International Journal of Community Medicine and Public Health
Vidya KR et al. Int J Community Med Public Health. 2024 Aug;11(8):3064-3068
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20242164

Original Research Article

The effect of hygienic material use during menstruation on the prevalence of RTIs symptoms among women in India

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Received: 15 May 2024
Revised: 03 July 2024
Accepted: 04 July 2024

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ABSTRACT

Background: Every month, healthy adolescent girls and pre-menopausal adult women are impacted by the crucial topic of menstrual hygiene. Menstrual hygiene management is essential to women's reproductive health. Menstrual product consumption, poor cleaning techniques, and material reuse are examples of suboptimal menstrual health and hygiene. So, the current study was planned to assess the impact of hygienic material use during menstruation on the prevalence of RTIs among women in India.
Methods: A cross-sectional, comparative community-based study was conducted in urban and rural areas of Bangalore, India. Study was conducted from December 2023 to March 2024. All female patients in reproductive age group attending RHTC and UHTC OPD were included. Interview method was used to collect data from consented participants on socio demographic details, products used for menstrual hygiene and symptoms suggestive of RTI in last 6 months were collected.
Results: A community-based study was conducted in rural and urban field practice area of a medical college in Bangalore. A total of 258 participants attending UHTC and RHTC centres were included from each area. The proportion of participants with RTI symptoms were 62.2%. In current study 20.3% participants reported lower abdominal pain and 18.6% of participants had pain during micturition in past 6 months.
Conclusions: Our study's findings show a direct link between subpar MHM procedures and RTI symptoms. Our results confirm international recommendations for a dual focus on providing suitable absorbent materials and making sure that ambient conditions allow associated hygiene, such as washing, safety, and dignity for women.

Keywords: Comparative study, Menstruation, Reproductive tract infections

INTRODUCTION

Every month, healthy adolescent girls and pre-menopausal adult women are impacted by the crucial topic of menstrual hygiene. Globally, women have evolved unique coping mechanisms for their periods, which differ from nation to nation and are influenced by factors such as financial standing, personal inclinations, regional customs and cultural values, and educational attainment.[1-3] Frequently, management techniques can be messy and cumbersome, especially in less developed environments. Instead of using disposable pads, 43% to 88% of girls in India wash and reuse cotton cloths.[4,5] However, societal taboos and regulations compel drying

indoors, away from sunlight and open air, and washing is frequently done without soap and with dirty water, so reusable material might not be thoroughly sanitized.[5]

The World Health Organization (WHO) has declared reproductive tract infections (RTIs) to be a major global public health concern. Reproductive tract infections (RTIs) have been recognized by the World Health Organization (WHO) as a major global public health concern. This issue is especially prevalent in underdeveloped nations. This problem is especially prevalent in underdeveloped nations, where it affects a significant number of women who are of reproductive age (estimated prevalence: 23% to 29% annually).[6]

Women's reproductive health is greatly impacted by RTIs in low- and middle-income nations like India.[7] These may result in fallopian tube obstructions and dysfunction, infertility, injury and scarring to the reproductive organs, and pregnancy-related problems include sepsis and postpartum hemorrhage.[8]

Menstrual hygiene management is essential to women's reproductive health. Deficient menstrual product use, inadequate cleaning techniques, and material reuse are examples of suboptimal menstrual health and hygiene (MHH) that have been linked to a higher risk of RTIs, which include bacterial vaginosis and urinary tract infections.[9] According to certain research from Bangladesh, Kenya, and Nepal, using sanitary products like tampons, menstrual cups, or sanitary pads can help stop the formation of dangerous bacteria and lower the incidence of RTIs.[10] Menstrual hygiene management is essential to women's reproductive health. Menstrual product consumption, poor cleaning techniques, and material reuse are examples of suboptimal menstrual health and hygiene (MHH).

Therefore, this article aims to assess the impact of hygienic material use during menstruation on the prevalence of RTIs among women in India.

METHODS

A cross-sectional, comparative community-based study was conducted in urban and rural areas of Bangalore, India. Study was conducted from December 2023 to March 2024. clearance was taken from the institutional ethics committee prior to data collection. All female patients in reproductive age group attending RHTC and UHTC OPD were included. Pregnant women were excluded. In a study done by Paria et al, prevalence of sanitary pad was 45%, with 95% confidence interval and 15% relative precision, minimum sample required was 234.[11] Convenient sampling method was used to collect data. Consent was obtained after discussion with participants. Interview method was used to collect data from consented participants on socio demographic details, products used for menstrual hygiene and symptoms suggestive of RTI in last 6 months were collected.

Statistical analysis

Data was entered into Microsoft excel sheet and was analysed using SPSS software. Descriptive analysis and chi-square test. Statistical significance of differences between groups was tested. P<0.05 was taken as statistically significant.

RESULTS

Table 1 represents the socio-demographic characteristics of respondents. Data shows that the 50% of participants from rural area were in 26-35 years age group and from urban area 40.7% were in 26-35 years age group. From rural area 24.85% of participants were graduates and from urban area 24.4% were graduates. 16.7% and 15.5% of participants from rural and urban area respectively were not literates. 82.9% and 75.2% of participants from rural and urban area respectively are married. Majority of participants 60.9% and 67.8% from rural and urban area respectively were from nuclear family. Most of the participants belong to Hindu religion.

Table 2 brings out that 47.7% of the women in the rural area and 56.6% of the women in urban area were using disposable sanitary pads and this difference was also found to be statistically significant (p=0.002). Sixty four percent (64.3%) women in rural and 178 (69.0%) women in urban area changed their pads every 8-10 hours and this difference in frequency of change of pads, was not found to be statistically highly significant (p=0.53). It was also observed that 71.3% of the women in rural area cleaned their external genitalia with water only while in urban area only 64.7% of the women did it. This difference in frequency of cleaning their external genitalia by urban and rural women was also not found to be statistically significant (p=0.06).

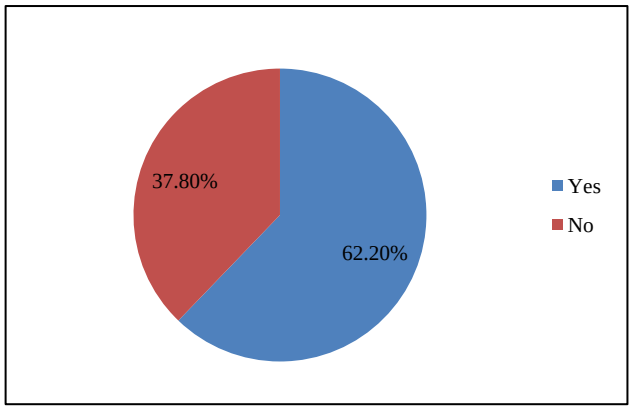

Figure 1: Percentage of participants with symptoms of RTI.

In current study most of the participants i.e. 62.2% had symptoms suggestive of RTI and in ERTI 20.3% participants reported lower abdominal pain and 18.6% of participants had pain during micturition in past 6 months (Figure 1 and 2).

Table 3 shows that in rural area 157 (60.9%) had symptoms suggestive of RTI in past 6 months and in urban area 164 (63.6%). Among different absorbent used more RTI symptoms were observed among tampon users i.e. 11 (78.5%) and also among those using reusable sanitary pads i.e. 41 (71.9%). Related to frequency of change of absorbent material more symptoms were observed among those changing absorbent after 10 hours of use. Difference observed between groups is statistically significant. More RTI symptoms were observed among those using only water for hand wash. Difference observed between groups was found to be statistically significant.

Table 1: Socio demographic factors of study participants.

Demographic characteristics		Rural		Urban		Chi square	P value
		Frequency	Percentage	Frequency	Percentage		
Age (years)	18-25	44	17.1	54	20.9	6.7	0.08
	26- 35	129	50	105	40.7		
	36-45	69	26.7	88	34.1		
	46-55	16	6.2	11	4.3		
Education	Illiterate	43	16.7	40	15.5	13.6	0.018
	Primary school	23	8.9	42	16.3		
	Middle school	52	20.2	54	20.9		
	High school	23	8.9	30	11.6		
	Diploma/intermediate	53	20.5	29	11.2		
	Graduate and above	64	24.8	63	24.4		
Marital status	Single	39	15.1	59	22.9	5.06	0.08
	Married	214	82.9	194	75.2		
	Divorced/separated	5	1.9	5	1.9		
Type of family	Joint	61	23.6	39	15.1	6.06	0.05
	Nuclear	157	60.9	175	67.8		
	3 generation	40	15.5	44	17.1		
Religion	Hindu	225	87.2	245	95	9.7	0.08
	Muslim	15	5.8	7	2.7		
	Christian	18	07.0	6	2.3		
Parity	0	49	19	86	33.3	33.6	<0.0001
	<3	186	72.1	172	66.7		
	3 or more	23	8.9	0	0		
Contraceptive use	Nil	81	31.4	155	60.1	71.9	<0.0001
	Condom	57	22.1	21	8.1		
	OCP	4	5.4	34	13.2		
	IUCD	33	12.8	1	8.1		
	Sterilization	73	28.3	27	10.5		

Table 2: Menstrual health and hygiene practices.

Demographic characteristics		Rural		Urban		Chi square	P value
		Frequency	%	Frequency	%		
Type of absorbent used during menstruation	Old cloth	73	28.3	77	29.8	20.24	0.002
	Disposable sanitary pad	123	47.7	146	56.6		
	Reusable sanitary pad	39	15.1	18	7.0		
	Period underwear	8	3.1	3	1.2		
	Menstrual cup	10	3.9	5	1.9		
	Tampon	5	1.9	9	3.5		
Frequency of change	4-8 hours	19	7.4	17	6.6	1.26	0.53
	8-10 hours	166	64.3	178	69.0		
	>10 hours	73	28.3	63	24.4		
Hand washing practices	With water only	184	71.3	167	64.7	2.5	0.06
	With soap/Dettol and water	74	28.7	91	35.3		

Table 3: Factors associated with symptoms suggestive of RTI.

Factors		Symptoms suggestive of RTI		P value*
		Yes (%)	No (%)	
Place	Rural	157 (60.9)	101 (39.1)	0.23
	Urban	164 (63.6)	94 (36.4)	
Type of absorbent used during menstruation	Old cloth	91 (60.7)	59 (39.3)	0.55
	Disposable sanitary pad	163 (60.6)	106 (39.4)	
	Reusable sanitary pad	41 (71.9)	16 (28.1)	
	Period underwear	7 (63.6)	4 (36.4)	
	Menstrual cup	8 (53.3)	7 (46.7)	
	Tampon	11 (78.5)	3 (21.4)	
Frequency of change	4-8 hours	23 (63.9)	13 (36.1)	<0.00001
	8-10 hours	192 (55.8)	152 (44.2)	
	>10 hrs	106 (77.9)	30 (22.1)	
Hand washing practices	With water only	239 (68.1)	112 (31.9)	<0.0001
	With soap/Dettol and water	82 (49.7)	83 (50.3)	

*Chi square test applied

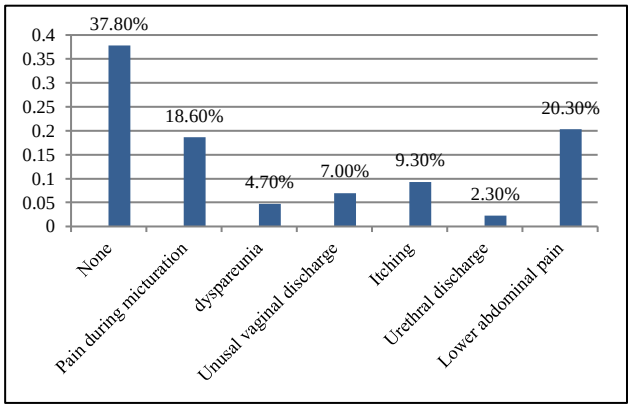

Figure 2: Symptoms suggestive of RTI in past 6 months.

DISCUSSION

A community-based study was conducted in rural and urban field practice area of a medical college in Bangalore. A total of 258 participants attending UHTC and RHTC centres were included from each area. Participants were interviewed on menstrual hygiene practices and symptoms suggestive of RTI in past 6 months. Percentage of participants with symptoms of RTI was 62.2%. We had similar socio demographic features among rural as well as urban participants. Common RTI symptoms were lower abdominal pain and pain during micturition. Symptoms were commonly seen among those using tampons and reusable sanitary pads, those change their absorbent for >10 hours and those use only water to wash hands.

Current study found that disposable sanitary pads were the most commonly used adsorbent during the day and at night because of their ease of use. while menstrual tampons and menstrual cups were used almost half as often. These data are consistent with the ANSES study of 1,065 women aged 13-50 years, showing that 82% of women used disposable sanitary pads and 54% used menstrual tampons.[12] Similarly, in a study done by Parent et al, 81% of women used disposable sanitary pads.[13] The use of hygienic materials ensures the absorption of menstrual blood, which reduces the chances of leakage and staining. These materials keep the vaginal area clean and dry, which further reduces the risk of RTIs.[14]

Among the women studied, the symptom of RTI prevalence was 62.2% with lower abdominal pain was the most common symptom (20.3%) and abnormal vaginal discharge the most commonly re-ported RTI symptom. Similar findings were observed in a study done by Torondel et al, in Odisha.[15] The present study supports the hypothesis that certain MHM practices are associated with a higher risk of lower reproductive tract infections. More frequent changing of absorbents and regular body washing during menstruation was associated with a lower risk of BV which was observed in our current study. Similar findings were observed in a study done by Torondel et al in Odisha.[15]

There are some limitations to our study. Firstly, this was a hospital-based study and socio-economic, education and risk factors may differ from the general population. Only women attending the PHC consented to participate in the study were included. Secondly, this is a cross-sectional observational questionnaire-based study and so we cannot infer causality based on the observed associations between MHM practices and RTI outcomes.

In summary, our study's findings show a direct link between subpar MHM procedures and RTI symptoms. Our results confirm international recommendations for a dual focus on providing suitable absorbent materials and making sure that ambient conditions allow associated hygiene, such as washing, safety, and dignity for women. If and to what degree these interventions lower the risk of

RTI, that should be the aim of future research in this field using thoughtfully planned and well-executed intervention studies.

CONCLUSION

Our study's findings show a direct link between subpar MHM procedures and RTI symptoms. Our results back the demands made worldwide for a combined emphasis on supplying suitable absorbent materials and making sure those environmental conditions that allow related.

ACKNOWLEDGEMENTS

Our sincere acknowledgement for all participants and interns who helped in data collection and compilation.

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: Vidya KR, Ambresh A, Kumar NP, Lohit K. The effect of hygienic material use during menstruation on the prevalence of RTIs symptoms among women in India. Int J Community Med Public Health 2024;11:3064-8.