



Research Article

A Cross-Sectional Study on the Knowledge and Practice of Menstrual Hygiene Among School Children in Pathanamthitta, Kerala

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ABSTRACT

Introduction: Menstruation is a normal biological process and yet there is a lacunae when it comes to knowledge of it. This along with certain cultural practices and restrictions add to the reproductive tract infections related to menstrual hygiene. **Objectives** (1) To assess the knowledge and the practices of menstrual hygiene among school going adolescent girls. (2) To assess the restrictions which were practiced by adolescent schoolgirls during menstruation. (3) To provide health education regarding menstruation and healthy menstrual hygiene practices. **Settings and Design:** School based cross sectional study was conducted in a private institute and a government aided institute among girls in the age group of 12-18 years. **Material and Method:** Multistage sampling technique was used to select study population. Data was collected using pretested close ended questionnaire following which health education was provided to the study participants. **Statistical analysis** Qualitative data was analysed using frequency, proportion and association was done using chi square test with p value <0.05 taken as statistically significant. Quantitative data was analysed using measures of central tendency and dispersion. **Results:** 8.9% of the study participants who had attained menarche complained of previous history of menstrual infection and on further probing, there was a significant relation between infections and their knowledge on menstrual hygiene and menstruation process. **Conclusions:** There is a need of early education on menstrual hygiene to girls attaining menarche for menstrual hygiene and subsequent prevention of reproductive tract infection.

INTRODUCTION

Menstruation is a normal physiological process experienced by nearly half of world population at some point of time and around 1.8 billion girls, women, transgender men and non-binary 1 persons of reproductive age at current population. Yet millions of menstruating individuals across the world are denied the right to manage their monthly menstrual cycle in a dignified, healthy way 2. As menarche occurs at early school going age group lack of adequate guidance, facilities, and materials for girls to manage their menstruation in schools adds to this neglected public health problem 2. Hence with a strong and consistent association between poor menstrual hygiene practices and higher prevalence of lower Reproductive tract infections 3 there is a need to assess (1) Knowledge and (2) practice of menstruation and hygiene among this age group and (3) educate them regarding the same.

Subjects and Methods:

Study type: Descriptive cross sectional study.

Study period: The study was carried out over a period of 2 months from 01/06/2023 to 30/07/2023

Study area: One government and one private school in the field practice area of a tertiary care medical college in Pathanamthitta district.

Study population: Adolescents girls aged 12 to 18 years studying in classes 7 to 12 were included in the study and participants who didn't give consent were excluded

Sample size: The sample size was estimated by using the formula $n = 4pq / 1^2 = 4 \times 40 \times 60 / 6 \times 6 = 200$ Where, p is the prevalence of knowledge of good menstrual hygiene practice was taken as 60% $q = 100 - p = 40$ (1) is the permissible error which was taken as 10 percentage of prevalence

Sampling method:

The study was done using multistaged sampling where schools were listed and one government aided and one private school was selected by random sampling method and from each age group proportionate students were selected by random sampling using the attendance register of the students.

Study tool:

Pretested structured close ended questionnaire followed by health education with audiovisual aids.

Study procedure:

After getting permission from Institutional ethical committee, consent was taken from school and the guardians. Following a verbal consent from students, data was obtained from the students using the questionnaire which included

questions regarding socio demographic characteristics, menstrual history, knowledge of menstruation and menstrual hygiene and practice of menstrual hygiene and barriers related to it followed by health education by audiovisual aid and small group discussions.

Study analysis:

Data was entered in MS-Excel sheet and analyzed using IBM-SPSS 20 software. Knowledge was categorized as adequate if at least 50 percent of the questions regarding knowledge were answered correctly. Qualitative data were analyzed using frequency, percentage and association using chi square with $p < 0.05$ taken as statistically significant. Quantitative data was analyzed using mean, median, mode, range and standard deviation.

RESULTS

Majority of the participants belonged to the age group of 13 years (28%) and 14 years (20.5%) and rest belonged to the age group of 14-15 years (34.5%) and 15-16 years (20.5%). The mean age of the study participants was 14.03 years with standard deviation of 1.56. 52% of the participants belonged to the class of 7th -9th standard and rest to 10th -12th

There were good representation from government aided (52.5%) and private school (47.5%). Majority were Hindus (62%), followed by Christians (30.5%) and Muslim (7.5%). When participant's mother's education and occupation was assessed, it was noted that majority of the mothers had studied up to college or above (51.5%) and majority were homemakers (65.5%). (Table 1)

Table 1: Distribution of Participants Based in Socio Demographic Characteristics

Socio-demographic characteristics	Frequency	Percentage
Age (years)		
12-13	90	45
14-15	69	34.5
16-17	41	20.5
Class		
7-9	104	52
10-12	96	48
Type of school		
Government aided	105	52.5
Private	95	47.5
Religion		
Hindu	124	62
Muslim	15	7.5
Christian	61	30.5
Mothers education		
Illiterate	0	0
Primary	7	3.5
Secondary	44	22
Higher Secondary	46	23
College and above	103	51.5
Mothers Occupation		
Homemaker	130	65.5
Agriculturist	2	1
Daily labourer	18	9
Government employee	4	2
Private organisation	3	1.5
Businesswoman	21	10.5
Others	22	11
Total	200	100

89.5% of the participants had attained menarche and the most common age group of menarche was 10-14 years (93.8%) with regular cycle (78.8%) and severe flow (73.7%). Majority of participants felt discomfort (36.9%)

during the first period and rest felt scared (24.6%), happy (12.3%) and emotional (11.2%). A past history infections related to menstrual hygiene (RTI) was given by 16 (8.9%) of the participants. (Table 2)

Table 2: Distribution of Participants Based on Menstrual History

Menstrual history	Frequency	Percentage
Have you attained menarche		
Yes	179	89.5
No	21	10.5
Age of menarche (in years)		
9-10	8	4.5
11-14	168	93.8
>14	3	1.7
Reaction to menarche		
Happy	22	12.3
Scared	44	24.6
Discomfort	60	36.9
Emotional	20	11.2
Others	27	15.1
Regularity of cycle		
Regular	131	78.8
Irregular	38	21.2
Amount of flow		
Scanty	25	14
Moderate	22	12.3
Severe	132	73.7
Associated symptoms*		
Abdominal pain	107	62.8
Vomiting	4	2.3
Weakness	27	15.6
Headache	10	5.8
Backache	49	28.3
Others	18	10.4
Infection related to menstrual hygiene		
Yes	16	8.9
No	163	91.1

* Multiple choice questions

Knowledge was assessed by various questions and it was noted that majority of the participants responded that menstruation is physiological process (79.5%) and 18.5% of the participants didn't know how menstruation occurs. Majority of the participants responded that the normal age of menarche was 11-14 years (79%), normal duration of menstruation was 3-4 days (49.5%) followed by 5-8 days (28.5%), perceived menstrual blood as unhygienic (70%), were aware of menstrual hygiene practices (73.5%), received some information on menstrual hygiene before attaining menarche (86%). (Table 3) and attended class regarding menstruation before attaining menarche (53.6%). (Table 4)

When practice of menstrual hygiene was assessed, it was noted that all the participants used some form of absorbent

with majority using pads (91.1%) and the rest using cloth (8.9%). 12 of the 16 participants who used cloth washed it with soap and water regularly and rest 4 washed it with water alone. 53.6% of the participants changed the pad twice a day, 41.9% more than twice and the rest changed once per day. 18.4% of the participants consulted doctors for menstruation related problems and 14% of the participants used medications for dysmenorrhoea. 97.8% of the participants bathed and cleaned their private area regularly during periods. When the practice of disposal of pads was assessed it was noted that majority practiced burning of pads (54.7%) followed by disposal in toilet (23.5%), dustbin (21.2%) and in open field (0.6%). (Table 5)

Table 3: Distribution of Participants Based on Knowledge of Menstrual Hygiene

Knowledge on menstrual hygiene	Frequency	Percentage
What kind of process is menstruation		
Physiological	159	79.5
Pathological	4	2
Don't know	37	18.5
What is the normal age of menarche (yrs)		
8-10	8	4
11-14	158	79
14-18	7	3.5
Don't know	28	13.5
What is the normal duration of menstruation (in days)		
1-2	31	15.5
3-4	99	49.5
5-8	57	28.5
>8	13	6.5
Perception of menstrual blood		
Hygienic	60	30
Unhygienic	140	70
Menstrual hygiene practices		
Aware	147	73.5
Unaware	53	26.5
Information on menstrual hygiene before attaining menarche		
Yes	172	86
No	28	14
Total	200	100

Table 4: Distribution of Study Participants Based on Attending Class Session Related to Menstruation Before Attaining

Class session attended	Frequency	Percentage
Attended	96	53.6
Not attended	83	46.4
Total	179	100

Table 5: Distribution of Study Participants Based on Practice of Menstrual Hygiene

Practice of menstrual hygiene	Frequency	Percentage
Use of absorbent		
Yes	179	100
No	0	0.
Type of absorbent used		
Pad	163	91.1
Cloth	16	8.9
Frequency of changing pad per day		
Once	8	4.5
Twice	96	53.6
More than twice	75	41.9
Disposal of pads		
Dustbin	38	21.2
Toilet	42	23.5
Open field	1	0.6
Burning	82	54.7
Use of medication for dysmenorrhoea		
Yes	25	14
No	154	86
Bath and adequate cleaning during menstruation		
Yes	175	97.8
No	4	2.2
Consulted doctor regarding problems due to periods		
Yes	33	18.4
No	146	81.6
Total	179	100

41.3% of the participants felt that the periods interfered with school activities and 16 (8.9%) of participants regularly missed school during periods. When further probed; pain (12), feeling uncomfortable (2), embarrassed (1) and others

(1) were the common reason for absenteeism. 15.7% of the participants who attained menarche felt that there was no adequate facility to change pads and none of the school had sanitary pad/napkin vending machine. (Table No.6)

Table 6: Distribution of Study Participants Based on Interference With School Activities Due to Menstruation

School related characteristics	Frequency	Percentage
Interference with school activities		
Yes	74	41.3
No	105	58.7
Attending school during menstruation		
Yes	163	91.1
No	16	8.9
Reason for absenteeism		
Embarrassed	1	6.3
Pain	12	75
Feel uncomfortable	2	12.5
Others	1	6.3
Do you think adequate facility is available for change of pads		
Yes	151	84.3
No	28	15.7
Total	179	100

Majority of the participants experienced restrictions imposed during menstrual periods and majority of the restrictions were imposed on performing religious activities (74.3%), sleeping on routine bed (19.5%), playing outside (14.5%) and touching others (17.8%). Majority (53.3%) of the participants didn't know the rationale behind such practice (Table No.7). On further assessing it was noted that 93.6%

of the Hindus had restrictions on religious activity, compared to 92.9% of the Muslims compared to only 62.5% among Christians and this was found to be statistically significant ($p < 0.05$) but there was no significant association between religion and infection related to menstrual hygiene with 10.1%, 7.1% and 7.1% of Hindus, Muslims and Christians giving past history of infections respectively.

Table 7: Distribution of Study Participants Based on Restrictions Imposed During Periods

Restrictions imposed during menstrual cycle	Frequency	Percentage
Restrictions imposed		
Yes	150	83.8
No	29	16.2
Restrictions imposed*		
Perform religious activities	133	74.3
Sleep on routine bed	35	19.5
Touch family members	26	14.5
Play outside	32	17.8
Do you know the rationale behind the restrictions		
Yes	80	53.3
No	70	46.7

*Multiple choice questions

Table 8 : Association between Religion With Social Restrictions during Menstruation and History of Infection Related to Menstruation

Parameters	Religion			p value
	Hindu	Muslim	Christian	
Social restrictions imposed during periods				
Yes	102	13	35	0.000*
No	7	1	21	
Infections related to menstruations (RTI)				
Yes	11	1	4	0.796
No	98	13	52	
Total	109	14	56	

*statistically significant at $p < 0.05$

77.7% of the participants who attained menarche had adequate knowledge on menstruation compared to only 38.1% of the participants who didn't attain menarche and this found to be statistically significant ($p < 0.05$). Also it was noted that 84.4% of the participants who attained menarche discussed regarding menstruation with friends and family compared to only 42.9% of participants who didn't attain

menarche and this was also found to be statistically significant. ($p < 0.05$) (Table 9). Similarly there was a significant association ($p < 0.05$) between adequate knowledge on menstrual hygiene and infections with only 5.7% of the participants having adequate knowledge giving history of infection compared to 20% of participants with inadequate knowledge. (Table 10).

Table 9: Association of Attainment on Knowledge of Infection and With Discussion With Friends and Family Regarding Menstrual Hygiene

Characteristics	Menarche attained		p value
Knowledge of menstruation and menstrual hygiene			
Adequate	139	8	0.0001*
Inadequate	40	13	
Discussion on menstruation with friends and family			
Yes	151	9	0.00001*
No	28	12	
Total	179	21	

*statistically significant at $p < 0.05$

Table 10: Association between Reproductive Tract Infection and Knowledge Practice of Menstrual Hygiene

Parameters	Infections related to menstrual hygiene (RTI)		p value
	Yes	No	
Knowledge regarding menstrual hygiene			
Adequate	8	131	0.01*
Inadequate	8	32	
Total	16	163	

*statistically significant at $p < 0.05$

DISCUSSION

There was a good representation of participants from government and private school. Majority of participants were Hindus followed by Christians which was the Socio demographic framework of this area. In the current study; 10.5% of the participants didn't attain menarche during the study period and there was a significant association between knowledge on menstruation and menstrual hygiene versus attainment of menarche. Also there was limited discussion with friends and family regarding menstruation among this population. Similar results were seen in studies done in Nagpur⁴, West Bengal⁵, Nepal⁶, Nigeria⁷ and a meta analysis⁸ done in 2017. In the current study around one fourth of the participants expressed scare during their first period. Hence there is a need to educate children at an early age regarding the process and prepare them physically and psychology towards the stage to build self confidence and personal development in an early age. Major source of information was from their mother which was similar to other studies where it ranged from 37.5% to 88.1%.⁹⁻¹³ Other informants were friends, teachers, books and media. These findings were consistent with other studies [9, 10, 14].

Around three-fourth of the participants thought menstrual process was physiological and this findings were

higher than those in previous studies done in Ethiopia¹⁵, Nigeria⁷ and Nepal¹⁶ it was 51.36%, 4.0% and 40.6% respectively. Similar findings were seen in other knowledge based questions on menstrual process. Also the current study had a higher knowledge on menstrual hygiene (73.5%) than other study done in Tamil Nadu (45.7%)¹⁷. These could be attributed to the high literacy rate and male:female ratio in Kerala.

Majority of the participants attained menarche at the age between 10-14 years and had regular cycle with mean duration of flow of 5.3 days and 61.8% of the participants experienced abdominal pain/dysmenorrhoea as common symptom. This was consistent with other studies (50.6% - 74%)¹⁸⁻²⁶. 83.8% of the participants who attained menarche complained social restrictions imposed to them during periods with restriction to religious activity as the most common restrictions and these restrictions were significantly high among Hindus and Muslims. Different restrictions were practiced by most of the girls in the present study, possibly due to the different rituals in their communities; the same were practiced by their mothers or other elderly females in the family. These findings were consistent with those of other studies with high social restrictions across different geographical area^{9, 10, 27}.

In the current study all participants used some form of absorbents during period with 91.1% using sanitary pad and 8.9% of the participants used cloth whereas other studies 10, 13, 14, 27, 28, 29 showed a lower use of sanitary pad (11.-25% -20%) and a higher use of cloth. Lack of knowledge high costs, unavailability and shyness were the common causes for low use of sanitary pads. Current study had a higher use of soap and water to clean the cloth and all participants dried the cloth in sunlight and it was higher than other studies 17,30 . Also in the current disposal of sanitary pad by burning was the common mode of disposal like several other studies 10,16,28,31 but 23.5% of the participants disposed the pads in the toilet which needs to be avoided. Hence even though there is a good knowledge and practice on menstrual hygiene in the current study there is a need to improve on these aspects to reduce the infections related to them and also to improve quality of life among this age group.

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