pISSN 2394-6032 | eISSN 2394-6040

## **Original Research Article**

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20205689

# Assessment of knowledge and practices of menstrual hygiene among females of reproductive age group of Rama University Campus, Kanpur

## Som Nath<sup>1\*</sup>, Manjusha Nath<sup>2</sup>

<sup>1</sup>Department of Community Medicine, <sup>2</sup>Department of Pharmacology, Rama Medical College and Research Centre, Kanpur, Uttar Pradesh, India

Received: 16 June 2020 Revised: 04 December 2020 Accepted: 08 December 2020

### \*Correspondence: Dr. Som Nath,

E-mail: drsomnathrewa@gmail.com

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#### **ABSTRACT**

**Background:** Menstruation is a normal physiological process indicating beginning of reproductive life but sometimes it is considered as unclean phenomenon, vulnerable to reproductive tract infection (RTI). Considering the relationship between menstrual hygiene problem and RTI, the study was undertaken to determine the demographics and knowledge, practices and awareness related to menstrual hygiene.

Methods: A cross-sectional study conducted among non-medical females of age group 15 to 45 years, involved in different professions in the campus of Rama University, Kanpur. Study subjects were selected by simple randomization method and were interviewed for menstrual hygiene in pretested proforma and data were analysed using appropriate statistical methods.

Results: Eligible females using sanitary pads were mostly literate/students (55.6%) while those using old cloth pads were mainly Home makers (36.8%), mess workers/maid (35.1%). This difference was found to be statistically significant ( $\chi^2$ =27.055, p=0.001). Females of lower class (22.8%) were mostly using old cloth pads. Females have different ideas about menstruation viz. cleans body/remove dirty blood or fluids (19.5%); while 22.5% study females did not have any idea about menstruation. 'Safe and easy to use' was the main reason of using sanitary pads (32.5%) while easily available at home (31.3%), mothers/sisters/friends using it (24.1%), was main reason of using old cloth

Conclusions: Literacy and social class has an impact on using sanitary pad by eligible females. Females using old cloth were due to family environment and lack of education. There is a need of correct knowledge from beginning i.e. school age and proper menstrual hygienic practices to protect the women from RTI.

Keywords: Females of reproductive age, Menstrual hygiene, RTI, Sanitary pad

## INTRODUCTION

Menstruation is a normal physiological process indicating beginning of reproductive life but sometimes it is considered as unclean phenomenon in the Indian society.1 The first period usually begins between twelve to fifteen years of age, a point in time known as menarche.<sup>2</sup> The typical length of time between the first day of one period and the first day of the next is 21 to 45 days in young women, and 21 to 31 days in adults (an average of 28 days).<sup>3,4</sup> Women spend around six to seven years of their lives menstruating. Yet the importance of menstrual hygiene management (MHM) is mostly neglected. Menstrual hygiene is a taboo subject; a topic that many women are uncomfortable discussing in public. This is compounded by gender inequality, which excludes women and girls from decision-making processes. Seventy percent of mothers consider menstruation 'dirty'. In India, recently, there has been an increasing recognition of the importance of menstrual hygiene. Ministries recognize that MHM can improve young

women's health, nutritional status and well-being, as well as their school enrolment and retention, potentially conferring long-term health, social, and economic hygiene depends upon the benefits. Menstrual educational, socioeconomic, and cultural statuses of family. School curriculum also have some role in menstrual health.5 Women having knowledge regarding menstrual hygiene are less vulnerable to reproductive tract infection (RTI) and its consequences. Therefore, increased knowledge about menstruation from adolescent period help in decreased suffering of millions of women.<sup>6</sup> This has been changing recently, with those in the health and water, sanitation and hygiene (WASH) sectors emphasizing the importance of menstrual hygiene management (MHM).7 So it was decided to evaluate the sociodemographic profile, knowledge and practices related to menstrual hygiene among non-medical female workers of Rama University Campus, Mandhana, Kanpur.

#### **METHODS**

The study is a community based cross-sectional study conducted among females (non-medical) of reproductive age group (15-45 years) either working or studying in Rama University campus. The study was conducted in a period of 3 months (from September 2017 to Nov 2017).

*Sample size:* The sample size has been calculated by considering the estimated prevalence 'p' of menstruating women using sanitary pads in India as 36% as reported by NFHS-4 (2015-16).<sup>8</sup> The statistical formula to calculate Sample size (n) is as follows:

$$n \ge \frac{(\mathsf{Z}_{1-\alpha/2})^2 \times \mathsf{p} \times (1-\mathsf{p})}{L^2}$$

$$n \ge \frac{(1.96)^2 \times 0.36 \times 0.64}{(2 \times 0.036)^2} = 170.73$$

Where: Z=standard normal variable (e.g. 1.96 for 95% confidence level)

'p' = prevalence of sanitary pad users as 36%.

L= Allowable error taken as 20% of p

The sample size was calculated to be 170 and for better precision of results, the sample size was taken as 200.

Sampling technique: Simple random sampling technique was used for sample collection

#### Inclusion criteria

All non-medical females of age group 15 to 45 years involved in different professions in the campus of Rama University, Mandhana Kanpur, not suffering from any chronic illness and have given the consent, were eligible to participate in the study.

#### Exclusion criteria

Those females who had not attained menarche or had attained menopause were excluded. Pregnant women, those who had amenorrhea of 2 months or more, those who had their last childbirth within 6 months of the interview and those on treatment for any gynecological ailment were excluded.

number of eligible respondents including homemakers, non-medical students, mess workers/ maid/servant or others in Rama University campus was selected in our study. First priority was given to mess workers/maid/servants and homemakers residing in staff quarters and present at the time of interview were included in our study. Secondly, we visited to each household of Rama University campus and only one woman was interviewed from each house. In case of more than one eligible woman in the house, the selection was done using a lottery method. Lastly, rest of the eligible females was selected from enrolled first year students of the Engineering College of Rama University, by applying systematic random sampling method. Eligible females met at the time of visit were included in our study. On achieving the required sample size, further selection of student of engineering college was stopped.

A semi-structured predesigned, pretested questionnaire based proforma was used, referred from other studies and validated by standard questions on menstrual hygiene along with testing by pilot study. Before starting of study we briefed the aim and objectives to the subjects. Data collection was done by trained medical students as research workers. Revisits were made if the eligible person was absent or the houses were found locked.

Ethical clearance was taken from ethical committee of our institute and consent taken from eligible females/parents.

Eligible females were interviewed regarding their sociodemographic history viz. age, occupation, education, marital status, type of family, socio-economic status and age of onset of menstruation, and menstrual hygienerelated practices such as use of cloth or sanitary pads during menstruation, disposal of pads, reuse of cloths, daily bathing using soap, and genital hygiene by washing with soap and water during menstruation. The researchers visited the staff quarters, maids, mess-workers and different girl's hostel of engineering students of Rama University. The consent was taken. They were assured about confidentiality of study and that it would not be discussed with other. The information pertaining to the pattern of menstrual hygiene and disease caused by lack of it was taken from study subjects.

## Statistical analysis

Statistical data collected and entered in Microsoft Excel sheet and were analysed by applying SPSS version 21.

Mean and standard deviations were calculated for the quantitative variables like age, age of menarche. Frequencies and percentages were calculated for the qualitative variable socioeconomic status, educational level, occupational status, marital status, types of family etc. Chi-square test was applied and p value of ≤0.001 was taken as significant.

#### **RESULTS**

Socio-demographic profile of the non-medical study females of reproductive age group (15-45 years) in present study (Table 1) shows that majority of females (46.5%) were of age group 22-27 years followed by 15-21 years (29.0%), 28-33 years (20.5%) and minimum were of age group more than 33 years (4%). Mean age of total study females was 24.23±4.09 years.

Table 1: Socio-demographic profile of the study females of reproductive age group.

Socio-demog (n=200)	graphic profile	Number	Percentage			
Age-group (	in years)					
15-21	· ·	58	29.0			
22-27	Mean age±SD	93	46.5			
28-33	$=24.23\pm4.09$	41	20.5			
34-45		8	4.0			
Total		200	100.0			
Age of mena	rche (in years)					
9-11	Manager	128	64.0			
12-14	Mean age±SD =12.5±1.36	26	13.0			
>14	=12.3±1.50	46	23.0			
Occupation						
Homemaker		51	25.5			
Non-medical	student	84	42.0			
Mess worker/maid/servant		47	23.5			
Others		18	9.0			
Education						
Illiterate		25	12.5			
Primary		28	14.0			
Middle school		45	22.5			
Secondary		36	18.0			
Higher Secondary		29	14.5			
Graduate and above		27	13.5			
Marital stat	Marital status					
Married		137	68.5			
Unmarried		63	31.5			
Type of fam	ily					
Nuclear		171	85.5			
Joint	Joint		14.5			
Socio-economic status (Modified B. G. Prasad scale)						
Upper class		30	15.0			
Upper middle class		31	15.5			
Middle class		59	29.5			
Lower middl	e class	55	27.5			
Lower class		25	12.5			

In present study majority of eligible females told that their menarche started at 9-11 years of age and mean age of menarche 12.5±1.36 years. Majority of the study subjects were non-medical students (42.0%) followed by homemaker (25.5%), mess worker/maid/servant (23.5%). Most of the females were educated (87.5%), married (66.5%), belong to nuclear (85.5%) and middle class family (29.5%) (Table 1).

Majority of the study females using sanitary pads amongst their respective age group were 74.2% in 22-27 years age group followed by 34-45 years (50%) while most of the females using old cloth pads belong to 15-21 years age group (39.7%) and 28-33 years (39.0%). Both types of pads were used mostly by 28-33 years age group females (19.5%). This difference was found to be statistically significant (p<0.001) (Table 2).

In present study, out of total 200 eligible females, 117 females (58.5%) were using sanitary pads while 83 females (41.5%) were using old cloths during menstruation and in these 57 (28,5%) females were utilizing only old cloths and 26 (13.0%) females were using both old cloth and sanitary pads (Table 2).

The study depicts females using sanitary pads were mostly students (non-medico) (55.6%) while females using old cloth pads were mainly home makers (36.8%) and mess workers/maid/servants (35.1%). Both types of pads were used mostly by mess workers/maid/servants (30.8%). This difference was found to be statistically significant (p<0.001) (Table 2).

Majority of the females using sanitary pads were literate; higher secondary pass (76.9%). Graduate and above (74.1%), middle school (60.0%), secondary school pass (61.1%) while most of the illiterates (68.0%) were using old cloth pads. Married females (63.5%) were comparatively more using sanitary pads than unmarried female (47.5%). There was a decreasing trend of using sanitary pads from females of upper class to lower class; viz. upper class (83%), upper middle (77.4%), middle class (59.3%) followed by lower middle class (47.3%) and minimum of lower class (28.4%) while most of lower class female (52.0%) were using old cloth pads (Table 2).

In our present study, females put their ideas about causes of menstruation as it cleans body/ remove dirty blood or fluids told by majority (19.5%); it maintains reproduction/child birth (17%), reasons of inner heat (11.5%), common in females/way of nature (8.5%), to clear out impure blood (8.0%), biological/hormonal reasons (6.0%) while 22.5% females did not have any idea about menstruation (Table 3).

In the present study, females told different reasons of using sanitary napkin during menstruation viz. napkins are safe and easy to use (32.5%), cloth becomes messy and gets stained (13.7%), it soaks menses blood well for long time (12.8%), cannot get cloth at home (11.1%), can

protect from gynecological diseases by using sanitary napkin (6.0%). While females using old cloth have also reasons in their support viz. easily available at home (31.3%), mothers/sisters/friends were already using it

(habituated to use) (24.1%), comfortable using it as have been using since long time (20.5%), napkins costly while cloth is cheaper (10.8%), do not know/like using napkins (6.0%), can be reused (3.6%) (Table 4).

Table 2: Distribution of study females using napkin according to their Socio-demographic profile.

	Type of napkin used				
Sociodemographic profile	Only sanitary pad	Only cloth piece	Both (sanitary pad, cloth piece)	Total	Statistical test
Age groups (in years)	, , , , , , , , , , , , , , , , , , ,	_	<b>1</b> / <b>1</b> /	_	
15-21	27 (46.6%)	23 (39.7%)	8 (13.8%)	58 (29.0%)	Pearson chi- square=18.968 df=6, p =0.004
22-27	69 (74.2%)	15 (16.13%)	9 (9.7%)	93 (46.5%)	
28-33	17 (41.5%)	16 (39.0%)	8 (19.5%)	41 (20.5%)	
34-45	4 (50.0%)	3 (37.5%)	1 (12.5%)	8 (4.0%)	
Total	117 (58.5%)	57 (28.5%)	26 (13.0%)	200 (100%)	-
Occupation	,			, ,	
Home-maker	25 (21.4%)	21 (36.8%)	5 (19.2%)	51 (25.5%)	
Non-medical students	65 (55.6%)	11 (19.2%)	8 (30.8%)	84 (42.0%)	Pearson chi-
Mess worker/maid /servant	19 (16.2%)	20 (35.1%)	8 (30.8%)	47 (23.5%)	square=27.055 df=
Others	8 (6.8%)	5 (8.8%)	5 (19.2%)	18 (9.0%)	6, p=0.000
Total	117 (58.5%)	57 (28.5%)	26 (13.0%)	200 (100%)	
Education	,			, ,	
Illiterate	3 (12.0%)	17 (68.0%)	5 (20.0%)	25 (12.5%)	
Primary	15 (53.6%)	9 (32.1%)	4 (14.3%)	28 (14.0%)	
Middle school	27 (60.0%)	12 (26.7%)	6 (13.3%)	45 (22.5%)	Pearson chi- square=33.89, df=10, p=0.000
Secondary	22 (61.1%)	10 (27.8%)	4 (11.1%)	36 (18.0%)	
Higher secondary	30 (76.9%)	6 (15.4%)	3 (7.7%)	39 (19.5%)	
Graduate and above	20 (74.1%)	3 (11.1%)	4 (14.8%)	27 (13.5%)	
Total	117 (58.5%)	57 (28.5%)	26 (13.0%)	200 (100%)	
Marital status					
Married	87 (63.5%)	29 (21.2%)	21 (15.3%)	137 (68.5%)	Pearson chi-
Unmarried	30 (47.6%)	28 (44.4%)	5 (7.9%)	63 (31.5%)	square=11.879
Total	117 (58.5%)	57 (28.5%)	26 (13.0%)	200 (100%)	df=2, p=0.003
Socio economic status (Modified	l B. G. Prasad s	cale)			
Upper class	25 (83.3%)	3 (10.0%)	2 (2.7%)	30 (15%)	Pearson chi- square=25.565 df=8, p=0.001
Upper middle class	24 (77.4%)	5 (16.1%)	2 (6.5%)	31 (15.5%)	
Middle class	35 (59.3%)	15 (25.4%)	9 (15.3%)	59 (29.5%)	
Lower middle class	26 (47.3%)	21 (38.2%)	8 (14.5%)	55 (27.5%)	
Lower class	7 (28.0%)	13 (52.0%)	5 (20.0%)	25 (12.5%)	
Total	117 (58.5%)	57 (28.5%)	26 (13.0%)	200 (100%)	

Table 3: Distribution of study females according to knowledge about causes of menstruation (n=200).

Causes of menstruation	Frequency	Percent
To clean body/remove dirty blood or fluids	39	19.5
To clear out impure blood	16	8.0
To maintain reproduction/ child birth	34	17.0
To maintain good health	14	7.0
Common in females/way of nature	17	8.5
Reasons of inner heat	23	11.5
Biological/hormonal reasons	12	6.0
No idea	45	22.5
Total	200	100.0

## **DISCUSSION**

In present study, majority of the females were in the age group 22-27 years (46.5%) and were students (non-medicos) (42.0%). Majority of eligible females told that their menarche started at 9-11 years of age (64%) and range from 9-15 years with mean age of menarche  $12.5\pm1.36$  years. Most of the study females were married (68.5%), educated (87.5%) and middle class (29.5%) and nuclear family (85.5%). Mean age of menarche was same as found in other similar study. 9.12

In present study, prevalence of sanitary pads use was 58.5% by eligible females while 41.5% females were using old cloths during menstruation; only old cloths by

28.5% females and both old cloth and sanitary pads by 13.0%. Santra et al also found similar results viz. 65% women were using sanitary pad and 30% used only cloth pieces and few 8 women used both sanitary pad and cloth piece during menstruation.<sup>13</sup>

Table 4: Distribution of study females according to Reasons of using sanitary napkin/old cloth for menstruation.

Reasons	Frequency	Percentage				
Reason of using sanitary napkin (n=117)						
Napkins are safe and easy to use	38	32.5				
Cloth becomes messy and gets stained	16	13.7				
Cannot get cloth at home	13	11.1				
It soaks menses blood well for long time	15	12.8				
Easily accessible/available	13	11.1				
Been using it since early age	8	6.8				
Mothers/sisters/friends are using it	7	6.0				
Can Protect from gynecological diseases by using sanitary napkin	7	6.0				
Total	117	100.0				
Reason of using old cloth (n	Reason of using old cloth (n=83)					
Easily available at home	26	31.3				
Comfortable using it as have been using since long time	17	20.5				
Mothers/sisters/friends are already using it (habituated to use)	20	24.1				
Napkins costly while cloth is cheaper	9	10.8				
Cannot get napkins from market	3	3.6				
Do not know/like using napkins	5	6.0				
Can be reused	3	3.6				
Total	83	100.0				

The prevalence of sanitary pads use among 22-27 years age group was higher (74.2%) and lowest among 28-33 years (41.5%) while females using old cloth pads were mainly of age group 15-21 years (39.7%), 28-33 years (39.0%) while few females (9.7%) of 22-27 years age using both types of pads. This difference was found to be statistically significant (p<0.001). Santra et al also found that overall prevalence of sanitary pad use higher (75.0%) among those aged <25 years than those aged  $\geq$ 35 years (33.3%). 13

In present study, eligible females using sanitary pads were mainly students (55.6%) while females using old cloth pads were mainly home makers (36.8%), mess workers/maid/servants (35.1%). Both types of pads were used mostly by mess workers/maid/servants (30.8%).

This difference was found to be statistically significant (p<0.001). This might be due to upgradation of knowledge in teaching institution.

The study depicts literacy plays important role and with increasing education status, prevalence of sanitary pad users were increased viz. illiterates 12.0%, higher secondary pass/graduate 76.9%. Santra et al found similar finding as with increasing literacy status prevalence of sanitary pad use was found to be increased (36.4% among illiterate versus 88.9% among those educated higher secondary and above.<sup>13</sup>

Present study shows that married females (63.5%) were comparatively more using sanitary pads. There was a decreasing trend of using sanitary pads from females of upper class to lower class; viz. upper class (83%), upper middle (77.4%) and minimum of lower class (28.4%). Santra et al found similar finding as with increasing socio economic status prevalence of sanitary pad use was found to be increased viz. 36.7% among class V versus 85.7% among those belonged to class I and II) most of the married eligible females (74.4%) were using sanitary pads. <sup>13</sup>

Majority of females in our study perceived that menstruation cleans body/remove dirty blood or fluids (19.5%); maintains reproduction/child birth (17%), reasons of inner heat (11.5%), common in females/way of nature (8.5%), to clear out impure blood (8.0%), biological/hormonal reasons (6.0%) while 22.5% females did not have any idea about menstruation. Our study findings were opposite to the findings of a rural study conducted by Misra et al that majority of women (62%) were not aware of the reason(s) of menstruation. About 13% of women perceived it as a mechanism of the body to remove dirty blood and fluids whereas 11% of them associated it with childbirth. Nearly 58% of women correctly reported the source of menstrual blood to be the uterus.14 This difference was due to more health concerning knowledge in teaching places versus rural

Eligible females told different reasons of using sanitary napkin as safe and easy to use (32.5%), cloth becomes messy and gets stained (13.7%), soaks menses blood well for long time (12.8%), can protect from gynecological diseases (6.0%). This shows that reproductive females are now more or less aware of menstrual hygiene and developing a positive thinking towards use of sanitary pads. Misra et al found that among women who used sanitary napkins, the commonest reason was its safety and ease to use (77%).<sup>14</sup>.

Females using old cloth in our study, replied in support of using cloth viz. easily available at home (31.3%), mothers/sisters/friends already using it (habituated to use) (24.1%). Similar study conducted by Misra et al found that among women who used an old washed cloth, the most preferred reason was its ease of availability

(49.7%). <sup>14.</sup> Santra et al study also found the main reason of not using the sanitary pad was 'costly' (62.5%), not habituated to use (23.2%). <sup>13</sup>

#### **CONCLUSION**

The poor menstrual hygiene is a big issue among females of reproductive age group and is closely interrelated with reproductive tract infection and can be improved by use of sanitary pads. In present study, most of the females using sanitary pad were literate, married nuclear family of upper social class. Our study highlights the need of accurate and adequate information about menstruation and use of sanitary pads. In present study, females were using old cloth due to its easy availability at home and are habituated to use it due to family environment or due to lack of education. There is a need of correct knowledge and proper menstrual hygienic practices to the women.

#### Recommendations

A comprehensive school health education program should be established to improve the menstrual hygiene practices. Universalized use of sanitary pads needs to be provided to every females of reproductive age by making easy availability through social marketing. Healthcare workers/teachers should play a proactive role in the delivery of such information. There is a need to inform women about their use. A separate, sustained National health policy focusing on improvement of menstrual hygiene along with continued health education through involvement of key stakeholders such as family members, school teachers, civil society and healthcare providers should be developed for women.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

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Cite this article as: Nath S, Nath M. Assessment of knowledge and practices of menstrual hygiene among females of reproductive age group of Rama University Campus, Kanpur. Int J Community Med Public Health 2021;8:175-80.