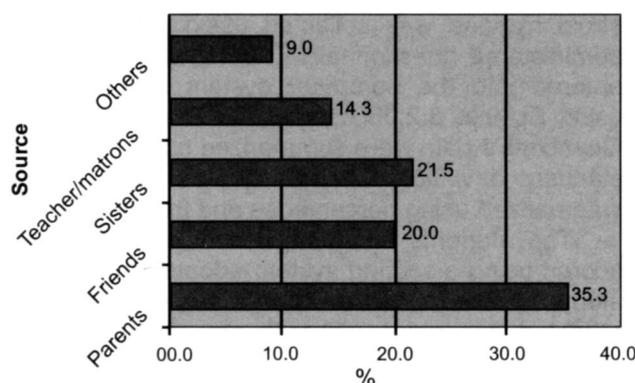


Figure 1. Respondents' first source of information on menstruation and menstrual hygiene. *Others = electronic media; books.

Respondents' personal data

Respondents' personal data are summarized in Table 1. Their mean age was 14.4 ± 1.2 years. The majority (65.5%) were in their mid adolescence. Three hundred and seventy one (92.7%) students had attained menarche. The students attained menarche between 11 to 15 years of age. Their mean age at menarche was 12.9 ± 0.8 years. The students were mostly of Hausa and Fulani tribes (94.8%); Muslims (98.0%) and were never married (98.0%).

Respondents' knowledge of menstruation and menstrual hygiene

When the students were asked questions to elicit

their knowledge of menstruation and menstrual hygiene, it was observed that most of them (97.0%) were aware that mature women experience monthly /cyclical flow of blood (menstruation), and knew that girls attain menarche around the ages of 11 to 16 years (77.8%). Few (6.5%) of the girls correctly knew that menstruation is normal when it occurs in early adolescence; and about half of the subjects (58.8%) knew that the duration of a normal menses is 2 to 7 days. Similarly, majority (87.0%) of the school girls have heard of menstrual cycle, but only one-third (33.8%) knew that a menstrual cycle extends from the first day of a period to the beginning of the next period; and only 2.5% of the subjects knew correctly that normal menstrual cycles vary between 21 to 35 days. However, the majority (94.0%) reported that menstrual cycles last exactly 30 days. Although more than half of the subjects (56.5%) knew that a woman can conceive when she mates at a certain period in her menstrual cycle, none of them knew that the fertile period spans for about nine (9) days around the middle of the menstrual cycle. However, most of the respondents (94.0%) knew that sanitary products are available for menstrual protection (Table 2). Almost all (86.5%) the school girls knew correctly that sanitary pad is the best sanitary absorbent recommended for adolescents. Also, about half of the students (57.0%) knew that poor hygiene predisposes to infection; and that personal hygiene has a place in the prevention of menstrual pain (57.0%). Table 2 captures the parameters used in assessing the knowledge of respondents and the proportion of positive responses. The mean score of the school girls' knowledge of menstruation and menstrual hygiene was 8.0 ± 2.1 , with the majority 350 (87.5%) having fair knowledge of the subject. Detailed grading of the respondents' knowledge of menstruation and menstrual hygiene is depicted in Table 3. The respondents' knowledge was significantly associated with the age group of the respondents ($\chi^2 = 19.96, p < 0.05$) but not with the type of school they attended or their religion as shown in Table 4).

The distribution of respondents by their first source of information on menstruation and menstrual hygiene is also illustrated in Figure 1. The majority, 136 (35.3%) first heard of menstruation and/or menstrual hygiene from their parents. Few subjects however (14.3%) learnt about the topic from the school teachers and matrons. The remaining had their first contact with the information through friends (either in school or at home), sisters; or through other relatives.

Respondents' practices regarding menstrual hygiene

Three hundred and forty eight (93.8%) of the school girls that have commenced menstruation used

Table 2. Parameters used for assessing respondents' knowledge of menstruation and menstrual hygiene.

Parameter	Positive response (Frequency)	Percentage (%)
Aware that mature women experience monthly/ cyclical flow of blood (menstruation)	-	-
Knew correctly that menstruation in early adolescence is normal	388	97.0
Aware of expected age range for starting menstruation	26	6.5
Aware of the duration for a normal period	311	77.8
Have heard of menstrual cycle	235	58.8
Knew correct description of menstrual cycle	348	87.0
Knew duration of a normal menstrual cycle	135	33.8
Knew sanitary products exists for menstrual protection	10	2.5
Awareness of sanitary products used for menstrual protection	376	94.0
<i>Sanitary pad</i>	347	86.8
<i>Reusable cloth</i>	13	3.3
<i>Tampons</i>	6	1.5
Aware of the best sanitary product for adolescent	346	86.5
Aware that poor hygiene predispose to infection	228	57.0
Knew that personal hygiene has a place in prevention of menstrual pain	228	57.0
Aware of age of normal cessation of menstruation	141	35.3

Table 3. Knowledge and practice grading on menstruation and menstrual hygiene.

Grading	Frequency	Percentage (%)
Knowledge (n = 400)		
x Good (9-12 points)	16	4.0
x Fair (5-8 points)	350	87.5
x Poor (0-4 points)	34	8.5
Practice (n = 371)		
x Good (4-6 points)	329	88.7
x Bad (0-3)	42	11.3

sanitary pads as absorbent during their last menstrual period. The remaining 23 (6.2%) used either designated pieces of cloth that they washed/ boiled, dried and re-used; or used any available piece of cloth that they discarded after use. When the students that did not use sanitary pads as absorbent during their last menses were asked why they opted for another alternative, 21 (91.3%) claimed it was expensive and as such they could not afford it while the remaining 2 (8.7%) claimed that sanitary pad causes vaginal discharge.

The number of times the students changed any form of the menstrual protection dressings ranged from one (1) to five (5) times with a mean of 2.6 ± 0.8 . Three hundred and twenty three (87.1%) and barely more than half (56.5%) of the students changed the dressings at night and during school hours respectively. Although 72.5% of the students increased the number of times they took bath during menstruation. The parameters used for assessing the

students' practice of menstrual hygiene are summarized in Table 5. Overall, 329 (88.7%) of the students examined had good practice of menstrual hygiene. The mean practice score of the subjects was 4.7 ± 1.1 . Table 3 also shows the summary of respondents' grading on menstrual hygiene. The students' practices was also associated with respondents' age group ($\chi^2 = 61.85$, $p < 0.05$) and their knowledge of menstruation and menstrual hygiene (Fisher's exact $p < 0.05$); but not with the type of school they attended or religion (Table 4).

The various methods the students used for disposing used menstrual absorbents include disposal with domestic wastes (71.2%); burning (24.3%); burial (4.3%) and flushing in toilet (0.3%).

Discussions

Menstruation is a normal physiology in females. Poor hygiene during menstruation has been associated with serious ill-health ranging from reproductive tract infection, urinary tract infection, bad odour and many more⁶. Females are generally expected to exercise good hygienic practices during menstruation to prevent themselves from these problems. However, remaining stable during menstruation requires that females especially the adolescents are prepared psychologically to develop the associated power and mastery over the physiological changes that occur during this period. They should have sufficient knowledge surrounding menstruation, menstrual cycle and of menstrual hygiene even before they attain menarche. In this study however, majority of the students had fair

Table 4. Factors influencing respondents' knowledge and practices regarding menstruation.

Characteristic		Knowledge				p-value	Significance	
A. Knowledge (n = 400)	Good (n= 34)	Fair (n=350)	Poor (n=16)	Total	Test			
Type of school						$\chi^2 = 2.93$	0.231	Not significant
Private	21	173	6	200				
Public	13	177	10	200				
Religion						$\chi^2 = \text{invalid}$		
Islam	32	346	14	392				
Christianity	2	4	2	8				
Age group						$\chi^2 = 19.96$	0.001	Significant
Early adolescence	6	63	9	78				
Middle adolescence	19	239	4	262				
Late adolescence	9	48	3	60				
B. Practice (n =371)		Good (n=329)	Bad (n=42)					
Knowledge						Fisher's exact	MKMMN	pignificant
Good/fair	323	4		327				
Poor	34	10		44				
Type of school						$\chi^2 = 2.30$	0.129	Not significant
Private	174	17		191				
Public	155	25		180				
Religion						Fisher's exact	MK62N	kot significant
Islam	322	41		363				
Christianity	7	1		8				
Age group						$\chi^2 = 61.85$	0.001	Significant
Early adolescence	46	27		73				
Middle adolescence	233	9		242				
Late adolescence	50	6		56				

knowledge of menstruation and menstrual hygiene. Specifically, majority of the students knew that mature females normally experience monthly/cyclical flow of blood per vagina, they knew correctly that age at menarche ranged from 11 to 14 years and that sanitary pads are used for menstrual protection. However, almost half of the students did not know the average duration of the normal menstrual flow; and about one-third of the school girls could correctly describe the menstrual cycle or knew the average duration of the menstrual cycle (2.5%). Further-more, none of the school children knew the timing of the fertile period albeit the fact that more than half of them were aware that a woman can conceive when she mates at a certain period in her menstrual cycle. These findings are similar to those reported in past studies¹³⁻¹⁶ but contrary to those of Drak-shayani¹⁷ and Abioye-Kuteyi¹⁸ where sufficient knowledge of menstruation and menstrual hygiene was reported amongst their study subjects. The similarities in findings of this study with that of Irinoye¹³, Adinmas¹⁴, Pourselami¹⁵ and the Abraham¹⁶ studies may perhaps be due to the fact that the studies were conducted

among schooling adolescent who are expected to have some exposure to this knowledge either through school/teachers or the print media. This is clearly indicated by our finding that a significant proportion of the respondents first learnt about menstruation and/or menstrual hygiene from teachers or matrons in school and/or from friends in school. The differences however between our study findings and those of the other studies^{17,18} may not be unconnected with cultural differences since some cultures encourage parents to discuss freely with their children on their cognitive development. This is reflected by the fact that only about one-third of our respondents first heard of menstruation and/or menstrual hygiene from their parents or close relatives. This does not augur well for the future mothers who are expected to have good practice of menstrual hygiene and are expected to carry on the message to their young ones.

Learning about menstrual cycle is important for adolescents for the purpose of knowing about fertile periods and of contraception. Collective knowledge of age at menarche, menstrual cycle and duration of menstrual flow in adolescents is also useful for

allaying fears and psychological trauma that may arise from an unexpected appearance of blood per vagina at menarche. In addition, sufficient knowledge of menstruation is expected to empower the adolescents to delineate between physiologic and abnormal uterine bleeding. Further more, it is a well known fact that adolescence is a period of increased risk-taking and therefore susceptibility to behavioural problems at the time of puberty. This assertion is corroborated by findings of a qualitative survey from southwestern Nigeria¹⁰ that illustrated the different cognitive development of the girls by the type of questions they asked during the session. While the late adolescents focused on coping with relationships and demands for sex, the early and middle adolescents focused on their feelings, relationships, menstruation and breast size. Those in childhood (7-11 years) appeared totally ignorant about parts of their body; and myths and misconceptions were identified in all age groups. This is a clear indication for the need of sexuality education amongst the adolescents. While learning about menstruation and what surrounds it, the girls should also be exposed to consequences of intimate relationships with their male counterparts and of contraceptive knowledge to prevent unwanted abortions and STIs including HIV and AIDS.

Promotion of healthy sexual maturation and prevention of diseases are among the key reasons for menstrual hygiene. Our study found that majority of the school girls used sanitary pads during their last menstruation. This is similar to reports from El-Gilany and colleagues from Egypt¹⁹ but in contrast to the Adinmas study where the majority was found to be using toilet rolls followed by sanitary pads to catch menstrual blood¹⁴. The use of sanitary pad as absorbents is simple, hygienic and convenient as the pads come in different sizes that a female can choose from depending on her menstrual flow. Soiled pads are easily discarded and as such saves the trouble of re-treatment for future use. Although the use of designated re-useable cloth is hygienic for adults, it may not be the best product for adolescents where the requirements for maintaining its hygiene in terms of time, effort and resources may not be assured. Our study however found that few of the school girls used re-useable pieces of cloth or any old piece of cloth to catch menstrual blood during their last menstruation. The main reason given by these students for using re-useable pieces of cloth was they could not afford sanitary pads. Other respondents practices like regular changing of all forms of menstrual absorbents, changing menstrual dressings at nights and during school hours; and increasing frequency of bathing during menstruation which prevail amongst the majority of our respondents signify good state of menstrual hygiene practices albeit their insufficient knowledge of the subject.

In summary, 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. In view of the salient findings of this study therefore, we recommend as follows:

1. Sexuality education is a formidable strategy for ensuring healthy sexual maturation and hygiene amongst school adolescents. The government should therefore not relent in its efforts to institutionalize sexuality education in both public and private secondary schools and in tertiary institutions of learning in Nigeria.
2. Information is power, and knowledge is well known to influence attitude over time. The government and development partners should therefore work towards developing and disseminating sensitive programmes targeted at both parents and the adolescents on the unmet needs of adolescents including sexuality education. The electronic and print media, community organizations and faith-based organizations are veritable means of disseminating these messages
3. Parents should be made to acknowledge the need to support their children at school with sanitary menstrual absorbents in addition to other basic hygienic products. The government and/or schools administrations should on the other complement these provisions as part of the school health programmes.
4. Youth friendly services provide good milieu for the adolescents to interact and learn more about their health. The government and developing partners should tap from these wealth of experience and facilitate access to these services for all adolescents both in school and at homes.

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