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Menstrual Hygiene Practices, Social Taboo and Attitude towards it- A Community-based Cross-sectional Study among Young Women in a Rural Area of West Bengal, India

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ABSTRACT

Introduction: In developing countries like India, awareness about menstrual hygiene is limited among women leading to stigma, restriction of social activities and various menstrual and urogenital ill-health among women.

Aim: To find out the menstrual hygiene practices, social taboos and attitude towards it among 15-24 years aged women of a rural area of West Bengal, India.

Materials and Methods: This observational descriptive study with cross-sectional design was conducted during September-December 2019, among 110 young women in the age group of 15-24 year residing in Amdanga community development block. Multistage sampling technique was adopted and data was collected by interviewing study subjects with a predesigned, pretested and semi-structured questionnaire. Data were analysed with the Statistical Package for the Social Sciences (SPSS) software (version 20.0). Proportion and Chi-square test were applied where applicable. The p-value <0.05 was taken as significant.

Results: Nearly 80% of the study subjects used only sanitary napkins. Disposal of used pads under the soil was most common practice. Restrictions to social activities like taking part in religious activity, going outdoor, kitchen and household work were reported by 100%, 85.45%, 58.18% and 74.54% participants, respectively. A 64% of study subjects were unaware of menstruation before menarche. Statistically significant association was observed between socio-economic condition and number of sanitary pad use, (p<0.0001) and school absenteeism, (p=0.011634). Education above primary level was positively associated (p<0.00001) with awareness about menstruation before menarche.

Conclusion: The study conveyed that wide spread social stigma, restrictions and poor attitude still exists in this rural community about menstruation which is affecting safe disposal of used absorbents and overall health of women.

Keywords: Menarche, Menstruation, School absenteeism, Stigma

INTRODUCTION

Menarche begets the reproductive period in a women's life. It is the beginning of a multitude of physical, physiological and psychological changes in the lives of girls [1]. Menarche and menstruation is special event in every girl's life which is related to various hygiene, health and social aspects of life. In developing countries like India, awareness about health and hygiene related to menstruation and its social determinants is very limited among women [2]. Large number of girls has little knowledge about menstruation until their first experience because menstruation is something that is usually kept secret in the homes and outside [3,4]. Better understanding of the good menstrual hygiene is crucial for the overall and reproductive health of the women, as researches worldwide showed that unhealthy MHM during menstruation have been associated with serious ill-health ranging from genital tract infections, urinary tract infections, and bad odour [5]. Unhealthy menstrual practices encompass inadequately washing genitalia regularly, using unclean cloth etc., [6].

Menstrual hygiene is a multisectoral issue that requires an integrated approach from the Department of Education, Health, Women and Child Development and Water Sanitation Hygiene (WASH) [7]. Recently Government of India (GOI) has taken different steps addressing this public health issue. In National Rural Health Mission in 2005, menstrual hygiene promotion was formally included as a key responsibility of the community health workers (Accredited Social Health Activist; ASHA) followed by the implementation of menstrual hygiene promotion scheme for girls in rural areas in 2011 [8]. The Ministry of Drinking Water and Sanitation published guidelines on MHM 2015 [9]. At the same time at national and international level there is a lot of push to address this issue at various social media platforms resulting in wide spread menstrual hygiene campaigns, commencement of trials on eco-friendly menstrual products, implementation of comprehensive sexuality education in schools, etc., [10]. Different qualitative research worldwide reported that the factors affecting school absenteeism are multiple like girls' fear and humiliation from leaking of blood, body odour etc., [10-12]. Variety of cultural taboos increase young women's difficulties, preventing them from seeking help [12,13], and impose various restrictions on their diet and social personal activities like taking part in religious activities, cooking, bathing, sex during menstruation [13,14]. Study conducted in South India showed that during rituals on attainment of puberty, young girls are imparted with knowledge about menstruation which mostly consists of restrictions on her movements and behaviour during menstruation along with some superstitions [15].

According to National Family Health Survey-4 (NFHS-4) [16], in West Bengal, the proportion of women aged between 15-24 years using hygienic methods during menstruation was 72.9% in urban area and 47.6% in rural population. Same findings have been found in similar studies [3,17]. Poverty, poor access to sanitary pads are common factors that lead to poor menstrual hygiene and these are more profound in rural areas compared to urban areas [18]. Although many studies have been conducted [2,19-24] on menstrual hygiene in rural West Bengal, very few threw light on social stigma and taboo related to the issue [25]. With this background, the current study was conducted to find out the practices and social taboo related to menstrual hygiene and attitude towards it among 15-24 years aged women of a rural area of West Bengal, India.

MATERIALS AND METHODS

This observational descriptive study with cross-sectional design was conducted during September-December 2019 among 110 young women in the age group of 15-24 year residing in the Amdanga community development block which is field service area of Department of Community Medicine, RG Kar Medical College and Hospital, Kolkata, West Bengal, India.

Study protocol was sent to the Institutional Ethics Committee (IEC) and after their approval data collection was started. (Letter No. RKC/Ethics/25, dated 19.5.18). Informed written consent was taken from every study participant prior interview. Measures were taken to ensure the confidentiality and privacy of the all study participants, while intervening and examination.

Inclusion criteria: Those women, who were residing in the area atleast for last one year, aged 15-24 years and attained menarche, were included into the study.

Exclusion criteria: Young women who were severely sick and unable to understand the questionnaire and who did not gave informed written consent were excluded from the study.

Sample size calculation: According to NFHS-4 [16], the proportion of women aged between 15-24 years using hygienic methods during menstruation in rural area was 47.6%. Using this proportion in the formula $N=(z\alpha)^2pq/l^2$, the sample size comes to be 100 ($z\alpha$=standard normal deviate, p=proportion, q=1-p, l=absolute precision=10%), taking the 10% extra for non response, the final sample size calculated was 110.

Study Procedure

The Amdanga community development block consists of 25 sub-centres and 81 villages. For the feasibility purpose from 81 villages, 10% i.e., 8 villages were randomly selected. From this eight villages, list of households were collected from the local administration with the help of ASHA workers. From eight villages, 110 households were selected randomly from all the households according to probability proportion of population size (ppps). From each household one woman of 15-24 age group was asked to participate in the study. In case where in one household more than one woman aged 15-24 years were found, there one was selected randomly from them and in such households where no such woman was found, the next household was visited for eligible participant.

Data were collected by house to house visit during November and December, 2019 by interviewing the selected study subjects with a predesigned, pretested questionnaire. The questionnaire was prepared by the authors after thorough literature review [2,3,9,10,12] and translated into local language (Bengali). Back translation exercise was done by two language experts. It was pretested among 20 young women and modified accordingly and those 20 women were excluded from the final study. The validity and internal reliability (Cronbach's alpha=0.84) of the questionnaire were found to be high. The questionnaire had three parts and total 36 questions (Annexure I). The first part contains 10 questions about background information, the second part had 10 questions related to menstrual history and menstrual problems and the third part had 16 questions on knowledge, attitude and hygiene and social practices related to menstruation. For attitude section, there are 10 statements about menstruation seeking the opinion of study participants on three point Likert scale. Socio-economic status of the study participants was analysed on the basis of modified BG Prasad's scale, August 2020) [26].

STATISTICAL ANALYSIS

Data were entered into Microsoft Office Excel and then transferred into the SPSS software version 20.0 (Chicago, Illinois, USA). Categorical data was expressed by frequency and percentage. Appropriate bivariate analysis was performed using Chi-square test to find out the association between various socio-demographic factors and knowledge attitude and practice of study subjects. The p-value <0.05 was taken as significant.

RESULTS

Out of total 110 participants, majority of the study population (42.73%, n=47) belonged to adolescent age group (i.e., 15-18 years), Muslim religion (n=73, 66.36%) and of general caste (n=84, 76.36%). About half (n=58, 52.73%) of the study subjects were married and majority was from nuclear family (n=74, 67.27%). Nearly half of the study subjects were school drop-out (n=53, 47.27%, not in table). Thirty one subjects (28.18%) completed graduation during time of data collection. By occupation, 51 (46.36%) of the study subjects were students and 49 (44.55%) were house wives. Socio-economic status showed 39 (35.45%) in class IV [Table/Fig-1].

Socio-demographic profiles	Frequency	%
Age group (years)		
15-18	47	42.73
19-21	38	34.54
22-24	25	22.73
Religion		
Hindu	37	33.64
Muslim	73	66.36
Caste		
General	84	76.36
OBC	18	16.36
SC	8	7.28
Type of family		
Nuclear	74	67.27
Joint	36	32.73
Education		
Illiterate and just literate	3	2.73
Primary	49	44.55
Middle school	3	2.73
Secondary	2	1.81
Higher secondary	22	20.0
Graduation	31	28.18
Occupation		
House wife	49	44.55
Student	51	46.36
Tailoring	2	1.81
Private tutor	8	7.28
Marital status		
Married	58	52.73
Not married	52	47.27
Socio-economic status		
I (≥7715)	3	2.73
II (3858-3857)	17	15.45
III (2315-3857)	24	21.82
IV (1157-2314)	39	35.45
V (≤1156)	27	24.54

[Table/Fig-1]: Socio-demographic profiles of the study population (n=110).
OBC: Other backward class; SC:Scheduled castes

Mean age of menarche of the study population was 13.04±1.3 years. Currently, most of the study subjects had regular cycle (n=95, 86.36%), moderate flow (n=42, 38.18%) and 3-5 days of duration (n=66, 60%) [Table/Fig-2]. It was found that out of total 75 women who reported dysmenorrhoea, only 11 (14.67%) used medicine and 6 (8.0%) used hot water bag compress for pain relief [Table/Fig-3].

Menstrual history	Frequency	%
Age at menarche (years)		
9-11	9	8.18
>11-13	64	58.18
>13-16	37	33.64
Flow of menstruation#		
Scanty (low and very low)	38	34.55
Moderate	42	38.18
Heavy	30	27.27
Consistency of menstrual blood		
Fresh	55	50.0
Clotted	5	4.55
Both	50	45.45
Duration of menstruation (days)		
1-3	27	24.55
>3-5	66	60.0
>5-8	17	15.45
Associated pain		
Yes	75	68.18
No	35	31.82
Regularity of menstruation		
Yes	95	86.36
No	15	13.64

[Table/Fig-2]: History of menstruation of the study population (n=110).
#Quantity is specified as per perception of the study subjects

Characteristics of dysmenorrhoea	Frequency	%
Site of pain*		
Lower abdomen	75	100
Back	33	44.0
Thigh	2	2.67
Time of pain (n=75)		
Before bleeding starts	38	50.67
Starting of bleeding	35	46.67
Towards the ending of menstruation	2	2.66
Relieving factors for pain (n=75)		
Medicine	11	14.67
Hot water bag compress	6	8.0
Nothing	75	77.33
Duration of pain (in days) (n=75)		
1-4	66	88.0
>4-8	5	6.67
>8-11	4	5.33

[Table/Fig-3]: Characteristics of dysmenorrhoea and practices for it (n=75).
*multiple responses

Regarding personal hygiene practice during period, it was seen that 88 (80%) of study subjects used only safe sanitary napkins, 16 (14.55%) used only cloths and 6 (5.45%) used both. Among 16 girls who used cloth, 13 girls (81.25%) reported washing the cloth with detergent and water and 10 (62.5%) reported repeated use of cloth after washing and drying. Six girls who reported to use both cloth and sanitary pads, told that they never reused the clothes so, never wash them but dispose them after single use. Majority (N=87, 92.55%) of study subjects who used sanitary napkins, needed 1-3 napkins per day [Table/Fig-4]. Majority (90.80%, N=79) who used 1-3 napkins per day told that the number of napkins depends on the flow of menstruation while rest told they could not afford more sanitary pad (not in table).

The most common disposal practice was disposal of used absorbents under the soil after digging the soil (N=42, 44.68%).

Menstrual hygiene practice	Frequency	%
Materials used (n=110)		
Sanitary pads only	88	80.0
Cloths only	16	14.55
Both	6	5.45
Materials used in washing cloths of menstruation (n=16)#		
Detergent powder	13	81.25
Hot water	2	12.5
Dettol and hot water	1	6.25
Repeated use of same cloths (n=16)		
Yes	10	62.50
No	6	37.5
Number of pads used per day (n=94)		
1-3	87	92.55
>3-5	7	7.45
Taking bath during menstruation	110	100
Washing clothes with soap and water during menstruation	110	100
Washing private parts and hands with soap and water during menstruation	110	100
Disposal of used sanitary napkins (n=94)		
Under the soil	42	44.68
Thrown into the bathroom chamber	13	13.83
Thrown into dustbin after wrapping with newspaper	11	11.70
Thrown into dustbin after wrapping with plastic	15	15.96
Thrown into bush after wrapping with plastic	4	4.26
Thrown into pond after wrapping with plastic	9	9.57
Disposal of used clothes (n=22)		
Under the soil	16	72.73
Thrown into the bathroom chamber	2	9.09
Thrown into dustbin after wrapping with newspaper	2	9.09
Thrown into pond after wrapping with plastic	2	9.09

[Table/Fig-4]: Menstrual Hygiene Practices (MHM) (n=110).
#Six subjects who reported to use both clothes and sanitary pad, they told that they never reused used clothes and wash them

Throwing to bathroom chamber, in dustbin or pond, in or nearby bushy area after wrapping with plastic were the other reported mode of disposal. Only 11 subjects (11.7%) reported that they disposed used sanitary napkins after wrapping with newspaper [Table/Fig-4].

Other personal hygiene practices during menstruation was found to be adequate as all study participants reported to take bath, wash garments and wash hands with soap and water after using toilet and cleaning during menstruation. However restriction in daily activities during menstruation was revealed by many study subjects. All reported that they abstain from any religious activities during period and 94 (85.45%), 82 (74.54%) and 64 study subjects (58.18%) told that they were not allowed to do outdoor activities like playing, walking with friend, going to market etc., 'household work' and kitchen work respectively during menstruation [Table/Fig-5].

Seventy study subjects (63.64%) were not aware about menstruation before menarche. Although 93 participants (84.55%) reported at least one female person shared about experience of menstruation during their lifetime, only 27 (24.55%) reported that at least one female person had shared that with them before menarche. Sixty percent of study subjects told that they never discussed with or revealed menstrual status to any of the male family members whereas 71 (64.54%) subjects told that they could discuss with their mothers only. Twenty participants (18.18%) reported that they did not even discuss about monthly bleeding with any female members of the family. Sixty six study subjects (60.0%) reported school absenteeism at least for one or two days during menstruation [Table/Fig-5].

Revealation and discussion of menstrual status	Frequency	%
Awareness of menstruation before menarche	40	36.36
Any woman shared about experience of menstruation	93	84.55
Yes, before menarche	27	24.55
Yes, after menarche	66	60.00
None	17	15.55
Reveal or inform about menstrual status to the male members of the family		
Never	66	60.0
Yes sometimes	29	26.36
Yes always	15	13.64
Reveal or inform about menstruation to any female members of the family**		
None	20	18.18
Mother	71	64.54
Grandmother	3	2.72
Mother-in-law	11	10.0
Sister	22	20.0
Aunt	7	6.36
Sister-in-law	11	10.0
School absenteeism during menstruation	66	60.0
Restriction to outdoor activity	94	85.45
Restriction of religious activity during menstruation	110	100
Restriction to household activity during menstruation	82	74.54
Restriction to kitchen work during menstruation	64	58.18

[Table/Fig-5]: Menstruation related social practices (N=110).
**multiple responses

When they were asked about the cause of menstruation, majority (N=93, 84.55%) could not say anything whereas only 11 (10%) could rightly point out as monthly ovulation is the cause. Misbeliefs like 'releasing of bad blood' or 'excess blood' coming through menstruation also found to be existed among 6 study subjects (5.45%).

While exploring attitude of study population towards menstruation only 36 subjects (32.73%) agreed that it is a natural phenomenon. Forty-two women (38.18%) felt that 'revealing menstrual status to male person except doctor is shameful'. Majority of study population (n=93, 84.55%) opined that women should not take part in religious activity during menstruation. Only 31 (28.18%) women thought that regular daily activities should be continued during menstruation. Most of the study women (n=95, 86.36%) were of opinion of using sanitary napkins if cost permits. When opinion sought on 'menstrual irregularities is a disease and not due to sin of women' majority (n=78, 70.91%) did not say anything and only 15 women (13.64%) agreed. Fifty one subjects (46.36%) opined that women should go to doctors if she has any menstrual problem while 54 (49.1%) did not have any opinion [Table/Fig-6].

Attitude	Agree frequency (%)	Disagree frequency (%)	Can't say/ Did't say frequency (%)
Menstruation is a natural phenomenon	36 (32.73)	18 (16.36)	56 (50.91)
It is shameful to reveal menstrual status to men except doctor	42 (38.18)	13 (11.82)	55 (50.0)
Women should not take part in religious activity during menstruation	93 (84.55)	9 (8.18)	8 (7.27)
Women should do regular daily activity during menstruation if health permits	31 (28.18)	31 (28.18)	48 (43.64)
Hygiene should be maintained during menstruation otherwise genital infection will result	61 (55.45)	9 (8.18)	40 (36.37)
Sanitary napkins should be used if cost permits	95 (86.36)	4 (3.64)	11 (10)
Sanitary napkins or clothes should be changed in every six hours	3 (2.73)	5 (4.54)	102 (92.73)
If cloth is used, it should be clean and should not be reused	99 (90.00)	3 (2.73)	8 (7.27)
Menstrual irregularities is a disease and not due to sin of women	15 (13.64)	17 (15.45)	78 (70.91)
Women should go to doctors if she has any menstrual problem	51 (46.36)	5 (4.55)	54 (49.09)

[Table/Fig-6]: Distribution of study population according to their attitude towards menstruation (N=110).

Statistically significant association was observed between S-E condition and number of pad use (p<0.0001), school absenteeism during menstruation (p=0.011634) and higher socio-economic condition being more favourable. Education above primary level was positively associated with awareness about menstruation before menarche (p<0.00001). At the same time education above primary level had statistically significantly associated with lesser stigma regarding revealation of menstrual status to men (p=0.000602). However, education above primary level was not associated with knowledge about scientific basis of menstruation. Religion was found to be unassociated with school absenteeism, restriction in household or kitchen activity and outdoor activity during menstruation and awareness about menstruation before menarche [Table/Fig-7].

Socio-demographic variables	Knowledge, attitude and practice		p-value
Religion	School absenteeism		
	Yes	No	
Muslim	41	32	0.272348
Hindu	25	12	
Religion	Awareness about menstruation before menarche		
	Aware	Not aware	
Muslim	38	35	0.050848
Hindu	12	25	
Religion	Restriction to household activity		
	Yes	No	
Muslim	16	57	0.231659
Hindu	12	25	
Religion	Restriction to kitchen work		
	Yes	No	
Muslim	38	35	0.842707
Hindu	20	17	
Religion	Restriction to outdoor activity		
	Yes	No	
Muslim	62	11	0.826997
Hindu	32	5	
S-E condition	Cloth use as menstrual absorbent		
	Yes	No	
Stage I and II	3	17	Yates correction 0.536564
Stage III and above	19	71	
S-E condition	No. of sanitary pad use per day (n=94)		
	1-3	3-5	
Stage I and II	12	6	0.007682
Stage III and above	69	7	
S-E condition	School absenteeism during period		
	Yes	No	
Stage I and II	7	13	0.011634
Stage III	59	31	
Education	Use pain remedy for dysmenorrhea (n=75)		
	Yes	No	
Upto primary completed	5	32	Yates correction 0.111291
Above primary	12	26	
Education	Knowledge about scientific basis of menstruation		
	Correct	Incorrect/ Don't Know	
Upto primary completed	2	50	0.085652
Above primary	9	49	

Education	Awareness about menstruation before menarche		
	Aware	Not aware	Yates correction <0.00001
Upto primary completed	5	47	
Above primary	35	23	
Education	Reveal or inform about menstrual status to the male members of the family		
	Always/sometimes	Never	0.000602
Upto primary completed	12	40	
Above primary	32	26	
Education	Attitude-it is shameful to reveal menstrual status to men except doctor		
	Positive	Negative	<0.00001
Upto primary completed	10	42	
Above primary	9	49	
Education	Attitude-menstrual irregularities is disease not sin		
	Positive	Negative	0.742276
Upto primary completed	6	46	
Above primary	9	49	

[Table/Fig-7]: Association of selected variables of knowledge attitude practice with socio-demographic variables (N=110).
S-E: Socio-economic

DISCUSSION

This cross-sectional descriptive study, conducted in a rural community of West Bengal revealed that use of sanitary pad and other hygienic measure during period among young women was good but there is persistence of stigma, misconception, lack of knowledge related to menstruation and restriction of daily activity during monthly bleeding. Inspite of good MHM of study participants, lack of awareness and poor attitude towards menstrual hygiene and reproductive tract infection was noted to be existed among study population. The present study found that number of pad use depended on S-E condition of the study population. The attitude and some practices of study population showed that the stigma towards menstruation is deeply rooted among them. Majority of them (70.91%) thought menstrual irregularities as 'sin not merely disease and less than half (46.36%) opined for going to doctors for any menstrual problem. In current study, majority (77.33%) of women who experienced dysmenorrhoea and did nothing to relieve pain which was also an indication of the stigma and secrecy associated with period. In current study, it was seen that the taboo and stigma about menstruation can lead to multiple outcomes namely secrecy, shame, decreased mobility, social and religious restrictions, which corroborate different study findings [4,19-21,27-29].

Regarding disposal of used pad, indiscriminate throwing into open field, pond, behind bush etc. was reported by study participants. The reasons behind such finding might be lack of proper safe place for disposal. Frequent use of plastic for wrapping before disposal is another finding in current study that needs special mention as it may be seen from perspective of environmental pollution.

The present study findings were compared with few similar studies are mentioned in [Table/Fig-8] [1-4,16,18,19,30-36].

Sl. No.	Authors name, and year	Place of study	Number and age group of subjects	Parameters considered	Conclusion
1.	Van Erik AM, et al. 2016 [1]	Meta-analysis of studies done in India.	Data from 138 studies involving 193 subpopulations and 97,070 girls were extracted.	• In 88 studies, half of the girls reported being informed prior to menarche. • Menstruating girls experienced many restrictions, especially for religious activities. • 1/4th reported missing school during periods. • Inappropriate disposal was common. • Disposal in rural settings through burying and throwing away in public spaces was also common.	All findings corroborate or were close to current study findings.
2.	Sarkar I et al., 2017 [2]	Rural area of Hoogly district, West Bengal, India	307 school going adolescent girls of 12-17 years age group	• Use of sanitary napkins by 28.8%. • Awareness of menstruation before menarche-67.5%. • 97.0% knew that menstruation was a normal physiological process. • Only 28.3% had a correct knowledge that the source of menstrual blood is uterus. • Restriction of religious activity during period-86.3%.	• Much lower use of sanitary napkins compared to current study. • But awareness of menstruation before menarche is lower in current study. • In current study much lower proportion of subjects (32.73%) knew that menstruation is normal physiological process.
3	Chinyama J et al., 2019 [3]	Qualitative exploratory study in six rural schools of Mumbwa and Rufunsa districts of Zambia.	Twelve in-Depth Interviews (IDIs) and six Focus Group Discussions (FGDs) done among girls óf 14-18 years age who had just begun menstruating. Two FGDs with boys aged 14-18 years and 25 key informant interviews done with teachers, female guardians and traditional leaders	Most girls reported learning about menstruation only at menarche and did not know the physiological basis of menstruation.	Corroborate current study findings.
4	Mason L et al., 2013 [4]	Rural western Kenya	Qualitative study among young school girls	• No prior knowledge of menstruation was very common, describing learning of menstruation only when they experienced bleeding for the first time. • Narratives repeatedly mentioned the importance of secrecy, a recurring theme throughout the FGDs.	This study findings corroborate current study findings.
5.	NFHS-4,West Bengal (2015-16) [16]	West Bengal, Rural	15-49 years age group	Use of safe and hygienic sanitary napkin during menstruation-46.7%.	Lower than current study findings.
6.	Sychareun V et al., 2020 [18]	Khammouane and Champasack province of Lao PDR	343 adolescent girls of which 99 out-of-school who had reached menarche	• 26.5% said they had missed school or work because of their period. • 87.7% had discussed menstruation with their mothers, mostly on more than one occasion. • 8.4% reported discussing menstruation with their fathers.	• School absenteeism was much higher in present study. • Discussing with mother about menstruation is also lower in current study. • In current study 40% study subjects told that they ever discussed about menstruation with male member of famiy.

7	Dasgupta A and Sarkar M 2008 [19]	Singur, Hooghly district, West Bengal	60 adolescent girls of a secondary school	• Awareness of menstruation before menarche-67.5% • 86.25% girls believed it as a physiological process. • 11.25% girls used sanitary pads during menstruation. • 97.5% girls used both soap and water for cleaning genitelia. • 85% girls practised different restrictions during period	Menstrual Hygiene Practice (MHM) and restriction during period are similar to current study finding however sanitary pad use much lower than current study. Knowlege and awareness is better than current study.
8.	NFHS-5, West Bengal (2019-20) [30]	West Bengal, Rural	15-49 years age group	Use of safe and hygienic sanitary napkin during menstruation-79.7%.	Close to current study result.
9.	Devi KD and Ramaiah PV 1994 [31]	Guntur District in Andhra Pradesh	65 high school girls of 14-15 years age	Use of sanitary napkins by 84.5%.	Similar to current study finding.
10.	Michael J et al., 2020 [32]	Quetta, Balochistan, Pakistan	923 female adolescents attending general out-patient departments of Mohtarma Shaheed Benazir Bhutto Hospital Quetta, Balochistan	• Use of sanitary napkins by 68.7%. • 58.2% study subjects were not taking baths during menstruation. • 80.5% cleaned their genitalia.	Use of sanitary napkins and hygienic practices are lower than current study results.
11.	Sharma S, et al., 2020 [33]	Meta-analysis and systematic review of researchers done in India	183 eligible papers on menstrual hygiene preparedness were included in this review	Less than half of the girls were aware of menstruation before menarche.	Similar to current study findings.
12.	Belayneh Z and Mekuriaw B. 2019 [34]	Gedeo zone high schools of Ethiopia	791 adolescent girls	• Two-third school girls did not use sanitary pads during their menstruation period, • 69.5% clean their external genitalia. • 60.3% of girls had poor menstrual hygienic practice. • There were numerous supernatural and traditional perceptions and beliefs among study population regarding menstruation.	Sanitary pad use and cleaning practices were found be better in present study compared to this study. Many misbeliefs and misconceptions were also observed in current study among study women.
13.	(Thakre SB et al., (2011) January-March, 2011 [35]	Saoner, Nagpur District	387 school going adolescent girls of 8th-9th standard both in urban and rural areas	• 36.95% of the girls were aware of menstruation before menarche • >3/4th the girls were unaware of the cause and the source of the bleeding. • Sanitary pads used by 49.35% of the girls. • The practice of the use of old clothes by 45.74% of the subjects. • Satisfactory cleaning of the external genitalia was practiced by 33.85% of the girls. • 3/4th of the study girls practiced various restrictions during menstruation.	All parameters were better in current study except knowledge about cause of bleeding, which was similar to this study.
14.	Patel MS et al., 2019 [36]	Rural area of Goa	273 adolescent school girls of 11-16 years age group.	• 73.6% girls used sanitary pads. • 83.9% were aware of menses menarche. • 54.9% of the participants were aware that menstrual blood arises from the uterus • 35.9% girls were aware that the menstruation is physiological. • Significant difference in the restrictions imposed between the Hindu, the Catholic and the Muslim religions were found • Only 28.6% girls faced no restriction during menstruation.	Most of the findings were comparable to the current study however awareness of menstruation before menarche was higher in this study. Unlike this study the current study found no significance differences of restriction imposed or practiced during period between Muslim and Hindu study subjects.
15.	Present study Amin FF et al., 2022	Rural area in Amdanga block, North 24 Pargana, West Bengal, India	110 women aged 15-24 years age obtained by multistage sampling technique	• About 68.18% reported pain associated with menstruation but 77.33% did nothing for pain relief. • Disposal of used pads under the soil was most common practice. indiscriminate disposal and plastic use for disposal reported. • Restrictions to social activities like school absenteeism, taking part in religious activity, going outdoor , kitchen and household work were reported by 60%, 100%, 85.45% 58.18% and 74.54% participants respectively. • Sixty four percent study subjects were unaware of menstruation before menarche. • Menstrual hygiene practice was good but attitude towards menstruation was poor. • Statistically significant association was observed between S-E condition and number of sanitary pad use, ($p<0.0001$) and school absenteeism, ($p=0.011634$). • Education above primary level was positively associated ($p<0.0001$) with awareness about menstruation before menarche.	Although menstrual hygiene is better compared to other studies, poor attitude, lack of knowledge about scientific basis of menstruation and stigma and tabbo still exist in this section of rural young women.

[Table/Fig-8]: Comparison of current study findings with relevant studies [1-4,16,18,19,30-36].

Limitation(s)

The current study was conducted by house to house visit and the incorporation of out-of school girls has helped the researchers to ascertain the actual behaviour and practices related to menstruation among young women of the community. However, better understanding about social issues and barriers related to menstruation, could have been ensured by qualitative assessment which was not done in current study.

CONCLUSION(S)

The study conveyed that inspite of overall better MHM inappropriate disposal of used pads, inadequate knowledge, wide spread stigma, secrecy, taboos and restriction in activities during menstruation still exists in the rural community across all religions. Inclusion of menstruation in school syllabus, free supply of safe sanitary napkins through school and general rationing system, widespread awareness campaign through existing national program about

menstrual hygiene and safe disposal may help to reduce stigma and restrictions faced by women and will improve menstrual health as well.

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REFERENCES

[1] Van Erik AM, Sivakami M, Thakkar MB, Bauman A, Laserson KF, Coates S, et al. Menstrual hygiene management among adolescent girls in India: A systematic review and meta-analysis. BMJ Open. 2016;6(3):e010290.
[2] Sarkar I, Dobe M, Dasgupta A, Basu R, Shahbabu B. Determinants of menstrual hygiene among school going adolescent girls in a rural area of West Bengal. J Family Med Prim Care. 2017;6(3):583-88.
[3] Chinyama J, Chipungu J, Rudd C. Menstrual hygiene management in rural schools of Zambia: A descriptive study of knowledge, experiences and challenges faced by schoolgirls. BMC Public Health. 2019;19(1):16.
[4] Mason L, Nyothach E, Alexander K, Odhiambo FO, Eleveld A, Vulule J, et al. 'We keep it secret so no one should know'—A qualitative study to explore young schoolgirls attitudes and experiences with menstruation in rural western Kenya. PLoS One. 2013;8(11):e79132.
[5] Thakur H, Aronsson A, Bansode S, Lundborg CS, Dalvie S, Faxelid E. Knowledge, practices, and restrictions related to menstruation among young women from low socioeconomic community in Mumbai, India. Front Public Health. 2014;2:72.
[6] Vashisht A, Pathak R, Agarwalla R, Patavegar NB, Panda M. School absenteeism during menstruation amongst adolescent girls in Delhi, India. J Family Community Med. 2018;25(3):163-68.
[7] Keatman T, Cavill S, Mahon T. Menstrual hygiene management in schools in South Asia, Synthesis Report. Water Aid; New Delhi, India: 2018.
[8] National Rural Health Mission. Training Module for ASHA on Menstrual Hygiene. National Rural Health Mission; New Delhi, India: 2011.
[9] Ministry of Drinking Water and Sanitation. Menstrual Hygiene Management, National Guidelines. Ministry of Drinking Water and Sanitation; New Delhi, India: 2015.
[10] Geertz A, Iyer L, Kasen P, Mazzola F, Peterson K. Menstrual health in India: Country's Landscape Analysis. [(Accessed on 6 June 2020)]; Available online: http://menstrualhygieneday.org/wp-content/uploads/2016/04/FSG-Menstrual-Health-Landscape_India.pdf.
[11] Sommer M. Where the education system and women's bodies collide: The social and health impact of girls' experiences of menstruation and schooling in Tanzania. J Adolesc. 2010;33:521-29.
[12] Bodat S, Ghate MM, Majumdar JR. School absenteeism during menstruation among rural adolescent girls in Pune. Natl J Community Med. 2013;4:212-16.
[13] Chothe V, Khubchandani J, Seabert D. Students' perceptions and doubts about menstruation in developing countries: A case study from India. Health Promot Pract. 2014;15:319-26.
[14] Garg S, Sharma N, Sahay R. Socio-cultural aspects of menstruation in an urban slum in Delhi, India. Reprod Health Matters. 2001;9:16-25.
[15] Narayan KA, Srinivasa DK, Pelto PJ. Puberty rituals reproductive knowledge and health of adolescent schoolgirls in south India. Asia Pac Popul J. 2001;16:225-38.
[16] International Institute for Population Sciences (IIPS) and ICF. Ministry of Health and Family Welfare. National Family Health Survey (NFHS-4), 2015-16: Mumbai: International Institute for Population Sciences (IIPS); 2017.
[17] Mohammed S, Larsen-Reindorf RE. Menstrual knowledge, sociocultural restrictions, and barriers to menstrual hygiene management in Ghana: Evidence from a multi-method survey among adolescent schoolgirls and schoolboys. PLoS One. 2020;15(10):e0241106.
[18] Sychareun V, Chaleunvong K, Essink DR, Phommavongsa P, Durham J. Menstruation practice among school and out-of-school adolescent girls, Lao PDR. Glob Health Action. 2020;13(sup2):1785170.
[19] Dasgupta A, Sarkar M. Menstrual hygiene: How hygienic is the adolescent girl? Indian J Community Med. 2008;33:77-80.
[20] Paria B, Bhattacharyya A, Das S. A comparative study on menstrual hygiene among urban and rural adolescent girls of West Bengal. J Family Med Prim Care. 2014;3(4):413-17.
[21] Ramachandra K, Gilyaru S, Eregowda A, Yathiraja S. A study on knowledge and practices regarding menstrual hygiene among urban adolescent girls. Int J Contemp Pediatr. 2016;3:142-45.
[22] Ray S, Dasgupta A. Determinants of menstrual hygiene among adolescent girls: A multivariate analysis. National J Comm Med. 2012;3(2):294-301.
[23] Yasmin S, Manna N, Mallik S, Ahmed A, Paria B. Menstrual hygiene among adolescent school students: An in depth cross-sectional study in an urban community of West Bengal, India. IOSR-JDMS. 2013;5(6):22-26.
[24] Boral K, Burman J, Sembiah SM. A cross-sectional study on menstrual hygiene among rural adolescent girls of West Bengal. International Journal of Contemporary Medical Research. 2020;7(10):J10-14.
[25] Chakraborty S. Menstrual health in peril due to taboos and stigmas about menstruation: A comparative study in this context between two Indian villages. International Journal of Innovative Science and Research Technology. 2019;4(7):30-35.
[26] Debnath, Dhrubajyoti, Kakkar, Rakesh. Modified BG Prasad Socio-economic Classification, Updated-2020. Indian Journal of Community Health. 2020;32(1):124-25.
[27] Sommer M, Hirsch JS, Nathanson C, Parker RG. Comfortably, safely, and without shame: Defining menstrual hygiene management as a public health issue. Am J Public Health. 2015;105(7):1302-11.
[28] McMahon SA, Winch PJ, Caruso BA, Obure AF, Ogutu EA, Ochari IA, et al. The girl with her period is the one to hang her head' Reflections on menstrual management among schoolgirls in rural Kenya. BMC Int Health Hum Rights. 2011;11:7.
[29] Wilson E, Haver J, Torondel B, Rubli J, Caruso BA. Dismantling menstrual taboos to overcome gender inequality. The Lancet Child & Adolescent Health. 2018;2(8):e17.
[30] International Institute for Population Sciences (IIPS) and ICF. Ministry of Health and Family Welfare. National Family Health Survey (NFHS-5), 2019-20: Mumbai: International Institute for Population Sciences (IIPS) 2020.
[31] Devi KD, Ramaiah PV. A study on menstrual hygiene among rural adolescent girls. Indian J Med Sci. 1994;48(6):139-43.
[32] Michael J, Iqbal Q, Haider S, Khalid A, Haque N, Ishaq R, et al. Knowledge and practice of adolescent females about menstruation and menstruation hygiene visiting a public healthcare institute of Quetta, Pakistan. BMC Women's Health. 2020;20:4.
[33] Sharma S, Mehra D, Brusselaers N, Mehra S. Menstrual hygiene preparedness among schools in India: A systematic review and meta-analysis of system-and policy-level actions. Int J Environ Res Public Health. 2020;17(2):647.
[34] Belayneh Z, Mekuriaw B. Knowledge and menstrual hygiene practice among adolescent school girls in southern Ethiopia: A cross-sectional study. BMC Public Health. 2019;19(1):1595.
[35] Thakre SB, Thakre SS, Reddy M, Rathi N, Pathak K, Ughade S. Menstrual hygiene: Knowledge and practice among adolescent school girls of Saoner, Nagpur District. J Clin of Diagn Res. 2011;5(5):1027-33.
[36] Patel MS, Vernekar SP, Desai AM. A study on the knowledge, attitude and practices regarding menstrual hygiene among adolescent girls in schools in a rural area of Goa. J Clin of Diagn Res. 2019;13(6):LC07-10.

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ANNEXURE 1

Questionnaire for the study on menstrual hygiene practices, social taboo and attitude towards it -A community based cross-sectional study among young women in a rural area of West Bengal

Serial no-

I. Background information

1. What is your Name?
2. What is your Age (in years)?
3 Sex- Male/Female/others
4. What is your religion- Hindu/Muslim/others (specify)
5 Caste- SC/ST/OBC/General
6. Type of family- nuclear/joint
7. Education- (last class passed)
8. Occupation
9. Marital status- married/unmarried/separated/
10. What is the approximate monthly family income (in Rs)?

II. Menstrual history

11. At what age did your period start?
12. Do you have your monthly bleeding at regularity interval?- Yes/no
13. What is the duration of menstrual bleeding?
14. How will you describe the flow of blood during menstruation? - Very low/low/moderate/heavy/very heavy
15. What is the consistency of menstrual blood?-liquid/clot/mixed
16. Associated pain during menstruation- Yes/no

If yes, go to question no- 16, 17, 18, if no- go to question-19

17. Please mention the site of pain.
18. When does the pain occur related to bleeding?
19. How long the pain usually persists?
20. How does the pain get relieved?

III. Menstrual hygiene practice

21. What absorbent materials do you use as absorbent during menstruation?
    - Sanitary napkin
    - Cloth
    - Both
    - Others (specify)
22. If cloth used, do you use repeatedly? Yes/no
23. If repeat use, what is used to wash cloth?
24. If sanitary pad used, how many pads do you use in average per day during menstruation?
25. Do you think the number of pad you use are adequate? Yes/no
26. If no, why?
27. Do you do the following things during menstruation?
    A. Washing your clothes with soap and water regularly. Yes/No
    B. Taking bath and washing hair regularly. Yes/No
    C. Washing your hands and private parts with soap and water regularly. Yes/No
    D. Taking part in religious activity. Yes/No
    E. Working in kitchen. Yes/No
    F. Doing outdoor activity. Yes/No
    H. Any other rituals or things (specify)
28. How do you dispose used absorbents?
    A. Sanitary Pad
    B. Clothes
    C. Others
29. Have you ever missed school during menstruation due to bleeding only? Yes/No
30. Are you aware of menstruation before onset of menstruation? Yes/No
31. Did any woman shared about experience of menstruation with you?
    - Yes, before onset of menstruation?
    - Yes, after onset of menstruation?
    - None.
32. Did you reveal or inform about menstrual status to the male members of the family?
    - No
    - Yes and with (specify)……..
33. Did you reveal or inform about menstruation to any female members of the family?
    - No
    - Yes and with (specify)……..

III. Knowledge about menstruation

34. Can you tell why monthly bleeding occurs? No/Yes
35. *If yes*, tell me the reason (s)……....

If no, go to next question.

Attitude towards

36. Give opinion about the following
    A. Menstruation is a natural phenomenon. Agree/Disagree/Can't Say
    B. It is shameful to reveal menstrual status to men except doctor. Agree/Disagree/Can't Say
    C. Women should not take part in religious activity during menstruation .Agree/Disagree/Can't Say
    D. Women should do regular daily activity during menstruation if health permits. Agree/Disagree/Can't Say
    E. Hygiene should be maintained during menstruation otherwise genital infection will result. Agree/Disagree/Can't Say
    F. Sanitary napkins should be used if cost permits. Agree/Disagree/Can't Say
    G. Sanitary napkins or clothes should be changed in every 6 hours. Agree/Disagree/Can't Say
    H. If cloth is used, it should be clean and should not be reused. Agree/Disagree/Can't Say
    I. Menstrual irregularities is a disease and not due to sin of women. Agree/Disagree/Can't Say
    J. Women should go to doctors if she has any menstrual problem. Agree/Disagree/Can't say

Signature of interviewer

……..