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Menstrual Hygiene-An Unsolved Issue: A School-Based Study Among Adolescent Girls In A Slum Area Of Kolkata

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Abstract:
Background: *Menstruation is still an issue which is not acknowledged in a healthy way in a country like India, more so in urban slums and remote villages. Improper menstrual hygiene resulting out of socio-economic constraints, taboos, misconceptions, faulty family practices will lead to morbidities like reproductive tract infections and its consequences. The study aimed to find out the existing level of knowledge, attitude and practice of menstrual hygiene and its determinants, prevalence of genitourinary tract related morbidities and its predictors among adolescent girl students of an urban slum.*
Methods: *A descriptive, cross-sectional study had been conducted among 200 girl students of class V-VIII in a Government secondary school situated in a slum area of Kolkata with the help of a predesigned pretested schedule.*
Results: *Majority (48.7%) of the students obtained poor score in the assessment of K.A.P of menstrual hygiene with the mean of 11.03±4.882. Only 41% were aware about menstruation before start of this event with mother being the primary informer. Majority (82.5%) used cloth piece as absorbent. Less than half of them (47.7%) used to clean the cloth piece with soap and water. Majority used to change pad or cloth piece (45%) only when it was excessively soaked, while 69% did not change their pad at all during school time. Majority (53%) were suffering from some kind of genito-urinary tract related morbidity. Multivariate analyses revealed Muslim students, belonging to joint family, with lower per capita income and low parental educational level had higher odds of having poor K.A.P of menstrual hygiene. Another multivariate logistic model showed students belonging to Muslim religion, joint family, with low per capita income, low maternal education, who used to go for open field defecation or micturition, use road side tap or tube-well for taking bath and obtained bad menstrual hygiene score had higher odds of having genito-urinary tract related morbidities.*
Conclusion: *Continuous behavior change communication in friendly atmosphere is needed to address this delicate issue, so that the adolescents are able to prepare themselves to cope up with this inevitable physiological event and nurture a correct practice that in turn leads to their healthy living.*
Keywords: *Adolescent girls, Kolkata, Menstrual hygiene, School, Slum*

I. Introduction

Adolescence is a period of transition from childhood to adulthood which caters the age group of 10-19 years[1]. Although menstruation is a natural process in the beginning of adolescence period of every girl child, it is linked with several misconceptions and practices, which sometimes result in adverse health outcomes. Menstruation is still regarded as something unclean or dirty in Indian society[2]. Proper menstrual hygiene is of considerable importance, as it has a health impact in terms of increased vulnerability to reproductive tract infections (RTI). Girls having better knowledge and safe practices regarding menstrual hygiene are less vulnerable to RTI and its consequences as reported by previous studies[3,4]. The issue of menstrual hygiene is influenced by various socio-cultural, economic factors and taboos[5,6]. Mothers teach their girl child about menstrual hygiene and the adolescent girl grows with those misbeliefs and incorrect practices to a reproductive age group who will become future mothers in turn. The cycle of misconception thus repeats[1]. Hence these adolescent girls being in a growing phase should be the targets of health education programmes relating proper menstrual hygiene as imparting correct knowledge and change of attitude and practice achieved in this period will last forever. Otherwise with improper menstrual hygiene they will be the sufferer of infections of genital tracts which can lead to infertility and infection can also be transmitted vertically to the child[6]. With this background, the current study was taken up to find out the existing K.A.P regarding menstrual hygiene and its determinants, prevalence of genitourinary tract related infections and its predictors among the adolescent girl students of a Government secondary school situated in a slum area of Kolkata.

II. Methods

A cross-sectional study was conducted in a Government secondary girls' school situated in slum area of Behala west circle of Kolkata district. The school was selected purposively with the study period of 2 months

(May-June 2012). Institutional ethical clearance from Institutional Ethics Committee of All India Institute of Hygiene and Public Health and necessary permissions from respective authorities were obtained before conducting the study. Informed consent was taken from guardian of every student through parent-teacher meeting explaining the need and methods applied and un-disclosure of identity in the study. All the students of class V-VIII who have achieved menarche, attending the school during the study period were the study population. Guardians not giving consent or students studying in class IX and class X were excluded from the study due to examination and academic constraints. Thus a total of 200 students of class V-VIII were included in this study by complete enumeration method.

The study tools consisted of consent forms, information sheets, school registers, a pre designed, pre tested schedule in vernacular to record the socio-demographic and economic information, knowledge, attitude and practice of the students regarding menstrual hygiene. The questionnaire was first prepared in English. Then it was translated into Bengali by a linguistic expert keeping semantic equivalence. To check the translation, it was retranslated back into English by two independent researchers who were unaware of the first English version. Face validity of each item had been checked from previous researches in presence of experts. They also decided the content validity of the each domain. Reliability had been checked (Cronbach's alpha=0.9). Pretesting followed by pilot testing was done. Necessary corrections and modifications were made accordingly.

Scores were allotted for each item with maximum attainable score in knowledge, attitude, and practice of menstrual hygiene being 40. The scores attained had been categorized in poor (0-10), average (11-20), good (21-30) and very good (31-40) category. Data was entered in SPSS version 20.0 and analyzed subsequently. Odd ratios (univariate regression) were calculated to predict the strength of association between the dependent and the independent variables. Multivariate logistic regression had been done to find out the strength of association between dependent variable and the independent variables after adjusting for all the independent variables. All the independent variables which were significantly associated with dependent variable in univariate regression or having biological plausibility to be associated with dependent variable , were entered in the multivariate logistic model (LINK FUNCTION=LOGISTIC) using enter method. Hosmer Lemeshow test was done to check model fitness ($p>0.05$= good fit). Nagelkerke R square (a pseudo R^2) value had been mentioned in each model to demonstrate the proportion of variability of the dependent variable explained by the predictor variables.

III. Results

A cross sectional study had been conducted among 200 adolescent girl students of a Government school located in a slum area of Kolkata. Majority of the students were of above 12 years of age (82%), Hindu religion (73%), joint family(53%) and social class IV & V according to Modified Prasad scale 2012[7,8] (57%).Most of the fathers (74.5%) and mothers (73.5%) of the students were educated to primary level and above. Majority of the students (58%) belonged to class VII & VIII. A huge number of the students (67%) used community latrine. But a significant number of students (33%) also used to go for open field defecation and micturition. Majority of the study population (54.5%) used bathroom for taking bath.

The mean age at menarche was 11.97±1.095 years. More than half (59%) of the study subjects were not aware about menstruation before start of this event. Among 41% who were aware, 43.9% got the knowledge from mother, 13.66% from friends.

Regarding knowledge, majority (90.5%) of the students knew that it is a physiological process, but 76.5% did not know the source of blood during menstruation. Most of them (77.5%) were unaware about the ideal absorbent and majority (71% and 60.5% respectively) did not know the harmful effect of use or reuse of cloth piece as an absorbent material and not cleansing external genitalia properly during this period.

Regarding attitude, majority (96.5%) thought that bathing is injurious to health during menstruation and 93.5% believed that cloth piece should be the ideal absorbent. But 98.5% of the students had the correct attitude for cleansing external genitalia or changing absorbent material regularly to maintain proper hygiene.

Regarding their practice about menstrual hygiene, majority (82.5%) used cloth piece as absorbent. The reason mainly found behind this malpractice was economic constraints (34.5%). But a significant number of students used cloth piece as it was their family practice (33.2%). Less than half of the subjects (47.7%) used to clean the cloth piece with soap and water, while 46.7% of them used to clean it with water only. Most of them (53.8%) dry the cloth piece without sunlight to maintain privacy compromising hygiene. Majority used to change pad or cloth piece (45%) only when it was excessively soaked, while 69% did not change their pad at all during school time. Most of them (91%) used to dispose the napkin or cloth piece in unhygienic manner. Most of them (75.5%) either did not take bath or took it irregularly during menstruation. Majority (92.5%) had the practice of cleansing the external genitalia infrequently and 94.3% used to do it with only water. [Table 1]

Majority (94.3%) faced some kind of restrictions during this period among which not attending any religious occasion(100%), not to eat certain foods like tamarind, banana, radish, palm(92.06%), not to take bath

(76.19%), abstinence from playing (50.79%), to participate in household work(44.97%), attending marriage(28.04%), attending school(10.05%) were prevalent misbeliefs.

Majority (48.7%) of the students obtained poor score with the mean score of 11.03±4.882. [Table 2] In majority of students(53%) some kind of genito-urinary tract related morbidity was present among which itching in external genitalia was most common(85.57%) followed by white discharge per vagina (32.69%). [Table 3] Muslim students, those belonging to joint family and social class V (lower socio-economic status) and students with parental education up to below primary level had statistically significant higher odds of having poor K.A.P of menstrual hygiene after adjusting for other variables in multivariate logistic model. Whereas students who belonged to Muslim religion, joint family, social class V, with maternal education up to below primary level and students going for open field defecation/micturition, those using road side tap/tube-well for taking bath and who obtained bad menstrual hygiene score had statistically significant higher odds of having genito-urinary tract related morbidities after adjusting for other variables in multivariate logistic model. [Table 4]

IV. Discussion

The present study revealed mean age of menarche was 11.97 years which was lower than a study in rural West Bengal[6] (12.8 years), a study conducted in Rajasthan[9] (13.2 years) and a study by Nayak S et al[5] (13.3 years). Dasgupta A[6] showed 32.5% girls were not aware about menstruation before menarche, while in present study the figure of unawareness was rather higher (59%) and the figure was even higher in a study conducted in Rajasthan by Khanna et al[9] (92%). Menstruation being a natural and inevitable physiological process, every girl has the right to know about this event prior to its first occurrence, so that they can prepare themselves to cope up with this change. Mother should be the ideal candidate to inform about this delicate issue, though this study showed in only 43.9% of cases mothers were the primary informer, whereas it was 37.5% as shown by Dasgupta A[6]. A study in Egypt[10] revealed the main source of information was mass media followed by mothers; whereas Deo et al[11] reported that 42.5% of urban and 55.4% of rural girls were aware about menstruation beforehand. In urban girls, mother was the main source of information about menstruation (27.5%), whereas it was teacher in the rural area (27.01%). In the present study, 90.5% of the students knew it to be a physiological process, which was consistent with findings of Dasgupta A[6] (86.25%). Majority (76.5% and 77.5% respectively) did not know the source of bleeding and about the ideal absorbent material in the current study, which was corroborating the results of a study by Dasgupta A[6]. Regarding practice, this study reported 82.5% of the students used only cloth piece during menstruation while Dasgupta A[6] reported it to be 48.75%. Similar finding was reported by Shubhakar et al[12] that 45.74% of the girls used old cloth during menses. Like the current study, other researches also revealed that more than 75% of the girls used cotton clothes and reused them after washing[9,13]. Unlike this study Narayan et al[14], Yasmin S et al[15] and Nayak S et al[5] showed that 57.36%, 82.2% and 70.2% of the girls used sanitary pads as a menstrual absorbent respectively.

Washing the cloth piece with soap and water was prevalent practice (47.7%) among the students in this study which was corroborating with the findings of other studies[6,16], though a significant number of students (46.7%) used to wash the cloth piece with water only which was completely unhygienic practice. Cleansing of external genitalia was highly infrequent during menses as found in this study, whereas Yasmin S et al[15] reported 76.9% of students did regular washing of external genitalia. Almost everyone (94.3%) faced some kind of restrictions during menses which was consistent with the findings of Yasmin S et al[15]. Considering the limitations of this study like relatively small sample size, school based study, non involvement of higher classes due to examination constraints, further researches on this issue should be done. In depth qualitative researches with maintenance of privacy, community based studies involving both married and unmarried, school going and school dropout adolescents are needed to address this important issue.

V. Conclusion

The present study was conducted to assess the status of menstrual hygiene among adolescent girl students in a slum area of Kolkata. The study showed that the K.A.P of students regarding the topic was not satisfactory at all. Various socio-economic and cultural factors, misconceptions, faulty family practices were responsible for this. Such a delicate issue should be handled with proper care and continuous behavior change communication should be conducted through school teachers, health workers with active involvement of the mothers and proper maintenance of privacy. Free and friendly communication with these girls will break the taboos, misbeliefs regarding menstruation and its related restrictions gradually and will help it to be accepted as a normal phenomenon of life.

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Table 1: Distribution of study subjects according to knowledge, attitude and practice regarding menstrual hygiene (n=200)

K.A.P of menstrual hygiene	Total Correct response No (%)
Knowledge regarding menstrual hygiene	
1. Cause of menstruation	181(90.5)
2.Organ from which menstrual blood comes	47(23.5)
3. Ideal absorbent material should be used during menstruation	45(22.5)
4. Which of the following can occur if one uses/reuses cloth piece during menstruation?	58(29.0)
5. Which of the following can occur if external genitalia is not cleaned regularly during menstruation?	79(39.5)
Attitude regarding menstrual hygiene	
6. During menstruation bathing is injurious to health	7(3.5)
7. During menstruation one need to clean external genitalia and change the absorbent cloth/pad regularly	197(98.5)
8. Cloth piece is the ideal absorbent material used during menstruation.	13(6.5)
Practice regarding menstrual hygiene	
9. What absorbent do you commonly use during menstruation?	
a) Sanitary napkin only	1(0.5)
b) Cloth piece only	165(82.5)
c) Both a & b	34(17.0)
10. Do you reuse the cloth piece, if at all you use it? (n=199)	
a) Always	92(46.2)
b) Sometimes	107(53.8)
11. If you use cloth piece, how do you clean it to reuse? (n=199)	
a) With water only	93(46.7)
b) With soap and water	95(47.7)
c) With soap-water and antiseptic like dettol	11(5.5)
12. If you use cloth piece, how do you dry it to reuse? (n=199)	
a) In the sunlight	92(46.2)
b) Without the sunlight	107(53.8)
13. How often do you change your pad/cloth piece per day during the first 2 days?	
a) Once a day	8(4.0)
b) Twice a day	85(42.5)
c) >= 3times a day	17(8.5)
d) Only when it is dirty/excessively soaked	90(45.0)

14. If you don't use sanitary napkin only, why don't you use it? (n=199)	
a) Because it is costly	69(34.7)
b) Don't know how to use it	64(32.2)
c) Because it is our family practice	66(33.2)
15. Do you change your napkin/cloth during school when it is dirty?	
a) Yes, always	3(1.5)
b) Yes, sometimes	59(29.5)
c) Never	138(69.0)
16. How do you dispose the napkin/cloth piece after use?	
a) Flush it	6 (3.0)
b)Throw it in daily waste dump	182(91.0)
c)burn it	12(6.0)
17. Do you take bath regularly during menstruation?	
a) Yes, always	49(24.5)
b) Yes, sometimes	67(33.5)
c) Never	84(42.0)
18. How frequently do you clean external genitalia?	
a) > 2 times a day	15(7.5)
b) Twice a day	95(47.5)
c) 0-1 time / day	90(45.0)
19. How do you clean external genitalia during menstruation?	
a) With water only	189(94.3)
b) With soap and water	8(4.0)
c) With water and antiseptic	3(1.5)

Table2: Scores obtained by the students regarding K.A.P of menstrual hygiene (n=200)

Scores obtained regarding K.A.P of menstrual hygiene	Total	
	No	%
Poor (0-10)	97	48.7
Average (11-20)	93	46.7
Good (21-30)	9	4.5
Mean score(SD)	11.03 (4.882)	

Table 3: Distribution of students according to presence of genito-urinary tract related morbidities (n=200)

Genito-urinary tract related morbidities	Total N=200
	No (%)
Morbidity present	106(53.0)
Type of morbidity* • Itching • Ulcer • White discharge p/v • Signs/symptoms of UTI(fever/frequency of micturition/burning sensation during micturition)	 89(85.57) 11(10.58) 34(32.69) 28(26.92)

*Multiple responses

Table 4: Determinants of K.A.P of menstrual hygiene and genitourinary tract related morbidities- bivariate and multivariate analyses (n=200)

Variable (No)	Poor menstrual hygiene (<11 i.e. Median) Present No (%)	OR (95%CI)	AOR (95%CI)	Genito urinary tract related morbidities Present No (%)	OR (95%CI)	AOR (95%CI)
Religion Muslim (54)	43(61.1)	6.5 (2.9-28.1)	4.2(1.08-24.4)	52(96.3)	44.3 (10.4-69.17)	12.05(1.17-24.77)
Hindu (146)	55 (44.5)	1	1	54(37.0)	1	1
Class 5 & 6(84)	48 (57.1)	1.76(0.99-3.10)	1.33 (0.5-10.6)	46 (54.8)	1.130(0.643-1.984)	1.01(0.56-3.57)
7 & 8(116)	50(43.1)	1	1	60(51.7)	1	1
Type of family						
Joint(106)	89(84.0)	49.4(20.9-76.9)	28.3 (10.7-47.4)	76 (71.7)	5.32(3.004-20.18)	2.81 (1.44-12.6)

Nuclear(94)	9(9.6)	1	1	30(31.9)	1	1
Age of the student <12 Years(36) >=12 Years(164)	Continuous	0.57 (0.46-0.7)	0.21 (0.12-14.88)	13(36.1) 93 (56.7)	0.432 (0.204-0.911) 1	0.486 (0.082-2.883) 1
Education of father Up to below primary(51) Primary & above(149)	40 (98.0) 58 (32.2)	5.7 (2.1-28.7) 1	3.3 (1.03-10.3) 1	51 (100.0) 55(36.9)	2.709 (2.196-3.342) 1	1.12(0.93-6.72) 1
Education of mother Up to below primary(53) Primary & above(147)	50 (94.3) 48(32.7)	34.38(10.2-55.85) 1	11.66(1.1-43.26) 1	42 (79.25) 64(43.54)	4.95 (2.04-16.3) 1	2.8 (1.13-7.1) 1
Social class Class V(74) Up to class IV(126)	68 (91.9) 30(23.8)	36.27(14.31-91.91) 1	4.556 (1.372-16.541) 1	61(82.43) 45(35.7)	8.45(3.18-10.3) 1	4.29(3.1-12.78) 1
Bad menstrual hygiene score Yes(98) No(102)	-			75(96.9) 31(10.8)	7.47(3.7-16.5) 1	4.58(2.19-11.9) 1
Place for defecation /micturition Open field(66) Sanitary latrine (134)	-			46(69.7) 60(44.78)	2.84(1.33-6.87) 1	1.67(1.13-4.76) 1
Place for taking bath Roadside tap/tube-well/well (91) Bathroom (109)	-			73(80.2) 33(30.28)	9.34(2.23-17.8) 1	4.34(2.66-18.6) 1
Hosmer Lemeshow test: p value	0.641			0.54		
Nagelkerke R^2	0.567			0.416		