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EFFECT OF SCHOOL BASED MENSTRUAL HEALTH EDUCATION PROGRAM FOR ADOLESCENT GIRLS IN URBAN AND RURAL AREA OF NORTH WEST INDIA

Community Medicine

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ABSTRACT

Background: Poor menstrual hygiene management can result in adverse health outcomes among adolescent girls and there is need of developing interventions to prevent such consequences.

Objective: The purpose of this study was to evaluate the effect of school based menstrual health education program on adolescent girls' knowledge, practices, perceptions and restrictions during menstruation.

Methods: It was an interventional study conducted in urban and rural area schools of Rajasthan, India. Four schools (2 in urban and 2 in rural) were selected using the cluster sampling, 220 adolescent girls(110 each in urban and rural) of class 9 and 10 were enrolled for the study. The intervention in the form of educational program was delivered by researchers and trained research assistants to girls over a period of 6 months. The change in the knowledge, practices, perceptions and restrictions were recorded at follow up and compared with base line assessments.

Results: After the program, the participants demonstrated significant increase in good knowledge i.e, 44% vs 59% in urban and 34.5% vs 54% in rural area. There was significant improvement (p value< 0.01) in good practices in both areas (24% vs 75.5% in urban and 21.8% vs 42.7%). At the follow up, participants also reported significant improvement (p value < 0.01) in their perceptions regarding periods and consultation about the related problems in both areas. However there was no significant change in the restrictions being followed by girls, except attending school during menses, which showed significant decrease (18.2 vs 9%) in urban area only.

Conclusion: The results stipulate the positive impact of implementing a health education program on menstrual hygiene for the girls in early adolescent period. This study highlights the need to find strategies for sustained behavior change regarding restrictions.

KEYWORDS

Adolescent, Menstrual, Effect

INTRODUCTION:

Menstruation is a normal physiological process, but it is still a taboo subject in India. The "shame" around menstruation forces girls to opt out of school once they reach puberty, impeding the growth of female literacy in India. Apart from various myths and misconceptions associated with menstruation, lack of sanitary facilities and waste management in schools leads to absenteeism and even drop out of school girls.[1] Moreover, safe and effective protection alternatives, such as sanitary napkins, tampons are not available and/or not affordable, because of the high taxes being levied on these products (they are classed as luxury goods instead of necessary items).[2] This is a fairly common issue all over the country. As per National Family Health Survey -4 (NFHS-4) released in 2015-16, not even 50 percent of rural women used hygienic methods of protection during their menstrual period. The situation is better in urban India, where around 77 percent women were using either locally prepared napkins or tampons during menstruation.[3] The use of unhygienic methods (ashes, husk etc.) can lead to severe reproductive health problems in women.

The research in this area is very important in a state like Rajasthan, a north west state in India, where female health statistics (high maternal mortality and fertility rate) are worse than rest of the country.[4] In some cultures, girls are married off at an early age, many girls are kept at home when they start menstruating, either permanently (drop–out) or temporarily during the days that they menstruate.[2] According to Census 2011, Rajasthan has the country's lowest female literacy rate (52.66%) and also higher school dropout among girls as compared to other states.[5]

This study aims to draw attention to the importance of imparting correct knowledge about menstrual hygiene to the adolescent girls and comparing the urban rural differences. The best place to translate the plans concerning menstrual hygiene is in the context of educational institutions. So, the present study was undertaken to assess the effect of menstrual education program on knowledge, practices, perceptions and restrictions on adolescent girls.

MATERIAL AND METHODS:

Study design: It was an interventional study conducted from November 2018 to April 2019 in Udaipur district of Rajasthan, a north west state of India. The study was conducted in the schools, which come in the field practice area of department of Community Medicine of a medical college in Udaipur. Cluster random sampling was used to select the schools for study purpose.

Sample size and study participants: The sample size for the study was determined using the standard formula:

$$\text{Sample size} = \frac{(Z_{\alpha/2} + Z_{\beta})^2 * p(1-p)}{d^2}$$

Keeping power of study at 80% and significance level 0.05, the standard normal deviate for $\alpha = Z\alpha = 1.960$ and for $\beta = Z\beta = 0.842$. Taking the Effect Size, d = 0.3, (increase in knowledge following intervention) with base line knowledge score (p) of 50% from a previous study conducted by Haque S E in Bangladesh , sample size was 40.[6] Considering the study design, and the intra cluster correlation coefficient at 0.03, the design effect of 2.5 was included, giving the sample size of 100 (40 x 2.5). [7] Adding the 10% non-response rate the final sample size was 110 each in rural and urban area. The study participants were adolescent girls who have reached menarche, so we included class 8 and 9 girls. Considering a minimum enrollment of around 50 girls in class 8 and 9 of government schools, we needed two schools each in rural and urban area. A list of all government high schools and senior secondary schools (either girls or co-ed) within study area was made. Two schools from urban area and two schools from rural area were selected using cluster random sampling. After obtaining ethical clearance from Institutional ethics committee, the principal investigator visited the schools to get permission from principal. The class teachers were explained about the purpose of the study and with the help of them briefing of the objectives and questionnaires was done to the study population. The confidentiality of the study was assured to the study participants. The written informed consent was taken from the parents before commencing the study. Baseline data collection was followed by a health education session for the study participants about menstrual hygiene. The study was conducted over a period of six months (November 2018 to April 2019).

After completion of baseline survey, health education was given to girls. Before the survey, 5 days training was given to two research assistants and residents & interns (to prepare role play) under the supervision of specialists form Gynecology and Community Medicine department. The health education program consisted of : (1) Interactive lecture by trained research assistant about anatomy, physiology of menstruation and myths / misconceptions about menstruation; followed by IEC (Information, education, communication) material distribution in the form of pamphlets (2) A role play by interns and residents (3) Educational video demonstration. These three activities were done over a period of one and half month in one school, with one activity in 15 days. All the information was given in Hindi/ local language by females (researcher, research assistant, resident, interns), which is culturally acceptable to girls in India. Each session was of 40 minutes. After the intervention, the follow-up data were collected in the schools using the same questionnaire as at baseline regarding menstrual hygiene knowledge, practices, perceptions and restrictions on menstruating girls. Research Assistants with local ASHA (Accredited Social Health Activist) visited the homes of any students who were not available for follow-up data collection at school and collected information ensuring privacy at home.

Study instrument:
A self administered questionnaire was designed, according to the objectives of the study with the opinion of experts of departments of Gynecology and Community Medicine. The questionnaire was in both English and Hindi. The questionnaire was pilot tested on 30 girls in a nearby school and validated. The baseline survey was conducted in November 2018. Trained research assistants were assigned to read the questions out loud and the study participants answered. The questionnaire had following sections:

Knowledge about menstruation: This section of the questionnaire consisted of 10 multiple choice questions to determine girls' knowledge regarding: (1) cause of menstruation (2) origin of menstrual blood (3) age of menarche (4) menstrual blood being considered impure (5) normal duration of menstrual cycle (6) menstruation indicates fertility (7) poor menstrual hygiene predisposing to infection/diseases (8) sanitary products (9) age of menopause (10) hot/ cold foods affecting the menstruation. The students' knowledge were scored according to the system adopted from previous studies. [6,8,9,10] Each correct response was assigned 1 point, while incorrect or 'don't know' answers received zero marks. This gave a total possible score of 10 points. The participants with score of 0–3 points were considered to have poor knowledge, 4–7 points to have fair knowledge, and respondents with 8–10 points were to have good knowledge. Cronbach's α was 0.81 for the knowledge section.

Practices related to menstrual hygiene: This section consisted of seven items to assess girls' menstrual hygiene practices: (1) the absorbent/material used during menstruation, (2) frequency of changing the absorbent per day, (3) disposal of used absorbent, (4) reuse of absorbent (5) cleansing of genital area, (6) material used for cleansing genital area (7) bathing during menstruation . Good hygienic practices were given a score of 2, fair practices were awarded 1 point and zero points for poor practices. The maximum score was 14 points. The participants with 0–4 score were adjudged to have poor practices; 5- 8 score and >= 9 score were considered to have fair and good practices respectively. Cronbach's α was 0.75 for the practice section of the study instrument.

Perceptions and restrictions regarding menstruation: This section had questions about the participants' perceptions about the social taboos and stigma associated with menstruation such as (1) Periods are dirty (2) Consultation with someone about menses related problems; and what restrictions they follow during menstruation like (3) visit to relatives'/ friends' house (4) Household work (entry into kitchen at home/ touching the stored food items) (5) Visit to holy places (6) Playing (7) Attending school. Cronbach's α was 0.71 for this section.

Statistical tools:
Data were entered in MS Excel and statistical analysis was done using SPSS (Statistical Package of Social Sciences) Version 21. Mc Nemar's χ^2 analyses was used to evaluate the impact of educational program on (a) knowledge (b) practices (c) perceptions, and (d) restrictions regarding menstruation, by comparing these parameters between baseline and follow up. Chi square tests were used to assess the urban and rural differences. Statistical significance was considered to be present if the p-value was less than 0.05.

Ethical considerations: Prior permission was taken from relevant school authorities after obtaining clearance from the institutional ethics committee.

RESULTS

A total of 220 school girls (110 each in urban and rural area) participated in the study. Mean age of the participants was 13.8 years (± 1.5 SD) in urban and 13.9 years (± 1.7 SD) in rural area. Majority of the participants belonged to Hindu religion both in urban (92%) and rural area (96%). There was no significant difference between the mean age and religion of girls between urban and rural area. However the educational status of mother and father were found to be statistically different [Table 1].

Table 1. Demographic characteristics of study participants

Variables	Urban (110) n (%)	Rural (110) n (%)	p value
Mean age ± SD (in years)	13.8 ± 1.5	13.9 ± 1.7	0.55
Religion			
Hindu	101 (92)	106 (96)	
Muslim	9 (8)	4 (4)	0.15
Mother's education			
Illiterate	27 (24)	38 (34)	
Upto 5th	37 (34)	43 (39.1)	
$6^{th} - 10^{th}$	38 (35)	28 (26)	
$>10^{th}$	8 (7)	1 (0.9)	**0.03**
Father's education			
Illiterate	7(6)	19(17)	
Upto 5th	16(15)	26(24)	
$6^{th} - 10^{th}$	63(57)	56(51)	
$>10^{th}$	24(22)	9(8)	**0.01**

SD, Standard deviation

Before the intervention, 48 (44%) girls in urban and 38 (34.5 %) girls in rural area had good knowledge; while 28 (25%) girls in urban and 35 (31.9%) girls in rural area had poor knowledge about menstruation. Most of the study participants answered correctly about the age of menarche/menopause, normal duration of menstrual cycle, menstruation necessary for fertility and types of sanitary products. However, after the educational program, there was a significant increase in the knowledge of girls in both urban (p value = 0.03) and rural area (p value= 0.01). The number of participants with good knowledge increased to 65 (59%) and 59 (54%)in urban and rural area respectively. After the interventional program, the number of girls with good menstrual hygiene practices increased from 26 to 83 (24% vs 75.5%) in urban and from 24 to 47 (21.8 % vs 42.7%) in rural area, and this increase was found to be significant (p value <0.01) in both areas. It was reported that practices regarding frequency of change of absorbent, disposal/ reuse of absorbent and cleansing of genital area had significantly improved after the interventional program. [Table 2]

Table 2. Impact of menstrual health educational program on participants' knowledge and practices

Variables	Urban (n=110)			Rural (n=110)		
Knowledge	**Baseline n (%)**	**Follow up n (%)**	**p value**	**Baseline n (%)**	**Follow up n (%)**	**p value**
Poor (0-3)	28 (25)	10 (9)	**0.03**	35 (31.9)	20 (18)	**0.01**
Fair (4-7)	34 (31)	35 (32)		37 (33.6)	31 (28)	
Good (8-10)	48 (44)	65 (59)		38 (34.5)	59 (54)	
Practice						
Poor (0-3)	18 (16)	5 (4.5)	**<0.001**	22 (20)	12 (11)	**0.002**
Fair (4-7)	66 (60)	22 (20)		64 (58.2)	51 (46.3)	
Good (8-10)	26 (24)	83 (75.5)		24 (21.8)	47 (42.7)	

At the follow up, the number of participants with perception of considering menstruation dirty, decreased significantly, from 69 to 23 (62.7% vs 21%) in urban and from 71 to 26 (64.5% vs 23.6%) in rural area. Also there was significant increase in the number of girls agreeing to go for consultation regarding their menstrual problems from 70 to 80 (63.6% vs 77%) in urban and from 68 to 80 (61.8% vs 72.7%) in rural

area. However there were no significant differences regarding restrictions on visit to relative's/friend's house or holy place, playing and involving in household activities. In urban area, the participants reported significant decrease in restrictions about attending school during menses (18.2% vs 9%), but the difference was not significant in rural area.

Table 3. Impact of menstrual health educational program on participants' perceptions and restrictions during periods.

Variables	Urban (n=110)			Rural (n=110)		
Perceptions and restrictions	**Baseline n(%)**	**Follow up n (%)**	**p value**	**Baseline n (%)**	**Follow up n (%)**	**p value**
Periods are dirty						
Yes	69(62.7)	23(21)	**<0.01**	71(64.5)	26(23.6)	**<0.01**
No	41(37.3)	87(79)		40(35.5)	84(76.4)	
Consultation about menses related problems						
Yes	70(63.6)	85(77)	**0.027**	68(61.8)	80(72.7)	**0.03**
No	40(36.4)	25(23)		42(38.2)	30(27.3)	
Visit to relatives'/friends' house						
Yes	52(47.2)	55(50)		49(44.5)	50(45.5)	
No	58(52.8)	55(50)	0.69	61(55.5)	60(54.5)	0.89
Household work						
Yes	89(81)	93(84.5)		83(75.5)	85(77.2)	
No	21(19)	17(15.5)	0.47	27(24.5)	25(22.8)	0.75
Visit to holy places						
Yes	2(2)	3(3)		1(1)	2(2)	
No	108(98)	107(97)	0.65	109(99)	108(98)	0.56
Play during menses						
Yes	51(46.4)	60(54.5)		48(43.6)	56(51)	
No	59(53.6)	50(45.5)	0.22	62(56.4)	54(49)	0.27
Attend school						
Yes	90(81.8)	100(91)	**0.048**	89(81)	98(89.1)	
No	20(18.2)	10(9)		21(19)	12(10.9)	0.08

DISCUSSION:

This study was conducted among school going adolescent girls of urban and rural area, and it was found that baseline knowledge about menstruation before the interventional program was low in both areas. The significant increase in the knowledge about menstruation of urban (44% vs 59%) and rural girls (34.5% vs 54%) was demonstrated in the study after the intervention. This finding is similar to the results reported by Haque S E et al in Bangladesh and El Gilany et al A H in Egypt.[6,10] However the increase in knowledge in our study is less as compared to the one reported by Haque S E et al. This could be due to differences in characteristics of study participants in two different countries. Moreover our study was done in the state of India where the parameters of female empowerment and education are worse than rest of the country.[3] Regarding the menstrual hygiene practices, in our study more than half of the study participants in both urban (53%) and rural (51.3%) area used sanitary pads, followed by combined use of pad and cloth. But apart from the type of absorbent used, the other hygiene practices such as frequency of change of absorbent, washing and drying of cloth, cleansing of genital area were found to be poor among most of the participants before the educational program and significantly improved at follow up (p value <0.01 in both urban and rural area). Our results are comparable to the interventional study done in Bangladesh, in which good practices significantly increased after the school based educational program (28.8% vs 88.9%). [6] The percentage increase in good practices in our study is not as much as reported by Haque S E et al, which could be due to the change in socio demographic characteristics of the participants.

Our study revealed that in pre- intervention phase, more than half of participants (62.7% in urban and 64.5% in rural) believed that periods are dirty; 36.4% girls in urban and 38% in rural area did not consult anyone about menses problems; about half of participants (52.8% in urban and 54.5% in rural) reported that they did not visit relative's/friend's house; 19% in urban and 24.5% in rural area had restrictions about household work; about half of the girls (53.6% in urban and 54% in rural) reported that they did not play during menses; 18% in urban and 19% in rural schools did not attend schools; and almost all (98% in urban and 99% in rural) had restrictions about visiting holy place during menses. This finding is similar to the results of meta analysis done by Ejik AM et al, which reported similar restrictions followed by Indian girls during menstruation. [11] Our study demonstrated significant improvements in restrictions such as consultation about menses related problems (in both urban and rural) and attending school during menses (in urban area). However no significant improvements were reported in other restrictions. This is probably due to the reason that these girls are brought up in the family environments, where cultural taboos and restrictions are very common and they have to perceive them as a normal phenomenon; and such socio cultural beliefs are more widespread in rural India. The another reason for restrictions to attend during menses in rural area could be due to lack of proper sanitary and disposal facilities in schools. This finding has been reported in Indian studies done by Vashisht A and Sivakami M et al, who evaluated menstruation as one of the factors associated with school absenteeism. [12,13]

CONCLUSION:

A lack of adequate information and guidance on menstrual management leaves school girls with limited options for healthy personal hygiene during monthly periods. The situation is slightly better in urban area as compared to rural area, but the findings in this study demonstrated that interventions are required in both areas. The results indicated the feasibility of implementing a health education program on menstrual hygiene in high schools (upto 10th class) for the girls in early adolescent period. The program led to significant positive changes in knowledge, menstrual hygiene practices, perceptions and restrictions on menstruating girls. This study emphasize that we need to include the information about menstrual hygiene management in the school curriculum. However for sustained behavior change regarding restrictions further research is needed. This study highlights the need to study the factors associated with restrictions on girls during menstruation and which might be addressed if the intervention involves the stakeholders such as family members, teachers and peers.

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