

Original Research Article

Impact of reproductive and sexual health education on late adolescent girls in an urban slum

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ABSTRACT

Background: Menstruation, although, a natural process, may result in adverse health outcomes. Adolescents having a better knowledge regarding menstrual hygiene and safe menstrual practices are less vulnerable to reproductive tract infections and its consequences. Aim and Objectives were to study the socio-demographic profile of late adolescent girls in an urban slum. To determine the baseline knowledge of girls regarding reproductive and sexual health and menstrual hygiene. To estimate the impact of reproductive and sexual health education on the existing knowledge.

Methods: This study was done among late adolescent girls to assess the impact of health education on their knowledge, attitude and practices regarding menstruation and puberty, conception, contraception, RTI, STI, HIV and AIDS. After collecting sociodemographic details and baseline knowledge, health education session was conducted, which was followed by checking their, post-test knowledge Follow up session was also conducted after a month.

Results: Most of the girls were 16 years old, Hindus and from nuclear families. The baseline knowledge about puberty, menstruation, conception, contraception, RTI, STD, HIV, AIDS was not good. The knowledge increased immediately after the first session, but after the second session, the knowledge was not retained. The menstrual hygiene practices increased after the health education session.

Conclusions: The study stresses the importance of imparting knowledge about menstruation, hygiene during the periods, to the adolescent girls and having a regular revision session so as to have good menstrual hygiene practices.

Keywords: Impact, Late adolescent girls, Reproductive and sexual health education, Urban slum

INTRODUCTION

Some 1.2 billion adolescents (10-19 years old) today make up 18 per cent of the world's population. India is home to more adolescents than any other country, around 243 million.¹ Adolescent girls constitute about 1/5th total female population in the world.²

Adolescence has been divided into early and late adolescence. Early adolescence stretches between ages of 10 and 14, when physical changes commence. Late adolescence encompasses the ages between 15 and 19, when adolescents, develop their own identity and start engaging in shaping the world around them.³

Sexual and reproductive health (SRH) of the adolescent girls has huge implications both for their later health as well as that of the next generation.⁴ However, many are denied the right to make safe and informed decisions that affect their health and well-being.

A timely and accurate intervention regarding reproductive and sexual health education to an adolescent girl will help her manage her personal hygiene properly, influence her family size, thus affecting the overall family health and well-being, and prevent episodes of reproductive tract infections as well as contracting sexually transmitted infections and HIV.

Thus, this study was undertaken in late adolescent females to impart reproductive health and menstrual hygiene education and its impact on the existing knowledge, attitude and practices.

Objectives

To study the socio-demographic profile of late adolescent girls in an urban slum. To determine the baseline knowledge of girls regarding reproductive and sexual health and menstrual hygiene. To estimate the impact of reproductive and sexual health education on the existing knowledge.

METHODS

Present study was an interventional study to estimate the impact of reproductive and sexual health education conducted among late adolescent girls (15-19 years) residing in an urban slum pocket area of a metropolitan city.

Sample size

Sample size was calculated using the formula $4pq/L^2$. The prevalence of having less knowledge about reproductive health was 48.75% as per study done by Deshpande et al.⁵ Allowable error was taken as 15% of prevalence. Hence, with the given data, Sample size was calculated as $(4 \times 48.75 \times 51.25) / (7.31 \times 7.31) = 187$. Considering loss to follow up, 10% of calculated sample size was added which amounted to 206. So, a sample of 206 late adolescent girls were selected through systematic random sampling. The study was conducted between June 2016 to October 2016. The urban slum pocket, where the study was conducted had 50 blocks. To ensure equal opportunity to all girls residing in the area, every alternate block was selected and 8 girls from each block were selected to get the sample of 206, so as to have appropriate representation from all blocks. Within the block, the first house having adolescent girl was selected randomly and the subsequent houses were selected by systematic random sampling till the desired number of girls (i.e. 8) were selected from each individual block. A total number of 206 adolescent girls were included in the study, out of which 190 were evaluated at the end of 3 months. Rest lost to follow up. After getting approval from the Institutional Ethical committee and after taking an informed consent or assent, (whichever applicable), Focus group discussion (FGD) was held with a group of 8-12 adolescent girls in the age group of 15-19 years to assess felt needs regarding knowledge about menstruation and reproductive and sexual health. The content of the education sessions was based to optimize their felt needs. Baseline knowledge, attitude and practices regarding reproductive and sexual health, and menstrual hygiene was assessed through a semi structured self-administered questionnaire comprising a combination of open ended and close ended questions before conducting the sessions. A series of questions were asked which included, their

sociodemographic profile, knowledge regarding their attitude and practices during menstruation, knowledge regarding conception, pregnancy, contraception and HIV/AIDS. After collecting all the information, the adolescent girls were divided into 5 batches. Sessions were conducted for each batch separately.

Sessions were conducted at a time convenient to the study subjects, in the following order: i) introduction and rapport building, ii) growing up changes, iii) menstrual hygiene, iv) conception and contraception, v) reproductive tract infections and sexually transmitted infections, HIV/AIDS, vi) life skill education.

These were conducted over the period of a week (on three days in a week). Sessions 1, 2, and 3 on day 1, sessions 4 and 5 on day 2, and session 6 on day 3. The sessions did not exceed 2 hours in duration. They were conducted in a community hall, with the help of audio-visual aid. The session started with an ice breaker session consisting of word games, where each girl had to describe themselves and their best friend (without naming them) in 5 positive adjectives. Knowledge sessions were conducted with the help of power point presentation containing pictures, diagrams and animated videos showing mechanism of menstruation. The opportunity was utilized to impart the concept of life skills. Role plays on hypothetical situations were used to explain life skills and girls were asked to address the given situation based on one of the given life skills. Each session ended with interactive question and answers and open discussions to reinforce the content of the session and address queries. Post education knowledge was assessed through a semi structured self-administered questionnaire comprising a combination of open ended and close ended questions on day 3, i.e. post-test I. The comparative analysis of baseline and post-test knowledge was used to assess effectiveness and feasibility of adolescent reproductive health and menstrual hygiene education on the sample population. A short revision session was conducted after a period of 1 month to reinforce knowledge. Revision session comprised a single session on all the above topics conducted batch-wise, at the same community hall and lasting for 2 hours. post-test- II was repeated after 3 months, to assess the retention of knowledge and change in attitude and practices.

Scoring

A total of 4 questions related to puberty and menstruation were asked, which included the physical changes in girls and boys, the organ from where the blood flows during menstruation and correct age of menarche. There were 6 questions related to conception, pregnancy and contraception, which were asked, covering fertilization, duration of pregnancy, fertile period, minimum spacing between two children and enumerating methods of contraception. The questions about STI/RTI and HIV covered symptoms, mode of spread, availability of

treatment and methods of preventing spread. There were 6 questions in this section.

Knowledge scores were calculated for knowledge about puberty and menstruation, conception, pregnancy and contraception, STI/RTI and HIV. Each correct answer was given one point. Those questions in which, more than one options could be chosen, for each correct option ticked, one point was given.

For knowledge about puberty, maximum score that could be attained was 10, for knowledge regarding conception, pregnancy and contraception, it was 12 and for knowledge about STI/RTI and HIV it was 14.

Total knowledge score was calculated by adding all the three.

Maximum knowledge in each section was divided by 3 and were classified as poor, average and good. Those having less than 33.33% score, were considered poor, those up to 66.67% were considered average and those above 66.67% were considered good.

Menstrual hygiene practices were evaluated on the following points: Did the girls use sanitary pad/new cloth/old cloth after washing, during menses, How many times did they changed the absorbent material, how did they disposed the absorbent material, if they reused the cloth, and if yes, where did they dry the cloth after washing, did they have a bath daily during menses, whether they washed their genitals and whether they used a clean washed and dried panty after each bath. Menstrual hygiene practice was considered inadequate even if one of the points was not followed because breach in any one can be a source of infection. Change in menstrual hygiene practices was assessed after 3 months when post-test II was conducted.

Analysis

Compiled data was entered in Microsoft Excel. Frequencies, percentages and averages for the scores were calculated. Mean and standard deviation was calculated for the knowledge score in pre-test, post-test I and post-test II. Repeated measures ANOVA with post-hoc t test, were applied using SPSS version 20, and Graph Pad version 7.2, to test the difference between knowledge and practices before and after the intervention. Mc Nemar test was applied to estimate the impact of health education on menstrual hygiene practices

RESULTS

Table 1 shows sociodemographic profile of the adolescent girls in the current study. A total of 206 late adolescent girls (15-19 years), participated in this study. According

to the age group, 45.63% (94) girls were 16 years old, 71.84% (148) were Hindus and 77.18% (159) belonged to nuclear family.

Table 1: Sociodemographic profile of adolescent girls*.

Sociodemographic factors	No. of girls (N=206)	Percentage
Age (in years)	15	27.18
	16	45.63
	17	19.42
	18	5.83
	19	1.94
Religion	Hindu	71.84
	Muslim	23.31
	Christian	1.94
	No response	2.91
Type of family	Nuclear	77.18
	Joint	8.74
	3 generation	14.08

*Per capita income was not included because 129 (62.6%) girls did not know total family income.

Table 2, shows the knowledge about puberty and menstruation, conception, pregnancy and contraception and STI/RTI and HIV. It is seen that, baseline knowledge about puberty and menstruation among the girls was good in 43.20% (89) girls. In the first post-test session which was conducted after the session showed that girls having good knowledge increased to 92.96% (185). However, in second post-test that was conducted after 3 months, number of girls having good knowledge score dropped to 73.16% (139).

Baseline knowledge regarding pregnancy, conception and contraception, was poor among 98.06% (202) girls. After the health education session, knowledge was seen to be good among 82.41% (164) girls, however, the knowledge in the second post-test session was good only among 11.58% (22) girls.

The trends in knowledge about STI/RTI and HIV was seen as follows: 97.54% (199) girls had poor knowledge score in the pre-test. In the first post-test, the number of girls with average knowledge scores was seen as 75.38% (150). The knowledge score in the second post-test, was observed that, number of girls with poor knowledge score was 55.79% (106).

Total knowledge scores followed similar trends. In the pre-test, 76.70% (158) girls had poor knowledge score. First post-test saw a drastic increase in girls with good knowledge score among 95.98% (191) girls. In the second post-test, the number of girls with average knowledge score was seen to be 68.95% (131).

Table 2: Knowledge about puberty and menstruation, conception, pregnancy and contraception and STI/RTI and HIV.

Knowledge		Pre-test (N=206)	Post-test I (N=199)	Post-test II (N=190)
Puberty and menstruation	Poor	36 (17.48)	0 (0)	0 (0)
	Average	81 (39.32)	14 (7.04)	51 (26.84)
	Good	89 (43.20)	185 (92.96)	139 (73.16)
Conception, pregnancy and contraception	Poor	202 (98.06)	1 (0.50)	0 (0)
	Average	4 (1.94)	34 (17.09)	168 (88.42)
	Good	0 (0)	164 (82.41)	22 (11.58)
STI/RTI and HIV	Poor	200 (97.09)	19 (9.55)	106 (55.79)
	Average	6 (2.91)	150 (75.38)	84 (44.21)
	Good	0 (0)	30 (15.07)	0 (0)
Total knowledge	Poor	158 (76.70)	0 (0)	0 (0)
	Average	48 (23.30)	8 (4.02)	131 (68.95)
	Good	0 (0)	191 (95.98)	59 (31.05)

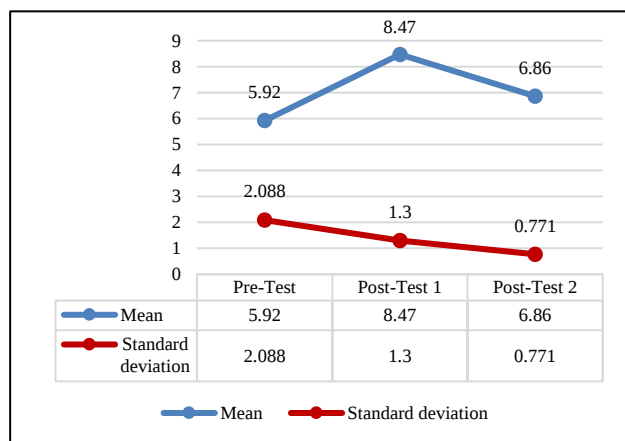
**Figure 1: Impact of health education on knowledge about puberty and menstruation.**

Figure 1 shows the comparison of the mean scores of knowledge about puberty and menstruation in pre-test, first post-test and second post-test.

Mean knowledge score was 5.92 with a standard deviation of 2.088 in the pre-test, which increased to 8.47 with a standard deviation of 1.300 in the first post-test. In the second post-test, the mean knowledge score was 6.86 with a standard deviation of 0.77.

A one-way repeated measures ANOVA was conducted to compare the effect of health education on knowledge score about puberty and menstruation in pre-test, first post-test and second post-test, which was seen to be significant.

Three paired sample t tests were used to make post hoc comparisons.

First paired sample t test indicated that there was a significant increase in mean knowledge scores between pre-test and first post-test, $t=22.78$, $df=198$, $p<0.0001$.

Second revealed a significant increase in knowledge score between pre-test and second post-test, $t=6.958$, $df=189$, $p<0.0001$.

The third paired sample t test, conducted between first and second post-tests however revealed a significant decrease in the knowledge score, $t=20.92$, $df=189$, $p<0.0001$.

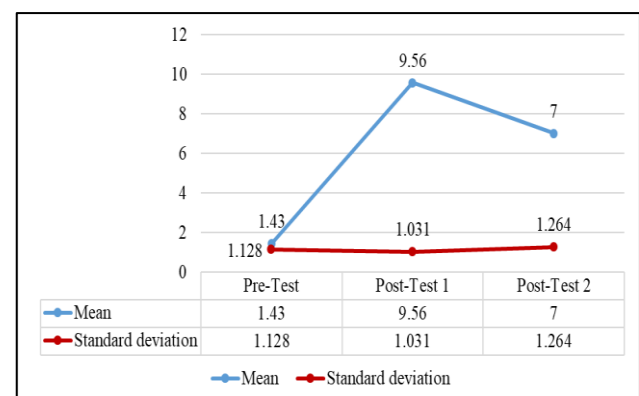
**Figure 2: Impact of health education on knowledge about conception.**

Figure 2 shows the comparison of the mean scores of knowledge about conception, pregnancy and contraception in pre-test, first post-test and second post-test.

Mean knowledge score was 1.43 with a standard deviation of 1.128 in the pre-test, which increased to 9.56 with a standard deviation of 1.031 in the first post-test. In the second post-test, the mean knowledge score was 7.00 with a standard deviation of 1.264.

A one-way repeated measures ANOVA was conducted to compare the effect of health education on knowledge score about conception, pregnancy and contraception in

pre-test, first post-test and second post-test, which had a significant effect.

Three paired sample t tests were used to make post hoc comparisons.

First paired sample t test indicated that there was a significant increase in mean knowledge scores between pre-test and first post-test, $t=14.93$, $df=198$, $p<0.0001$. Second revealed a significant increase in knowledge score between pre-test and second post-test, $t=9.48$, $df=189$, $p<0.0001$. The third paired sample t test, conducted between first and second post-tests however revealed a significant decrease in the knowledge score, $t=30.43$, $df=189$, $p<0.0001$.

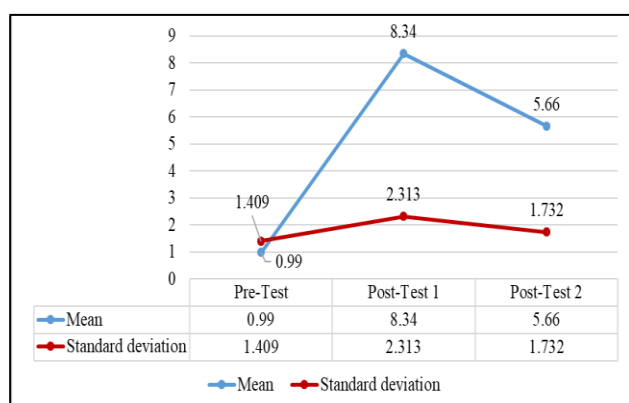


Figure 3: Impact of health education on knowledge about STI/RTI and HIV.

Figure 3 shows the comparison of the mean scores of knowledge about STI/RTI and HIV in pre-test, first post-test and second post-test. Mean knowledge score was 0.99 with a standard deviation of 1.409 in the pre-test, which increased to 8.34 with a standard deviation of 2.313 in the first post-test. In the second post-test, the mean knowledge score was 5.66 with a standard deviation of 1.732.

A one-way repeated measures ANOVA was conducted to compare the effect of health education on knowledge score about puberty and menstruation in pre-test, first post-test and second post-test, which showed a significant effect. Post hoc comparisons of pre-test and first post-test, and paired t for first and second post-test was done. First paired sample t test indicated that there was a significant increase in mean knowledge scores between pre-test and first post-test, $p<0.0001$. Second revealed a significant increase in knowledge score between pre-test and second post-test, $p<0.0001$. The third paired sample t test, conducted between first and second post-tests however revealed a significant decrease in the knowledge score, $t=14.4$, $df=189$, $p<0.0001$.

Figure 4 shows the comparison of the mean total knowledge scores in pre-test, first post-test and second post-test. Mean knowledge score was 8.34 with a

standard deviation of 3.092 in the pre-test, which increased to 26.37 with a standard deviation of 2.821 in the first post-test. In the second post-test, the mean knowledge score was 19.52 with a standard deviation of 2.403. A one- way repeated measures ANOVA was conducted to compare the effect of health education on total knowledge score in pre-test, first post-test and second post-test, which was seen to be significant.

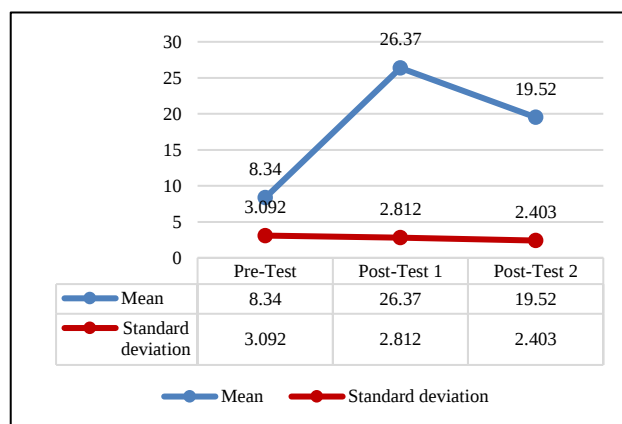


Figure 4: Impact of health education on total knowledge score.

Three paired sample t tests were used to make post hoc comparisons.

First paired sample t test indicated that there was a significant increase in mean knowledge scores between pre-test and first post-test, $t=66.12$, $df=198$, $p<0.0001$. Second revealed a significant increase in knowledge score between pre-test and second post-test, $t=57.11$, $df=189$, $p<0.0001$. The third paired sample t test, conducted between first and second post-tests however revealed a significant decrease in the knowledge score, $t=30.42$, $df=189$, $p<0.0001$.

Table 3: Impact of health education on menstrual hygiene practices (N=190)*.

Before health education	After health education		Total
	Adequate	Inadequate	
Adequate	54 (28.42)	1 (0.053)	55 (28.94)
Inadequate	8 (4.21)	127 (66.84)	135 (71.05)
Total	62 (32.63)	128 (67.37)	190 (100)

Table 3 shows that out of the 190 girls evaluated for menstrual hygiene practices, 28.42% (54) girls, had adequate menstrual hygiene practices before health education. As compared to this after health education, 32.63% (62) girls had adequate menstrual hygiene practices after health education, an increase of 4.21% (8). While the prevalence of inadequate menstrual hygiene practices reduced from 71.05% (135), to 67.37% (128).

This difference in adequate menstrual hygiene before and after health education was found statistically significant on applying Mc Nemar test, $p=0.039$.

DISCUSSION

This study was conducted among 206 late adolescent girls (15-19 years) to study the impact of reproductive and sexual health education on their knowledge, attitude and practices.

Majority of the girls were 16 years old, were Hindus and belonged to nuclear families. Similar results were seen in studies done by Malleshappa et al, Rao et al, Paria et al, and Shanbhag et al.⁶⁻⁹

Impact of health education on knowledge

Baseline knowledge about menstruation and puberty was average to good among the adolescent girls, similar findings were seen by Prajapati et al, Ray et al, Budemalli et al in their study.¹⁰⁻¹²

While a lot of girls knew about the physical changes that occur in boys and girls during puberty, organ of origin of menstrual blood was not known to anyone and majority could not tell the age at which menstruation begins correctly.

The baseline knowledge among the girls about conception, pregnancy, contraception was poor. Very few girls could give the correct information regarding conception, pregnancy and contraception, such as, duration of pregnancy, gap between two pregnancies and the number of children the women should have. None of them knew about the organ in which foetus develops and methods of contraception.

Knowledge about STI/RTI and HIV was even lesser. Very few of them had heard about HIV. Only a handful girls knew about symptoms, and that treatment for STI/RTI and HIV is available free of cost and with confidentiality in government hospitals. While a meagre of them knew about the modes of spread of STI/RTI and HIV, methods of preventing its spread were answered correctly by even fewer.

Impact of health education on knowledge about puberty and menstruation

In the first post-test, the knowledge increased and almost all girls had good knowledge after first post-test. In the second post-test, however, the proportion of girls with good knowledge declined while those with average knowledge increased. The proportion of girls having poor knowledge remained low.

The results show that despite conducting a revision session after one month, the retention of knowledge was

not very good at the end of three months, and that repeated reinforcement is required.

The decrease in the second post-test can be accounted to the fact that, girls retained knowledge about changes happening in them, because they could relate to those, but not the information about the internal organs, and about the changes happening in boys.

These findings are similar to those of Arora et al and Nemade et al.^{13,14} In the pre-test, menstrual perceptions amongst them were found to be poor and practices incorrect while in the post-test, there was a significant difference in the level of knowledge. Similar findings were also seen in studies done by Singh et al and El Mowafy et al.^{15,16}

The above stated studies have tested the knowledge in a single post-test, whereas the present study tests knowledge immediately as well as 3 months after the health education, thus assessing knowledge retention as well.

Impact of health education on knowledge about conception, pregnancy and contraception

A significant increase in overall knowledge regarding conception, fertilization, pregnancy and contraception was noted.

However, in the present study we also conducted a second post-test after three months to test retention of knowledge where the mean scores were higher than pre-test but lower than first post-test which was conducted immediately after the education sessions. Findings are similar to the study done by Malleshappa et al.⁶

Conception, pregnancy and contraception, is something that is not of immediate concern for them, hence the knowledge attrition over a period of time is expected.

Impact of health education on knowledge about STI/RTI and HIV

Knowledge scores about STI/RTI and HIV, regarding their prevention, modes of spread, symptoms and availability of treatment, followed the same trends as the other knowledge scores, that is, significant increase in first and second post-tests as compared to pre-test, and a significant decline in mean knowledge score in second post-test as compared to first post test.

Owing to the stigma attached to STI/RTI and HIV, these topics are not discussed in the society and hence the girls can easily forget about these unless reinforced through ongoing health education sessions.

Similar results were seen in the study done by Malleshappa et al in which they reported, a significant

improvement in the knowledge about transmission and prevention of STDs was noted after intervention.⁶

Impact of health education on total knowledge

Overall knowledge was assessed by total knowledge scores, which significantly increased in the first post-test, while, decreased significantly in the second post-test as compared to the first post-test. Overall knowledge score is expected to follow the same trend as the other scores.

Impact of health education on menstrual hygiene practices

Evaluation of the girls was also done to see if there was a significant effect on changes in the menstrual hygiene practices after the health education. It was seen that before health education, 71.05% had inadequate menstrual hygiene, which reduced to 66.84% after health education. This change, although small, was found to be statistically significant.

The small change points out two facts; reinforcement of health education is a must to make a larger difference in practices and changing practices is not solely dependent on educating the girl. A lot of girls might be restricted to adapt adequate practices because of various financial or cultural restraints which are not in their power to change.

Arora et al also observed significant improvements in the menstrual hygiene practices, among adolescent girls in the post test after imparting health education, in their study.¹³

There are some limitations of the study. The current study was conducted in an urban slum, the results of which may not be generalizable to the entire population.

CONCLUSION

The adolescent girls in the present study had average to good baseline knowledge about menstruation and puberty. Their knowledge about conception, pregnancy and contraception and also of RTI/STI and HIV /AIDS was however poor. The knowledge had increased after the health education session in the first post-test. But, even after a revision session after a month, the knowledge in the second post-test had decreased. The menstrual hygiene practices had however seen to be improved after the health education session.

Recommendations

Knowledge about puberty changes and menstruation should be imparted to the adolescent girls in schools, and also in the community by the field staff, with stress to be given on improving the menstrual hygiene practices. This knowledge should be reinforced regularly. Family members of the girls should also be trained, which can help the girls follow the hygienic practices.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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