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A STUDY OF MENSTRUAL HYGIENE PRACTICES AND ASSOCIATED ENVIRONMENTAL & SOCIAL FACTORS AMONG ADOLESCENT GIRLS IN RURAL PUDUCHERRY

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Keywords: *adolescent girls, menstrual health and hygiene, sanitary pads, genito-urinary illness.*

Introduction. *Adolescent females were prevented from receiving the appropriate knowledge due to social restrictions and traditional beliefs, which in turn led to poor hygiene habits.* ***Material and methods.*** *A community-based descriptive cross-sectional study employing a semi-structured questionnaire was carried out in the rural field practice region of MGMCRI, Puducherry, between the 15th of March 2019 and the 31st of April 2021. The study was done in Puducherry. The comprehensive enumeration yielded a total of 528 countable teenage females.* ***Results.*** *The vast majority of the teenage females (89.2%) reported using sanitary pads, whereas just 6.6% and 4.2%, respectively, reported using fresh or reused towels. 65.3% of the girls changed their wet absorbent between two and five times during the day. The vast majority of the girls, or 60.8% of them, disposed of their spent absorbent by either burying it or burning it. 67.9% of the girls were cleansing their genitalia when they were urinating. 54.4% of people cleaned their hands using soap and water, whereas 1.4% utilized ash soil, muddy dirt, or other types of soil. There was a statistically significant correlation between the style of housing and the availability of sanitary latrines (p<0.005) in relation to menstrual hygiene behaviors.* ***Conclusions.*** *This research also highlighted the absence of sanitary toilet facilities in the majority of residences, which negatively impacted the girls' ability to maintain their privacy and led to bad practices around menstruation hygiene.*

Cuvinte cheie: *adolescente, sănătate, igienă menstruală, absorbante igienice, boli genito-urinare.*

UN STUDIU AL PRACTICILOR DE IGIENĂ MENSTRUALĂ ŞI AL FACTORILOR DE MEDIU ŞI SOCIALI ASOCIAŢI LA ADOLESCENTELE DIN ZONA RURALĂ PUDUCHERRY

Introducere. *Adolescentele au fost împiedicate să primească cunoştinţele adecvate din cauza restricţiilor sociale şi a credinţelor tradiţionale, care, la rândul lor, au condus la obiceiuri de igienă deficitare.* ***Material şi metode.*** *A fost realizat un studiu transversal descriptiv comunitar în regiunea rurală. A fost aplicat un chestionar semistructurat, de practică în teren a Colegiului Medical şi Institutul de Cercetare Mahatma Gandhi, Puducherry, între 15 martie 2019 şi 31 aprilie 2021. În studiu au participat 528 de adolescente.* ***Rezultate.*** *Marea majoritate a adolescentelor (89,2%) au raportat că folosesc absorbante igienice, în timp ce doar 6,6% şi, respectiv, 4,2%, au raportat că au folosit prosoape noi sau refolosite,65,3% dintre fete şi-au schimbat absorbantul umed între două şi cinci ori în timpul zilei. Marea majoritate a fetelor – 60,8% dintre ele au eliminat absorbantul uzat îngropându-l sau arzându-l; 67,9% dintre fete şi-au igienizat organele genitale când urinau; 54,4% şi-au igienizat mâinile folosind apă şi săpun, în timp ce 1,4% au folosit cenuşă, noroi sau alte tipuri de pământ. A existat o corelaţie semnificativă statistic între stilul locuinţei şi disponibilitatea latrinelor sanitare (p<0,005) în raport cu comportamentele de igienă menstruală.* ***Concluzii.*** *Această cercetare a evidenţiat absenţa toaletelor sanitare în majoritatea locuinţelor, ceea ce a afectat negativ capacitatea fetelor de a-şi păstra intimitatea şi a dus la practici nesatisfăcătoare în ceea ce priveşte igiena menstruaţiei.*

ABBREVIATIONS: ***ANM*** – Auxiliary Nurse Midwife; ***AICPI*** – All India Consumer Price Index; ***ASHA*** – Accredited Social Health Activist; ***AWW*** – Anganwadi Worker; ***MGMCRI*** – Mahatma Gandhi Medical College and Research Institute; ***RHTC*** – Rural health training center; ***SPSS*** – Statistical Package for the Social Sciences; ***SES*** – Socio-economic status; ***WHO*** – World Health Organization; ***WASH*** – water, sanitation and hygiene.

VERNACULAR MEANING: Kutcha – temporary houses; **Pucca** – permanent houses; **Semi-pucca** – partially finished house.

INTRODUCTION

According to the World Health Organization (WHO) (1), an adolescent is a person who is between the ages of 10 and 19 years old. In India, this age group accounts for 20.9% of the total population, which means that adolescents make up one fifth of the world's total population (2). In Indian culture, menstruation is seen as a dirty and disgusting activity. The inability to obtain access to the correct sort of knowledge on menstrual hygiene is hampered by social prohibitions, a strong bondage with taboos and traditional beliefs during menstruation, and the reluctance of parents to openly address the relevant problems with their teenage daughters (3). Because of their lack of education, they end up repeatedly using dirty menstrual absorbents, which leads to the harboring of microorganisms and an increased risk of urinary, perineal, vaginal, and pelvic infections. This is a vicious cycle that may be avoided (4). Infertility, ectopic pregnancy, fetal wasting and prenatal infection, low birth weight newborns, and toxic shock syndrome are some of the potential outcomes that might occur if these infections are not treated in a timely manner.

On May 28th, a day that is being commemorated as "Menstrual Hygiene Day" by WASH United is being done so in order to provide greater emphasis on the menstrual health (5).

Since August 2011, the government of India has been running a program to provide subsidized sanitary napkins to teenage girls living in rural areas of the country. This was done in recognition of the significance of the promotion of menstruation hygiene (6).

These members of the younger generation will become India's parents and the country's future. The choices that people make about their reproductive health today will have an effect on the health and welfare of future generations as well as the community as a whole. In spite of the fact that all of these initiatives were carried out by the government of India, a significant proportion of the young women in India do not have a prior awareness about the menstrual cycle and the hygienic practices that are associated with it, which results in poor menstrual hygiene (7). There have been a lot of research done on menstrual health and hygiene, but the factors that matter most, like the availability of sanitary latrines and the kinds of homes that people live in, haven't gotten as much attention as they should have. As a result, this research was carried out on adolescent girls in regards to their menstrual hygiene and related personal hygiene practices, as well as to study the environmental factors related to menstrual hygiene and help them to prevent the gynecological infections and its serious consequences in their future. As a result, it is very important to study the menstrual hygiene practices among adolescent girls in rural Puducherry, as well as to study the associated environmental and social factors relatable. *This study's objective is* to investigate the association between environmental and social factors in rural Puducherry and the menstrual hygiene practices of adolescent females in that area.

MATERIAL AND METHODS

The current research was carried out only after receiving authorization to do so from the Institutional Human Ethics Committee. A community-based descriptive cross-sectional study was carried out with the purpose of conducting research the menstrual and related personal hygiene practices of adolescent girls over the course of one year, beginning in March 2019 and ending in February 2021. The study lasted for a total of twelve months. The study population for this investigation consisted of young women who lived in rural areas, were between the ages of 10 and 19 years old, were willing to take part in the research and provided their informed permis

sion, and belonged to the rural field practicing region. RHTC includes 3 villages in Pondicherry, India, namely Seliamedu, Kudiyirupupalayam and Aranganur. structured questioners who were already prepared to do an analysis of the menstrual hygiene habits and the environmental and social aspects linked with them. It is estimated that there are roughly 528 teenage females living in these three settlements. This survey counted each and every one of the 528 teenage females living in each community as part of its exhaustive census. In the course of the data collecting process, there were 26 teenage girls who did not provide their permission or who did not reach menarche. As a result, these girls were not included in the study, and the final population of the research was 502. The participants' right to privacy was respected at all times. All of the information that was gathered over the course of the study was treated as confidential, and it was only utilised for the purposes of the research.

Socio-economic status SES, Based on Rvised B.G Prasad's social classification for the year 2020, Modified BG Prasad Socio-economic Classification, Updated – 2020 by [BG Prasad SES] Debnath DJ et al. (8).

The range of family monthly income was 1000 to 35,000 Indian rupees. 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) Majority of the girls were belonging to class IV and class III respectively (tab. 1).

Table 1. Distribution of study population based on socio-economic status (n=502).

	SES	Revised for 2020 (in Rs. /month)	Number	Percentage
Socio-economic status	Class I	7533 and above	10	2.0
	Class II	3766-7532	59	11.8
	Class III	2260-3765	136	27.1
	Class IV	2260-3765	222	44.2
	Class V	1129 and below	75	14.9

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 and 79.3% girls belonged to families having less than 5 members and 7.4% girls were having more than 7 members in their family.

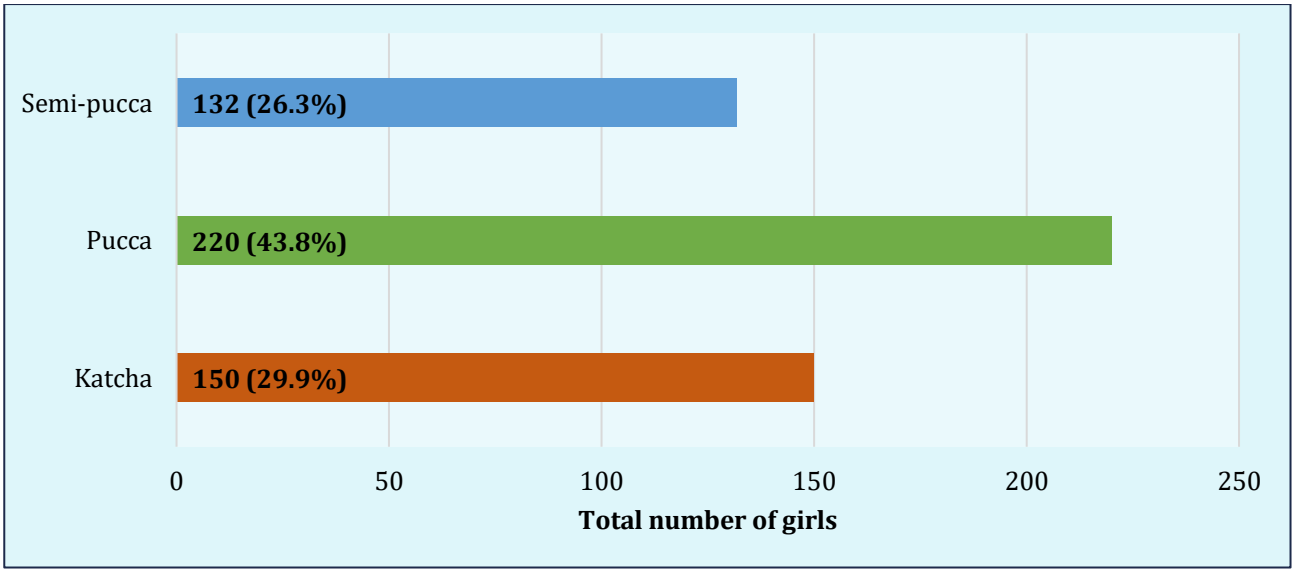

Figure 1. Distribution of adolescent girls according to type of house.

The composition of the teenage girls' families is depicted in Figure 1. 43.8 percent of the females in the sample lived in the pucca house (strong and durable made up of bricks and cement) followed by 29.9 percent of the girls who came from the kutcha house (weak and made up of clay and sand), and finally 26.3% of the girls called the semi-pucca house (stable made up of bricks and clay without cement) their home.

Figure 2 illustrates the prevalence of sanitary latrines among teenage females in the research region. The majority of the girls, 283 (56.4%), did not have access to a hygienic toilet at home, while 43.6% did.

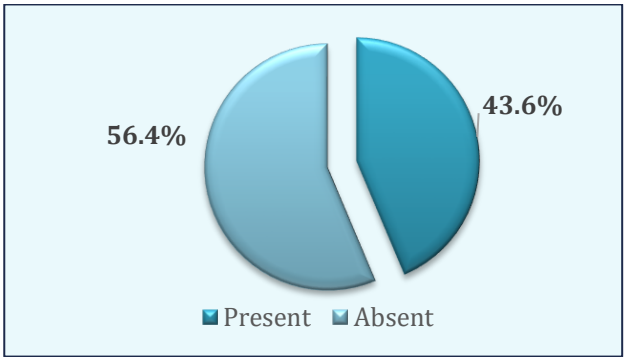

Figure 2. Distribution of the adolescent girls according to presence of sanitary latrine (N=502).

Participants' mean age of menarche was 12.71 years, with a standard deviation of 1.05 years. More over half of females (53.8%) reached menarche between the ages of 12 and 14. The majority of girls (67.5%) had regular menstrual cycles (28-35 days cycle). Nearly three quarters of the girls (77.9%) had typical menstrual flow length of 2-7 days. 57.2 percent of the total number of 502 females had regular menstruation. 51.6% of girls reported clot passing during menstruation.

The majority of the girls, or 70.5%, in a total sample of 502 complained of stomach discomfort during menstruation. Low backache was the next most common complaint, occurring in 51.6% of the females. Muscle cramps were experienced by 29.1% of the girls, while nausea or vomiting was reported by 16.5% of the girls.

Regarding the receipt of any formal or nonformal information regarding menstruation among adolescent girls in the rural study area, among the 502 study participants, 261 (52%) girls had any information regarding menarche and menstruation before attaining menarche, whereas 241 girls (48%) did not know that information. This was the case regardless of whether the information was formal or nonformal. Following the onset of menarche, 32.1% of girls indicated that their mothers were the key source of knowledge, followed by 24.7% of girls who named their sisters, and 23.9% of girls cited their friends and relatives. It's interesting to note that 15.3% of young women said they obtained information from ANM or AWW. Less than half of one percent of the females surveyed said that their professors are their primary source of information.

16.9% of all girls reported following at least one of the menstrual limits, followed by 25.5% of all girls who reported following any two restrictions, and 14.3% of all girls reported following all four restrictions during their periods. Surprisingly, 168 girls (33.5% of the total) claimed that they were not subjected to any restrictions when they were menstruating.

The following table details the menstrual hygiene routines of teenage females when they are experiencing their periods. The vast majority of the 502 girls surveyed (89.2%) reported using sanitary pads as a menstrual absorbent throughout their periods. Sixty-five-point three percent of the female students successfully replaced their drenched menstruation absorbent (2-5 times per day). The discarded menstrual absorbent was either burned or buried by the vast majority of the girls (60.8%). A far higher percentage of the female students, 67.9%, stated that they washed their genitalia while they were urinating.

Association of type of house and menstrual hygiene practices were depicted in Table 3. Those who used pads 46% were living in pucca house, whereas maximum number of girls among fresh and reusable cloth users, (42.4% and 57.1% girls respectively), were residing in kutcha house. These observed differences were statistically significant (p=0.012).

There was significant statistical association observed between changing times and type of house (p=0.031). Satisfactory changing times (2-5 times and >5 times) observed highest in 45.7% and 51%, pucca house dwellers. On other hand, unsatisfactory changing times (<2 times) were observed highest (36.5%) among girls living in semi-pucca houses.

The association between disposal of soaked absorbent and type of house having statistical sig-

nificance (p=0.005), that is among the girls who were reusing the cloth material majority (57.1%) of them belonged to kutcha houses, and satisfactory disposal (dust bin, burnt/ buried) were observed highest, 39.7% and 47.5% respectively, among pucca house dwellers.

Table 2. 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 3. Bivariate analysis of association between type of house and menstrual hygiene practices (n=502).

Menstrual hygiene practices		Environmental variable Type of house (%)			P value
		Kutcha (temporary houses)	**Pucca** (permanent houses)	**Semi-pucca** (partially finished house)	
Type of absorbent used during menstruation	Pads (448)	27.7	46	26.3	**0.012**
	Fresh cloth (36)	42.4	27.3	30.3	
	Reusable cloth (21)	57.1	23.9	19	
Number of times absorbent changed	<2 times (96)	31.2	32.3	36.5	**0.031**
	2-5 times (328)	31.4	45.7	22.9	
	>5 times (49)	26.5	51.0	22.5	
	As per need (29)	13.8	48.3	37.9	
Disposal of used menstrual absorbent	Dust bin (146)	24.7	39.7	35.6	**0.005**
	Wash & reuse (21)	57.1	23.9	19.0	
	Burn/ dump (305)	30.8	47.5	21.7	
	Flush in toilet (30)	26.7	40.0	33.3	
Cleaning of genital area	<3 times (44)	35.6	33.3	31.1	0.697
	>3 times (56)	25.0	48.2	26.8	
	Only during bath (61)	33.4	38.3	28.3	
	During micturition (341)	29.3	45.5	25.2	

Table 4 emphasized the association between sanitary latrine facility and menstrual hygiene practices. 85.7% and 63.6% reusable cloth users and fresh cloth users didn't have latrine facilities in their house. Among pad users, highest number of girls (45.5%) were having sanitary latrine in their house and such difference were found to be statistically significant (p=0.013). Similarly, girls who were reusing cloth material 85.7% didn't have latrine and 61% of girls who burnt or buried cloth material didn't have latrine facilities, these differences were having statistical significance (p<0.001). There was statistically significant association found out between family type and cleaning times (p=0.01).

DISCUSSIONS

There are a total of 502 females, and 43.8%, 26.3%, and 29.9% of those girls reside in pucca, semi-pucca, and kutcha houses, respectively. Only 43.6% of the girls lived in homes that had a properly functioning latrine. Despite the fact that approximately three quarters of the girls belonged to classes III and IV, they did not place a great deal of weight on the separate toilet facility; this demonstrates their ignorance and lack of understanding about hygienic toilets in the neighborhood. Only a handful of the studies that were done on menstrual hygiene habits looked at environmental factors like bathing area and site, but they did not look at other factors like the style of dwelling or sanitary toilet facilities. (8,9).

In terms of limitations, out of 502 girls, 61.8% are required to sleep in separate beds, followed by 39.2% who were required to avoid specific kinds of food and 28.5% who were prohibited from playing, respectively. A tiny percentage of girls and women, respectively 1.2% and 0.8%, did not attend school and participated in activities such as weddings; 23.1% of these individuals were prohibited from doing any kind of labor or cooking. A number of investigators, including Emanshoky et al., Abhay et al. in Wardha, Dasgupta et al., Adrija et al., Keerti et al., Narayan et al., Singh et al., and Balasubramani et al., also found different sorts of limits in their research that were equivalent to the results of our current study (7-9).

There was not a statistically significant correlation identified between the educational level of the girls and their menstrual hygiene habits in this research; however, such an association was shown to be statistically significant in a study from southern India 10-14).

Table 4. Association between sanitary latrine facility and menstrual hygiene practices (n=502).

MENSTRUAL HYGIENE PRACTICES		Environmental variable Sanitary latrine		P value
		Yes (%)	No (%)	
Type of absorbent used during menstruation	Pads (448)	45.5	54.5	0.013
	Fresh cloth (36)	36.4	63.6	
	Reusable cloth (21)	14.3	85.7	
Number of times absorbent changed	<2 times (96)	44.8	55.2	0.349
	2-5 times (328)	42.7	57.3	
	>5 times (49)	38.8.	61.2	
	As per need (29)	58.6	41.4	
Disposal of used menstrual absorbent	Dust bin (146)	54.1	45.9	<0.001
	Wash & reuse (21)	14.3	85.7	
	Burn/ dump (305)	39.0	61.0	
	Flush in toilet (30)	60.0	40.0	
Cleaning of genital area	<3 times (44)	44.4	55.6	0.108
	>3 times (56)	57.1	42.9	
	Only during bath (61)	35.0	65.0	
	During micturition (341)	42.8	57.2	
Agent used for cleaning purpose	Only water (202)	43.1	56.9	0.199
	Soap & water (273)	43.6	56.4	
	Dettol (20)	60.0	40.0	
	others (7)	14.3	85.7	

In a previous cross-sectional study that was carried out in south India, it was mentioned that there was an inverse relation between socioeconomic status and the necessity for more information about practices; however, the present study showed that there was no significant association between socioeconomic status and awareness (p=0.129). Although Shabnam et al. (15, 16) found that girls from poor socioeconomic backgrounds were more likely to use inadequate sanitary menstruation absorbents, this link was not shown to be statistically significant in the current investigation (p=0.587). This might be because of the high levels of knowledge, availability, and affordability of sanitary pads in this research location; (yet, a statistically significant correlation was established with SES and the changing times of absorbents being used (p=0.002).

CONCLUSIONS

1. The present study explored menstrual hygiene practices of adolescent girls in rural field practicing area of MGMCRI. It is good to notice that majority of the girls were using sanitary pads, so awareness of menstruation and menstrual hygiene practices, availability, accessibility, and affordability of sanitary absorbent are good in this area.
2. It was found out that there was significant statistical association between poor menstrual hygiene practices and environmental & social factors. Even though sanitary pad users were high, most of the girls reported symptoms that were suggestive of poor menstrual hygiene. So, provision of pads or increased accessibility will not give a complete solution for poor menstrual hygiene related problems. 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.
3. 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. In addition to that girl couldn't find privacy for their menstrual hygiene management that led to poor practices during menstruation and end up with poor menstrual hygiene related problems. These issues were left unnoticed in this study area since long.

CONFLICT OF INTERESTS

No conflicts of interest.

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ETHICAL APPROVAL

This study was approved by the Institutional Ethics Committee of Mahatma Gandhi Medical College and Research Institute, Puducherry, India, proposal no: MD/MS/2013/10.

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