J Nepal Health Res Counc 2025 Jan-March; 23 (66): 114-120

Menstrual Hygiene among Female Prisoners of Jhapa and Morang Districts of Nepal

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ABSTRACT

Background: Female prisoners constitute a minority of prison population and their special health care needs are often neglected. This study aims to assess the knowledge of menstruation and menstrual hygiene practices of female prisoners of Jhapa and Morang.

Methods: A cross sectional study was conducted among 140 female prisoners of Jhapa and Morang District Prison of Eastern Nepal through a pretested semi structured questionnaire and face to face interview. Logistic regression model was used to assess the factors associated with the outcome variable using an adjusted odds ratio with a 95% CI, and p-value <0.05 was considered statistically significant.

Results: The study showed that 65% of the female prisoners had adequate knowledge about menstruation. Half of the respondents (50%) had good menstrual hygiene practice. Majority of the respondents (67.9%) used sanitary pad and nearly one third (32.9%) used clothes as absorbent material during menstruation. Dysmenorrhea was the major health problem (31.9%) reported by prisoners. Respondent's knowledge on menstruation was significantly associated with educational status (AOR: 6.775, 95% CI: 2.089-21.87), marital status (AOR: 3.375, 95% CI: 1.979-11.63) and former residence (AOR: 5.014, 95% CI: 2.196-11.44) in multivariate analysis.

Conclusions: More than one third of female prisoners had inadequate knowledge about menstruation and half menstrual hygiene practices were unsatisfactory. This demonstrates a need to design health education programme and foster advocacy to improve the knowledge and promote safe hygienic practice of female prisoners during menstruation.

Keywords: Female prisoners; inmates; menstrual hygiene; menstruation; Nepal.

INTRODUCTION

Menstruation is a natural process and maintaining proper Menstrual Hygiene Management (MHM) is crucial for reducing health risks. However, female inmates face unique challenges such as limited access to sanitary products, privacy, proper facilities, and menstrual health knowledge. A study in Kathmandu found that only 61.9% of female prisoners bathed daily during menstruation, and 50.4% used sanitary pads. Their menstrual and reproductive health needs are often overlooked in male-dominated prison environments.[1-5] Recent attention emphasizes need to address healthcare and health promotion in prisons, particularly for female inmates who face distinct challenges. Menstruation remains to be stigmatized and their basic needs, including access to menstrual hygiene products and reproductive health information, are often unmet and more limited compared to men's prisons.[6-9] Imprisonment should not deny the rights of prisoners to receive good level of healthcare. This study assessed menstrual knowledge and practice among female prisoners in Jhapa and Morang of Nepal.

METHODS

A cross-sectional study was undertaken to assess the knowledge and practices related to menstrual hygiene among female prisoners in two prisons in Koshi Province, South Eastern Nepal from February 2022 to September 2023. The study was conducted in Jhapa district prison and Morang district prison.

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The study included all eligible female prisoners who had completed at least one menstrual cycle while in prison and who were willing to participate. A census method was used for the study. At the time of the study, there were total 151 female prisoners eligible for the study from both prisons, of which 140 gave consent and were included in the study.

The participants within the Reproductive age that is 18 to 49 years who were willing to participate were included in the study. Women less than 18 years were excluded in the study. The female prisoners who were pregnant during the time of study and those who hadn't completed at least one menstrual cycle in prison were also excluded from this study. Moreover, female prisoners who were unable to complete the survey tools because of communication or cognitive difficulties of were also excluded from the study.

A pre-tested, semi-structured questionnaire was used to assess the knowledge and practices of menstrual hygiene among the participants. The questionnaire was developed from existing literature and was adapted to the cultural context of the study area. It was initially prepared in English and then translated into Nepali which helped to ensure the content validity of the tools. Similarly, Pre-testing was done in Central Prison to ensure the face validity of the tools.

Participants' knowledge and practices were assessed using the questionnaire, with each correct response earning one point. The maximum and minimum score were 5 and 1 respectively. Mean score was 3.02 for knowledge level and 3.50 for practice level. Scores above the mean were categorized as "adequate knowledge" and "good menstrual practices," while scores below the mean were categorized as "inadequate knowledge" and "poor menstrual practices."

Face-to-face interviews were conducted with the assistance of a prisoner representative (Nayike) and prison staff. Interviews were conducted in a visitor's room, where prisoners answered questions from behind bars. Strict security measures were enforced, and only the questionnaire and a pen were allowed during data collection. The aim of study was communicated to the prisoners through the Nayike and prison staff before data collection.

A codebook was developed in MS Excel on the basis of content and structure of the questionnaire. Each question and its options were assigned with suitable codes. Data was entered to MS Excel and data cleaning was carried out. Data was analyzed using SPSS version 21.0 and EZR version 3.5.2 as per requirement. Mean and standard deviation was computed for the continuous variables while data was presented in percentage and frequency for the categorical variables used in the study. To establish the relationship between independent variables and dependent variables, the Chi-square test was used. Those variables with p-value less than 0.05 in the chi-square test were subjected to multiple binary logistic regression to obtain an adjusted odds ratio and identify predictors knowledge and practice on menstrual hygiene among the female prisoners. To overcome the potential multicollinearity issue, the Variance Inflation Factor (VIF) test was done among the selected independent variables and VIF values above 2 were considered indicative of multicollinearity. A p-value < 0.05 was considered statistically significant.

Ethical approval was obtained from the Institutional Review Committee of Manmohan Memorial Institute of Health Sciences (MMIHS-IRC 608). Permission to conduct the study was secured from the Department of Prison Management, Home Ministry. Written approval to collect the data was taken from the selected prisons. The participants were informed about aims, methods and anticipated benefits of the study program. Written informed consent was taken with each and every respondent. No pressure or inducement was applied to encourage participation. Confidentiality of the participants was maintained in every steps of study. During the data collection, personal identifiers such as name was not recorded to keep confidentiality rather numbers were assigned for coding purpose.

RESULTS

The mean age of respondent was 30.01±6.90 years while the mean age of menarche of the respondents was 13.63 years. More than half (59.3%) of the respondents were between the age group 18 to 30 years. Majority of the respondents (57.9%) were of Janajati ethnicity followed by Chhetri (19.3%), Brahmin (12.9%) and Dalit (8.6%). Majority of the respondents (70%) were unmarried prior to being imprisoned while more than one fifth (22.9%) were married during the time of study. More than half (58.6%) of the respondents were homemaker prior imprisonment. Larger portion of the female (57.1 %) belonged to urban areas and 42.9% of the respondent resided in rural areas before imprisonment (Table1).

More than two third of the respondents (67.9%) used sanitary pad as an absorbent material during menstruation while nearly one third (32.1%) of them

used cloth as an absorbent material. Sanitary pad was managed by prisoners themselves. Among those who used sanitary pad some of them bought it with their daily allowances provided by government while others got them while their family members visited them. Majority of the respondents (65%) had adequate knowledge on menstruation while one third (35%) of the respondent had inadequate knowledge on menstruation. Almost half (49.3%) of respondents cited ageing as the cause of menstruation. However, most of the prisoners (93.6%) were aware about the fact that menstruation was a physiological process. This study found that half of the respondents (50%) had good practice and the other half (50%) had poor practice of menstrual hygiene inside the prison. More than two third of prisoners (68.9%) said to have used same clothes as an absorbent material until it torn out (Table 2).

The common disorders faced by prisoners during menstruation was Dysmenorrhea (31.9%) followed by menorrhagia (31.2%), Hypo menorrhea (23.2%), Oligo menorrhea (13%) and Poly menorrhea (5.8%). The physical problem that was faced by majority of the respondents was lower abdominal pain (65.9%), followed by weakness (29.7%) and nausea and vomiting (15.2%). Similarly, more than half of the prisoners said to have faced physical and mental exhaustion during menstruation. For the pain management respondents said to have pain killers, hot water, and take rest. The medicines were provided by heath care providers under prison management committee. The women were taken to hospitals in case of any severe pain or complications (Table 3).

Educational status (AOR: 6.775, 95% CI: 2.089-21.87), marital status (AOR: 3.375, 95% CI: 1.979-11.63) and former residence (AOR: 5.014, 95% CI: 2.196-11.44) showed significant association with knowledge of menstruation. Multivariate logistics regression showed that the prisoners who had above basic level education were six times more likely to have knowledge on menstruation and prisoners who resided in urban areas prior imprisonment were five times more likely to have knowledge on menstruation than those of rural areas. (Table 4)

The table 5 shows the association between menstrual hygiene practices with socio-demographic factors. Significant association was seen between ethnicity (p=0.048), religion (p=0.020) and former residence (p=0.042) with menstrual hygiene practices in bivariate analysis. However, no significant association was seen in multivariate analysis (Table 5).

Table 1. Socio-demographic characteristics of respondents.

Variables	Frequency (n=140)	Percentage (%)
Age Mean ±SD	30.01±6.90	
18-30	83	59.3
31-49	57	40.7
Age at Menarche Mean ±SD	13.63±1.208	
Ethnicity Brahmin	18	12.9
Chhetri	27	19.3
Janajati	81	57.9
Dalit	12	8.6
Others	2	1.4
Religion Hindu	106	75.7
Boudha	9	6.4
Christian	22	15.7
Others	3	2.1
Educational Status Illiterate	26	18.6
Literate	17	12.1
Basic Education	55	39.3
Secondary level	42	30.0
Marital Status Married	32	22.9
Unmarried	99	70.7
Separated	5	3.6
Widow	4	2.9
Former Occupation Homemaker	82	58.6
Business	9	6.4
Service	9	6.4
Student	23	16.4
Unemployed	17	12.1
Former Residence Urban	80	57.1
Rural	60	42.9

Table 2. Menstrual hygiene practice and knowledge level of respondents.

Variables	Frequency (n)	Percentage (%)
Absorbent mostly used during menstruation Clothes	45	32.1
Sanitary Pad	95	67.9
Period of time using same cloth 2-3 months	8	17.8
4-6 months	3	6.7
6-12 months	3	6.7
Until in torn out	31	68.9
Hygiene practice during Menstruation Cleans external genitalia with soap and water during menstruation	90	64.3
Cleans external genitalia every time after going to toilet	85	60.7
Baths daily with soap during menstruation	90	64.3
Change cloth/sanitary pad at least three times a day	88	62.8
Takes adequate rest during menstruation	140	100.0
Menstrual hygiene practice level Mean ± S.D Min=1, Max=5	3.50±1.153	
Good (>3.50)	70	50.0
Poor (<3.50)	70	50.0
Knowledge Level on Menstruation		
Mean ± S.D Min=1, Max=5	3.02±1.014	
Adequate (>3.02)	91	65.0
Inadequate (<3.02)	49	35.0

Table 3. Health problems faced by respondents during menstruation.

	Frequency (n=140)	Percentage (%)
Common Disorders during menstruation*		
Menorrhea-Heavy blood flow	43	31.2
Hypo menorrhea-Light blood flow	32	23.2
Poly menorrhea-menses within 28 days	8	5.8
Oligo menorrhea-usually infrequent	18	13.0
Dysmenorrhea-usually painful	44	31.9
No any problems	22	15.9
Physical Problem during menstruation*		
Lower abdominal pain	91	65.9
Nausea and vomiting	21	15.2
Weakness	41	29.7
White discharge	5	3.6
No any problems	27	19.6
Psychological Symptoms during menstruation*		
Physical or mental exhaustion	72	53.7
Sad	35	26.1
Angry	28	20.9
No any symptoms	47	35.1

*Multiple response recorded

Table 4. Multivariate analysis between knowledge on menstruation and socio-demographic variables.

Variables	COR	95% CI	P-value	AOR	95% CI	P-value
Ethnicity						
Brahmin/Chhettri	0.481	1.077-4.446	0.048*	0.615	0.287-1.319	0.212
Others	Ref			Ref		
Religion						
Hindu	0.381	2.67-24.33	0.020*	0.449	0.193-1.045	0.063
Others	Ref			Ref		
Former Residence						
Urban	2.029	1.32-10.38	0.042*	1.847	0.917-3.723	0.086
Rural	Ref			Ref		

demographic variables.

*Indicates statistical association between the variables

Table 5. Multivariate analysis between menstrual hygiene practice with socio demographic variables.

Variables	COR	95% CI	P-value	AOR	95% CI	P-value
Age						
18-30	2.188	1.077-4.446	0.030	1.178	0.492-2.822	0.713
31-49	Ref			Ref		
Educational Status						
Basic and below	Ref	2.674-24.33	<0.001	Ref	2.089-21.87	<0.001*
Above Basic	8.066			6.775		
Marital Status						
Married	3.1712	1.327-10.38	0.012	3.375	1.979-11.63	0.04*
Unmarried	Ref			Ref		
Former Residence						
Urban	4.885	2.315-10.32	<0.001	5.014	2.196-11.44	<0.001*
Rural	Ref			Ref		

*Indicates statistical association between the variables

DISCUSSION

The study assessed the knowledge of menstruation and menstrual hygiene practices of female prisoners of two prisons of Eastern Nepal. The study revealed that the mean age of the respondent was 30.01±6.90 years which was in concordance to the findings from Female prisoners of North Western, Nigeria where mean age of respondents was 30.1±3.4 year.[10] In the current study, former residence of majority of the female prisoners was urban areas (57.1%) which contradicts the findings reported from prison women of Kathmandu where most of the prisoners (72.5%) belonged to rural areas prior to imprisonment.[5] The variation might be due to differences in the nature of crime committed and socio-demographic characteristics of the respondents. However, the highest proportion of prisoners in our study (58.6%) as well as in Kathmandu (40.5%) reported to be homemaker prior imprisonment.[5] Majority of the prisoners (75.7%) belonged to Hindu religion which is comparable with the finding from Prison women of Kathmandu (87%) but contrast the findings from prison women of Nigeria where majority (42.3%) of the respondents followed Christianity.[5,9] This difference might be due to the reason that most of the people of Nepal were also from Hindu religion while Christian in Nigeria.

This study revealed that 65% of the female prisoners had adequate knowledge about menstruation. This is similar to the findings from adolescent girls of Chitwan (66.8%) and Aurangabad, India (60.9%) but in contrast to the findings of study done by Belayneh and Mekuriaw among adolescent girls of Southwestern Ethiopia where 68.3% of them had poor knowledge of menstruation.[11-13] This might be due to the difference in study participants of these studies. Findings of the study showed that majority (93.6%) of the respondents considered menstruation as a normal physiological process which is consistent with study by Dasgupta et al (86.25%) and Neupane MS8 (94.8%) but contradicts the findings by Adhikari et al where only 6% girls reported menstruation to be a normal physiological process.[14-15] The possible explanation to this variance might be due to the difference in educational status of the respondents. Majority of the respondents (40%) heard about menstruation for the first time from their mother which is in line with the previous studies.[5,10,15,16]

In the current study, only 30.7% of prisoners responded hormones to be cause of menstruation which is consistent with the findings from Prison women of Kathmandu (32.8%) but contradicts the findings from adolescents girls from Chitwan and Morang where 91.2% and 52% of girls reported hormones to be the cause of menstruation respectively.[5,11,16]

In the current study, half of the respondents (50%) were found to practice good menstrual hygiene and the other half practiced poor menstrual hygiene. Similar study conducted among adolescent girls of Chitwan district found that 72.5% girls had good practice while 27.5% had poor practice.[11] The variance might be due to different study settings, divergence scoring system for measuring practice level and provision of menstrual hygiene management facilities. Our study revealed that 64.3% of the prisoners took bath daily which is in line with the finding from prison women of Kathmandu (61.9%).[5] However, significantly lower figure was observed in the study conducted in Chitwan (4%) and Dang district (16.5%) among adolescent girls of Nepal.[15,17] This might be due to the fact that prison women might have ample leisure time to maintain their personal hygiene.

In our study more than half of the respondents (67.9%) used sanitary pad and 32.1% used clothes as an absorbent material which slightly differs the findings from prison women of Kathmandu where 50.4% used sanitary pad and 49.6% of them used clothes.[5] This might be due to the difference in age factor and preference of the prisoners.

In a study conducted among adolescent girls of Chitwan[11], significant association was observed between knowledge of menstruation and practice of menstrual hygiene (p-value= 0.010) while no such significance was observed in our study. The study conducted in South Western Nigeria[9] revealed that 9.3% of the prisoners changed absorbent materials thrice a day whereas our studies showed that 62.8% of the prisoners of Eastern Nepal changed absorbent materials at least three times a day which was consistent with the study conducted in Dang district (59.4%).[17] The discrepancy might be due to the disparity in age factor, educational status and availability of the absorbent materials. Significant association was found among previous occupation and materials used during menstruation in the prior research conducted in prison women in Kathmandu[10] whereas, no such significance was seen in our study.

The study conducted among rural adolescent girls of Nepal[15] showed that only 4% of the girls responded to take adequate rest during menstruation whereas all of the prisoners in our study reported to take adequate rest during menstruation. The possible explanation to this fact can be the difference between workload between the study populations. In our study, significant association was found between type of absorbent material used during menstruation and educational status of the respondents (P=0.014) which is concurrent with the prior research conducted in prison women of Kathmandu[5] and rural slum of India.[18]

The most common menstrual disorders experienced by female prisoners of this study was Dysmenorrhea (31.9%), followed by menorrhagia (31.2%), Hypo menorrhea (23.2%) and Oligo Menorrhea (13%). The findings of our study was comparable to prior research conducted among prison women of Kathmandu[5] where the most common menstrual disorders experienced by prisoners were Menorrhea (40.5%) followed by Dysmenorrhea (29%), Hypo menorrhea (26.7%) and Oligo Menorrhea (15.3%). However, an alarming figure of 77.7% Dysmenorrhea was reported by school girls of Gedeo Zone in a research conducted in Ethiopia.[13] Regarding the physical problem during menstruation, the highest proportion of prisoners (65.9%) reported to have lower abdominal pain followed by Nausea and vomiting (15.2%) which is slightly lower than the findings from prison women of Kathmandu[10], abdominal pain (70.5%), Nausea and vomiting (27.7%). The tiny variance in the data might be due to the physical health condition and nutritional status of the prisoners.

The study was conducted among female Prisoners of two prisons only so the study might not be representative to the whole prison population. Similarly, as the study is conducted in sensitive settings there were some legal barriers regarding restrictions to enter inside the prison due to which observation of toilets and bathrooms could not be done.

CONCLUSIONS

The present findings revealed that knowledge of female prisoners on menstruation and menstrual hygiene practices were not satisfactory. This study also demonstrated that nearly one third of the prisoners were suffering from Dysmenorrhea followed by other health problems. Age, educational status, marital status and former residence were strong correlates of inadequate knowledge on menstruation. Urgent attention is needed to design health education programme and foster advocacy to improve the knowledge and promote safe menstrual hygienic practice of females in prison settings. Steps should be taken to ensure all the prisoners have access to necessary menstrual products. Comprehensive research focusing on qualitative insights should be carried out for evidence based decision making and interventional approach. These action may help to improve menstrual hygiene in prison settings.

ACKNOWLEDGEMENTS

The authors would like to acknowledge Department of Prison Management, Home Ministry of Nepal for providing written approval to conduct the study in prison. Sincere acknowledgement to participants of the study, Prison Management Committee of selected prison, Department of Public Health, MMIHS and everyone who provided their valuable help throughout the study.

CONFLICT OF INTEREST

We declare that there is no conflict of interest regarding this article.

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