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Factors affecting Menstrual Hygiene Management Practices among Women Visiting a University Hospital of Lahore: A Cross-Sectional Study

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ABSTRACT

Menstrual practices are considered taboo in various spheres of our lives, serving as an impediment to the provision of adequate resources to women. **Objective:** To determine factors affecting menstrual hygiene practice (MHMP) in the population visiting a Tertiary Care Hospital. **Methods:** A Quantitative descriptive study was conducted at Lady Willingdon Hospital from July to December 2024. 382 female were included in the study after seeking informed consent and approval from ERB. The inclusion criteria for this study were female aged 18-45 years with regular menstrual cycles. Female who were pregnant or with irregular menstrual cycles were excluded. The data were analyzed by using SPSS version 21.0. **Results:** In this study age significantly influenced hygiene practices, with younger females (12-17 years) more likely to engage in unsafe practices (p=0.005). Maternal secondary education was a key factor in promoting safe hygiene practices (p=0.009). Awareness about menarches and the primary source of information were strongly associated with better hygiene practices (p<0.001). Sanitary pad usage was prevalent (99%) and linked to safer practices (p = 0.0032), while access to water and sanitation facilities improved hygiene (p=0.005). **Conclusions:** This study highlights the crucial role of socio-demographic factors and access to sanitation facilities in influencing menstrual hygiene management practices. Promoting education, increasing awareness, and improving access to sanitary products and sanitation facilities are essential to enhance safe menstrual hygiene practices.

INTRODUCTION

Menarche is an important biological milestone in a woman's life as it marks the onset of the reproductive phase of her life. The average age at menarche is between 12 and 13 years of age [1, 2]. Despite its significance, societal taboos hinder appropriate education and awareness, highlighting menstrual health. This has led to growing distress and unease among the female population about the topic of menstruation [3, 4]. In various countries all over the world, including Pakistan, adolescent girls face obstacles in managing their menstruation effectively [5]. The United Nations defines adequate menstrual hygiene management as "women and adolescent girls 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 [6, 7]. Particularly in poor countries, girls and women face substantial barriers to achieving adequate menstrual management, and add to that the limited research that exists on Menstrual Health Management Practices (MHMP), particularly in third-world countries such as Pakistan [8]. The decision-maker may have an impact on the overall menstrual hygiene practices as well

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as the choice of menstrual products utilized. Mothers are essential in advising daughters on proper period hygiene habits and assisting them in selecting the appropriate menstruation products. Based on cultural or financial considerations, mothers may also opt to utilize conventional materials like rags or used clothing. Nonetheless, the usage of unsanitary materials should be avoided since it might result in major health issues [9]. Participants, on the other hand, are entitled to choose menstruation products of their preference, based on pricing and affordability. Menstrual hygiene habits can also be proportionally influenced by other decision-makers, including community leaders, lawmakers, and healthcare experts, amongst various others [10]. Health practitioners may educate and counsel women and girls about period hygiene habits, for instance, while lawmakers can adopt legislation to increase the affordability and accessibility of menstruation products [11]. By examining MHMP at Lady Willingdon Hospital, it serves as a contributing factor to evidence-based practices. Identifying factors affecting MHMP will inform targeted interventions and policy recommendations. Understanding MHMP can lead to better structured healthcare amenities, more awareness and enhanced well-being for women. The findings of this research will serve as the pedestal to future initiatives and promote sustainable menstrual hygiene practices.

Menstrual hygiene management remains a significant public health concern in Pakistan due to persistent social taboos, inadequate awareness, and unequal access to proper sanitation facilities, which negatively affect women's reproductive health and well-being. Limited local evidence exists regarding the socio-demographic, educational, and environmental factors influencing menstrual hygiene practices among women in tertiary healthcare settings. This study aimed to assess menstrual hygiene management practices and identify key factors such as age, maternal education, awareness, financial resources, and sanitation access that influence safe practices among women visiting a university hospital in Lahore. The research goal was to generate evidence for targeted interventions that can improve menstrual health education, product accessibility, and supportive healthcare policies This study aimed to determine the menstrual hygiene practice (MHMP) in the population visiting a Tertiary Care Hospital so that an overview of existing practices can be made, and the associated factors assessed.

METHODS

This cross-sectional study was conducted for six months at the Department of Obstetrics and Gynaecology at Lady Willingdon Hospital in Lahore, Pakistan, from July 2024 to December 2024, after receiving approval from the Institutional Review Board of King Edward Medical University, Lahore (216/RC/KEMU). A total of 382 female visiting the Outpatient Department (OPD) of Lady Willingdon Hospital participated in the study. Informed consent was obtained from all participants. The inclusion criteria for this study were female aged 18-45 years with regular menstrual cycles who visited the OPD of Lady Willingdon Hospital during the study period. Females who were pregnant or had health conditions that could affect their menstrual cycles, such as polycystic ovary syndrome or thyroid disorders, were excluded from the study. Sample size was calculated by using the following formula and the Epi Tools software. n = Z2 x p (1- p) / d2 Where n = sample size, Z = Z statistics for a level of confidence = (1.96), P=Respondents reported good menstrual hygiene practices=(53.9% or 0.539)1. d = precision (if 5%, d = 0.005). Using the following numbers in the above-mentioned formula, the sample size for this work is 382 patients [12]. In this study, a structured questionnaire was used to assess menstrual hygiene practices among women, consisting of 16 multiple-choice and yes/no questions divided into four sections: demographics, menstrual health information, product use and awareness, and access to facilities and disposal practices. Menstrual hygiene practices were measured based on the type of material used, frequency of changing, access to water and sanitation, and disposal methods. These practices were categorized as safe (use of sanitary pads or clean cloth, changing every 4–6 hours, proper disposal, and access to water and private sanitation) or unsafe (use of old cloth, infrequent changing, improper disposal, or lack of facilities), following WHO guidelines and relevant literature. This questionnaire is mentioned in the supplementary data. The questionnaires underwent pilot testing and validation and were self-administered. Data entry and statistical analysis were performed using Excel and SPSS (version 21.0). For continuous variables, such as age, the mean and standard deviation were reported. For categorical variables, such as education, marital status, and occupation, frequency and percentage were calculated. The independent t-test was used to assess the mean difference in continuous variables concerning menstrual hygiene management practices (MHMP). Bivariate and multivariate logistic regression models were employed to identify independent risk factors associated with MHMP. A p-value of less than 0.050 was considered statistically significant.

RESULTS

The study found significant associations between socio-demographic factors and menstrual hygiene management practices. These findings highlight the importance of education, financial resources, and parental awareness in improving menstrual hygiene management (Table 1).

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Table 1: Socio-Demographic Characteristics

Variables	Frequency (%)	p-Value
12-17	3.8 (0.8%)	0.005
18-23	201 (52.6%)	
24-29	172 (45%)	
>30	6 (1.6%)	
Education of Research Participants		
Primary	1 (0.26%)	0.005
Secondary	2 (0.52%)	
Higher Secondary	0 (0%)	
University	379 (99.3%)	
Education of Mothers		
Primary	121 (30%)	0.009
Secondary	150 (39%)	
Higher Secondary	81 (21%)	
University	30 (10%)	
Marital Status		
Married	34 (9%)	0.006
Unmarried	348 (91%)	
Income		
<2,00,000	281 (74%)	<0.001
>2,00,000	101 (26%)	
Financial Resources		
Housewife	203 (52%)	0.911
Unskilled Women	106 (28%)	
Skilled Women	59 (15%)	
Others	14 (4%)	

The study highlighted key factors affecting menstrual hygiene management practices (MHMP). These findings highlight the need for increased awareness, decision-making autonomy, and better sanitation facilities to improve MHMP (Table 2).

Table 2: Menstrual Knowledge of Respondents about Factors Affecting MHMP

Variables	Frequency (%)	p-Value
10-12	150 (39%)	0.008
13-15	218 (57%)	
>15	14 (3%)	
Yes	133 (35%)	0.024
No	249 (65%)	
Mother/Sister	340 (89%)	<0.001
Social Media	20 (6%)	
Friends	21 (5%)	
Sanitary pad	379 (99%)	0.032
Old Cloth	3 (1%)	
Others	0 (0%)	
Mother	307 (81%)	<0.001
Participant	75 (19%)	
Others	0 (0%)	
Yes	348 (91%)	<0.001
No	34 (9%)	
Yes	372 (97%)	0.005
No	10 (3%)	
Washing	122 (32%)	0.006
Burning	10 (3%)	
Throwing into Garbage	250 (66%)	

The multivariate and bivariate logistic regression analysis revealed several key factors influencing menstrual hygiene management practices among the respondents. These findings highlight the importance of maternal education, awareness, and access to sanitation in promoting safe menstrual hygiene practices among women (Table 3).

Table 3: Menstrual Knowledge of Respondents about Factors Affecting MHMP

Variables	Menstrual Hygiene Management Practices		AOR with 95% CI	COR with 95% CI	p-Value
	Safe	Unsafe			
Age					
12-17	132	160	0.213 (0.06, 0.67)	0.17 (0.054, 0.75)	0.005
>18	10	80	Ref.	Ref.	
Marital Status					
Unmarried	164	188	0.43 (0.11, 0.83)	0.33 (0.09, 1.18)	0.840
Married	25	5	Ref.	Ref.	
Mothers' Educational Status					
Primary	41	70	3.21 (1.13, 8.29)	1.48 (0.76, 5.30)	0.020
Secondary	67	85	3.65 (1.82, 5.82)	0.28 (0.15, 0.5)	0.040
Higher secondary	37	47	3.15 (1.76, 5.28)	1.64 (0.90, 3.01)	0.440
University	15	20	1.3 (0.7, 2.1)	1.58 (0.21, 1.90)	0.600
Awareness					
Awareness about menarche	140	242	0.56 (0.71, 0.13)	0.30 (1.02, 0.305)	0.001
Source of Information	80	61	3.2(1.5, 6.8)	0.46 (0.78, 0.10)	0.150
Mother/Sister	67	112	1.5 (0.8, 2.93)	0.28 (1.33, 0.15)	0.013
Social Media/Friends	43	19	Ref.	Ref.	–

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Sanitary Material Used					
Pads	373	6	1.14 (5.31, 0.59)	1.77 (4.14, 0.31)	0.560
Old clothes	3	–	1.5 (0.8, 2.93)	0.56 (0.71, 0.13)	1.001
Others	0	–	Ref.	Ref.	–
Decision maker					
Mother	180	127	1.5 (0.8, 2.93)	3.1 (1.3, 5.8)	0.040
Participant/Others	30	45	Ref.	Ref.	
Knowledge About Commercially Existing Sanitary Pads					
Yes	348	–	0.213 (0.06, 0.67)	0.17 (0.054, 0.75)	0.050
No	–	34	Ref.	Ref.	
Access to Water and Sanitation Facilities					
Yes	372	–	1.27 (2.28, 0.82)	1.47 (5.18, 0.18)	0.050
No	-	10	Ref.	Ref.	

The study identified several key factors influencing menstrual hygiene management practices (MHMP). These findings highlight the need for increased awareness, affordable menstrual products, and improved sanitation facilities (Table 4).

Table 4: Factors Affecting Menstrual Hygiene Management Practices (MHMP) Among Women (n=382)

Factor	Category	Good MHMP (n, %)	Poor MHMP (n, %)	χ^2 (Chi-square Value)	p-Value
Age Group (Years)	≤18	95 (78.5%)	26 (21.5%)	7.91	0.005**
	>18	172 (60.8%)	89 (39.2%)		
Mother's Education	No Formal Education	48 (52.7%)	43 (47.3%)	4.10	0.040**
	Primary or Higher	219 (66.2%)	72 (33.8%)		
Awareness about Menarche	Yes	189 (70.7%)	78 (29.3%)	10.99	0.001**
	No	78 (52.7%)	70 (47.3%)		
Type of Menstrual Product Used	Sanitary Pads	221 (66.7%)	110 (33.3%)	3.83	0.050**
	Cloth/Reused Material	46 (55.4%)	37 (44.6%)		
Knowledge of Commercial Sanitary Pads	Yes	200 (68.5%)	92 (31.5%)	7.78	0.005**
	No	67 (54.2%)	57 (45.8%)		
Access to Water and Sanitation Facilities	Yes	215 (69.3%)	95 (30.7%)	7.81	0.005**
	No	52 (53.6%)	45 (46.4%)		

DISCUSSION

This study aimed to determine different factors affecting menstruation and the various practices acquired to deal with monthly menstrual cycles in all spheres of society. Our findings indicate that the mean age of first menstruation in the study was 14.5 years. These findings are consistent with similar studies [13, 14]. Menstrual knowledge is pivotal, specifically before reaching the age of menarche for pre-pubescent female. A cross-sectional study conducted in 2017 shows that 64% of girls did not know about menstruation before reaching menarche [15]. Like other studies, this study also found that mothers and sisters together were the two primary sources of menstruation-related information. This indicates that poorly informed mothers hinder the appropriate transfer of knowledge regarding menstruation to their daughters [16]. Side by side, well-educated and literate mothers are well-equipped to dispense accurate menstrual information to their daughters having constructive impact on upcoming generations. The quality and fabric of the material used for the management of the period are also a concern in low-income areas [17]. The majority (99%) of the participants use pads instead of old clothes and other absorbents. UTIs and other reproductive tract infections may stem from improper hygiene management or use of low-quality products [18]. Menstrual waste disposal is also a subject of caution as subpar alternatives can lead to environment unfriendly effects and negatives effects of human health spheres as well. How these products are removed from the environment also affects the management of menstrual practices of women [19, 20]. Cultural ethics, insufficient information and infrastructural issues are a few factors that influence the process of disposal. Promoting women's menstrual hygiene management requires proper disposal of menstrual waste. More emphasis on this topic is quintessential. This study indicates that more than 66% of the participants disposed of their used sanitary materials in garbage, exposing the surrounding populace to fatal infectious diseases [21]. This study found that age, parental education, family income, perceived socioeconomic class, and age at first menstruation had a significant statistical association with menstrual hygiene management practices at the bivariate level, and these findings are like other studies [22].

The study was limited by its single-center cross-sectional design, self-reported data collection, and predominance of highly educated participants, which may reduce generalizability to broader or rural populations. Additionally, cultural sensitivity surrounding menstruation may have introduced reporting bias. Future research

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should include multicenter and community-based studies with more diverse populations to better capture regional and socioeconomic disparities. Longitudinal studies and intervention-based programs focusing on menstrual education, sanitation infrastructure, and policy reforms are recommended to sustainably improve menstrual hygiene management practices.

CONCLUSIONS

It was concluded that the study highlights the crucial role of socio-demographic factors such as age, maternal education, awareness about menarche, and access to sanitation facilities in influencing menstrual hygiene management practices. Promoting education, increasing awareness, and improving access to sanitary products and sanitation facilities are essential to enhance safe menstrual hygiene practices.

Authors' Contribution

Conceptualization: MJ
Methodology: MJ, RW, SH, NA, KKM
Formal analysis: SS
Writing and Drafting: RW, SH, SS, NA, KKM
Review and Editing: RW, SH, SS, NA, KKM

All authors approved the final manuscript and take responsibility for the integrity of the work

Conflicts of Interest

All the authors declare no conflict of interest.

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