

# Effect of peer educator-PRAGATI (PeeR Action for Group Awareness through Intervention) on knowledge, attitude, and practice of menstrual hygiene in adolescent school girls

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## ABSTRACT

**Context:** Majority of the adolescent girls all over the world, suffer from anxiety, shame, discomfort, and isolation during menstruation. Awareness about menstrual hygiene and health can help them to overcome this situation. **Aims:** The study aims to elicit the existing knowledge, attitude, and practices regarding menstruation and to assess the effectiveness of a structured training program through peer educators-PRAGATI (PeeR Action for Group Awareness through Intervention) on menstrual hygiene among adolescent school girls. **Subjects and Methods:** This was a prospective interventional study. A structured training program through peer educators (PRAGATI) was used on adolescent females for evaluating menstrual hygiene awareness and practices through pre- and posttest. McNemar's test was used for paired nominal data and the difference between pretest and posttest was assessed by the paired *t*-test. **Results:** In the pretest, only 20.5% had adequate knowledge, 32.5% had poor knowledge, while 48.7% of girls had moderate knowledge about menstruation and menstrual hygiene. Post-intervention, 56.41% girls gained adequate knowledge (an increase of ~36%), 30.76% had moderate knowledge, and only 12.8% of them (a reduction of ~20%) still had poor knowledge. The mean increase of knowledge on menstrual hygiene in pretest and posttest analysis was statistically significant with  $P < 0.01$ . **Conclusion:** The training by the peer educators (PRAGATI) in creating awareness about menstrual hygiene and bringing about a significant change in attitude and practice is an effective method of spreading awareness among adolescents on menstrual hygiene related sensitive issues. However, repeated sessions are required to create momentum and enthusiasm for learning new things.

**Keywords:** Adolescent, menstrual hygiene, menstruation, peer-group

## Introduction

Millions of adolescent girls all over the world suffer from anxiety, shame, discomfort, and stress during menstruation.<sup>[1]</sup> Although

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menstruation is a normal physiological process, lack of awareness about menstrual health and hygiene makes this natural process troublesome for some. According to the 2011 census, there are approximately over 310 million menstruating girls and women in India between 15 and 49 years of age and most of them still face barriers to easy, comfortable, and dignified experience with their menstrual health.<sup>[2]</sup> This is mainly because of the lack of structured education on menstrual health issues. One of the

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reports from Rajasthan documented that many schoolgirls in Jaipur were not prepared about menses before menarche. 25% were shocked, 30% feared, 69% had anxiety, 22% felt guilty, and 22% felt frustrated at their first experience.<sup>[3]</sup> This happens because girls are not ready to face this situation due to a lack of preparedness. Now the question arises, “Who will prepare them?”

As we all know that the present-day adolescents are highly influenced by peer (peer pressure) and they are very likely to follow what their peers do, it is very important to involve peers to bring about a significant change in society. A peer group is a social group consisting of people who are equal in such respects as age, education, or social class. These people usually share a common interest and background. In simple words, it means being pushed over by friends to do something which you would not do otherwise.<sup>[4-6]</sup> The present study aimed to assess the effectiveness of structured teaching program through peer educators on menstrual hygiene awareness among adolescent school girls of a village Keru using pretest-posttest analysis. The objectives of our study were to assess the existing knowledge of adolescent girls regarding menstrual hygiene and to assess the gain in knowledge, attitude, and practice among them regarding menstrual hygiene through a structured training program with the help of PRAGATI (Peer Action for Group Awareness Through Intervention [peer educators]).

## Subjects and Methods

### Study design

This was a prospective single-group interventional study. A pretest-posttest design was adopted.

### Study setting

This study was conducted at the Government higher secondary school of village Keru, Jodhpur, Rajasthan. The school was selected based on geographical proximity, the feasibility of conducting the study, and the availability of the samples.

### Study participants

All adolescent female students, aged 11–19 years, studying in class 6<sup>th</sup> to 12<sup>th</sup>, living with their parents, and willing to participate in the study were enrolled.

*The independent variable* used was peer-group education/training on the understanding of menstruation and menstrual hygiene in terms of knowledge, attitude, and practice.

*Dependent variables* used were, change in the scores of knowledge, attitude, and practice on menstrual hygiene among the girls.

### Methodology

The study was started after obtaining the ethical approval from the institutional ethics committee and permission from the Principal of Higher Secondary School, Keru, Jodhpur, Rajasthan. All menstruating adolescent girls of the selected school, willing to

participate in the study, and who were present on the day of data collection were included. However, those who had not attained menarche and were unwilling to participate, or were absent on the day of data collection were excluded.

The sample size was calculated by considering the difference in pretest and posttest results of a previous study<sup>4</sup> by applying the following formula:  $N_1 = (Z_{\alpha/2} + Z_{1-\beta})^2 PQ (r + 1)/r (P1 - P2)^2$ .

To achieve a statistically valid comparison of the knowledge scores in two groups, with a type 1 error of 0.05, the confidence level of 95%, power of 80%, a sample size of at least 78 subjects were required and accounting for 20% attrition rate, we decided to include 100 participants in the study.

### Development of the questionnaire

A structured interview schedule and scoring scale were prepared to assess the knowledge of adolescent school girls on menstrual hygiene. The tool was developed based on the research problem, review of literature, suggestions by guides and experts in the field of community health. The questionnaire consisted of two parts; the first part contained demographic details of the study participants whereas the second part consisted of questions related to knowledge, attitude, and practice of menstrual hygiene and facts about menstruation. Demographic details included age at menarche, educational status/class, religion, type of family, body mass index (BMI), residence, education and occupation of parents, and source of information regarding menstruation. The questionnaire consisted of multiple-choice questions related to anatomy and physiology of the female reproductive system, the meaning of menstruation, the purpose of menstrual hygiene, risk associated due to poor menstrual hygiene, menstrual hygiene practice, and knowledge about nutrition. Each question had four responses with one correct answer. A score of one was given for each correct response and a score of zero was given for the wrong or don't know the answer.

The questionnaire along with objectives, protocol, and structured teaching module was submitted to five experts including two professionals in the field of community medicine, two experts in gynecology, and one statistician for establishing content validity and was pretested on a group of 10 students. The tool was modified as per the suggestions of the experts and the final tool was constructed.

### Development of a structured training program

The structured training program was developed based on research findings of the study, review of the literature, and consulting with experts under the following steps

- Preparation of training module
- Preparation of Power-Point presentation in Hindi and English
- Permission from the authors of the comic book “Menstrupedia” to use their material as IEC (information, education, and communication)<sup>[7]</sup>

- Getting the photocopies of a comic book called Menstrupedia
- Development of scoring scale to evaluate the structured training program to use for pretest-posttest analysis
- Content validity, editing, and preparation of the final draft of the structured training program.

124 students who fulfilled the inclusion/exclusion criteria were enrolled on the first visit and participants were requested to come for a pretest the next day after the consent from their parents. 100 girls attended the pretest session. The demographic details of all the participants were noted and their BMI was calculated. Categorization of girls based on BMI was done as normal weight (BMI: 18.5–24.9 kg/m<sup>2</sup>), underweight (BMI: <18.5) overweight (BMI: 25–29.9), and obese (BMI: ≥30). Depending upon the pretest scores and proactiveness and enthusiasm, 10 girls were selected as peer educators. They were given the title—PRAGATI and were trained for correct and appropriate methods of menstrual hygiene through a self-generated module including a PowerPoint presentation and handouts of a comic book, Menstrupedia. So, these 10 girls (PRAGATI) were withdrawn from our posttest questionnaire assessment (as they were the trainers for the rest of the peers).

Each PRAGATI was assigned a group of eight girls (classmates/peers) for training and imparting knowledge and answering their queries. Each group consisted of eight participants as 10 girls did not return the questionnaires and from the total (100 girls), 10 girls were withdrawn to act as PRAGATIs. A posttest was, however, conducted for 78 participants after a month and responses were recorded, as two participants were not available due to vacation [Figure 1].

### Statistical analysis

Data were entered in Microsoft Excel 2010 spreadsheet and frequencies were presented in along with percentages wherever appropriate. Data were then transferred to SPSS, statistical software package version 23 and findings were reported in the form of descriptive statistics. For assessing the existing and posttest knowledge of the study group, scoring was done as follows: inadequate/poor knowledge (score <6 or <40%), moderate knowledge (score 6 to 10 or between 40–70%), and adequate knowledge (score >10 or >70%). In SPSS the results for binomial distribution have been used for McNemar’s test for paired nominal data and the difference between pretest and post-test was assessed with the help of a paired *t*-test. Pretest-posttest knowledge, attitude, and practice scores were determined. *P*<0.05 was used to indicate a statistically significant outcome.

### Results and Interpretations

The health questionnaire was given to 100 students. After excluding the dropouts, the final statistical analysis was done on 78 students.

The mean age of the participants was 14.18 years ± 2.08 [Figure 2]. The students were equally distributed as far as their classes were concerned starting from class 6 to class 12 [Figure 3]. Most of

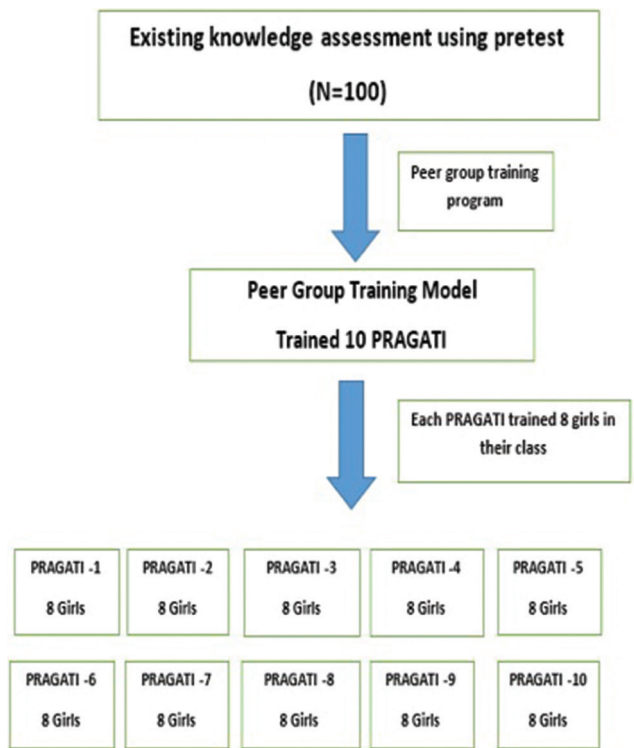


Figure 1: Flowchart showing 10 PRAGATIs (PeeR Action for Group Awareness through Intervention), each allocated one group of eight girls

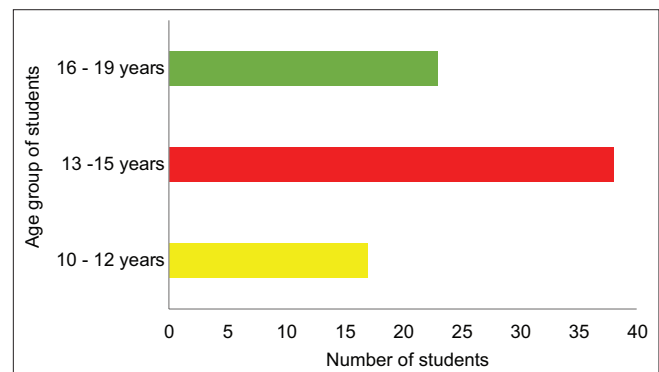


Figure 2: Showing the age distribution of participants in years

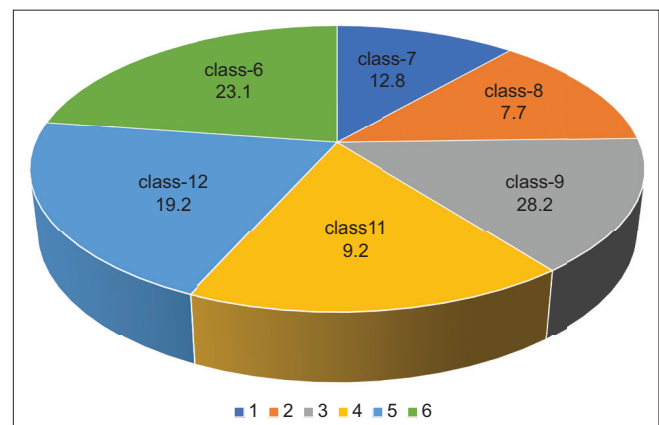


Figure 3: Distribution for the percentage of the class

the students were Hindus and only three girls were Muslims. Table 1 shows the sociodemographic details of the participants.

Table 2 describes the baseline and posttest knowledge domain of the participants. Only (23.1%) girls gave the correct answer about the length of the menstrual cycle (21–35 days), whereas the lowest percentage of the correct answer was for the question “Does menstruation help in cleaning dirty blood?” These questions were the main assessing questions in the knowledge domain. However, students were good in nutritional awareness as their baseline knowledge was adequate.

Overall, the students had a positive attitude against the misconceptions regarding menstrual hygiene and post intervention, there was a statistically significant change in their attitude with  $p < 0.001$ . [Table 3]. To assess the practice of menstrual hygiene, four questions were asked. 66% of girls marked that the duration of changing pads is 3–4 times a day. Regarding question related to the disposal of pads, (80.8%) girls correctly marked option “covered dustbin” [Table 3].

After the peer-group training program, the posttest was conducted in the same group and the percentage of the correct answers increased tremendously. Tables 2 and 3 show the difference in responses after the intervention.

The practice score increased from 64% to 72% after the peer group training. In pretest, only 20.5% had adequate knowledge (score  $> 70\%$ ), 32.5% had inadequate

knowledge (score  $< 40\%$ ) while 48.7% girls had moderate knowledge (score 40–70%) about menstruation and menstrual hygiene. 1 month after the administration of a structured training through PRAGATI, 56.41% girls gained adequate knowledge (an increase of  $\sim 36\%$ ), 30.76% had moderate knowledge, and only 12.8% of them (a reduction of  $\sim 20\%$ ) still had inadequate knowledge in the posttest. There was a statistically significant increase in the improvement of knowledge about menstruation and menstrual hygiene ( $t = -7.153, P < 0.01$ ).

Table 4 shows that there is a significant mean difference between the pre-post scores in the knowledge 2.4,  $P < 0.001^{**}$ , in the attitude 0.95,  $P < 0.001^{**}$ , and in the practice 0.37,  $P < 0.001^{**}$  about menstrual hygiene.

Table 5 shows that mean  $\pm$  2SD of the total score of the pretest was  $13.53 \pm 4.27$ . The mean  $\pm$  2SD of the total score of the posttest was  $18.5 \pm 4.25$  and the mean difference between the score was  $-4.96$  (95% CI),  $P < 0.001^{**}$  which was statistically significant.

## Discussion

The world is celebrating “Menstrual Hygiene Day” on 28<sup>th</sup> May since 2014 to spread awareness and to empower women to the challenges of menstruation and on International Women’s Day on 8<sup>th</sup> March 2018. The Government of India also launched 100% oxo-biodegradable sanitary napkins “Suvidha” in packs of four costing only 10 INR.<sup>[8,9]</sup> Despite these desperate efforts at the national and international levels, millions of girls and women suffer the shame and pain of periods probably, because they are loaded with age-old misinformation and myths from society and nobody wants to discuss it. Besides, the education system of developing countries avoids menstruation and menstrual hygiene-related issues considering this as a personal matter. The teachers also are not very passionate about such issues.<sup>[10]</sup> These existing problems gave us the insight to work out this issue through peer education.

Present-day adolescents are highly influenced by peer and they are very likely to follow what their peers do. It is observed that in sensitive matters like menstruation, students being pushed over by friends (peer), tend to do something which they would not do otherwise. The benefits of using peer education are its flexibility (during free time inside or outside of the classroom), easy to provide, more open, and in the overt atmosphere. It facilitates discussion of sensitive matters (like menstruation and reproduction) with peers, compared with parents, especially in a rural setup. It is the flexibility of language (that is in their tone/pitch/accents/dialect) used to communicate between peers that make learning and understanding easy.<sup>[4-6]</sup>

In our study, the pretest means ( $\pm$ SD) of baseline knowledge, attitude, and practice were  $7.57 \pm 2.83$ ,  $2.38 \pm 1.14$  and  $3.30 \pm 0.85$  respectively. In a similar study conducted on perception regarding menstruation and practices during menstrual cycles among

**Table 1: Distribution of the study participants according to sociodemographic findings**

Sociodemographic Data	Frequency (n)	Percentage (%)
Religion		
Hindu	75	96.2
Muslim	3	3.8
Total	78	100%
Father’s education		
Illiterate	28	35.9
Primary	33	42.3
Above primary	14	17.9
Secondary or higher	3	03.9
Total	78	100%
Father’s occupation		
Labor	39	50
Farmer	37	47.4
Professionals	02	2.6
Total	78	100%
Mother’s education		
Illiterate	58	74.35
Primary	14	17.94
Above primary	6	7.69
Body mass index		
<18.5 (underweight)	16	20.51
18.5-24.9 (normal)	55	70.51
25-29.9 (overweight)	7	8.97
30-34.9 (obese)	0	0

**Table 2: Difference between baseline and post-intervention knowledge in study participants**

Associated factors	Pretest frequency	Posttest frequency	Difference	McNemar's test <i>P</i>	
	Correct knowledge	Correct knowledge	%		
Knowledge about menstruation	1. What is the correct age of menarche?	27 (34.6)	53 (67.9)	33.6	<0.001**
	2. What is the duration of blood flow in days?	24 (30.8)	49 (62.8)	32	<0.001**
	3. Is initially gap between periods a normal phenomenon?	62 (79.5)	71 (91.0)	11.5	0.049*
	4. Does menstruation help in the potential to give birth?	58 (74.4)	71 (91.0)	16.6	0.015*
	5. Does it cause weakness due to blood loss?	19 (24.4)	43 (55.1)	30.7	<0.001**
	6. What is the average length of the menstruation cycle?	18 (23.1)	29 (37.2)	14.1	0.071NS
	7. Does menstruation help in cleaning dirty blood?	17 (21.8)	40 (51.3)	29.5	<0.001**
	8. How much blood is lost during menstruation?	26 (33.3)	43 (55.1)	21.8	0.008*
	9. Lack of menstrual hygiene can cause infections	28 (35.9)	56 (71.8)	35.9	<0.001**
	10. Deficiency of iron causes anemia	60 (76.9)	70 (89.7)	12.8	0.031*
	11. Richest source of vitamin-C is <i>Amla</i>	55 (70.5)	67 (85.9)	15.4	0.023*
	12. Should one eat nutritious food during menses?	56 (71.8)	65 (83.3)	11.5	0.108NS
	13. Iron rich food is spinach	51 (65.4)	66 (84.6)	19.2	0.003*
	14. Vitamin D is required more in growing females as compared to other minerals and vitamins	43 (55.1)	57 (73.1)	18	0.019*

\**P* < 0.05, statistically significant; \*\**P* < 0.001, statistically highly significant; NS- not significant

**Table 3: Difference between baseline and post-intervention attitude and practices in study participants**

Associated Factors	Pretest frequency	Posttest frequency	Difference in %	McNemar's test <i>P</i>	
	Agree with the fact (%)	Agree with the fact (%)			
Attitude	1. They can go to temple during menses and touch pickle	31 (39.7)	56 (71.8)	32.1	<0.001**
	2. Can run and play	29 (37.2)	59 (75.6)	38.4	<0.001**
	3. Open to talk about menses	60 (76.9)	75 (96.2)	19.3	<0.001**
	4. They can wash their hair and bathe daily.	66 (84.6)	70 (89.7)	5.1	0.481
Practice	<b>Yes</b>	<b>Yes</b>	<b>Difference %</b>		
	1. Consults a doctor if menstrual problems are there	62 (79.5)	72 (92.3)	12.8	0.052
	2. Absorbent used during menses (sanitary pads)	67 (85.9)	74 (94.9)	9	0.065
	3. Duration of changing sanitary pads (3-4 times/day)	66 (84.6)	70 (89.7)	5.1	0.481
4. Disposed pads correctly (wrapped in a paper and throw in dustbin)	63 (80.8)	71 (91)	10.2	0.077	

\*\**P* < 0.001, statistically highly significant

high school adolescent girls in the low resource setting around Bangalore, Karnataka, the mean score of knowledge was  $4.04 \pm 1.32$ , the attitude was  $2.46 \pm 0.996$ , and that of practice was  $6.41 \pm 1.65$ . As we do not know the denominator in their study, the difference between findings cannot be commented upon. Second, their study was a simple questionnaire-based cross-sectional study without any intervention group. However, the sample size was large ( $n = 506$ ) for knowledge and 329 for practice assessment, in comparison to our study ( $n = 78$ ).<sup>[11]</sup> In another recent study conducted in Ethiopia on 791 adolescent school girls, 68.3% had poor knowledge of menstruation and 60.3% of girls had poor menstrual hygienic practice.<sup>[12]</sup> Poor

menstrual hygiene is a risk factor for reproductive tract infection and cervical neoplasia.<sup>[13]</sup>

In the current study, 72% of students were not aware of the fact that a lack of menstrual hygiene can cause infections. Besides 83% believed that menstruation help in cleaning dirty blood. The adolescent mind is very receptive especially when they listen to their peers. After the intervention, there was an improvement in their knowledge although not up to the mark still, this figure dropped down to 44% and 60% respectively from 72% and 83%. This again highlights that it should not be a one-time training but a “trip hammer” effect should be there. We must repeatedly

**Table 4: Difference between baseline and post-intervention mean score in respect of knowledge, attitude, and practices**

Variable	Pretest Mean (±SD)	Posttest Mean (±SD)	P	t-test
Knowledge score	7.57±2.83	9.97±2.94	<0.001**	-7.153
Attitude score	2.38±1.14	3.33±0.948	<0.001**	-6.404
Practice score	3.30±0.85	3.67±0.63	<0.001**	-3.776

\*\*P &lt; 0.001, statistically highly significant

**Table 5: Distribution of differences between total score of pretest and posttest in study participants**

Activity	Mean±SD	P
Pretest	13.53±4.27	<0.001**
Posttest	18.5±4.25	

\*\*P &lt; 0.001, statistically highly significant

inculcate the true picture in their young minds and discuss with them that good hygienic practices prevent many reproductive tract infections and lead to a healthy life.

In our study, the proportion of girls between the age group 11–12 was 19.2% and 14+ was 61.5%. However, in another study done in Bangladesh, this proportion was 15.4% and 47.6% respectively. The sample size was also large ( $n = 416$ ) compared to our study ( $n = 78$ ). The similarity was that in both the studies, the majority of the participants were more than 14 years of age, maybe because, in rural areas, kids start late for schools. There was a 31% improvement in knowledge and belief about menstrual hygiene and practices in this study from 51% to 82.5% while it was 36% in our study (rise from 20.5% to 56.4%). There was more illiteracy among fathers in our study, 35.9% compared to 13.7% in Haque's study.<sup>[14]</sup> Illiteracy amongst mothers in our study was 74.4% vs 11.8% in Haque's study. It is one of the reasons for the less baseline knowledge about menstrual hygiene amongst adolescents in our study (<30% vs program >50%) as mothers are mostly the primary source of knowledge about menstruation among the study participants.

In our study, the knowledge on the duration of normal menstruation among the respondents was significantly increased from 30.8% to 62.8% who correctly identified it as 2–7 days. This was in line with a study done in Belgaum, Karnataka.<sup>[15]</sup> However, the knowledge on the interval between two menstruation cycles was very low in our study and it increased from 18% to only 29% who correctly reported it as  $28 \pm 7$  days. These results were in contrast with a study conducted in Karnataka that reported the knowledge on the interval between two menstrual cycles was significantly increased from 77.2% to 91.8%.<sup>[16]</sup>

In our study after the intervention, the attitude of girls regarding restrictions during menstruation also improved significantly. This was similar to the study done in Belgaum.<sup>[14]</sup>

In our study the practice of using sanitary pads increased from 85.9% to 94.9%, the practice of changing pads three to four

times a day improved from 84.6% to 89.7% and more girls (91%) were now disposing the pads correctly in the dustbin. However, in a study done at Saifai, India, only 48.6% of girls used sanitary pads as the absorbent material.<sup>[17]</sup>

In our study, the intervention strategy was the training of students through peer educators while Lulu *et al.* compared the effect of peer training versus conventional training methods in two independent groups (peer vs conventional). The results showed a significant difference between the two groups on knowledge and practices of menstrual health ( $P < 0.001$ )<sup>[18]</sup> They concluded that peer education method could be a potential substitute for the conventional lecture-based education method. This was also supported by another study by Parsa *et al.*<sup>[10]</sup> In a recent study in Delhi, the authors have reported that 17% of the girls believed a woman to be impure during menstruation. School absenteeism was present in 50% of the girls for the first 2–3 days of their menstrual cycle. 34% of girls did not bathe at all during their menstrual period and a similar number of girls did not bathe daily while menstruating.<sup>[19]</sup> School absenteeism was also 40% in another study of Pakistan.<sup>[20]</sup> Contrary to this, in our study, 66% of girls believed that they should bathe daily and after the intervention, this figure increased to 70%.

Our study highlights the importance of the family physician or primary health care providers who can play an instrumental role by providing structured training to adolescent school girls in their area, which will empower them and prepare them to handle the problems of menstrual hygiene.

## Conclusion

In the light of the study findings, we conclude that the adolescent school girls of village Keru clearly lacked appropriate knowledge about menstruation and menstrual hygiene in the preprogram phase. Also, adolescent's lifestyle practices were mostly inadequate concerning diet and personal hygiene. Girls, however, had a positive attitude toward knowing about menstruation and menstrual hygiene and were very excited about listening and discussing something uncommon in village areas. The training by peer educators (PRAGATI) had a significant effect as the knowledge increased by about 36% after PRAGATI training. We, hereby, suggest that the peer-group education method could be a potential substitute for conventional ways of informing adolescents and can be used as a tool for escalating the level of knowledge, especially on less talked sensitive issues such as menstruation.

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## Conflicts of interest

There are no conflicts of interest.

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