International Journal of Community Medicine and Public Health
Hema Priya S et al. Int J Community Med Public Health. 2017 Jul;4(7):2348-2355
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20172822

Original Research Article

A study of menstrual hygiene and related personal hygiene practices among adolescent girls in rural Puducherry

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Received: 12 April 2017
Accepted: 08 May 2017

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ABSTRACT

Background: Adolescent population occupies 1/5th of world's population and in India 20.9% of the population falls into this age group. Social prohibitions and traditional beliefs blocked the access to get the right kind of information to adolescent girls that led to poor hygiene practices. These practices results in harbouring of micro-organisms that increases susceptibility to genito-urinary infections. Hence this study was conducted to study the menstrual hygiene practices among adolescent girls and in rural Puducherry. The objective of the study was to study the menstrual hygiene practices among adolescent girls in rural Puducherry.
Methods: A community based descriptive cross sectional study was conducted in rural field practicing area of MGMCRI, Puducherry, from 15th of March 2013 to 31st April 2014 by using semi-structured questionnaire. 528 adolescent girls were included by complete enumeration.
Results: Majority (89.2%) of the adolescent girls was using sanitary pads, fresh and reusable cloths were used by 6.6% and 4.2%, respectively. 65.3% girls changed their soaked absorbent 2-5 times in a day. Majority (60.8%) of the girls disposed their used absorbent by burying or burning. 67.9% girls were washing genitalia during micturition. 54.4% used soap and water for hand cleaning purpose and 1.4% used ash & mud etc.
Conclusions: Even though sanitary pad users were high, unhygienic practices were noticed, so more emphasize is needed to be given on awareness of menstrual hygiene practices among adolescent girls.

Keywords: Adolescent girls, Menstrual Health and hygiene, Sanitary pads, Genito-urinary illness

INTRODUCTION

The word adolescent is derived from the Latin word "adolescere", which means to grow into maturity. The World Health Organization (WHO) defines adolescents as individual between 10-19 years of age group.[1] Adolescent population occupies 1/5th of world's population and in India 20.9% of the population falls into this age group.[2] Current population of India is 1.21 billion and among those people 253.2 million of population lies between 10 - 19 years.[3]

The onset of menstruation is called 'Menarche' and it is the hallmark of female pubertal development.[4] Menstruation is generally considered as unclean in India. Social prohibitions and strong bondage with the taboos and traditional beliefs during menstruation and hesitation of parents not discussing the related issues openly to their

adolescent daughters has blocked the access to get the right kind of information regarding menstrual hygiene.[5] Because of the lack of knowledge, they end-up with repeated use of unclean menstrual absorbent results in harbouring of micro-organisms that increases susceptibility to urinary, perineal, vaginal and pelvic infections.[6] If these infections left untreated that will lead to several consequences like infertility, ectopic pregnancy, fetal wastage and prenatal infection, low birth weight babies, toxic shock syndrome.[7]

By giving more emphasize to the menstrual health, a day is being celebrated on May 28th as *'Menstrual Hygiene day'* by WASH United.[8]

By recognizing the importance of promotion of menstrual hygiene, government of India started a scheme of making available subsidized sanitary napkins to adolescent girls in rural part of India since August 2011.[9]

These younger generations are tomorrow's parents. The reproductive health decisions that they make today will affect the health and wellbeing of their upcoming generations and their community. Even though all initiatives took place, by government of India, a major section of the adolescent girls do not have a prior awareness about the menstrual cycle and its hygienic practices leading to poor menstrual hygiene. Hence this study was conducted, among adolescent girls regarding their menstrual hygiene and related personal hygiene practices and helps them to prevent the gynaecological infections and its serious consequences in their future.

Aims and objectives

To study the menstrual hygiene practices among adolescent girls in rural Puducherry.

METHODS

The present study was undertaken after getting clearance from The Institutional Human Ethics Committee. After completion of a pilot study this study was conducted at rural field practicing area under the Department of Community Medicine of Mahatma Gandhi Medical College and Research Institute (MGMCRI), Puducherry.

A community based descriptive cross sectional study was conducted with the aim of studying the menstrual and related personal hygiene practices among adolescent girls over a period of one year from March 2013 to February 2014. Girls with the age group of 10 to 19 years, who were willing and giving consent to participate and belonged to the rural field practicing area, were included in this study as study population. RHTC covers 3 villages namely Seliamedu, Kudiyirupupalayam and Aranganur. In these three villages approximately 528 adolescent girls are residing. All the 528 adolescent girls from each village were included in this study by complete enumeration. During data collection, 20 didn't attain menarche and 6 girls were not willing to participate, hence they were excluded from the study, so finally the total study population was at the end of this study the ultimate sample size was 502 as out of 528, 26 adolescent girls either didn't give consent or didn't attain menarche. Privacy of the participants was maintained. The collected information was kept confidential throughout the study and were used only for the research purpose.

Unmarried adolescent girls who attained menarche and belonging to 10-19 years of completed age, Girls residing to the selected rural commune for more than one year, Girls who are willing and giving consent to participate were included in this study. Girls are not available after three consecutive visits, mentally retarded and seriously ill girls were excluded from this study. Appropriate pre-designed and pre-tested semi-structured questionnaire was used. Study participants were interviewed in their regional (Tamil) language by house to house visits and subcentre visits.

Ethical consideration

Health education was provided to all the girls regarding menstrual and personal hygiene practices as required. Health education and medical advice were given to the adolescent girls with poor menstrual hygienic practices and/or girls with symptoms related to that and referred to Obstetrics and Gynecology (O&G) clinic at RHTC or O&G department of MGMCR&I.

Data analysis

After completion of data collection, the data were entered in Microsoft Excel. Data were analysed by using Statistical Package for the Social Sciences software (SPSS) version 16.0. Results were described in percentage and proportions and displayed in appropriate tables and figures. For eliciting association between variables Chi-square test was used and the $p<0.05$ was considered as statistically significant.

RESULTS

A cross sectional study was conducted on menstrual hygiene and related personal hygiene practices among adolescent girls in rural field practicing area of MGMCRI, Puducherry with the total of 502 adolescent girls by using universal sampling method. Findings of this study as follows.

Out of total 502 adolescent girls, mean age of the adolescent girls was 15.52 years with the standard deviation of 2.13. Table 1 shows, Out of total 502 girls, most of the girls that is, 224 girls (44.6%) were belonging to 14 - 16 years of age. Majority of the girls (54%) were studying fifth to tenth standard. 9.6% were studying diploma course, bachelor degree and computer course.

Table 1: Age distribution of adolescent girls among study population in rural field practicing area (n=502).

Age distribution	Age category	Number adolescent girls (n)	Percentage (%)
Age group (in years) Total	10-13	108	21.5
	14-16	224	44.6
	17-19	170	33.9
	10-19	502	100
Education (standard)	Up to V std	1	0.2
	V to X std	271	54
	XI and XII std	182	36.3
	Diploma and above	48	9.6

Table 2: Distribution of study population based on family background (n=502).

Family background		Number	Percentage
Literacy of father	Illiterate	30	5.9
	Literate	15	2.9
	Upto V Std	62	12.4
	V to X Std	216	43.0
	XI to XII Std	125	24.9
	Diploma & above	44	8.8
	Not alive	10	2.0
Literacy of mother	Illiterate	44	8.8
	Literate	30	6.0
	Upto V Std	94	18.7
	V to X Std	204	40.6
	XI to XII Std	103	20.5
	Diploma & above	24	4.8
	Not alive	3.0	0.6
Father's occupation	Employee	148	29.5
	Business	30	5.9
	Farmer	58	11.6
	Fisherman	7	1.4
	Daily labour	219	43.6
	Unemployed	23	4.6
	Not alive	17	3.4
Mother's Occupation	Employee	67	13.3
	Business	6	1.2
	Farmer	27	5.4
	Fisherwoman	5	1.0
	Daily labour	144	28.7
	Home maker	250	49.8
	Not alive	3	0.6
Socio-economic status	Class I	10	2.0
	Class II	59	11.8
	Class III	136	27.1
	Class IV	222	44.2
	Class V	75	14.9

Among the total adolescent girls majority of them were Hindus 482 (96%), followed by Muslims 11 (2.2%) and 9 (1.8%) of the girls were Christians.

Figure 1 shows, among the total adolescent girls under the study, three fourth of the girls (74.9%) were belonging to nuclear family and 25.1% were from joint family.

Number of members in a family ranges between 2 to 12. In the selected study area, 79.3% girls belonged to families having less than 5 members and 7.4% girls were having more than 7 members in their family.

Table 3: Distribution of study participants based on details about menarche and menstrual cycle (n=502).

Variable	Character	Number (N=502)	Percentage (%)
Menarche age (in years)	< 12	217	43.2%
	12-14	270	53.8%
	>14	15	3%
Menstrual cycle	Regular	339	67.5
	Irregular	163	32.5
Duration of menstrual flow	< 2 days	59	11.8
	2-7 Days	391	77.9
	>7 days	52	10.3
Amount of menstruation	Scanty	130	25.9
	Normal	290	57.8
	Excess	82	16.3
Passage of clots	Yes	259	51.6
	No	243	48.4

Table 4: Distribution of study group based on receipt of any information regarding menarche and menstrual hygiene and their source (n= 502).

Variables	Character	Number of responses	Percentage
Received any information about menarche and menstrual hygiene (Prior to menarche)	Yes	261	52.0
	No	241	48.0
Source of information (After menarche)	Mother	161	32.1
	Sister	124	24.7
	Friends and relatives	120	23.9
	ANM/AWW	77	15.3
	TV/Radio	18	3.6
	Others (Teachers)	2	0.4

Table 5: Magnitude of menstrual hygiene practices among adolescent girls during menstruation (n=502).

Menstrual Hygiene Practices		Number	Percentage
Type of absorbent used during menstruation	Pads	448	89.2
	Fresh cloth	36	6.6
	Reusable cloth	21	4.2
Number of times absorbent changed (per day)	<2 times	96	19.1
	2-5 times	328	65.3
	>5 times	49	9.8
	As per need	29	5.8
Disposal of used menstrual absorbent	Dust bin	146	29.0
	Wash & reuse	21	4.2
	Burn / burry	305	60.8
	Flush in toilet	30	6.0
Cleaning of genital area (per day)	<3 times	44	8.8
	>3 times	56	11.1
	Only during bath	61	12.2
	During micturition	341	67.9
Agent used for cleaning purpose	Only water	202	40.2
	Soap & water	273	54.4
	Dettol	20	4.0
	Others	7	1.4

Table 2 shows, family background of the adolescent girls. 43% of the fathers and 40.6% of mothers of adolescent girls completed up to high school education. 6% of girl's father and 8.8% of girl's mother were illiterate. Among the total participants, most of the girl's father (43.6%) engaged as daily labour, followed by 29.5% were

employees. Nearly half of the girl's mother (49.8%) was home makers. The range of family monthly income was 1000 to 35,000 Indian rupees.

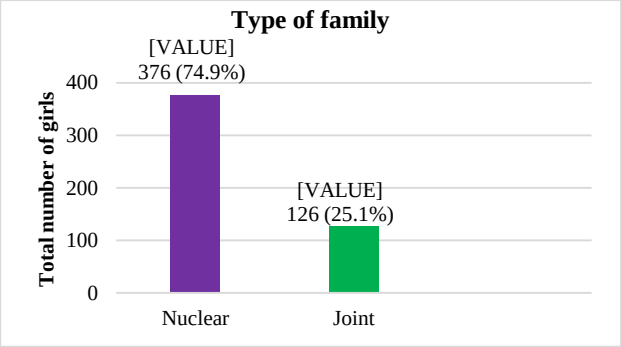

Figure 1: Frequency distribution of adolescent girls according to type of family.

The mean value for monthly family income was 8464.64 Indian rupees, with the standard deviation of 5440 rupees. Percapita income ranges between 250 and 8750 Indian rupees. Mean value was 1830.89 with standard deviation of 1229.18 Indian rupees. According to B.G. Prasad's Classification for socio-economic status, (Jun 2014-AICPI).[10,11] Majority of the girls (44.2% and 27.1%) were belonging to class IV and class III respectively. Among the total adolescent girls under the study, three fourth of the girls (74%) were belonging to nuclear family and 25.1% were from joint family.

Among the 502 girls, 43.8% were living in pucca house followed by 29.9% from kutcha house and then one fourth (26.3%) of the girls belonged to semi-pucca house. Majority of the girls, that is 283 (56.4%), didn't have sanitary latrine facility at their house whereas, 43.6% had latrines.

Table 3 shows, details of menarche and menstrual cycle among adolescent girls. Mean age of menarche among study participants was 12.71 years with the standard deviation of 1.05. More than half of the girls (53.8%) attained menarche between 12-14 years of age. Majority (67.5%) of the girls had regular menstrual cycle (28-35 days cycle). Nearly three fourth of the girls (77.9%), had normal duration of menstrual flow of 2-7 days. Out of total 502 girls, 57.8% girls had normal amount of menstruation. 51.6% girls reported passage of clots during menstruation.

Table 6: Bivariate analysis of association between age factor and menstrual hygiene practices (n =502).

Menstrual hygiene practices		Age category			P value
		10-13 years	14-16 years	17-19 years	
Type of absorbent used during menstruation	Pads (448)	20.8	44.2	35	0.004
	Fresh cloth (36)	42.4	45.5	12.1	
	Reusable cloth (21)	4.7	52.4	42.9	
Number of times absorbent changed	<2 times (96)	30.2	46.9	22.9	0.043
	2-5 times (328)	19.5	43.3	37.2	
	>5 times (49)	22.4	38.8	38.8	
	As per need (29)	13.8	62.1	24.1	
Disposal of used menstrual absorbent	Dust bin (146)	26.7	40.4	32.9	0.228
	Wash & reuse (21)	4.7	52.4	42.9	
	Burn/ dump (305)	19.6	45.6	34.8	
	Flush in toilet (30)	26.7	50.0	23.3	
Cleaning of genital area	<3 times (44)	28.9	37.8	33.3	0.701
	>3 times (56)	17.8	41.1	41.1	
	Only during bath (61)	18.3	50.0	31.7	
	During micturition (341)	21.7	45.2	33.1	
Agent used for hand cleaning purpose	Only water (202)	25.7	42.6	31.7	0.404
	Soap & water (273)	18.3	45.8	35.9	
	Dettol (20)	25	40.0	35.0	
	Others (7)	14.3	71.4	14.3	

Among total 502 girls, majority of the girls (70.5%), complained of abdominal pain during menstruation, followed by low backache in 51.6% girls. 29.1% girls had muscle cramps and nausea or vomiting was reported in 16.5% girls.

Receipt of any formal or non-formal information regarding menstruation and their source for such information among adolescent girls in rural study area is depicted in Table 4. Among 502 study participants, 261 (52%) girls had any information regarding menarche and menstruation before attainment of menarche, whereas 241 girls (48%) didn't know that information. After menarche, 32.1% girls reported their mothers to be the primary source of information, followed by sisters in 24.7% girls and 23.9% girls mentioned their friends and relatives. Interestingly, 15.3% girls reported that they got information from ANM or AWW. Only less than 0.5%

girls mentioned that teachers are their source of information.

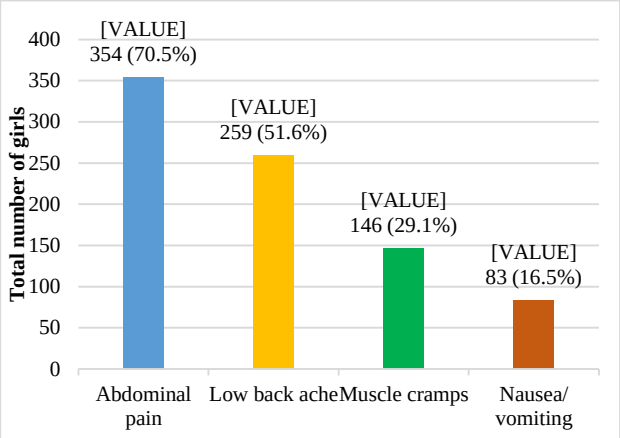

Figure 2: Distribution of study population according to associated symptoms during menstruation.
*Multiple responses

Table 5 highlights the menstrual hygiene practices during menstruation among adolescent girls. Among total 502 girls, majority of the girls (89.2%) were using sanitary pads as menstrual absorbent. Only 7.2% and 3% girls, used fresh cloths and reusable cloths respectively. With respect to the number of changing times of menstrual absorbent, it was found that majority (65.3%) of the girls changed their soaked menstrual absorbent satisfactorily (2-5 times per day), on other hand 5.8% girls stated that they changed according to the need. Dangerously, 19.1% girls changed absorbent only once in a day. 9.8% mentioned that they were changing their absorbent more than 5 times in a day. In the view of disposing the used absorbent, majority of the girls (60.8%), burnt or buried their used menstrual absorbent, 29.1% girls threw it in the dust bin and 4.2% girls were washing and reusing the cloth material, whereas 6% girls disposed by flushing in the toilet. Larger proportion of the girls (67.9%) reported that they were washing genitalia during micturition. But unsatisfactorily, 12.2% of the girls were washing only while taking bath during menstruating days. Out of total girls, nearly half of the girls (54.4%) were using soap and water for cleaning purpose during menstruation, but a large number of girls (40.2%) were using only water. Small proportion of girls was practicing good habit of using antiseptics like Dettol. Dangerously 1.4% mentioned that they were using ash, mud etc.

In Table 6, depicts the association between age and menstrual hygiene practices among the selected adolescent girls. Out of the total 502 girls, statistically significant association was observed between the 'age group' and 'type of absorbent', 'number of changing times' (p value- 0.004 and 0.043) respectively. Whereas, there is no evidence to prove that significant association between age group and disposal of used material, cleaning times of genital region and agent used for hand cleaning purpose (p value-0.228, 0.701 and 0.404).

DISCUSSION

The present cross sectional study was under taken among adolescent girls, with the aim to study the menstrual hygiene practices among the study population in rural Puducherry.

Majority (93.2%) of the students was studying, 5% were working, and 1.8% was staying in their house, so the level of literacy was good in this study area. In contrast to a study done by Monika et al, it was observed that 38.4% were educated up to primary level and 11.4% were illiterate.[12]

In this present study according to B.G. Prasad's Classification for socio-economic status, (Jun 2014-AICPI) majority of the girls (71.3%) were belonging to class III and IV, similar finding were observed in a study by Adrija et al study.[10,11,13]

Out of 502 adolescent girls mean age of menarche was 12.71 + 1.05 years. Maximum number of girls (53.8%) attained menarche between 12-14 years of age. Similar range of menarche age was observed by Shabnam et al and Keerti et al.[9,14] Majority (67.5%) of girls had regular menstrual cycle (28-35 days) which is comparable with Shoky et al study.[15] Nearly three fourth (77.9%) of the girls had 2-7 days of menstrual flow and 10.4% had more than 7 days. More than half of the girls (57.8%) had normal menstrual flow and 16% girls had excessive menstrual flow. Nearly half of the girls (51.6%) reported passage of clots while during menstruation. These finding were comparable with a study done by Abhay et al.[5]

In this study, pain in abdomen was reported in 70.5% of the girls, followed by lower abdominal pain, muscle cramps, nausea or vomiting during menstruation which is similar to a study done by Abhay et al.[4]

More than half of the girls (52%) got information related to menstruation and menstrual health before menarche. This finding was comparable with a study done by Dasgupta et al they found out 67.5% were aware of menstruation and Subash et al found only 37% girls were aware before menarche.[4,16]

Mother is the major source of information (32.1%), followed by friends and sisters in 24.7% and 23.9% respectively. ANM/AWW in 15.3%, teacher's role is almost negligible (0.4%). Similarly most of the studies reported that mother is the primary source of information.[4,9,14,15] That indicates good mother daughter relationship and better communication by breaking the inhibitions in this study area, however information obtained from mother wasn't authentic information because that could have been clouded with taboos, this is comparable with study done by Thakur et al. It was good to notice that, 15% girls got formal information (from ANM/ AWW) in the present study. It was sad to notice that only 0.2% got information from their teachers. But in

another comparable study conducted in Zigazig city they reported that teachers were the source of information for 2.7% girls and Abhay et al, found in 10.3% girls.[5,15] On other hand, it is important to notice that, there was an evidence of teachers hesitating to talk and teach about reproductive health system including menstrual health since less than 0.5% were be the source of information for girls who provided information.

Out of total 502 girls, it was good to notice that the majority of the girls (89.2%) were using pads as menstrual absorbent in the present study. 7.2% and 3% used fresh cloth and reusable cloth respectively. Thus the practices of using sanitary pads during menstruation were high in this study area. This present study finding were comparable with a study finding which was conducted in Punjab by Kamaljit et al, they reported that, majority of the girls (69%) used sanitary pad, whereas 23% used fresh cloth and 10% used old cloth, rag, cotton.[17] This present study finding stands in contrast to another study by Monika et al they revealed that only 9.2% of the girls used sanitary pads in her study followed by 12% used fresh cloth and nearly three out of four girls (76%) were using old cloth.[12] So we can conclude that in this area the awareness and importance of using sanitary pad material as absorbent were in higher level.

In this present study, the changing times of soaked absorbent were satisfactory (2-5 times in a day) in majority (65.3%) of the girls during menstruation, on other hand 5.8% girls mentioned they change according to the need. Dangerously, 19.1% girls changed only once in a day. 9.8% stated that they were changing more than 5 times in a day. Similar study findings were obtained by Adrija et al.[13] A study from international journal and another from south India, highlighted three out of four girls satisfactorily change their soaked material which was similar to this present study.[14,15]

In this study area majority (60.8%) of the study participants disposed their used absorbent by burring or burning as their custom. 29% girls disposed in dustbins. Unsatisfactorily, 4.2% were washing and reusing the cloth absorbents, 6% were flushing in the toilet which may lead to clogging in the toilet sanitary system that can led to operational and maintenance cost and that could lead to public health burden. Reusing the cloth material was reported in 7.4% girls by Shabnam et al and 73.75% girls by and Dasgupta et al.[4,14]

In this present study cleaning of the genitals during menstruation was satisfactory (during micturition) in 67.9% whereas it was unsatisfactory (only during bath) in 12.2% of the girls, 8.8% and 11.2% girls stated that they cleaned less than and more than 3 times a day respectively. Fakhri et al reported that 19.7% always or occasionally avoided washing their genitals after urinating which was comparable with this study findings.[18]

More than half of the girls (54.4%) used soap and water for cleaning purpose of hand, interestingly 4% used Dettol, 40% of the girls used only water for cleaning purpose, but unsatisfactorily, 1.4% girls were doing dangerous practice of using other material like ash and mud which may affects their health. 58% and 59.33% girls used soap and water for cleaning purpose which were documented by Dasgupta et al, and Abhay et al respectively, which were similar with present study.[4,5] In a study done in Uttarkand revealed that mud and ash were used by 10% and 32% of participants, respectively.[19]

CONCLUSION

So provision of pads or increased accessibility will not give a complete solution for menstrual related problems or genito-urinary illness. In addition to that more emphasize has to be given on adequate changing times of soaked absorbent, adequate number of times of cleaning of external genitalia, sanitary material used for cleaning purpose, method of disposal of used menstrual absorbent among adolescent girls in this area.

The study highlights, majority of the houses didn't have separate sanitary latrine facility even though few families could have afforded, it is mainly due to ignorance and they felt that it was not necessary. Open air defecation, a public health issue silently prevailing in this community. These issues were left unnoticed in this study area since long.

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: Hema Priya S, Nandi P, Seetharaman N, Ramya MR, Nishanthini N, Lokeshmaran A. A study of menstrual hygiene and related personal hygiene practices among adolescent girls in rural Puducherry. Int J Community Med Public Health 2017;4:2348-55.