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Knowledge, Awareness and Practices on Menstrual Hygiene Management among Under-Graduate Nursing Students: Experience from a Cross-Sectional Study in West Bengal, India

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Abstract:*Menstruation, a normal physiological process in females of reproductive age group still carries a lot of taboo especially in Indian context. The current study was conducted to assess the knowledge, awareness and practices related to menstrual hygiene management and find out the relationship with the socio-demographic profile of the respondents. The current cross-sectional study was conducted among first and second year under-graduate nursing students of School of Nursing, Medical College & Hospital, Kolkata with a pre-designed, pre-tested and validated anonymous survey questionnaire. One-hundred and forty participants were surveyed and responses were noted. On analysis it was observed that there was inadequate knowledge regarding menstruation and relevant hygiene practices, availability of free sanitary napkins among the nursing students. The prevalence of nursing students using sanitary pads during menstruation was 95.3%. Higher frequency of cleaning external genitalia was higher among 2nd year students. The frequency of bathing per day was less among adolescents than older age groups. Restriction of daily activities and food intake was also noted. Therefore health education campaign regarding the issue of menstrual hygiene was found to be of utmost importance, for the participants will ultimately disseminate the knowledge of hygiene and practices among the general population.*

Keywords:*Knowledge, Menstrual hygiene, Menstruation, Nursing, Practice.*

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I. Introduction

Menstruation or 'monthly periods' is a biological process in a woman. It is still a taboo in India and common people feel uncomfortable about the subject. There is lack of information on the process of menstruation, and proper requirements for managing it. Locally prepared napkins, sanitary napkins and tampons are considered as hygienic methods of protection. According to the current statistics 57.6% of Indian females are using hygienic methods during menstruation. However he figure is comparable in West Bengal but marginally lower at 55.0%. The proportion is higher in urban areas but significantly lower in rural areas.[1,2]

The concept of Menstrual Hygiene Management (MHM)[3]deals with articulation, awareness, information and confidence to manage menstruation with safety and dignity using safe hygienic materials. Adequate water and agents and spaces for washing and bathing with soap are considered as the much required resource. From a humanitarian point of view, disposal of used menstrual absorbents with privacy and dignity need to be addressed to improve menstrual hygiene.

Three domains can be identified for facilitation of adequate menstrual hygiene management, e.g. individual knowledge, material environment and social environment. [4] Recognition of menstruation as a normal physiological process in development of adolescent girls constructs the crux of individual knowledge domain. While a promotive social environment enables and encourages healthy practices, it also thrusts on debunking all the myths and restrictions associated. From the point of view of health care material environment in this regard deals with materials to absorb or collect menstrual blood – the absorbents, private and clean facilities to change and dispose material – at home, school or work, facilities for body hygiene.

The experience of menstruation is often shameful and uncomfortable to girls.[3–5] Poor water, sanitation and hygiene (WASH) facilities in schools, inadequate education regarding sexual health, lack of hygienic materials like absorbents, fear and humiliation from leaking of blood and body odour contribute to the stigma

and taboo concerning menstruation. It is not uncommon to find adolescent girls to remain absent from schools during their menstrual phases. Also restrictions on their diet and activities are common social practices.[6]

A study among undergraduate nursing students is important. The nursing students are in fact future health care providers, who can help in educating the society regarding the issue and promote healthy practices – more acceptable to the females, they themselves being women. The age group of under-graduate nursing students is important epidemiologically representing late adolescents engaged in focused and specialized learning activities. The current study was therefore conducted to assess the knowledge and practice regarding menstrual hygiene and to find out the determinants of menstrual hygiene practices among nursing students of Medical College, Kolkata

II. Material And Methods

An observational descriptive cross-sectional study was conducted among the first and second year nursing students of School of Nursing, Medical College, Kolkata. The study was conducted from April, 2017 to December, 2017. The estimated sample size was calculated based on good practices reported in NFHS-4 (55%) and taking 15% relative error with 5% precision and 20% power of the study the sample size was ≈ 140. Now the first and second year students were line-listed according to their registration numbers. 140 students were selected at random using a computer-generated sequencing technique. The survey was conducted among these selected undergraduate nursing students, who gave written consent for participation in the study. A pre-designed, pre-tested validated anonymous questionnaire comprising of questions on socio-demographic information was used.

Age, religion, year of nursing study, residence, type of family, per-capita monthly income, parents' education and occupation were included as the socio-demographic variables. Age at menarche, average duration of menstrual cycle, number of days of last menstrual period and also the symptoms during or before the last episode of menstruation were recorded. To assess knowledge regarding menstruation cause & source of bleeding, normal age at menarche, normal flow and duration of normal cycle were included as the variables of interest. Menstrual hygiene knowledge was determined by enquiring about ideal absorbent, availability of free sanitary pads, sources, advantages and disadvantages of sanitary pads. The participants' practices were assessed on their self-reported habits on pad use, restriction of activities, food items and the knowledge domains. The data was entered and analyzed in Microsoft Excel 2016. Ethical permission from the authorities were taken and subsequently the study was conducted.

III. Results

Mean age of the respondents was 20.09 ±1.81 years, median 20 years, mode 18 years with a range from 18-26 years. 44.2% of the study population were adolescent. Majority (81.4%) of the study population belonged to Hinduism religion. Nearly equal participants from both the year of nursing with 1st year (51.2%) slightly more than 2nd year (48.8%). Permanent residence of majority (60.5%) of the study population was in rural areas. Maximum (37.2%) fathers of the study population were educated up to Higher Secondary level. Maximum (41.9%) mothers of the study population were educated up to secondary level. Most (31.0%) of the father of the respondents were businessman followed by professional and unskilled workers (28.6%) each. Majority (90.8%) of mothers of the study participants were homemaker. Maximum (27.9%) study population belong to lower middle class, followed by upper middle class (25.6%) and upper class (23.3%) respectively. Majority (79.1%) of study population belonged to nuclear family. All (100%) of the respondents had toilet facility with privacy at home. (Table 1)

Mean age at menarche was 13 ± 1.46 years with a range from 9 to 16 years. The median age at menarche was also 13 years.Mean duration of menstrual cycle was 29.70 ± 5.26 days (median duration: 30 days) with a range from 21-60 days. Mean duration of flow was 5.12 ± 1.31 days (median: 5 days) with a range from 3 to 8 days. Majority of the study population experienced symptoms of abdominal pain (62.8%) and weakness (44.2%) during or before last menstruation. (Table 2)

Table 3 describes the knowledge regarding menstruation and hygiene practices. Majority (88.3%) thought that the cause of menstruation was a normal process, while 4.7% thought it to be curse from god and 7% didn't know the cause. Majority (67.4%) of the study population thought the source of menstrual blood was uterus, 11.6% had no knowledge while the rest had wrong knowledge about it. Maximum (55.8%) study population had perception about the normal age of menarche as 13-15 years, while 44.2% thought it to be 10-12 years. Majority (60.5%) of the respondents had perception of duration of normal flow of 3-5 days. Majority study population (93.0 %) believed that normal menstrual cycle lasts for 26-30 days while 7% had wrong perception (4.7% - 21-25 days and 2.3% - 31-35 days). Majority of the study population (97.7%) opined that sanitary napkin is the ideal absorbent during menstruation. Majority (65.1%) of the respondents were unaware of the free availability of sanitary pads. Among the respondents who were aware of free availability of sanitary pads, 33.3% could not say from where it is available while 20.0% said sanitary pads are available from

government centres, 13.2% said the source as ASHA and the remaining said that it is available from government hospitals, government schools, nursing schools, vending machine, district and sub-centre. Majority of study population opined that the advantages of sanitary pad was comfortable (97.7%), followed by adequate (74.4%), no itching (62.8%) & no soiling (48.8%). Most (46.5%) of the respondents said that the disadvantage of sanitary pad as expensiveness, while 11.6% of the respondents said it to be unavailability. However, 34.9% had no knowledge regarding disadvantages of sanitary pad. Most (46.5%) of the study population stated that sanitary pad is expensive while 34.9% of the respondents don't know any disadvantages. Majority (55.8 %) of the study population were not aware regarding knowledge of menstrual hygiene before menarche. Among respondents who had prior knowledge of menstruation and associated hygiene, majority (57.6%) got information from friends, followed by mother (47.4%), school curricula (21.1%), TV(21.1%), sisters(15.8%) & magazine (5.3%).

The self-reported practices in this regard are summarized in Table 4. Majority (95.4%) of the study population used sanitary pads only during menstruation while 2.3% of the study population used sanitary pads and old cloth piece and 2.3% of the respondents used sanitary pads and new cloth piece. Most of the study population (51.2%) used maximum 3 pads per day during their last menstruation. Majority (81.4%) of study population changed pads at night. Nearly one fourth (25.6%) of study population did not change pads at nursing school during menstruation. Among those 11 nursing students, 18.2% did not change pads at school due to inadequate disposal facilities like no dustbin and discomfort. Majority (93.0%) of the study population disposed their sanitary pads in the dustbins. Majority (95.3%) of the study population did not reuse absorbents during menstruation. Among the two nursing students who reused absorbents, each dried the absorbents differently that is outside house with sunlight and inside house with direct sunlight. Majority (97.7%) of the study population took bath during menstruation. Mean frequency of bathing during menstruation was 1.57± 0.59 times per day with a range from 1 to 3 times per day. The median frequency of cleaning of external genitalia among the nursing students was four times per day with a range from 1-10 times per day. 30.2% of the respondents used only water for cleaning the external genitalia. Most of the individuals (90.7%)in the study population restricted themselves from indulging in any religious activities during menstruation. Majority of study population(65.1%) did not practice any food restriction during menstruation. Among those who restricted their food, majority (80.1%) had restricted intake of sour food item including pickle and tamarind followed by equal restriction of cold food items ,fish, and other foods i.e. 13.3% each. Majority of the study population (97.7%) did not remain absent from nursing school during menstruation. Majority(86.1%) of the study population did not sleep separately during menstruation. Majority of the study population (60.5 %) opined prevention of infection to be the importance of maintaining menstrual hygiene.

Higher frequency of cleaning of external genitalia during menstruation was observed more among second year students than first year student. This association was statistically significant (χ^2=4.25,df=1,p=0.039). Higher frequency of bathing (2-3 times per day) was more common among higher age group(≥20years) than adolescents or lower age group (<20years) (χ^2=8.42, df=1, p=0.004). Use of water only as cleaning material or the use of water with antiseptic sometimes, not always during menstruation was more among the nursing students who belonged to rural area compared to urban area, but this association was not significant (χ^2=2.11, df=1,p=0.146). There was no association between frequency of bathing during menstruation with knowledge of menstruation and menstrual hygiene before menarche (χ^2=2.80,df=1, p=0.095). There was no association between changing of pads in school with year of nursing (χ^2=2.75, df=1, p=0.097). There was no association between year of studying in nursing and restriction on any food items (χ^2=0.01,df=1,p=0.911).

Table 1. Distribution of the study participants according to socio-demographic background. (n=140)

Socio-demographic variables	Categories	Number	Percentage
Age (in completed years)	≤ 20	85	60.47
	> 20	55	39.53
Religion	Hinduism	114	81.40
	Islam	13	9.30
	Christianity	10	6.98
	Buddhism	3	2.33
Year of study	1st year	72	51.16
	2nd year	68	48.84
Permanent residence	Rural	85	60.47
	Urban	55	39.53
Father's education	Illiterate	7	4.65
	Primary	10	6.98
	Middle School	20	13.95
	Secondary	33	23.26
	Higher Secondary	52	37.21
	Graduate	20	13.95
Mother's education	Illiterate	3	2.33

	Primary	10	6.98
	Middle school	39	27.91
	Secondary	59	41.86
	Higher Secondary	26	18.60
	Graduate	3	2.33
Father's Occupation	Professional	39	27.91
	Semi professional	3	2.33
	Business	42	30.23
	Skilled worker	10	6.98
	Unskilled Worker	39	27.91
	Retired	3	2.33
Occupation of mother	Homemaker	127	90.70
	ASHA	3	2.33
	Anganwadi worker	3	2.33
	Shopkeeper	3	2.33
	Social Worker	3	2.33
Type of family	Nuclear	111	79.07
	Joint	29	20.93
Socio economic status	Class I (Upper class)	29	20.93
	Class II (Upper middle class)	33	23.26
	Class III (Middle class)	26	18.60
	Class IV (Lower middle class)	39	27.91
	Class V (Lower class)	13	9.30

Table 2. Menstrual history of the participants. (n=140)

Variables related to Menstrual history	Categories	Number	Percentage
Age at menarche (in completed years)	≤ 13	101	72.09
	> 13	39	27.91
Duration of menstrual cycle (in days)	≤ 28	52	33.20
	> 28	88	66.80
Duration of menstruation (in days)	≤ 5	101	72.09
	> 5	39	27.91
Symptoms*	Abdominal pain	88	62.79
	Headache	20	13.95
	Nausea	20	13.95
	Vomiting	7	4.65
	Weakness	62	44.19
	Breast Pain	13	9.30
	Itching around genitalia	7	4.65
	Others	26	18.60
	None	33	23.26

** Multiple response*

Table 3. knowledge and perception regarding menstrual hygiene practices. (n=140)

Variable	Category	Number	Percentage
Cause of menstruation	Normal process	124	88.37
	Curse of God	7	4.65
	Don't know	10	6.98
Origin of menstrual blood	Uterus	94	67.44
	Bladder	7	4.65
	Vagina	23	16.28
	Ovary	3	2.33
	Don't know	16	11.63
Normal age of menarche (in years)	10-12	62	44.19
	13-15	78	55.81
Perception of normal flow of menstruation	3-5 days	85	60.47
	5-7 days	52	37.21
	≥ 7 days	3	2.33
Normal duration of menstrual cycle (days)	21-25	7	4.65
	26-30	130	93.02
	31-35	3	2.33
Knowledge about menstrual hygiene before menarche	Yes	62	44.19
	No	78	55.81
Ideal absorbent	Sanitary pads	137	97.67
	Cloth piece	3	2.33
Awareness on availability of free sanitary pads	Yes	49	34.88
	No	91	65.12

Table 4. Practices related to menstrual hygiene. (n=140)

Variable	Category	Number	Percentage
Materials used as absorbents	Sanitary pad	140	100.00
	New cloth	3	2.33
	Old cloth	3	2.33
Maximum number of pads used per day during last menstruation	≤ 3	92	65.11
	> 3	48	34.89
Changing of pads at night	Yes	114	81.40
	No	26	18.60
Whether pads are changed at nursing school	Yes	104	74.42
	No	36	25.58
Reason of not changing pads at nursing school (n=36)	Need never arises	29	20.93
	Inadequate disposal facilities	7	4.65
Disposal method	Domestic refuse	7	4.65
	Flushing	10	6.98
	Dustbin	130	93.02
	Burning	3	2.33
Reuse of absorbents during menstruation	Yes	7	4.65
	No	133	95.35
Place of drying reused absorbents	Outside house with sunlight	3	2.33
	Inside house with direct sunlight	3	2.33
Bathing during menstruation	Yes	137	97.67
	No	3	2.33
No. of times of washing external genitalia	≤ 3 times/day	56	39.53
	> 3 times/day	84	60.47
Method of cleaning external genitalia	Water only	42	30.23
	Water with	101	72.09
	Antiseptics/ soap/ dettol	0	0.00
Absenteeism from nursing school during menstruation	Yes	3	2.33
	No	137	97.67
Sleeps separately during menstruation	Yes	20	13.95
	No	120	86.05

IV. Discussion

In the current study majority attained menarche at 13 years (41.9%). Majority knew that menstruation is a normal physiological process (88.4%), with proper understanding of the process. While 97.7% knew that sanitary pads are the ideal absorbent but 65.1% were unaware about free provision of sanitary pads. On a brighter note most of the participants were aware about the importance of maintaining menstrual hygiene. While sanitary pads were used by 95.3% of the respondents, re-use of absorbents was observed among around 5%. One-fourth of the respondents did not change pads during their class-hours despite the felt-need. In a study among female university students in Ghana[5] the knowledge was present among 57% while proper practices regarding menstruation was seen in 80%. The proportions were comparable to the current study. The same study noted that more than 70% of the respondents knew about menstruation before attaining menarche.[5] But in the current around 56% reported that they did not know about menstruation before attaining menarche. In an Ethiopian study[7] the knowledge and practices regarding menstrual hygiene was poor. The current study also revealed the fact that restriction of activities and food consumptions were prevalent among the respondent nursing students, despite them being directly related to the medical field. Association between frequency of cleaning external genitalia during menstruation with the year of nursing course. Higher order of frequency of cleaning external genitalia commoner among 2nd year students than 1st year students. Association between frequency of bathing per day during menstruation with age of students. Higher frequency of bathing more common among higher age group. While the current study found this relationship with practices of menstrual hygiene, the study by Ameade and Garti[5] reported that the knowledge regarding the good practices depended on higher age and course of study.

Addressing the clinical problems of menstruation like associated symptoms, abnormal flow or duration of cycle is important in this context. Providing adequate disposal facilities at school and at home, encouraging use of soap and water for cleaning external genitalia during menstruation, discouraging use of old cloth piece and reuse of absorbents should be taken into serious consideration in order to improve menstrual hygiene practices. Discouraging any restriction of activities during menstruation like religious activities, playing, household activities and attending festivals and also restriction of any food item is needed. By making a menstruation friendly environment at schools barriers to school absenteeism due to menstruation can be addressed.

V. Conclusion

Imperfections regarding the knowledge on menstrual hygiene management was noted amongst the nursing students. Practices were also lacking in some areas, however good practices like use of sanitary pads, maintaining cleanliness of the genitalia were noted as well. Health education regarding the issue of menstrual hygiene management is of utmost importance, especially since the study participants will come in direct contact with patients/ beneficiaries in future and have the ample opportunity to spread awareness and motivate good practices in the community.

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