Menstrual Hygiene Management : A Study of Perception, Problem, and Practices Among Urban Slums of Delhi

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Abstract

Menstruation starts a new phase in every woman's life and indicates the initiation of the reproductive period. However, this milestone becomes distinctly painful for women with a lack of awareness and availability of hygienic menstrual products. At many places, the taboo attached to menstruation further adds to this suffering. This scenario is common in the slum communities of developing countries. This study was conducted in the context of urban slums of Delhi, with an aim to understand and assess women's problems, perceptions, and practices of menstrual hygiene management. It also studied the practices around different absorbents (cloth and pad) and compared the practices around absorbents amongst different user groups (cloth users, pad users, and both). For the study, 1,475 women from 14 urban slums of Delhi were surveyed. The findings of the study indicated the lack of awareness amongst the women regarding menstruation & hygiene practices. Further, affordability, availability, and comfort came out as the key factors influencing the choice of studied absorbents, with affordability being the most important factor. Based on the study's findings, significant implications for public policymakers and marketers were drawn.

Keywords : **menstrual hygiene management, urban slum community, pad users, cloth users, absorbents**

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Menstruation is a physiological process that occurs throughout the entire reproductive period of women's life. However, the perception and practices towards menstruation vary across cultures (Thakur et al., 2014). Although several measures have been taken worldwide to improve knowledge, differences in attitude are still evident (Thakre et al., 2011). Due to this, menstrual hygiene management has been considered an important issue under public health throughout the world (Van Eijk et al., 2016). In 2012, a joint monitoring program of World Health Organization (WHO) and United Nations Children's Fund (UNICEF) had proposed the definition of menstrual hygiene management (MHM hereafter) as :

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> Women and adolescent girls are using a clean menstrual management material to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials. (p. 17)

Thus, despite the variations in practices and perceptions towards menstruation across the globe, the MHM program focuses on the type of absorbent used, privacy of usage, cleanliness, and disposal practices.

Numerous studies on MHM have primarily focused on the kind of absorbents used and their disposal (Rana, 2015; Wilson et al., 2014), source of information for women (Thakre et al., 2011; Thakur et al., 2014), social impacts (Rana, 2015), and perception and problems related to the menstruation process (Adinma & Adinma, 2008). Also, MHM practices have been studied worldwide. However, studies on menstrual hygiene practices are less recent in developing countries (Kansal et al., 2016), and it is even lesser in the context of urban slum communities (Thakur et al., 2014).

Few studies on lower socio-economic groups in India were primarily based on western Maharashtra (Dudeja et al., 2016), Nashik (Gosavi et al., 2015), Mumbai (Thakur et al., 2014), Nagpur (Thakre et al., 2011), Bangalore (Shanbhag et al., 2012), Chandigarh (Singh, 2006), Varanasi (Kansal et al., 2016), and a few old studies on Delhi (Nair et al., 2007). These studies discussed the reasons for menstruating, sources of information, time to educate a girl on menstrual hygiene, and the truthfulness of the facts popular among women. These studies also reported that most girls were unaware of the menstrual cycle before the onset of it, and the information regarding the reason to menstruate was inaccurate and inadequate (Thakur et al., 2014), and most girls did not know that it is related to pregnancy (Shanbhag et al., 2012). In fact, menstruation is considered to be impure and polluting (Singh, 2006). Further, most studies regarded the mother as the key source of information (Dudeja et al., 2016; Nair et al., 2007; Sapkota et al., 2013), while some also showed it to be the friend circle (Singh, 2006). Furthermore, menstrual health and related morbidity were discussed in a few of these studies. Dysmenorrhoea was the most common problem observed amongst women at the time of menstruation (Nair et al., 2007; Sapkota et al., 2013).

The type of absorbent used by women is either a sanitary napkin or cloth. The use of old traditional cloth by a significant percentage of women was reported in these studies (Gosavi et al., 2015; Singh, 2006). It was also observed that the same cloth is reused multiple times (Shanbhag et al., 2012; Thakur et al., 2014). Table 1 summarizes the list of studies conducted on the low socio-economic groups in India. However, none of the studies focused on the comprehensive view of MHM in respect of different kinds of absorbents (cloth or pad) and comparison of different characteristics among regular users and irregular users in urban slum communities.

In India, MHM has attracted the attention of public policymakers in the past few years. The Government of India has initiated several programs to promote good menstrual hygiene practices, such as sanitary pad distribution at subsidized cost through accredited social health activists (ASHAs), who work as frontline health workers in rural and remote areas (GoI website). Despite these initiatives, several studies reported the lower acceptance of these absorbents and other menstrual hygiene practices among low socio-economic groups (Shah et al., 2013). Therefore, this study attempts to bridge the gap in the existing literature.

The objectives of the present study are :

(1) To assess the perception and problems of menstrual hygiene management among urban slums in Delhi.

(2) To study the practices around different absorbents (cloth and pad).

(3) To compare the practices around absorbents amongst different user groups (cloth users, pad users, and both (cloth and pad) users.

Table 1. ***Previous Literature on Menstrual Hygiene Management in Context of Low Socioeconomic Communities (Urban Slum and Rural Settings) in India***

Author(s), Year	Study Focus	Region	Sample Size and Method	Key Findings
Dudeja et al. (2016)	To assess the knowledge and practices about menstruation in adolescent school girls of an urban slum.	Urban slum of Western Maharashtra	Data of 250 girls were collected using a pilot-tested questionnaire & analyzed using Excel and SPSS.	• 90.5% of the school girls used sanitary pads. • Most girls were educated by their mothers regarding menstruation.
Kansal et al. (2016)	To assess the level of awareness about menarche and hygienic practices during menstruation in the context of schooling.	Varanasi	650 adolescents were studied using both quantitative and qualitative studies.	• Sisters played a key role in informing girls. • 31% used sanitary napkins. • Age, religion, caste, education, economic status, and education of mother played a key role.
Gosavi et al. (2015)	To assess menstrual practices among adolescents in the migrant population.	Nashik	60 in-depth interviews using semi-structured, open-ended questionnaire and analyzed using EPI-INFO.	• The old traditional method of using cloth was used. • 50% got the knowledge of menarche from friends followed by mother (35%).
Thakur et al. (2014)	The paper's objective was to analyze the knowledge, practices, and restrictions young women undergo during menstruation. The factors shaping the menstrual practices were also studied.	Mumbai	Sample size - 192 (96 adult and 96 younger women). Both qualitative and quantitative methods were used. For the quantitative survey, a structured questionnaire was used (modified based on pre-test) to understand the demographic and socio-economic background result of individuals.	• Between 15 - 24 years, very few received any information before the onset of menstruation. The information was inadequate & not authentic. • Limited knowledge can in poor practices; 25% of the young women used reusable cloth due to poor economic conditions. • Girls need privacy at home and school. • Pads should be provided in schools.
Shanbhag et al. (2012)	To assess the perceptions and practices regarding menstrual hygiene among selected high school girls in resource-limited settings in an area.	Bangalore	506 girls were interviewed using a pre-tested, structured questionnaire in four government high schools in rural areas.	• 48.1% did not know that menstruation was related to pregnancy. • Only 44.1% used sanitary pads. • Among those who used cloth, only 31.3% used soap and water to clean themselves.
Garg et al. (2012)	To understand the importance of providing subsidized sanitary napkins to women.	India	A study analyzing roles of different stakeholders and the issues and challenges.	• A pack of 10 sanitary napkins costs ₹ 30 - 40, which is expensive.

Materials and Methods

Sample Size and Survey Design

This study was conducted in a descriptive manner among women of all age groups in the lower socio-economic groups, primarily urban slum communities of Delhi. It was conducted from December 2017 – January 2018. The sample size was 1,475 menstruating women having different demographics. These women were selected via purposive sampling. To ensure an adequate diverse sample, the study was conducted in 14 urban slums of Delhi, namely Kapashera, Munirka, R. K. Puram, Vasant Kunj, Jahangirpuri, Azadpur, Sangam Vihar, Badaour, Tigri, Mukundpur, Bhalswa, Madanpur Khadar, Bhatti mines, and Makhanpur.

A set of structured questionnaires was designed in Hindi and English. It aimed to assess the women's perceptions, problems, and practices of menstrual hygiene management in the context of urban slums in Delhi. The survey was pre-tested with 30 participants. Based on the experience gained from the pre-testing, the questionnaire was modified after consultation with experts. The final questionnaire consisted of questions based on four themes – demographic information, understanding menstrual cycle, absorbent used, and menstrual hygiene management practices in the context of two main types of absorbents used among the studied population (pads and cloths).

Data Collection

In this study, a self-administered questionnaire was used for the collection of data. The study has been employed to understand women's perceptions, problems, and practices and the factors influencing the choice of menstrual hygiene products. After informed consent was obtained from the women, the questionnaires were administered to them. The data collectors included students from IIT Delhi and nearby colleges of Delhi. All the data collectors were instructed and guided with the way of handling the interviews to maintain uniformity and structure in the process. They visited the communities and collected the data through personal face-to-face interviews. Each interview was approximately 30 minutes long. In case of any clarifications, the girls were allowed to clear them with the investigator. The collected data were fed into Microsoft Excel for analysis. The quantitative findings of the study assisted in explaining the results.

Statistical Analysis and Results

First, menstruation and its related experiences have been reported using simple mathematical tools like percentage and frequency. Based on the absorbent used, the test subjects have been divided into three categories: pad users, cloth users, and both (pad and cloth) users.

Then, statistical analysis was conducted to test the hypothesis of correlations between the absorbent used by women and their demographics. A chi-square independence test was used to find the associations amongst various factors. The outcome with a $p < 0.01$ was only considered to be significant. Lastly, an analysis using the above same test was done to find differences between the ways women in different categories interacted with the absorbent used by them.

Ethical Considerations

The data collectors ensured to first obtain verbal consent from women before starting the interview. The topic of discussion was informed to the women before the beginning of the interview. Women were given the liberty to ask for any clarifications and were also told that they were free to skip any question of the interview that they did not want to answer.

Menstruation and Its Related Experiences in the Study Population

The experiences in terms of problems and perceptions around menstrual hygiene management have been presented in Table 2. According to our survey, the majority of the women experienced a menstrual cycle of 3 – 6 days (90.7%). It was noted that most of the women had regular periods (81.7%); however, a significant 18% of the women also reported experiencing irregular periods in the survey. In the survey, 70.6% of the women defined their flow to be in the "medium" category. The others either experienced "low" (16.3%) or "heavy" (13.1%) flow. We observed that 89.29% of women either did not discuss menstruation with anyone or discussed it only with their family members. We observed that 61.3% of the women did not know the reason behind menstruation. Others thought it to be God's gift or shedding of impure blood. Women reported body pain (33.7%) to be the most

Table 2. ***Menstruation and Its Related Experiences in the Study Population***

Characteristics	Categories	Frequency (*N*)	Percentage (%)
How many days do you menstruate?	Less than 3	118	8.0%
	Between 3 – 6	1,338	90.7%
	Above 6 days	19	1.3%
Are your periods regular?	Yes	1,205	81.7%
	No	266	18.0%
	No period after pregnancy	4	0.3%
What type of flow is experienced by you?	Heavy	193	13.1%
	Medium	1,041	70.6%
	Light	241	16.3%
Whom do you talk about this? (MA)	Nobody	580	35.0%
	Family	898	54.3%
	Friends	161	9.7%
	Other	16	1.0%
Why do you think you menstruate?	Don't know	905	61.3%
	Natural	95	6.4%
	Childbirth	101	6.8%
	God's gift	24	1.6%
	Waste/Impure blood	30	2.2%
	Other	320	21.7%
What are the problems faced by you during menstruation?	Normal	597	40.5%
	Body pain	493	33.4%
	Weakness	41	2.8%
	Cramps	30	2.0%
	Other	314	21.3%
Which product do you use at the time of menstruation?	Pad	863	58.4%
	Cloth	418	28.4%
	Both (Pad+Cloth)	186	12.7%
	Other	8	0.5%

Note. *N* : Number of survey responses.

common problem during menstruation. Other issues included rashes, weakness, or cramps. Three categories were observed among the test subjects based on the absorbent used by them, namely, pad (58.4%), cloth (28.4%), and both (pad + cloth : 12.7%).

Practices Around Different Adsorbents and Their Relationship with Demographic Characteristics of the Respondents

Table 3 relates the types of absorbents used during menstruation with the socio-demographic characteristics of the

Table 3. ***Association of Types of Absorbents Used During Menstruation and the Socio-Demographic Characteristics of the Study Population***

Variables	Cloth *N* (%)	Both (Cloth + Pad) *N* (%)	Pad *N* (%)	Group Difference
		Age		
12 – 20 years	44 (10.6)	35 (18.8)	283 (32.9)	X^2 = 132.44
20 – 30 years	203 (48.6)	91 (48.9)	357 (41.5)	*Df* = 6
30 – 45 years	140 (33.6)	46 (24.7)	185 (21.5)	Significant
Don't know	30 (7.2)	14 (7.5)	36 (4.2)	*p*<0.0001
		Occupation		
Student	6 (1.4)	5 (2.7)	193 (22.4)	X^2 = 86.39
Employed	86 (20.6)	31 (16.7)	141 (16.4)	*Df* = 6
Homemaker	301 (72)	141 (75.8)	492 (57.1)	Significant
Other	25 (6)	9 (4.8)	25 (4.1)	*p*<0.0001
		Education		
Uneducated	269 (64.3)	75 (40.3)	242 (28.1)	X^2 = 186.63
Primary	110 (26.3)	63 (33.9)	279 (32.3)	*Df* = 6
Secondary	34 (8.1)	40 (21.5)	278 (32.2)	Significant
Graduated	5 (1.2)	8 (4.3)	64 (7.4)	*p*<0.0001
		Number of Women in Family		
1	196 (48)	73 (41)	268 (31.8)	X^2 = 112.29
2	109 (26.7)	57 (32)	271 (32.1)	*Df* = 8
3	53 (13)	30 (16.9)	150 (17.8)	Significant
4	31 (7.6)	8 (4.5)	98 (11.6)	*p*<0.0001
More than 4	19 (4.7)	10 (5.6)	57 (6.7)	
		Number of Years in Delhi		
0 – 1 years	30 (7.2)	13 (7.0)	32 (3.7)	X^2 = 30.08
1 – 2 years	16 (3.8)	8 (4.3)	34 (3.9)	*Df* = 12
2 – 5 years	67 (16)	21 (11.3)	85 (9.8)	Significant
5 – 10 years	71 (17)	33 (17.7)	148 (17.1)	*p*<0.003
10 – 20 years	115 (27.5)	59 (31.7)	336 (38.9)	
20 + years	99 (23.7)	42 (22.6)	196 (22.7)	
Don't know	20 (4.8)	10 (5.4)	32 (3.7)	

Note. *N* : No. of responses; *Df* : Degrees of freedom; X^2 : Chi-Square Test of Independence.

study population. It can be noted that 10.8% of the cloth users lay in the 12 – 20 years age group, which increased to 32.9% of pad users in the 12 – 20 age group. Statistically as well, we see a significant association between age and the menstrual product used. Similarly, we observe that among students, 22.4% of them used pads as compared to 1.4% cloth users. Similarly, 57.1% percent of the homemakers were pad users compared to 72% cloth users, and the association is also significant. Education is a very significant factor in deciding the menstrual products used. While only 28.1% of the pad users were uneducated, 64.3% of the cloth users were uneducated. The association between the two is also statistically significant. While 31.8% of the pad users had only one woman family member, 48% of the cloth users had only one woman family member. Similarly, while only 38.9% of the pad users had spent 10 – 20 years in Delhi, 27.5% of the cloth users had spent the same amount of time in Delhi.

Menstrual Hygiene Practices Regarding Pad Among Different User Groups

Table 4 depicts the way women used pads and also how the situation is different amongst "pad only users" and "both (pad + cloth) users." According to our survey, the most preferred brand was Stayfree (52.1%), followed by Whisper (29.8%), among slum dwellers. In the case of "both (pad+cloth) user" category, most women did not have an idea of the brand (44.8%). The majority of the women (67%) bought sanitary pads in the range of INR 20 – 40, and a similar trend was observed for both categories. Medical stores (41.6%, 32.4%), general stores (40.5%, 58.7%), and schools (24.2%, 10.1%) were the major sources for buying sanitary pads. It can be inferred from the data in the table that a significant correlation is observed between the source of getting pads and the choice of adsorbent used ($p < 0.0001$). The results show that either the woman herself or someone from the family bought the pads. A significant correlation ($p<0.002$) can be seen between the product used by women and the person who bought the pads. For the pad category, the women themselves got the pads; whereas, for the pad + cloth category, they relied on someone else to get the menstrual product. It can be noted from Table 4 that the majority of the women changed the pad two (35.3%, 51.6%) or three (42.2%, 30.1%) times in a day, and the difference in frequency of change is significant between the two categories ($p<0.0001$). The pad users are noted to change a higher number of times. Most women believed that they encountered no problem (92.9%, 85.4%) with the use of pads. Very few experienced rashes, irritation, or leakage, though the percentage of them in only pad users was less than that in the category of both users (7.1%, 14.6%).

Table 4. ***Menstrual Hygiene Practices Regarding Pad Among Different User Groups***

Question	Pad Users (= *N*) *n* (%)	Both Pad + Cloth Users (=*N*) *n* (%)	Comments
Which brand do you use?			
Stayfree	450(52.1)	55(29.6)	$X^2 = 165.65$
Whisper	257(29.8)	35(18.8)	*Df* = 4 Significant
Sofy	51(6)	1(0.5)	$p<0.0001$
No idea	96(11)	84(44.8)	
Other	9(0.97)	15(7.5)	
At what price do you purchase the menstrual product? (in INR)			
Below 20	32(3.6)	8(4.5)	$X^2 = 15.98$
21 – 40	581(67.6)	127(68.1)	*Df* = 4 Significant
Above 40	106(12.1)	11(6.2)	$p < 0.003$
Don't know	82(9.5)	32(16.8)	

From where do you get the pad?			
Medical Store	359(41.6)	60(32.4)	X^2 = 30.22
General store	350(40.5)	109(58.7)	*Df* = 3 Significant
School	208(24.2)	19(10.1)	*p*<0.0001
Other	23(2.3)	8(4.8)	
Who brings the pad for you?			
Self	590(68.4)	105(57)	X^2 = 16.62
Other	392(45.4)	123(68.9)	*Df* = 2 Significant
From school	5(0.6)	3(1.8)	*p* < 0.0002
How many pads do you use in a day?			
1	67(7.8)	20(10.8)	X^2 = 24.02
2	305(35.3)	96(51.6)	*Df* = 4 Significant
3	364(42.2)	56(30.1)	*p* < 0.0001
4	109(12.7)	11(5.9)	
5	18(2.1)	3(1.6)	
What are the problems caused by pads?			
No problem	798(92.9)	159(85.4)	X^2 = 31.86
Irritation	16(1.7)	4(2.2)	*Df* = 4 Significant
Rashes	26(2.9)	1(0.5)	*p*<0.0001
Other	35(3.6)	19(9.5)	
Leakage	7(0.7)	9(4.5)	

Note. *N*: No. of responses; *Df*: Degrees of freedom; X^2: Chi-Square Test of Independence.

Menstrual Hygiene Practices Regarding Cloth Among Different User Groups

Table 5 shows the way women used cloth and also how the situation is different amongst "cloth only users" and "both (pad + cloth) users." According to our survey, cotton was the most preferred cloth type amongst the women (93.3%). This is similar for both the categories and the relation is not found to be statistically significant as well. The reason for using cloth varied significantly across both categories. Affordability (63.2%), comfort (33.7%),

Table 5. ***Menstrual Hygiene Practices Regarding Cloth Among Different User Groups***

Question	Cloth Users (= *N*) *n* (%)	Both Pad + Cloth Users (= *N*) *n* (%)	Comments
Reason for using cloth			
Comfortable	141(33.7)	44(23.6)	X^2 = 78.24
Easily available	104(24.9)	90(48.1)	*Df* = 4
Affordability	268(63.2)	106(56.6)	Significant
Never used anything else	116(27.2)	4(2.2)	*p* < 0.0001
Others	40(9)	33(17.4)	
How do you use the cloth?			
After washing and sun drying	270(64.6)	131(70.4)	X^2 = 3.51

Without washing	120(28.7)	40(21.5)	*Df* = 2
Other	28(6.7)	15(8.1)	Not Significant
Frequency of changing the cloth in a day?			
1	81(19.4)	23(12.4)	X^2 = 6.88
2	168(40.2)	93(50)	*Df* = 3
3	138(33)	56(30)	Not Significant
4	31(7.4)	14(7.6)	
Type of cloth material used?			
Cotton	391(93.3)	178(95.7)	X^2 = 1.09
Other	27(6.7)	8(4.3)	*Df* = 1
			Not Significant
What is the problem with cloth?			
No problem	324(77.5)	124(66.7)	X^2 = 17.49
Irritation	43(10.3)	28(15.1)	*Df* = 4
Rashes	38(9.1)	15(8.1)	Significant
Leakage	39(9.3)	32(17.2)	$p < 0.002$
Others	20(4)	20(10.3)	
Do you reuse the cloth?			
Yes	65(15.5)	19(10.6)	X^2 = 3.06
No problem	353(84.5)	167(89.4)	*Df* = 1
			Not Significant

Note. *N*: No. of responses ; *Df*: Degrees of freedom ; X^2: Chi-square Test of Independence.

and ease of availability (24.9%) are the top three reasons for using cloth for cloth-only users. However, in the case of pads, ease of availability (48.1%) becomes the second most crucial factor, and the association is also significant. The majority of the women (64.3%, 70.4%) used cloth after washing and sun-drying, and the association is not found to be significant.

Moreover, similar to pads, most women changed the cloth two (40.2%, 50%) or three (33%, 30%) times a day, and the association is not significant. Also, most women did not reuse the cloth pad (84.5%, 89.9%), and the association is not significant. While assessing the hygiene practices related to cloth, the problems faced by using a cloth cannot be ignored. While the number of women who faced no problem is 77.5% in the cloth category, it quickly drops down to 66.7% in the cloth + pad category, and this association is also found to be significant.

Discussion

Problems and Perceptions Around Menstrual Hygiene Management

The study shows that 90.7% of the women respondents menstruated for 3 – 6 days. Our study observes that though 81.7% of the women had regular periods, women with irregular periods are also significant and cannot be ignored. This high percentage of women with irregular periods was also seen in previous studies (Mathiyalagen et al., 2017). The study shows that women considered their flow to fall under the category of "medium" or "normal" and hence considered themselves to be having a healthy menstrual cycle. The major problem faced by women at the time of menstruation is body pain, in scientific terms, *dysmenorrhea*, which is basically menstrual cramps. This

was also reported in the study of Nagpur (Thakre et al., 2011) and East Delhi (Nair et al., 2007). It was found in the study that most of these problems related to the process of menstruation were discussed with a family member, as was also seen in Nagpur (Thakre et al., 2011) and East Delhi (Nair et al., 2007) studies. This possibly shows the taboo attached to this issue, making women reluctant to talk about it and seeking help. The majority of the women did not know the reason behind menstruation, as reported by our study.

Practices Around Different Type of Absorbents Used and Their Relationship With Socio-Demographic Characteristics of Users

We observe a significant association between age and the menstrual product used. Women in the younger age group preferred pads as compared to cloth. This could be because of the increase in information shared about the use of pads in schools and colleges. Even the free distribution of pads in schools by the Delhi government could contribute to this difference. Moreover, for older women who had used cloth since childhood, there was a reluctance to shift to pads which is not the case with the younger women. Thereby, more information on pads and lesser reluctance plays a significant role in driving the younger generation to use pads. We also observe a significant association between the menstrual product used with occupation. Most of the cloth and both (cloth + pad) users were homemakers. This is possibly because of the discomfort in using cloth when outside. Education leads to better knowledge about the menstrual process, leading to more hygienic menstrual practices. This is similar to the observations in the rural areas of Varanasi (Kansal et al., 2016). A significant correlation could also be observed between the number of women in the family and the absorbent used. Comparatively, pad users had more number of women in their families. The possible reason could be that the older women were influenced by the younger generation, or more girls were enrolled in schools to supply pads to fellow women in the family. The results also relate to the number of years in Delhi to the product used.

Menstrual Hygiene Practices of Pad Users

Many studies have been done in the past to comment upon the method of use of sanitary pads by women. The majority of women changed the pad two or three times a day. The study in urban slums of Maharashtra and even in Western Ethiopia (Dudeja et al., 2016) showed similar results. According to health experts, you must change your sanitary napkin once every 3 – 6 hours. But these hours cannot be generalized as it also depends on the quality of the sanitary napkin and individual needs. A higher percentage of women changed it twice in the category of both (cloth + pad) as compared to changing it thrice. The possible reasons could be that pads are more expensive than cloth, so optimal/full utilization of pads is done. It can be observed that 92.9% of the women experienced no problem with the usage of pads. This is in contrast to a study done on women from Chandigarh (Kumar et al., 2013), where 35% faced no problem, and the majority of the women experienced pain and cramps. The pain depends on the lifestyle and health of the body, and hence, it will be difficult to compare and analyze the two figures.

A majority of the women bought pads at the cost of between INR 20 – 40 in the urban slums of Delhi (Garg et al., 2012). Most of the available cheapest MNC packets (pack of 6) lie in this range. Also, the most preferred brand was observed to be Stayfree in the study. The key driver is affordability over comfort when it comes to the purchase of pads. The price of pads has remained the biggest barrier in India. A pack of 10 pads costs between INR 30 – 40, making the average expenditure during the menstrual cycle INR 48, which is expensive as per Indian standards (Garg et al., 2012). It can be seen that in the category of both (pad + cloth), the price of packets purchased by women was on the lower side, depicting the poor economic condition of these women and hence the reason to use a cloth.

Usually, the test subjects bought the pads from either a medical store or a general store. Interestingly, the percentage of girls getting the pads from schools gets halved when we shift from the "only pad user" category to the "Both (pad+cloth user)" category. It could be argued that when women were not getting pads from school, they shifted to cloth. Hence, providing pads by a school is an effective way of tackling the issue of affordability and availability of pads. Government programmes (ASHA) and schemes in many states follow this practice to encourage the use of sanitary pads. A difference in the two categories is also observed in the case of who brings the pad. While in the "only pad user" category, women brought the pads on their own; whereas, in the "both (pad+cloth user)" category, the family members brought the pads.

Menstrual Hygiene Practices of Cloth Users

The majority of cloth users used cotton cloth during menstruation. This is probably because of the good absorbance capacity of the majority of cotton cloth types and its easy availability in various forms, making cotton the preferred choice amongst all cloth users. However, in the same study, the frequency of changing the cloth thrice and four times (34.19%, 47% respectively) became more evident after awareness than twice and thrice before (24.71%, 37.61%). This clearly shows that awareness leads to women changing the cloth regularly, which is better for women's menstrual hygiene.

It was observed that most of the cloth using women disposed of the cloth after use, rather than reusing it. In a similar study conducted in Varanasi (Kansal et al., 2016), 82.4% showed similar behavior. This trend is probably because of the taboo attached to this issue. Reusing would require washing and drying the stained cloth, which many women are reluctant to do, as that blood is perceived as impure ; 24.9% of the cloth users used cloths because of the easy availability, and this number doubles to 48.1% for users in the both (pad + cloth) category. This points to the lack of accessibility of pads in these areas, making cloth a lucrative option. This is in line with the findings of a previous study (Dey & Sharma 2019), which emphasized the negative influences of availability on consumer purchase decisions. The qualitative responses during the survey like, "We mostly use pads, but when there is non-availability of pads, then the cloth is used," and "Usage of pads depends upon whether pads are available or not" further confirm upon this possibility. While 77.5% of the women in the cloth category faced no problem using a cloth, this figure was 66.7% in the (cloth + pad) category. This could be because women in the both (pad + cloth) category were able to evaluate cloth pads better, which is not possible for those only using cloth ; 28.6% of the women used cloth without washing, which could be attributed to a lack of awareness amongst many over this issue.

Conclusion

This study investigates the perception, practices, and problems of menstrual hygiene management amongst urban slum communities in Delhi. The study highlights that there is a massive lack of awareness amongst women regarding menstruation. The majority of women did not know the reason behind menstruation. They did not know the effects and abnormalities which unhygienic menstrual practices can cause. Women were also unaware of the basic hygienic practices related to menstruation, such as the number of times pads/ cloth to be changed and usage of fresh cloth or pad. With greater education and more exposure (employed women or younger generation), women tend to follow the practices of the urban middle class. Next, women were reluctant to talk about menstruation as it is considered impure and polluting. When facing any problem like menstrual cramps, women either do not speak about it or majorly seek help from a family member ; going to a doctor or speaking outside the family was very rare. Lastly, affordability, availability, and comfort were essential for women and acted as the critical drivers for the choice of menstrual products, with affordability as the most important driver.

Implications

The findings of the study have several theoretical and practical implications.

Theoretical Implications

This study carries the potential to contribute to the existing literature through different aspects. First, this study enriches the understanding of the menstrual hygiene practices followed in slum communities in India. Till now, scant research has been done to understand their present menstrual hygiene practices. Second, this study extends the understanding regarding the practices around different kinds of absorbents, including pads and cloth, followed by different user groups. The study's novelty lies in presenting the comparison among these different user groups, such as pad users, cloth users, and both regarding the practices they followed for different studied absorbents.

Practical Implications

This study offers the following practical implications for marketers and public policymakers. First, the findings of this study highlight the lack of knowledge about menstrual hygiene practices in the studied population. This indicates the need to create a strong awareness program through door-to-door campaigns, focus group discussions, etc., to educate women on the topic. This should include the reason for menstruation, hygienic practices, side effects, and discussion on different types of menstrual products. This will give women an opportunity to make an informed decision about the products they feel are suitable for them. Open discussion on these topics will also help to break the taboo associated with the topic. Social marketing can also be used to promote awareness and adoption of health-related products, as seen in previous studies (Swaminathan & Viswanathan, 2016). Second, affordability and availability came out as the most important factors influencing their adoption of hygiene practices. Therefore, the concerned authorities should also take steps to provide the pads (if chosen and wanted by women) at affordable/ subsidized rates. They should be provided not only to girls attending school but also for the women in their families. A woman should not be denied the right to menstrual hygiene because she cannot afford one.

As the Government of India emphasizes health, new health centers and dispensaries in slum areas (Singh & Sunaina, 2005), awareness regarding menstrual hygiene, and provision of pads should be propagated using these centers. Third, given that affordability would remain an issue for many women, the government should actively share the best practices of using cloth. Cloth, if washed and sun-dried properly, can be hygienically managed. Moreover, the usage of menstrual cups should also be piloted, given it would be a cheaper and sustainable option, even over pads.

Limitations of the Study and Scope for Future Research

Although the present study suggests newer insights on menstrual hygiene practices, it still has a few limitations, which could be considered in future work. First, the present study focuses on slum communities based in NCT Delhi. MHM is an important issue and should not be limited to a specific territory. Therefore, future studies could consider slum communities in other metropolitan cities. Second, the present study is limited to two kinds of absorbents : pads and cloths. Future studies may consider all different kinds of absorbents, such as menstrual cups. Third, the current study examines the menstrual hygiene practices among the different kinds of absorbent users, and future studies can categorize these users based on the demographic profile such as age, location, and education. Lastly, the present study uses simple statistical tools to analyze the data ; future studies can use multivariate techniques for data analysis and hypothesis testing.

Authors' Contribution

Harshita Kejriwal and Shubham Jain jointly conceived the idea, did the literature review, and did the qualitative and quantitative analysis of the empirical study. Manvi Bansal led the design of the study questionnaire and supervised the interviews. Dr. Shiksha Kushwah did the technical writing and data analysis of the paper along with the other co-authors. Prof. Mahim Sagar reviewed, provided feedback, and supervised the paper from idea generation to completion.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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