

Effectiveness of Health Education in Improving Menstrual Hygiene Knowledge and Practices among Adolescent Girls of Rural area of Tamilnadu, India

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Abstract:


Introduction : Menstruation is still surrounded by many myths, misconceptions and taboos. Adolescent girls in India, seems to have inadequate and inaccurate knowledge on menstruation and its hygiene. Improper menstrual hygiene can lead to reproductive tract infections which can adversely affect a woman's reproductive health. This study was aimed at assessing the effectiveness of health education in improving the knowledge on menstruation and menstrual hygiene practice among rural adolescent girls of India. **Method:** An interventional study was done among 82 college girls selected by convenient sampling in a rural area of Tamilnadu, India. Intervention done was health education on menstrual physiology and hygiene practice using animated video and interactive session in local language. Questionnaire on knowledge about menstruation and menstrual hygiene practice was administered to the participants before health education session. Improvement in knowledge and practice was assessed after one month of the session. **Results:** Baseline knowledge about menstruation was adequate only for 57.5 percent of participants. Baseline menstrual hygiene practice was good only among 8.8 percent of participants. Following health education, knowledge about menstruation significantly improved to 90%. Menstrual hygiene practice also showed a significant improvement from 8.8% to 30 percent%. **Conclusion:** This study showed that providing a comprehensive health education on menstrual physiology and hygiene would greatly improve the menstrual hygiene practice of adolescent girls.

Keywords: Adolescent girls, Health Education, Menstrual Hygiene, Menstruation

Introduction:

Adolescence is a period of rapid transition from childhood to parenthood. During this phase, adolescents face various physiological, psychological and developmental changes. Menstruation is one of the most important changes which are unique to females that begin in adolescence. The mean age at menarche in Indian adolescent girls is 12.5 (± 1.42) years.^[1]

Although menstruation is a natural process, it has been clouded by several myths, misconceptions, superstitions, cultural and religious taboos which affects the knowledge about menstruation among girls.^[2,3] There is lack of communication between young women and teachers and parents about proper menstrual hygiene due to stigma associated with menstruation.^[4] Most of the girls receive their gynecological information from their friends.

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However, such information, generally given after menarche rather than before, is often inadequate and inaccurate.^[5,6]

In addition to stigma, inadequate knowledge about menstruation causes many girls and women to carry out dangerous practices. Improper hygienic practices during menstruation has a serious health impact in terms of increased vulnerability to Reproductive Tract Infections.^[7-9] These infections are often transmitted to offspring during pregnancy.^[2] Poor menstrual hygiene can lead to urinary tract infections, scabies in the vaginal area, pelvic inflammatory disease, and sickness absenteeism.

It is important for girls to reach their full potential at schools to achieve the gender equality target of Sustainable Development Goals (SDG).^[10] Good menstrual hygiene is also essential for dignity of girls and women. It improves comfort and mobility for the menstruating women. Menstrual hygiene practices and reaction to menstruation depend on the awareness and knowledge about the subject. Providing knowledge on menstruation and its hygiene can improve reproductive health of women. It also improves school attendance and reduce dropouts among school girls in developing countries.^[11-14] Hence there is a need to provide healthy menstrual education to the woman particularly adolescent girls.

Many studies were done to assess menstrual hygiene practice among adolescents in India.^[2-6] Only few interventional studies were done to improve the hygienic practice and had shown that targeted intervention did improve menstrual hygiene knowledge and practices.^[15,16] Hence, this study is done to improve the knowledge about menstruation and its hygiene among adolescent girls in rural Tamilnadu and also to study the effectiveness of health education in improving their menstrual hygiene practices.

Method:

This study was done as an interventional study at a selected college in Thoothukudi district of Tamilnadu state, India. The study period was from November 2019 to January 2020. Females undergoing first year undergraduate course in arts and science, those who had attained menarche and those who were willing to participate in the study were included in this study. Female students who did not give consent and who were absent at the time of health education were excluded from the study.

Sample size was calculated based on a study done among rural adolescent girls of India by Dongre et al at Maharashtra.^[15] In this study, the practice of using sanitary pad increased from 5% to 25% after a community-based health education intervention. Assuming α error as 5%, β error as 10% and attrition or non-response rate as 20%, sample size was calculated to be 82 using the formula,

$$n = \frac{2(p) (1 - p) (Z\alpha + Z\beta)^2}{(p_1 - p_2)^2}$$

where $p_1 = 5$; $p_2 = 25$; $p = \{(p_1 + p_2)/2 = 15\}$; $z\alpha = 1.96$; $z\beta = 1.29$.^[17]

The study tool was a semi-structured self-administered questionnaire in Tamil. The questionnaire included questions on the following: 1. Socio-demographic details of the participant, 2. Knowledge on menstruation: This section included four questions. Each correct response was given a score of one and incorrect response a score of 0. Participants who got a score of more than 3 out of 4 were considered to have adequate knowledge. 3. Menstrual hygiene practice: Menstrual hygiene practice was assessed using 8 questions. Each good practice was given a score of 1 and poor practice a score of 0. Only those participants who got a score of 8 out of 8 were considered to have good menstrual hygiene practice.

Ethical clearance for the study was obtained from the Institutional Ethics Committee. Official permission to conduct the study was obtained from the selected college Principal and a mutually feasible

date was fixed for data collection. Written informed consent was obtained from the study participants. For the participants below 18 years of age, assent was obtained from their parents. A baseline survey was conducted to assess the knowledge about menstruation and menstrual hygiene practice among the students. This was followed by a health education session on menstrual hygiene for a duration of 60 minutes.

The study participants were divided into four groups and separate sessions were conducted for each group on menstrual hygiene. Improvement of menstrual hygiene after health education was assessed after a period of 1 month. Health education session on menstrual physiology and menstrual hygiene practice included the following:

1. A 25 minutes animated video “Mythri” dubbed in Tamil developed by a NGO which is available to provide awareness about menstrual hygiene.^[18]
2. A 30 minutes teaching session on reproductive tract anatomy, menstrual physiology and hygiene practices using audio-visual aids was given to each group separately by the primary investigator
3. Interactive session to clarify the doubts raised by study participants.

Data was entered in Microsoft Excel and analysis of descriptive and inferential statistics was done using SPSS Version 16. Appropriate statistical tests like Chi square tests, Paired t test and Pearsons correlation were used to compare knowledge and practices between groups and also to compare knowledge and practices before and after the intervention.

Results:

During the baseline study, 99 first year undergraduate female students were available. The age of the participants ranged from 17 years to 20 years. The mean (S.D.) age of the study participants was 17.6 (0.65) years. Follow-up study included only

80 college girls. Remaining 19 were not included as they did not have menstruation during the one month period or were absent at the time of data collection. These 19 college girls did not have any significant difference in socio-demographic profile. Hence, further analysis was done only for those 80 participants. The socio- demographic profile of the respondents is shown in Table 1.

None of the socio-demographic details showed significant association with the knowledge and menstrual hygiene practice of the study participants before intervention. A scatter plot between knowledge and practice score during baseline survey showed that menstrual hygiene practice improved with improvement in knowledge about menstruation. Figure 1 shows that the knowledge scores and practice scores of the study participants are weakly but positively correlated with $r=0.258$. The correlation was also found to be statistically significant ($p=0.02$, Pearsons correlation).

From figure 2, it could be seen that knowledge adequacy about menstruation increased significantly from 57.5% to 90% following health education (p value – 0.04, Paired t test). Nearly 98% understood that menstruation is a physiological process. About 64% did not knew that menstrual blood is not impure/unhygienic. This proportion was reduced to 24% following health education. After intervention, almost every participant acquired knowledge that menstruation does not occur during pregnancy.

From table 2, it could be seen that 30% of the study participants adopted good menstrual hygiene practice following intervention as compared to 8.8% before intervention (p value < 0.001, Paired t test). Proportion of study participants disposing used sanitary material in toilets has been significantly reduced after the health education. Frequency of changing sanitary material during a menstruating day has also been significantly improved. Despite health education, only 50% washed their hands with soap and water after changing sanitary material.

Table 1 : Socio-demographic details of the study participants

Characteristic	Category	Frequency (N=80)	Percentage
Age group of the participants	17 years	39	48.7
	18 years	37	46.3
	19+ years	4	5
Religion	Hindu	69	86.3
	Christian	4	5
	Muslim	7	8.7
Father's education	No formal education	4	5
	Primary/secondary	53	66.3
	High school/Higher secondary	21	26.3
	Degree/Dilpoma	2	2.4
Mother's education	No formal education	12	15.1
	Primary/Secondary	55	68.8
	High school/Higher secondary	12	15.1
Socio-economic status*	Class I	2	2.5
	Class II	10	12.5
	Class III	18	22.5
	Class IV	24	30
	Class V	26	32.5

*Modified B. G. Prasad Socio-economic Scale (CPI for November 2019 – 328)^[19]

Figure 1 : Scatter plot between knowledge and practice score before intervention

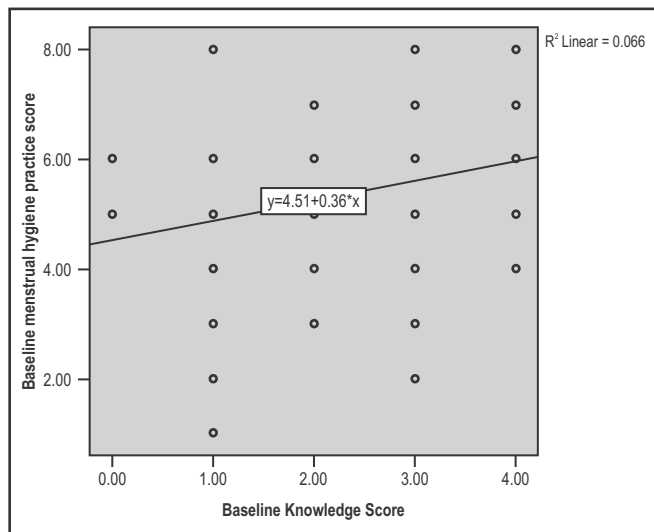


Figure 2 : Effectiveness of health education on menstrual hygiene knowledge

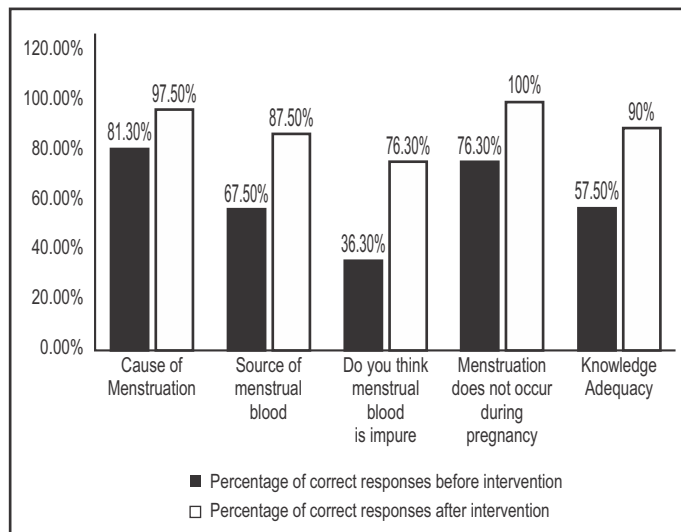


Table 2 : Effectiveness of health education on menstrual hygiene practice (N=80)

Practice of menstrual hygiene		Before intervention	After intervention	p value
		No. of participants (%)	No. of participants (%)	
Absorbent used	Sanitary pad	75 (93.8%)	78 (97.4%)	0.06
	Old cloth	3 (3.8%)	1 (1.3%)	
	New cloth	2 (2.4%)	1 (1.3%)	
Disposal of used sanitary pads	Dustbin	49 (61.3%)	54 (67.5%)	<0.001
	Toilet	12 (15%)	3 (3.8%)	
	Incineration	8 (10%)	9 (11.2%)	
	Burial	11 (13.7%)	14 (17.5%)	
Frequency of changing sanitary material in a menstruating day	Thrice or more	23 (28.8%)	54 (67.5%)	0.001
	Twice	52 (65%)	26 (32.5%)	
	Once	5 (6.3%)	0	
Wrapping of used sanitary material before disposal		43 (53.8%)	71 (88.8%)	<0.001
Changing innerwear daily during menstruation		76 (95%)	79 (98.8%)	1.00
Taking bath daily during menstruation		76 (95%)	79 (98.8%)	0.05
Washing hands with soap and water after changing sanitary material		26 (32.5%)	40 (50%)	<0.001
Cleaning external genitalia with soap and water during menstruation		51 (63.8%)	75 (93.8%)	0.005
Menstrual hygiene practice	Good	7 (8.8%)	24 (30%)	<0.001
	Poor	73 (91.2%)	56 (70%)	

Discussion:

Before health education, knowledge about menstruation was adequate for 57.5% of adolescent girls in rural area. This proportion differs largely from a previous study done among school girls in Chennai, where the knowledge adequacy before health education was only 26%.^[6] In this study, only 4% felt menstruation as a curse from God. This proportion is much less when compared to similar studies done at Chennai and Bengaluru.^[6,20] More than half of the study participants (58%) knew the correct source of menstrual blood. This proportion is higher when compared to study done among school girls.^[21]

Menstrual hygiene practice was good only among 10% of study participants before intervention. Nearly 94% used sanitary pads. This is

higher when compared to previous studies.^[4,6,7,16] Sanitary napkins are freely distributed through Integrated Child Developmental Scheme (ICDS) in Tamilnadu state which could have led to its increased use.^[22] Before health education, cleaning of external genitalia during menstruation is higher in the current study when compared to previous studies.^[7]

Both knowledge about menstruation and menstrual hygiene practice did not have any association with socio-economic status and mother's education. However, in previous studies, the knowledge showed significant relationship with mother's educational level.^[6]

Baseline survey revealed that knowledge adequacy scores showed a statistically significant weak positive correlation with menstrual hygiene

practice score before intervention. This proves that education about menstruation and its significance should be emphasized right from a girl's childhood. This would escalate safe hygiene practices throughout her life.^[15]

Following health education, knowledge adequacy on menstruation significantly increased from 57.5% to 90% (p value - 0.04). The improvement seen in the current is in accordance with previous similar studies done.^[6,19,24] Nearly 40% of study participants changed their belief that menstrual blood is not impure. This understanding would help in breaking the misconceptions, myths and superstitions about menstruation. Still 25% of study participants held the belief that menstrual blood is impure/ unhygienic. This is in contrast to a previous study done at Bangladesh wherein nearly 96% of study participants had understood that menstrual blood is not impure following educational intervention.^[16] In the latter study, health education was given in twelve sessions every 15 days.

Menstrual hygiene practice has significantly improved from 8.8% to 30% following health education (p < 0.001). However, the effectiveness of health education in improving practice is lesser when compared to previous studies.^[15,22-24] Frequent health education sessions for a longer period as done in a similar study at Egypt would have improved menstrual hygiene practices among more number of adolescents girls.^[25] This shows that proper reinforcement of the message at adequate intervals could have resulted in a much better outcome.

More than 50% of the study participants who used new/old cloth as absorbent before intervention had started using sanitary pad. Participants who still used new/old cloth after health education had understood appropriate methods to wash and dry the cloths.

Disposal of used sanitary material and frequency of changing sanitary material was also improved following the intervention. The proportion of participants disposing used sanitary material in

toilets has been significantly reduced by 11.2% (p < 0.001). This change is similar to that observed in a previous study done at Bangladesh.^[16] Nearly 60% of the study participants reported that they disposed their used sanitary material in dustbins. This will generate more menstrual waste when practiced in a long run. This menstrual waste will end up in landfill and certainly cause larger problems, particularly in developing countries. Hence, encouraging menstrual hygiene practices must be accompanied by adequate and proper waste management.

The frequency of changing sanitary material in a day has also been significantly improved (p value - 0.001). Almost all participants changed their sanitary material at least twice in a day. This is supported by a previous study, wherein almost 99.5% of participants changed their sanitary material at least twice a day.^[16]

Half of the study participants did not wash their hands after changing sanitary material despite health education intervention. This is in contrast with previous studies where more than 90% of study population showed improvement following health education.^[22-26] A study done at the state of West Bengal showed that hygienic practices like hand washing and daily bathing had significant relationship with availability of continuous water supply and toilet facilities.^[27] Hence, water supply, sanitation and hygiene facilities should be improved in the community, work place, schools, and colleges and at home to ensure good menstrual hygiene practice.^[28]

One of the principles of health education is reinforcement. Without reinforcement there is a chance for the adolescents to go back to the pre-awareness stage. Hence sustained health education should be provided to all adolescents to improve reproductive health. Teachers can be trained in schools/colleges to act as counsellors of reproductive health.

The information given by the study participants were self-reported and may differ from actual

behavior. Hence, there is a chance of information bias in this study. It is well known that menstruation is clouded by many taboos and cultural beliefs. This study did not attempt at studying the restrictions imposed on adolescent girls during menstruation.

Conclusion:

This study has shown significant positive changes in knowledge and menstrual hygiene practice among adolescents following an effective health education intervention. Adolescents who had better knowledge about menstruation had better menstrual hygiene practices. Hence awareness about menstruation and its hygiene should be provided right from childhood to improve woman's reproductive health.

Recommendations:

An ideal, age appropriate, continuous menstrual health education should be included in curriculum of school going girls. Encouraging healthy menstrual hygiene practices should be accompanied by appropriate waste management strategies. Water, sanitation and hygiene facilities need to be improved to improve menstrual hygiene, comfort and mobility of menstruating women.

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Declaration:

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Conflict of Interest: Nil

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