

Original Research Article

Menstrual health and hygiene management among female college students and their mothers in Thoothukudi district, Tamil Nadu, India

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ABSTRACT

Background: A two-generation study on menstrual health and hygiene practices among daughters and their mothers is limited. In this study, the primary objective was to compare menstrual health practices, period poverty and menstrual hygiene practices between female college students and their mothers.

Methods: A community-based cross-sectional study was conducted among 500 female college students (mean age 19 years) and their mothers (n=500, mean age 41 years) in the Thoothukudi district. Five colleges were selected from the twenty colleges in the district using simple random sampling. From the list of students from the selected colleges, female students were selected using computer-generated random numbers and the mothers of all the selected students were included in the study. Information on menstrual health, period poverty and menstrual hygiene was collected using a pre-tested structured interview schedule.

Results: Among daughters, 80.4% speak about menstrual pain more than mothers 44% ($p<0.001$). Of the daughters, 46.2% and 19.8% of the mothers had information about menstruation before menarche ($p<0.001$). Among daughters 63% and among mothers 30.2% are embarrassed about buying period products ($p<0.001$). Sanitary pad use among daughters was 93.2% compared to 69.9% among mothers ($p=0.001$). Using cloth as their menstrual product was reported by 21.8% of daughters and 50.4% of mothers ($p=0.001$).

Conclusions: During menstruation, daughters reported better hygiene practices than their mothers. However, some of the daughters still use clothes as menstrual material, which needs improvement.

Keywords: Menstrual health, Menstrual hygiene, Period poverty, Mother and daughter

INTRODUCTION

Menstruation is a normal discharge of blood and tissue from the uterine lining, through the vagina as a part of a woman's monthly menstrual cycle. Menstruation occurs from menarche, a girl's first period, till menopause when a menstrual cycle ends. The average menstruation time in normally menstruating women is about five days. Adequate menstrual hygiene management is defined as women and adolescent girls, using clean menstrual management material to absorb or collect blood.¹

Every day 800 million people between the age group of 15 to 49 years are menstruating. But for so many a natural biological process spells more monthly inconvenience. Girls may miss school because they do not have access to sanitary supplies, they are in pain or the schools lack adequate toilet facilities. It is estimated that more than 26 million women and girls are likely to be displaced because of conflict or climate disaster, robbing them from dignity when they have difficulty managing their menstruation and exacerbating their vulnerability. Menstruation should not mean the end of rights to health and gender equality.²

Period poverty describes the struggle many low-income women and girls face while trying to afford menstrual products. The term also refers to the increased economic vulnerability women and girls face during menstruation due to the financial burden posed by menstrual supplies. Period poverty is a continuing issue in India due to the cultural stigma surrounding menstruation. The origin of myths related to menstruation in India dates back to the Vedic times. Further in orthodox families' women are prohibited and not allowed from participating in normal life while menstruating.³ It is believed that menstruating women are unhygienic and unclean, hence the food they prepare or handle can get contaminated. They consider during menstruation the body emits some specific smell, which turns preserved food spoiled, therefore they are not allowed to touch pickles.⁴ Girls are asked to stay away from religious places, the kitchen, kept in isolation, and not allowed to play outside or even go to school. The myths and beliefs are passed from one generation to the other. Adult women may themselves not be aware of good hygiene practices and pass on cultural taboos and restrictions to be observed.⁵

A two-generation study on menstrual health and hygiene practices among daughters and their mothers is limited. In my study, the main focus is to compare the practices of menstrual health and hygiene practices between mothers and daughters.

METHODS

Study design and population

A community-based cross-sectional study was conducted over seven months from January to July 2023. The data collection period was March – April 2023.

Ethical consideration

The study protocol was approved and reviewed by the dissertation review committee and Institutional Ethics Committee of the Amrita School of Medicine. Permission was also obtained from the principals and deans of the selected colleges. Written informed consent was obtained from the study participants.

Selection process

Thoothukudi district is located in the southern part of Tamil Nadu, a state in South India. There are 20 colleges currently functioning in the Thoothukudi district. Out of 20 colleges, five colleges were chosen by simple random sampling- lottery method. College names were written according to the stream of education and it was divided into separate bowls which were chosen randomly. Informed and written consent was taken from the mothers and students. The study was conducted among female students from the selected colleges and their mothers. Female college students and their mothers who are permanent residents living for more than one year in Thoothukudi

district, Tamil Nadu were included in our study. Mothers of female college students who are bedridden, and attained menopause were excluded from the study. From the obtained list, female college students were selected by computer-generated simple random sampling method. From each selected college 100 female college students were chosen based on the inclusion and exclusion criteria.

Sample size

The sample was calculated based on a study done by Parikh et al, in which 79% reported having proper knowledge of menstrual hygiene.⁶ Considering this proportion and 4% absolute precision (d), using the formula given below, the calculated sample size for the study was 415. Therefore, 415 female college students and their mothers were included.

$$n = 4pq/d^2$$

Study instrument and process of administration

A semi-structured questionnaire was used for collecting data for socio-demographic details. A structured questionnaire consisting of 14 questions was used for collecting data related to menstrual health and a set of 10 questions was used to collect information related to period poverty.⁷ For collecting data regarding menstrual hygiene which consisted of 17 questions developed by Global Health Action were used.⁸ The questionnaire was converted into the local language (Tamil) and was validated by two Tamil teachers. The questionnaire was distributed in the local language (Tamil) to mothers and in English to female college students.

Statistical analysis

Data collection was done by the distribution of printed forms to the study participants. Data entry was made in google forms and imported into Excel. Statistical analysis was performed using IBM statistical package for social sciences (SPSS) version 21.0 software. The categorical variables' responses to each question in the questionnaire were expressed in frequency and percentage. The continuous variable age was summarized using mean (SD). Responses to each question were summarized as frequency and percentage. The Chi-square test was used to test the differences in menstrual health, period poverty and menstrual hygiene responses to each question in the questionnaire between mothers and daughters. A p value lesser than 0.05 was considered statistically significant.

RESULTS

Among 500 daughters thirteen are currently married so the other sociodemographic characters have differences. Table 1 shows the distribution of study participants based on the socio-demographic factors of female college students and their mothers.

A comparison of menstrual health between daughters and mothers in the study population was shown in Table 2. The questions like menstrual pain, missing plans with friends, feeling less capable and being scared of staining clothes were responded favourably for mothers. Treating menstrual pain, speaking about menstrual pain, stopping exercising during menstruation, having information about menstruation before menarche and having no symptoms during menstruation for the past 6 months were the questions that are favourable for daughters.

Period poverty among female college students and their mothers' is shown in Table 3.

The questions like embarrassed about buying menstrual products, using menstrual products longer than recommended due to lack of money and lack of facilities, thinking period products are expensive, lack of money for buying menstrual products and difficulty in accessing menstrual products were responded by the majority of

mothers among our study population. Made up an excuse not to say menstruating, trouble concentrating at work and the necessity for menstrual leave were responded to by a majority of daughters.

A comparison of menstrual hygiene between daughters and mothers in the study population was shown in Table 4. The questions like using clothes, menstrual cups, and cotton as menstruating materials at home during menstruation were found to be favourable for mothers among the study population. Changing menstrual materials away from home and disposing of menstrual materials during menstruation away from home were responded to satisfactorily among mothers. Using disposable sanitary pads at home, clothes menstrual cups and disposable sanitary pads as a menstrual material away from home were favourable for daughters among the study participants. Changing menstrual materials at home and disposing of menstrual materials during menstruation at home were responded to satisfactorily among daughters.

Table 1: Socio-demographic details of the study participants.

Variables	Daughters (N=500)		Mothers (N=500)	
	Characteristics	n (%)	Characteristics	n (%)
Age in years	≤19	280 (56.0)	≤ 41	290 (58.0)
	>19	220 (44.0)	> 41	210 (42.0)
Residence	Rural	278 (55.6)	Rural	279 (55.8)
	Urban	222 (44.4)	Urban	221 (44.2)
Marital status	Never married	487 (97.4)	Married	471 (94.2)
	Currently married	13 (2.6)	Others*	29 (5.8)
Religion	Hindu	410 (82)	Hindu	410 (82.0)
	Christian	84 (16.8)	Christian	84 (16.8)
	Muslim	6 (1.2)	Muslim	6 (1.2)
Type of family	Joint family	97 (19.4)	Joint family	100 (20.0)
	Nuclear family	403 (80.6)	Nuclear family	400 (80.0)
Type of smart ration card	White card (BPL*)	40 (8.0)	White card (BPL)*	40 (8.0)
	Green card (APL*)	428 (85.6)	Green card (APL)*	428 (85.6)
	No commodity card (APL*)	18 (3.6)	No commodity card (APL)*	18 (3.6)
	Khaki card (APL*)	14 (2.8)	Khaki card (APL)*	14 (2.8)
Type of house	Kutcha	5 (1.0)	Kutcha	5 (1.0)
	Pucca	432 (86.4)	Pucca	432(86.4)
	Mixed	63 (12.6)	Mixed	63 (12.6)

Others* in the marital status of mothers include divorced, separated and widow, APL*- above poverty line, BPL*- below poverty line

Table 2: Comparison of menstrual health between daughters and mothers in the study participants.

Menstrual health	Daughters (N=500), n (%)	Mothers (N=500), n (%)	χ^2	P value
Menstrual pain				
Yes	456 (91.6)	482 (85.2)	11.62	0.001
No	44 (8.8)	18 (3.6)		
Treatment for menstrual pain				
Treat menstrual pain	284 (56.8)	265 (53.0)	1.458	0.227
Don't do anything	216 (43.2)	235 (47.0)		
Spoken with someone about menstrual pain				
Yes	402 (80.4)	220 (44)	140.9	0.001
No	98 (19.6)	280 (56)		

Continued.

Menstrual health	Daughters (N=500), n (%)	Mothers (N=500), n (%)	χ^2	P value
Stop exercising or going for physical education during menstruation				
Yes	294 (58.8)	91 (18.2)	174.0	0.001
No	206 (41.2)	409 (81.8)		
Miss any plans with your friends during menstruation				
Yes	311 (62.2)	120 (24)	148.8	0.001
No	189 (37.8)	380 (76)		
Feel less capable of taking an exam/evaluated activity during menstruation				
Yes	312 (62.4)	82 (16.4)	221.6	<0.001
No	188 (37.6)	418 (83.6)		
Scared of staining your clothes during menstruation				
Yes	419 (83.8)	207 (41.4)	192.0	0.001
No	81 (16.2)	293 (58.6)		
Symptoms during the last 6 months at the time of menstruation				
Had symptoms	211 (42.2)	271 (54.2)	14.42	0.001
Didn't have any symptoms	289 (57.8)	229 (45.8)		
Information about menstruation before menarche				
Yes	231 (46.2)	99 (19.8)	78.81	<0.001
No	269 (53.8)	401 (80.2)		
Feeling angry during menstruation				
Yes	299 (59.8)	264 (52.8)	4.979	0.026
No	201 (40.2)	236 (47.2)		
Feeling tired during menstruation				
Yes	359 (71.8)	364 (72.8)	0.125	0.724
No	141 (28.2)	136 (27.2)		
Feeling happy during menstruation				
Yes	18 (3.6)	1 (0.2)	15.51	<0.001
No	482 (96.4)	499 (99.8)		
Feeling sad during menstruation				
Yes	147 (29.9)	53 (10.6)	55.23	0.001
No	353 (70.6)	447 (89.4)		
Feeling irritated during menstruation				
Yes	73 (14.6)	75 (15)	0.032	0.859
No	427 (85.4)	425 (85)		

Table 3: Comparison of period poverty between daughters and mothers in the study population.

Period poverty	Daughters (N=500), n (%)	Mothers (N=500), n (%)	χ^2	P value
Embarrassed about buying (or asking for) menstrual products				
Yes	315 (63.0)	151 (30.2)	108.1	<0.001
No	185 (37.0)	349 (69.8)		
Made up an excuse not to say menstruating				
Yes	373 (74.6)	283 (43.8)	35.89	0.001
No	127 (25.4)	217 (43.4)		
Used menstrual products for longer than it is recommended because did not have a replacement				
Yes	368 (26.4)	281 (43.8)	33.23	0.001
No	132 (73.6)	219 (56.2)		
Used menstrual products for longer than it is recommended because did not have a proper facility				
Yes	351 (70.2)	295 (59)	13.71	<0.001
No	149 (29.8)	205 (41)		
Think period products are expensive				
Yes	361 (72.2)	287 (57.4)	24.01	0.001
No	139 (27.8)	213 (42.6)		
Trouble concentrating at college or work during menstruation				
Yes	285 (57)	322 (64.4)	5.739	0.017
No	215 (43)	178(35.6)		

Continued.

Period poverty	Daughters (N=500), n (%)	Mothers (N=500), n (%)	χ^2	P value
The necessity of menstrual leave				
Yes	159 (31.8)	147 (29.4)	0.678	0.41
No	341 (68.2)	353 (70.6)		
Lack of money for buying a menstrual product				
Yes	389 (77.8)	292 (58.4)	43.31	<0.001
No	111 (22.2)	208 (41.6)		
Difficulty in accessing menstrual product				
Yes	100 (20)	62 (12.4)	10.64	0.001
No	400 (80)	438 (87.6)		
Affordability of menstrual product				
Couldn't afford	15 (3.1)	44 (8.8)	15.15	0.001
Didn't have a product	485 (97)	456 (91.2)		

Table 4: Comparison of menstrual hygiene practices between daughters and mothers in the study population.

Menstrual hygiene practices	Daughters (N=500), n (%)	Mothers (N=500), n (%)	χ^2	P value
Using cloth as a menstrual material at home during menstruation				
Yes	103 (21.8)	252 (50.4)	88.65	0.001
No	391 (78.2)	248 (49.6)		
Using a menstrual cup as a menstrual material at home during menstruation				
Yes	10 (2)	12 (2.4)	0.186	0.666
No	490 (98)	488 (97.6)		
Using cotton or related materials as a menstrual material at home during menstruation				
Yes	12 (2.4)	6 (1.2)	2.037	0.154
No	488 (97.6)	494 (98.8)		
Using disposable sanitary pads as a menstrual material at home during menstruation				
Yes	466 (93.2)	348 (69.6)	91.97	<0.001
No	34 (6.8)	152 (30.4)		
Using cloth as a menstrual material at college or work during menstruation				
Yes	55 (11)	179 (35.8)	85.78	0.001
No	445 (89)	321 (64.2)		
Using a menstrual cup as a menstrual material at college or work during menstruation				
Yes	12 (2.4)	6 (1.2)	2.037	0.257
No	488 (97.6)	494 (98.6)		
Using cotton or related menstrual material at college or work during menstruation				
Yes	12 (2.4)	8 (1.6)	1.816	0.366
No	488 (97.6)	492 (98.4)		
Using disposable sanitary pads as a menstrual material at college or work during menstruation				
Yes	469 (93.8)	369 (73.8)	859.6	<0.001
No	31 (6.2)	13 (2.6)		
The place for changing menstrual material away from home during menstruation				
Satisfactory	1 (0.2)	448 (89.6)	807.6	0.001
Unsatisfactory	499 (99.8)	52 (10.4)		
The place for changing menstrual material at home during menstruation				
Satisfactory	491 (98.2)	482 (96.4)	3.083	0.079
Unsatisfactory	9 (1.8)	18 (3.6)		
Dispose of used menstrual materials at home				
Satisfactory	217 (43.4)	163 (32.6)	12.38	<0.001
Unsatisfactory	283 (56.6)	337 (67.4)		
Dispose of used menstrual materials during menstruation away from home				
Satisfactory	414 (82.8)	447 (89.4)	9.099	0.003
Unsatisfactory	86 (17.2)	53 (10.6)		
The place for storage of menstrual materials after menstruation				
Satisfactory	354 (70.8)	369 (73.8)	6.61	0.037
Unsatisfactory	146 (29.2)	131 (26.2)		

Continued.

Menstrual hygiene practices	Daughters (N=500), n (%)	Mothers (N=500), n (%)	χ^2	P value
Washing hands before changing menstrual materials				
Satisfactory	30 (6)	75 (15)	21.55	0.001
Unsatisfactory	470 (94)	425 (85)		
Washing hands after changing menstrual materials				
Satisfactory	496 (99.2)	341 (68.4)	177.9	<0.001
Unsatisfactory	3 (0.8)	158 (31.6)		
Washing genitals during menstruation with soap				
Satisfactory	100 (20)	68 (13.6)	7.326	0.007
Unsatisfactory	400 (80)	432 (86.4)		
Use soap or detergent to wash or soak menstrual materials				
Satisfactory	456 (91.2)	464 (92.8)	0.87	0.351
Unsatisfactory	44 (8.8)	36 (7.2)		

DISCUSSION

In our study, 42.2% of daughters had symptoms during menstruation whereas in a study done in Pondicherry among adolescent girls, 8.4% of adolescent girls had symptoms during menstruation.¹⁰ In our study, during menstruation among female college students, 71.8% feel tired, 3.6% feel happy, 29.9% feel sad, 59.8% feel angry and 14.6% feel irritated. In a study done in a Palestinian female college, 78% feel tired, 12.8% feel happy, 45.3% feel sad, 55.3% feel angry and 64% feel sensitive during the time of menstruation.¹¹ Among female college students in our study, 83.8% are scared of staining clothes during menstruation, and in a study done among the Kalinga Institute of medical sciences 80% of female college students fear leakage or staining and this was one of the reasons for college absenteeism.¹²

In this study, 72.2% of the daughters think that period products are expensive while 63% of daughters are embarrassed about buying menstrual products. In a study done in Pondicherry among adolescent girls, 57.9% of adolescent girls think period products are expensive and 14% of adolescent girls are embarrassed about buying menstrual products.¹⁰

In our study, 66.8% of female college students experience period poverty whereas, in a study done in the United States by Cardoso et al, among first generation college girls 20.6% experience period poverty.¹³ In our study, 70.6% of mothers of female college students think that menstrual leave is not a necessity, whereas, in a study done by Bhattacharya et al, 23% of female respondents think that menstrual leave is unfair.¹⁴

Among the study participants in this study, 99.8% of female college students have unsatisfactory methods of changing menstrual products when they are away from home most probably in college and disposing of used menstrual material at college was found to be 82.8% satisfactory. The major reason for unsatisfactory methods of changing menstrual products may be due to unsanitary facilities or hesitation to uncleaned restrooms during menstruation. In a study done in Bhuvaneswar in Kalinga

Institute of Medical Science, the major reason for college absenteeism during menstruation was mainly due to lack of privacy in the bathroom for girls 12.73%, lack of disposal system for menstrual material 8.46%, lack of continuous water supply in college toilets was 8.46% and no private place to manage periods at college was 75.91%.¹² In a study done by Munro et al, among university students in Australia, the reason for not changing menstrual products at university was no requirement in changing menstrual materials 63.6%, fear of being heard or seen 14.3%, no disposal bin was 2.6%, no replacement to use 18.2%, unsanitary facility 31.2% and others like not enough time between classes or toilet is too far 26%.¹⁵

In our study, 46.2% of daughters and 19.8% of mothers have information about menstruation whereas, in a study done among mothers and daughters in Rangpur Bangladesh, 36.11% of daughters and 37.04% of mothers have good knowledge of sexual and reproductive health.¹⁶ In a study done at Kalinga Institute of Medical Sciences, Bhuvaneswar 80% of the female college students inculcated their menstrual habits from their mothers.¹²

The limitation of this study was self-administrated, so there may be an overestimation or underestimation. Menstruation-related topics may have social desirability bias while reporting.

CONCLUSION

This study provided the baseline for understanding menstrual health, period poverty and menstrual hygiene among female college students and their mothers in Thoothukudi district, Tamil Nadu. Mothers hesitate to talk about menstrual-related topics and menstrual practices were influenced by various factors while daughters' menstrual practices were found to constrain those factors. There is a need to expand the Menstrual Hygiene Scheme program to provide safe and sanitary menstrual products to college girls and mothers who are menstruating especially in rural areas where they are out-stocked with menstrual products.

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REFERENCES

1. United Nations International Children Emergency Fund. Guidance on Menstrual Health and Hygiene. WASH, Education, Health, and Gender to develop programmes related to menstrual health and hygiene. Available at: www.unicef.org/wash. Accessed on 02 March 2023.
2. United Nations Population Fund. Menstruation and human rights. Available at: <https://www.unfpa.org/menstruationfaq>. Accessed on 07 March 2023.
3. Garg S, Anand T. Menstruation-related myths in India: strategies for combating it. J Family Med Prim Care. 2015;4(2):184-6.
4. Kumar A, Srivastava K. Cultural and social practices regarding menstruation among adolescent girls. Soc Work Public Health. 2011;26(6):594-604.
5. National Health Mission. Menstrual health in India. 2017. Available at: <https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1021&lid=391>. Accessed on 07 March 2023.
6. Parikh V, Nagar S. Menstrual hygiene among adolescent girls studying in a university of Gujarat. J Family Med Prim Care. 2022;11(7):3607-12.
7. Medina-Perucha L, Jacques-Aviñó C, Valls-Llobet C, Turbau-Valls R, Pinzón D, Hernández L, et al. Menstrual health and period poverty among young people who menstruate in the Barcelona metropolitan area (Spain): Protocol of a mixed-methods study. BMJ Open. 2020;10(7):e035914.
8. Hennegan J, Nansubuga A, Akullo A, Smith C, Schwab KJ. The Menstrual Practices Questionnaire (MPQ): development, elaboration, and implications for future research. Glob Health Action. 2020;13(1):1829402.
9. Parasuraman G, Vijay V, Balaji S, Nisha B, Dutta R, Jain T, et al. Impact of a health education intervention on menstruation and its hygiene among urban school-going adolescent girls in Thiruvallur, Tamilnadu. J Family Med Prim Care. 2022;11(9):5271-6.
10. Mathiyalagen P, Peramasamy B, Vasudevan K, Basu M, Cherian J, Sundar B. A descriptive cross-sectional study on menstrual hygiene and perceived reproductive morbidity among adolescent girls in a union territory, India. J Family Med Prim Care. 2017;6(2):360-5.
11. Hassan S, Ghandour R, Bakri L, Shwiki S, Safi S, Abuzaid R, et al. Menstrual health and hygiene among young Palestinian female university students in the West Bank: a cross-sectional study. BMJ Open. 2023;13(3):e069222.
12. Roy A. A Study of Menstrual Hygiene Management and College Absenteeism among Female Medical and Dental Students. Int J Health Sci Res. 2016;6(12):21-7.
13. Cardoso LF, Scolese AM, Hamidaddin A, Gupta J. Period poverty and mental health implications among college-aged women in the United States. BMC Womens Health. 2021;21(1):262-8.
14. 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):413-7.
15. Munro AK, Keep M, Hunter EC, Hossain SZ. Confidence to manage menstruation among university students in Australia: Evidence from a cross-sectional survey. Women's Health. 2022;18.
16. Ahmad MS, Rahmatullah M, Akter D. Communication between Mother-Adolescent Daughter about Sexual and Reproductive Health: A Cross-Sectional Study at Rangpur, Bangladesh. Int J Res Innov Soc Sci. 2021;5(9):737-44.

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