

## Original Research Article

# Impact of health education regarding menstrual hygiene on genitourinary tract morbidities: an intervention study among adolescent girl students in an urban slum

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### ABSTRACT

**Background:** Menstruation and menstrual hygiene are still issues which are insufficiently recognized in Indian society and influenced by misconceptions and socio-cultural restrictions. Adolescent girls become vulnerable to reproductive tract infections resulted from lack of knowledge and faulty practices regarding menstrual hygiene. The study aimed to assess the impact of health education programme regarding knowledge, attitude and practice of menstrual hygiene on genitourinary tract morbidities among adolescent girl students in a slum area of Kolkata.

**Methods:** A quasi experimental study was conducted in two Government secondary schools located in a slum area under Kolkata Municipal Corporation. The study consisted of three steps. First a baseline survey with the help of a pre designed pretested questionnaire was done to find out the socio-demographic information, existing knowledge, attitude and practice of menstrual hygiene of the students and presence of any genito-urinary tract morbidities was documented. This was followed by an intervention phase of 6 months during which weekly lecture and interactive classes were taken in the study school. Second step was reassessment of K.A.P of menstrual hygiene and documentation of related morbidities at post intervention. Third step was to follow them for another 3 months for final reassessment of the same.

**Results:** There was statistically significant decrease in the genito-urinary tract morbidities with improvement of mean K.A.P score of menstrual hygiene in study school from the pre-test level to post-test level as compared to the control school. But there was a significant decline of mean menstrual hygiene score at follow up of 9 months in the study school depicting lack of sustainability of the health educational programme.

**Conclusions:** Sustained health education programme with regular reinforcement and active involvement of the mothers regarding menstrual hygiene can lead to better reproductive health of adolescents.

**Keywords:** Adolescent girls, Genito- urinary tract morbidity, Intervention, Menstrual hygiene, Urban slum

### INTRODUCTION

Adolescence is a transition phase between childhood to adulthood with development of significant changes in physical, sexual and psychological domains. But this period is still insufficiently acknowledged in Indian society and also in medical disciplines.<sup>1</sup> This is a critical

period in girls with the commencement of a physiological process called menstruation.<sup>2</sup> Menstruation is still recognized as something unclean in a developing country like India and is clouded by various taboos, misbeliefs, faulty familial practices.<sup>3,4</sup> In this situation without proper knowledge before menarche and importance of maintaining correct menstrual hygiene, an adolescent girl

falls into a vulnerable position to acquire morbidities like reproductive tract infection (RTI) and its dreadful consequences.<sup>5</sup> Adolescence being a unique period in girls to face an important event like menstruation for the first time, is the ideal time to impart health education and enroot correct knowledge and habits so that the girls can response to this change and lead a healthful life.<sup>3</sup>

With this background the present study had been conducted to assess the effectiveness of a health education programme regarding menstrual hygiene and its impact on genitourinary tract morbidities among adolescent girl students of a Government secondary school in a slum area of Kolkata.

## METHODS

A non-randomized before and after trial with control was conducted during the period of May 2012- April 2013, in two Government secondary girls' school situated in slum area under Kolkata Municipal Corporation, ward 132. One of them was study school and the other was control school. 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.

A pilot study conducted among 50 students of another school of same locality revealed 30% of students of class V-VIII were suffering from any kind of genito-urinary tract morbidities. Assuming a risk reduction of 20% after intervention, with 80% power and 95% level of significance, the minimum required sample size for intervention group using Fleiss equation would be 56 (intervention group) and 111 (control group).<sup>6</sup> It was decided to incorporate twice the participants in the control group compared to intervention group. Assuming 10% drop-out during the follow-up, 62 and 122 school children would be needed for the study.

Two schools were selected purposively from the list of Government, vernacular (Bengali) medium, secondary girls' schools of Behala west circle, Kolkata district with better feasibility of work, matching the predetermined sample size and situated at a distance from each other so that percolation of messages could be prevented between the students of these two schools during the intervention phase. All the students of class V-VIII, attending the school during the study period, who have achieved menarche before commencement of the study, were the study population. Students of class IX and class X were not included in the study due to examination and academic constraints. Students whose guardians did not give consent, newly admitted students in-between the study period, children having serious illness at the beginning of the study or suffering from any chronic debilitating illnesses were excluded from the final analysis, though intervention was given to them in the

study school. Thus, a total of 65 and 135 students were included in the study school and control school respectively. The drop-out rate was 10.77% in study school and 8.89% in control school.

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 and to record existence of any genito-urinary tract related morbidity (itching, white discharge p/v, signs or symptoms of UTI etc). 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 each domain. Reliability of the questionnaire was computed with test-retest method which revealed  $r=0.93$ . 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.

During the pre-intervention phase (May 2012- June 2012), a baseline survey had been conducted in both the schools regarding socio-demographic information, K.A.P of menstrual hygiene and clinical examination to record any genito-urinary tract related morbidity of the students with the help of the parents and class teachers. For class-V the questionnaire was filled up through interviewing the students as the students were unable to fill in the questionnaires as elicited during pretesting. For the rest of the classes (VI-VIII) the questionnaire was self-administered and the answers were collected after the stipulated time period of 1 hour.

During the intervention phase (July'12—December'12) in the study school weekly lectures with free and active participation of the audience in a friendly atmosphere were conducted regarding the issue menstruation, menstrual hygiene and related morbidities in each class supplemented by charts and colorful posters. The teaching content and materials were formulated beforehand and training of all the teachers was done. The lectures were repeated in the 1st and 3rd week of each month in each class for 6 consecutive months by the researcher, whereas the 2nd and 4th week the classes were taken by the class teachers after proper training. Assessment of K.A.P of menstrual hygiene and genito-urinary tract related morbidity among the students of both the schools was again done in January 2013 after the intervention period. The students of both the schools were followed up for a period of 3 months post intervention and assessment of K.A.P of menstrual hygiene and genito-urinary tract related morbidity pattern

among students in both schools had finally been conducted in April 2013. The students of the control school received health education only once, in the month of April 2013.

The teaching contents were handed over to the teachers of both schools for future use. Drop outs were included in the final analysis up to the time of their availability in the study.

Necessary treatment and referral was done in both the schools at any moment of the study. Data were entered in SPSS version 20.0 and analyzed subsequently.

**RESULTS**

The baseline survey among 65 students in study school and 135 students in control school revealed majority of

the students of both the schools were of above 12 years of age (82%), Hindu religion (73%), joint family (53%) and social class IV and V according to Modified Prasad scale 2012 (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 and 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. There was no statistically significant difference between the socio-demographic characteristics of the students of both the schools making comparison possible between the two.

The mean age at menarche was 11.97±1.095 years. The baseline mean score of K.A.P of menstrual hygiene was 11.49± 4.106 and 10.76±3.788 in study and control school respectively.

**Table 1: Comparison of mean scores of K.A.P of menstrual hygiene at baseline level, 6 months and 9 months follow up in study school and control school (n=181).**

School	At baseline Mean(SD)	At 6 months Mean(SD)	At 9 months follow up Mean(SD)	Test of significance**
Study(n=58*)	12.29(4.982)	22.62 (6.078)	19.66 (6.013)	F=635.837, df=1.216, p=0.000
Control(n=123*)	11.33 (4.044)	11.08(5.140)	11.15(5.319)	F=5.149, df=1.907, p=0.007

\*Drop outs excluded \*\* Repeated Measures ANOVA followed by Post hoc Bonferonni (Data Followed normal distribution)

**Table 2: Comparison of mean scores of K.A.P of menstrual hygiene between study and control school at 3 levels (baseline, 6 months and 9 months).**

Timeline	Study school n* mean(SD)	Control school n* mean(SD)	Test of significance (unpaired t test)**
Baseline	65 11.49(4.106)	135 10.76(3.788)	t=(0.828), df=198,p=0.409, 95% CI=(0.890 to -1.018)
6 months	62 22.10(6.227)	130 10.76(5.177)	t=(12.430), df=190,p=0.000, 95% CI=(9.527-13.144)
9 months	58 19.66(6.013)	123 11.15(5.319)	t=(9.626), df=179,p=0.000, 95% CI=(6.676 -10.342)

\*Drop outs excluded at each level stepwise \*\* Equality of variances was assumed by Levene’s test of equality

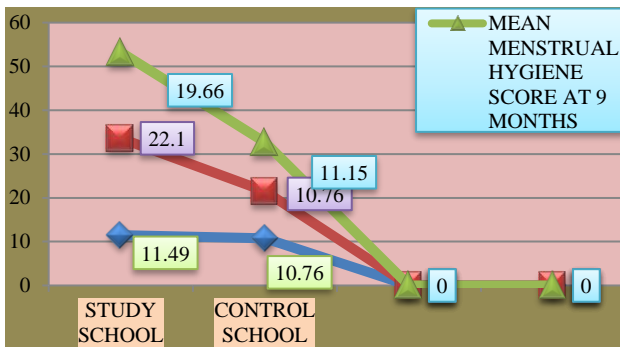
With exclusion of drop outs at all levels the mean score in study school was found to be 12.29±4.982, 22.62±6.078 and 19.66±6.013 at baseline, 6 months and 9 months respectively. There was statistically significant increase of the mean score at 6-month post intervention than baseline value (p=0.000) and at 9 months follow up than baseline (p=0.000) showing the effectiveness of health education programme. But there was a significant decline of mean score at 9 months follow up than 6-month post intervention level (p=0.000). Whereas in the control school mean score was found to be 11.33±4.044, 11.08±5.140 and 11.15±5.319 at baseline, 6 months and 9 months respectively. There was statistically significant decrease in mean menstrual hygiene score at 6 months

and 9 months than baseline level (p=0.000), though there was no change between mean scores of 6 months and 9 months in the control school (p=0.998) (Table 1).

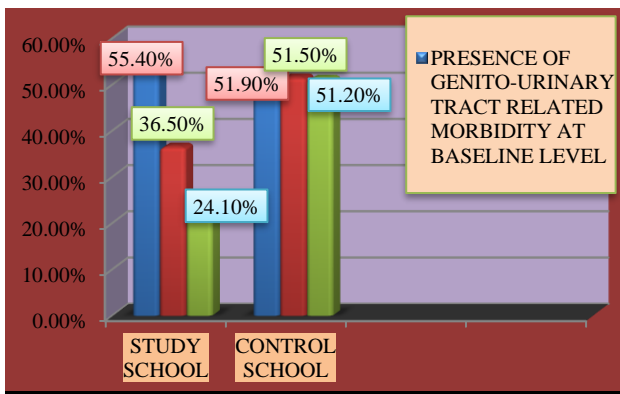
Though there was no significant difference of mean menstrual hygiene K.A.P score at baseline level between study and control schools, unpaired t test showed that there was statistically significant increase in mean scores at 6 months and also at 9 months in the study school after health education than the control school (p<0.05). (Table 2, Figure 1).

The baseline survey revealed 55.4% and 51.9% of the students were suffering from any kind of genito-urinary

tract morbidities in study and control school respectively. At 6 months post intervention it was found that 36.5% of students in study school and 51.5% of students in control school were suffering from genito-urinary tract related morbidities. This difference was found to be statistically significant ( $p < 0.05$ ). Whereas At 9 months follow up it was observed that 24.1% of students in study school and 51.2% of students in control school were suffering from genito-urinary tract related morbidities. This difference was found to be statistically significant ( $p < 0.05$ ) (Figure 2).



**Figure 1: Line diagram showing mean menstrual hygiene scores of study and control school at 3 levels.**



**Figure 2: Multiple Bar diagram showing proportion of students suffering from any kind of genito-urinary tract related morbidity in study and control school.**

## DISCUSSION

The current study showed the mean age of menarche was  $11.97 \pm 1.095$  years which was consistent with previous researches of this kind which showed a range of 12.74 years to 13.3 years.<sup>3,5,7,8</sup>

The result revealed statistically significant improvement in menstrual hygiene of the study group than the control after intervention as compared to baseline level. This finding was corroborating with the results of studies by Sharma R et al, Chang YT et al and Afzali M establishing the need of health education and behavior change programmes regarding this issue.<sup>3,9,10</sup> Interventions of this kind in schools can play a pivotal role in breaking the

misconceptions, prejudices, faulty familial practices and thereby imparting correct knowledge, change of attitude and practices so that risk of development of morbidities like RTI would be diminished.<sup>5</sup> A study by Fetohy EM in Egypt revealed the effectiveness of a menstrual education program for first and second year girls at a secondary school and established the need of expanding the program to elementary, preparatory and other secondary schools.<sup>11</sup> A similar study by Chang et al on primary school girls studying in grade 5 and 6 showed that educational programs in schools for students and their parents were effective in improvement of menstrual health.<sup>9</sup> Consistent with the above results the current study also depicted the same with evidence of improvement in genito-urinary tract related morbidities in study school after intervention as compared to control school.

The current study revealed that there was a significant decline of mean score of menstrual hygiene at 9 months follow-up than the 6 month immediate post intervention value which showed lack of sustainability of health educational programme. This finding established the immense need of revision and reinforcement in a friendly atmosphere, importance of healthy interactive sessions so that they can express their views freely, recognize their problems and the habits which were grown in them through the health education programme would become permanent. Then only the ultimate desirable outcome i.e. improvement of menstrual hygiene and freedom from RTI as a consequence would be possible.

This study had included only the school going adolescents. Considering this limitation further interventional research should be extended to the community level to include school dropout and married adolescents who should also be the target candidates for this kind of health educational programmes.

## CONCLUSION

The present study concluded that there was an immense need of health education and behavior change programmes regarding menstrual hygiene especially among adolescents of urban slums as they live in poor and compromised atmosphere.

Menstruation is still an issue on which the Indian girls feel uneasy to talk about. They are also used to hide their morbidities related to genito-urinary tract and face the dreadful consequences of repeated infections. Schools and the school teachers can play a vital role in this regard being the first point of contact and maintaining a friendly attitude.

There must be regular revision and reinforcement of these programmes with active involvement of mothers to achieve sustain improvement. Government and NGOs should get into this issue urgently and develop schemes to provide sanitary napkins free of cost to adolescents of urban slums for maintaining proper menstrual hygiene.

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