Original Research Article

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A study to assess the knowledge regarding practices of menstrual hygiene and RTI among high and higher secondary school girls: an educational interventional study

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ABSTRACT

Background: Menstruation still a taboo subject to whisper and so, more difficult to discuss the hygiene, practices, perception and myth associated with it. The very ancient socio -cultural restrictions still play a major role in plenty of reproductive tract infections left undiagnosed. Thus resulting in the potential loss of economy in terms of GDP, medical costs, and status of health. The objectives of the study were to assess the awareness, source of information and problems regarding menstrual hygiene at pre-questionnaire stage and to compare the assessment of awareness at post questionnaire stage after educational intervention provided among the study group; to find out the mean age of menarche among the study group; to find out the knowledge regarding symptoms of reproductive tract infections among the study group; to inculcate safe hygienic practices during menstruation so as to percolate the same during reproductive episodes e.g. termination of pregnancy or uterine bleeding etc.

Methods: Convenient sampling with Semi-structured questionnaire method. A girls' government school chosen for the study with 197 girls including class standard 9th, 10th, 11th and 12th. After the session of pre questionnaire, all girls were included in the study who were present on the day.

Results: On statistical analysis, mean age of menarche among girls is 13.5 years. Data regarding awareness level found statistically significant after the completion of study.

Conclusions: Satisfactory improvement in hygiene level found post intervention. It could be implied on massive level in all the schools in country. In conformity with, Indian government also came up with the programme of provision of free sanitary pads in government schools.

Keywords: Menstrual hygiene, Government school, Awareness, RTI

INTRODUCTION

Adolescence transitional phase of adapting and adjusting from dependent childhood to independent adulthood, a step ahead irresponsibility. The word adolescence is derived from the Latin word "adolescere"; which means "to grow, to mature". The WHO has defined adolescence as the age period between 10 to 19 years of age for both the sexes. There are about 1.2 billion adolescents in the

world in 2009, which is equal to 1/5th of the world's population and steadily increasing in size. Out of these, 500 million adolescent's girls are living in the developing countries. India has 113 million adolescent girls—which is nearly 10% of its population.² This huge figure of girls' population, the building pillar of every nation, is facing problems on health, medical, social and ethical issues. Though adolescence of girls is usually a healthy period; innumerable risk factors of adult diseases which begin in

adolescence are preventable with timely interventions during this period, though with backbreaking challenges.

Due to impermissible and unaccepted pursuit of the topic in society the girls are constrained to whisper menstruation related information, which is not so called meant for discussion in public. The brutal event in terms of reproductive tract infection when come to light, the girl had already undergone the brutal sufferings on the part of not revealing the health problems associated with it. Surprisingly not even with family members because menstruation is generally considered as morally impure in the Indian society. Hence the girls' life is full of misconceptions, mal-practices and challenges making the life miserable. Very commonly practiced in Indian society are the restrictions on these poor girls so enriching their life with more erroneous ideas. Normal physiological event is proposed as sickness before them rather than providing accurate information and management. This wide gap of information may sometimes leads to potentially fatal ill effects, including reproductive tract and urinary tract infections, contributing to the burden of morbidity.

The notion behind the intervention is to bring about change in hygienic practices thus inculcating safe hygienic practices in the girls who, in future when land up in reproductive events like child birth, abortion, postpartum complications and many more, would be able to prevent the catastrophic outcome of infections. Considering it, a small step in the community to implicate the concept of preventive social medicine to help the girls to blossom all their life. Investing in girls translates into better futures for women, children and families, which ultimately lead to intergenerational impact.

This study is therefore conducted with the aim of assessing the prevailing knowledge about menstruation, hygienic practices, and associated consequences of menstruation related problems as reproductive tract infections.

Objective

- To assess the awareness, source of information and problems regarding menstrual hygiene at prequestionnaire stage and to compare the assessment of awareness at post questionnaire stage after educational intervention provided among the study group.
- 2) To find out the mean age of menarche among the study group.
- 3) To find out the knowledge regarding symptoms of reproductive tract infections among the study group.
- 4) To inculcate safe hygienic practices during menstruation so as to percolate the same during reproductive episodes e.g. termination of pregnancy or uterine bleeding etc.

METHODS

This was a community based educational interventional two point cross-sectional study conducted in girls' school situated in the field practice area of Gandhi Medical College, Bhopal. This study carried out in three phases, the first of which was questionnaire based assessment the second, institution of audio: visual modules among school girls and the third was again the questionnaire based assessment. An educational intervention was given in the form of short lectures imparted with audio-visual method. Keeping in mind age, behavior, and privacy of the adolescents, the contents for the lectures and audiovisual part were identified after a series of brain storming sessions among investigators, and this index list was further refined by known clinicians and public health experts. The lecture was designed in the fashion of interactive session and were rearranged into a logical structured sequence and classified under the following: (A) Basic about menstruation {myth, belief, taboos & scientific facts]. (B) Role of hygiene and adverse health effect {menstrual hygiene?? healthy practices, related diseases and complications }. (C) Health body and Healthy mind.{healthy life style}. Cartoons, images, videos using you tube and Microsoft Picture Manager (Cyber City, DLF Phase III,) were liberally used in order to convey the intended messages [Glimpse of the Audio -Visual module]. All the images and videos used in this module were in the open domains and due credits to the original sources were given below the images. Due clearance was obtained and after taking permission from the school authority, the class teachers of the four sections of class IX, X and two sections of class XI, XII were explained the purpose of the study and rapport was built up with the girl students and verbal consent was obtained from them. Briefing was done to the students regarding the questionnaire provided to them. Care was taken to ensure privacy and confidentiality. Confidentiality of information was obtained by omitting any personal identifier from the questionnaire. Students were informed that of their right to skip any time or ignore any question or withdraw from their participation at any stage but to avoid such a kind of situation, the participants were made comfortable by maintaining anonymity in the questionnaire administered to them. At the end of the study, the researcher answered all their queries satisfactorily.

Duration of study

Three month, 15.10.15-15.12.15.

Study population and sampling

One hundred and ninety seven girls from the abovementioned secondary school (class IX, X, XI, XII) were selected. Class IX, X had four sections and class XI, XII had two sections. One section covered every week. Purposive sampling method adopted.

Study tool

A semi-structured questionnaire with closed ended questions included topics relating to awareness about menstruation, source of information regarding menstruation, hygiene practiced during menstruation and restricted activities practiced during menstruation, awareness regarding symptoms of reproductive tract infections were used for data collection.

Statistical analysis

Data obtained were collated and analyzed statistically by simple proportions.

Each completed questionnaire was coded on pre-arranged coding by the principal investigator to minimize errors. Data were analyzed using excel windows 2007. The descriptive analysis including proportions, percentages, frequency distribution and measures of central tendency was done.

RESULTS

Table 1: Distribution of participants according to their age group.

Age group of girls	No. of girls	%
10-14	3	1.52
14-17	142	72.08
17-19	52	26.39
Total	197	100

Above Table 1 depicts that majority of girls 72.08% were from the age group of 14-17 years while minimum 1.52% belongs to age span 10-14 years.

Table 2: Distribution of participants according to parents' education status.

Education status of	Parents	
parents	Fathers (%)	Mothers (%)
Illiterate	51 (25.88)	105 (53.29)
Primary education	45 (22.84)	60 (30.45)
High school and College	101 (51.26)	32 (16.24)
Total	197 (100)	197 (100)

Above Table 2 shows that more than half of fathers of girls were educated up to high school or graduation and more than half of mothers were illiterate.

Table 3 shows that 77.7% girls obtained the information or knowledge regarding menstrual hygiene from their mothers. Although, it's not so good to know that this bigger percentage of girls had not been imparted accurate knowledge for menstrual hygiene.

Table 3: Source of information for menstrual hygiene (n=197).

Prime source of information	N	%
Mother	152	77.7
Friends	23	11.6
Teachers	5	2.53
Doctors	4	2.03
Others	13	6.59
Total	197	100

Table 4: Hygiene assessment of girls (n=197).

Observed parameters	Pre intervention n (%)	Post intervention n (%)	P value
Bath daily	81 (41.11%)	197	0.001(s)
Washing of genitalia with water only	31 (15.73%)	197	0.001 (s)
Washing of genitalia with water & soap	156 (79.18%)	2 (1.01%)	0.001 (s)
Unsatisfactory cleaning of genitalia 0-1 per day	118 (59.89%)	46 (23.35%)	0.00008 (s)

When the girls were assessed for their daily schedule for hygiene. Only 81 (41.11%) girls were taking bath daily. Only 31 (15.73%) girls, were washing genitalia with plain water. However, it was afterwards improved to 100%. We were fortunate enough in our efforts to reduce the figures of unsatisfactory cleaning of genitalia from 59.89% to 23.35%. And drop down inappropriate method of washing of genitalia from 79.18% to 1.01%. However, we were not able to bring it to zero.

Table 5 shows that usage of sanitary pads increased from 58.3% to 69.5%. Usage of cloth decreased from 26.39% to 14.72%. As socioeconomic status is a big practical problem which does not allow them a great affordability so we stressed on hygienic methods despite of usage of either cloth or pads. Drastic improvement in this study is that we are successful in bringing the reuse of clothes to nil. Number of girls using pads more than three increased from 40.10% to 94.41%. We achieved success in bringing proper disposal of pads to 100%. Even after the intervention, girls were not confident enough to buy sanitary pads from shop, mild increase from 17.25% to 26.90% only. 23.35% girls admitted that they remain absent in school due to socio - cultural belief imposed from the home for being not out of the house. Absenteeism of girls decreased from 23.35% to 10.65%. 17.25% girls believed that they should use cloth and not pads as they associate it with old tradition of their culture.

Table 6 shows that girls having knowledge of menstruation before menarche is extremely poor just 3%.

Only 44.67% girls were aware that secondary sexual characters and menstruation are part of physiological development. 23.35% girls know that uterus is the source of bleeding. While 28.98% girls were unaware regarding facts of menstruation.

Table 7 shows that Knowledge regarding nutritional awareness was very much poor although 130 girls agreed on the point of nutrition management. 22 girls believe that it is a disease or curse. 77.15% girls, very big

proportion, do not engage in physical activity during these days. Restrictions imposed on 44.16% girls.

Table 8 shows that 32.99% girls agreed that there is lack of privacy for changing pads in school. 29.94% convinced for no space of disposal of sanitary pads in school. 33.5% girls said that they have closed washrooms at home. While 75.6% girls told that there are closed washrooms at school.

Table 5: Behavioral habits during menstruation.

Observations	Pre intervention (n=197) (%)	Post intervention (n=197) (%)	P value
Usage of sanitary pads	115 (58.3)	137 (69.5)	0.02 (s)
Usage of cloth	52 (26.39)	29 (14.72)	0.004(s)
Usage of cloth and sanitary pads	6 (3.0)	36 (18.27)	0.000001(s)
Reuse of cloth /pads	4 (2.03)	0 (0)	0.045(s)
More than 3 pads/cloth per day	79 (40.10)	186 (94.41)	0.0001(s)
Proper disposal of used cloth /pads	121 (61.42)	197 (100)	0.0001(s)
Girls buying sanitary pads from shop	34 (17.25)	53 (26.90)	0.0210(s)
Socio-cultural belief for being absent in school	46 (23.35)	21 (10.65)	0.000801(s)

Table 6: Distribution of participants according to knowledge of menstruation.

Knowledge about menstruation	No.	%
Aware of menstruation facts	6	3.00
Part of physiological development	88	44.67
Uterine bleeding	46	23.35
Do not know	57	28.98
Total	197	100

Table 7: Distribution of participants according to myths related with menstruation.

Menstruation associated myths	No.	%
Agreed for nutrition	130	65.98
Disease /curse	22	11.16
No physical activity	152	77.15
Restrictions imposed	87	44.16

Table 8: Distribution of participants according to conditions affecting habit of changing pads.

Conditions responsible	No.	0/0
Lack of privacy	65	32.99
Lack of space for disposal	59	29.94
Closed washrooms at home	66	33.50
Other causes	149	75.60

Table 9: Awareness regarding symptoms of Reproductive tract infections.

RTI Symptoms	Pre –intervention	%
Itching	36	18.27
Rashes in perineum	86	43.65
Burning micturition	94	47.7
Pain in abdomen	11	5.5
Vaginal discharge with foul smell	112	56.85
Fever	23	11.67

Table 9 shows that in the present study, girls were assessed for the information of symptoms for reproductive tract infections. Girls were most aware of vaginal discharge for RTI i.e. 112 (56.85%). Only 5.5% girls could relate abdominal pain as symptom of reproductive tract infections. And the fact need to comprehend behind the scene is that approximately 95% girls would not be reporting this complaint to any of the medical personnel or doctor as they themselves not identifying it as a symptom of reproductive tract infection.

Table 10: Distribution of participants according to reason for absenteeism.

Reasons for absenteeism	No.	%
Feel shame to come	22	11.16
Fear of spotting	58	29.44
Shortage of water in school	24	12.18
Pain & discomfort	25	12.69
No privacy in the school	22	11.16

Above Table 10 shows that 23.3% girls believe in privileged thought of not being out of the home. 11.16% of girls cannot come to school as they feel shame in coming to school during those days. 29.44% of girls were not able to attend the school due to fear of spotting. 12.18% were not coming to school due to shortage of water in the school. 12.69% were not coming due to pain and discomfort during the days of menstruation. 11.16% feel that there is no privacy in the school despite of the fact that it was a girls school. Again it remarks the taboo nature of menstruation they are not comfortable for changing the pads even in feminine atmosphere.

Table 11: Reason for not using sanitary pads.

Reasons	No.	%
Not know use of sanitary pads	53	26.66
Not afford sanitary pads	120	61.15
Not easily available in locality	16	8.19
Others reasons	85	43.04

Above Table 11 shows that 26% girls do not know how to use the sanitary pads. 61% were not able to afford the sanitary pads on regular basis due to the socioeconomic conditions in family although we had not taken the monthly earnings of their family in account as most of the girls do not know the salary or monthly wages earned by their parents. Howsoever, we could relate this in conformity with the girls' knowledge of their buying capacity. 8% of the girls reported that the sanitary pads are not easily available in their locality.

Below Table 12 shows that 59.39% girls were embarrassed during menarche. 29.94% felt disgust. 6.09% were in tension and stress. Unfortunately due to lack of knowledge of menarche before its commencement the number of girls comfortable with their first episode of

menstruation is extremely low. i.e only 2 Just 1.01% while 5.07% girls took it casually.

Table 12: Distribution of participants according to reaction to menarche.

Reaction to menarche	No.	%
Embarrassed	117	59.39
Felt disgust	59	29.94
Stressed	12	6.09
Comfortable with it	2	1.01
Casual attitude	10	5.07

DISCUSSION

This study shows that the age of menstruating girls ranged from 10 to 19 years with maximum number of girls between 14 to 16 years of age. Similar study conducted by Dasgupta A and Sarkar M et al, Asha Shitole et al in Pune Maharashtra, Teketo et al in North east Ethiopia, Jogdand et al in dehradun reported that the age of menstruating girls ranged from 10 to 15 years, 10-19 years, 10-19 years, 10-19 years respectively. 3-6 In the present study, the mean age of menarche of the respondents was 13.5 years, whereas in a study conducted in Rajasthan by Khanna et al, Teketo et al, Shitole et al, Omidvar et al, Gupta et al, the mean age at menarche was found to be 13.2 years, 13.98 years, 13.4 years, 13.4 years, 12.8 years respectively. 3-5,7,8

In our study, only 3% girls were aware about menstruation before menarche. But, each and every girl child should be aware about menstruation, which is an important event at the threshold of adolescence and ideally a mother should be the main informant at this tender age & mother was the first informant in case of 77.7% girls. This gap of right knowledge might be due to poor literacy and socio-economic status of mothers, which have fuelled the inhibitions a mother has to talk to her daughter regarding the significance, hygienic practices and a healthy attitude towards menstruation. The latter will play a long way in maintaining a healthy reproductive tract for each and every girl child who, after she becomes a mother, percolates the healthy message to her female offspring. In a study conducted among 664 schoolgirls aged 14-18 in Mansoura, Egypt by El-Gilany et al, mass media were the main source of information about menstrual hygiene, followed by mothers. Another study conducted by Baishakhi et al reported that only 36% girls in urban areas and 54.88% girls in rural areas use homemade sanitary napkins and reused the same in subsequent period.¹⁰

It was observed in this study that 44.67% girls believed it to be a physiological process. However, studies conducted by Gupta et al, Teketo et al, Shamima et al reported that menstruation is believed to be normal physiological process by 86.25%, 57.89%, 72.8% girls respectively.^{3,5,11} It was observed in the present study that

23.35% the girls did not know about the source of menstrual bleeding and 26% of the girls were ignorant about the use of sanitary pads during menstruation. The above observations might be due to poor literacy level of mothers or absence of proper health education programmes in school, which should focus on menstrual hygiene among girls.

This study shows that majority of the girls 58.3% preferred sanitary pads rather than clothes as menstrual absorbent but not on regular basis. Here, affordability is a big factor. Privacy for washing, changing or cleaning purpose is something very important for proper menstrual hygiene, but in this study, lack of privacy was an important problem since more than half of the respondents did not possess a covered toilet. Regarding the method of disposal of the used material, fortunately only the girls (2.03%) reused cloth pieces and 61.5% girls properly disposed the used material. In a similar study conducted among 664 schoolgirls aged 14-18 years in Mansoura, Egypt by El-Gilany et al the different aspects of personal hygiene were generally found to be poor, such as not changing pads regularly or at night, and not bathing during menstruation with lack of privacy being an important problem.9 Different restrictions were practiced by most of the girls in the present study, possibly due to their ignorance and false perceptions regarding menstruation. However, very limited studies discussed on the point of unsatisfactory frequency of changing pads/clothes which was 59.8% in our study compared to the studies conducted by Shitole et al and Teketo et al 15% and 78% respectively.^{4,5}

In our study most common symptom of reproductive tract infection known to girls is vaginal discharge. We do focus on the hygienic method of cleaning of genitalia and universal method of hand washing.

In another similar study conducted by Teketo et al usage of sanitary pads was 35.38% and reuse of absorbent material was 45.95%.⁵ The use of rags and old clothes is a rule rather than exception in rural areas of India. Unclean rags and old clothes increase the chances of RTIs including urinary, vaginal, and perineal infection. However, this kind of practice of rags not encountered in our study but reuse of clothes was 2.03%.In our study proper cleaning of genitalia followed by 31% while this figure was 38% in study conducted by Teketo et al.⁵

Mean age of menarche of 197 participants was 13.5 years $\pm 1.2\,$ SD. Majority of them (77.7%) got knowledge regarding menstrual hygiene from their mothers. Among the participants 115 (58.3%) used sanitary pads preintervention which has been increased to 69.5% post-intervention found significant at p<0.05.

Frequency of usage of cloth/pads as per WHO standards increased from 40.10% to 94.41% found significant at p<0.05.

Proper disposal of used cloth /sanitary napkins increased from 61.42% to 100% found significant at p < 0.05.

Girls bathing daily during menstruation increased from 41.11% to 100% found significant at p<0.05 The significant difference was calculated by using students 't' test with a value of 2.98. The knowledge of the respondents increased after the educational intervention and the difference was found to be significant which is relevant to the self-reported practices and the influence of educational intervention. From the study findings, it is concluded that there was a significant difference between the preintervention and post intervention knowledge scores on menstrual hygiene. Menstrual hygiene improved after educational intervention in terms of usage of sanitary pads increased from 58% to 69%. Satisfactory use of sanitary pads/ cloth increased from 40% to 94%.Proper disposal reached from 61% 100%. Awareness regarding RTI symptoms increased.

CONCLUSION

Menstrual hygiene is not commonly spoken, either between same genders or between opposite gender. The subject is taboo in many cultures and shrouded in myths and traditions. As a result, integrating menstrual hygiene into development programmes requires a systematic approach including television programmes, health personnel support and compulsory sex education in schools. There is a cyclical causal relationship between the neglect of menstrual hygiene and low level of awareness amongst communities, practitioners, and policymakers, which needs to be broken. One more important aspect which has been underestimated is the poor knowledge of mothers -the main source for menstrual hygiene whether right / wrong for these girls. Mothers need to be educated regarding menstrual hygiene despite of their educational status. It seems that we still lack our original target. After educational intervention girls were more aware of the fact that menstruation is purely a physiological phenomenon and the practices followed by them are not up to the mark. The girls need to be aware of the real physiological facts of menstruation and the use of sanitary absorbent along with its right usage of disposal. We see these girls as the upcoming withhold for bringing the change in society.

Limitation of study

- Only small sample of population could be selected for intervention, because of resources and work force constraints
- 2) Due to its cross sectional nature of the study it is difficult to establish a causal relationship between dependent variables and predicting variables.
- Few important factors associated with health like nutrition, supplementation of iron folic acids tablets and worm infestation etc were not included in the study.

4) As the sampling method was purposive sampling, confidence interval cannot be calculated thus limits the scope of the study.

Recommendation

In a country like India universalisation of sanitary pads could not be possible on a satisfactory scale even by reducing the cost of sanitary pads, despite we need to aim at the hygiene related issues of it. The very best step is to put effort in educating girls in schools in a friendly and secured atmosphere.

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