

Knowledge, Attitude and Practices of Menstrual Hygiene among School Going Girls in Rural and Urban Schools in Dehradun: A Comparative Study

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Abstract: ***Introduction:** Menstruation is a natural biological process experienced by all adolescent girls and women; still it is associated with social taboos and embarrassment. The concept of menstrual hygiene is inadequately acknowledged and there is a wide gap in the knowledge about menstruation among adolescent girls. There is also significant disparity in the services provided to girls in urban and rural setup and can have severe effects on the education of the girl child. Effective menstrual hygiene is vital to health, well-being, dignity, and productivity of girls. Menstrual hygiene and management will directly contribute to the Sustainable Development Goals, SDG - 3 on good health and well-being, SDG - 4 on quality education and SDG - 5 on gender equality. **Objectives:** 1) To assess the knowledge regarding menstrual hygiene and estimating the gap between the knowledge of menstrual hygiene among school going girls in rural and urban schools. 2) To identify the factors influencing the hygiene behaviour among menstruating school girls. 3) To map out the various hygiene practices followed during menstruation. **Materials and method:** A school based cross sectional study was conducted among 505 school girls urban and rural areas (Government and Private schools) in Dehradun, Uttarakhand. A semi-structured, pretested close and open-ended questionnaire was prepared in both Hindi and English language to obtain maximum results. Data Entry was done in MS excel and used SPSS software for statistical analysis. **Result:** The mean age at menarche was found to be 12.95 ± 1.730 years. Mothers were the first informants for only 57.82% of the girls. Inadequate knowledge was obtained on the physiology of menstruation especially in rural areas. 62.26% girls in rural areas faced restrictions in rural areas in comparison to 42.18% girls in urban areas during menstruation. 17% of the participants in rural areas still used old cloth/rag during menstruation in rural areas. Practice of menstrual hygiene was lower in participants from rural areas than those in urban areas. **Conclusion:** A variety of factors are known to affect menstrual behaviours, the most significant being economic status and residential status (urban and rural). The study reveals the adolescent girls are ignorant about scientific perception of menstruation and menstrual hygiene practices. This study is able to identify the lack of knowledge and hygiene facilities which can be improved in bringing them out of misconceptions and restrictions regarding menstruation and promote menstrual health and hygiene and increase the education among girls.*

Keywords: Adolescent girls, Menstrual hygiene, Practices, School sanitation, Restrictions

1. Background

Adolescence in girls has been recognized as a special period which signifies transition from girlhood to womanhood. This transitional period is marked with the onset of Menarche, an important milestone.^[1] Adolescent girls constitute a vulnerable group, particularly in India where female child is still sometimes considered inferior to a boy child. Isolation of the menstruating girls and restrictions being imposed on them in the family, have created a negative attitude towards menstruation.^[2] The most noticeable being the restricted control, which many girls have over their own daily activities and behaviour due to their 'impurity' during menstruation. Lack of adequate knowledge has led to the evolution of myths, misconceptions, superstitions and cultural or religious taboos concerning menstrual blood and menstrual hygiene. Menstruation carries with itself the tag of 'impure' or 'dirty' in Indian society.

The manner in which a girl learns about menstruation and its associated changes may have an impact on her response to the event of menarche. Numerous studies, particularly

from low-income countries, show that a very high number of girls start menstruating without having any idea what is happening to them or why.^[3, 4] Since parents can find it difficult to speak of sensitive and sexual issues with their children, even while admitting it is also their responsibility.^[3, 4] Menstruating girls are also hesitant in discussing this topic with their parents and neglect to seek help regarding their menstrual problems. Social prohibitions and the negative attitude of parents in discussing the related issues openly, have blocked the access of adolescent girls to the right kind of information, especially in the rural and tribal communities.^[5]

Hygiene-related practices of women during menstruation are of considerable importance, as it has a health impact in terms of increased susceptibility to reproductive tract infections (RTI)^[6], which have become a silent epidemic that devastates women's lives is closely related to poor menstrual hygiene.^[7,8]

Menstrual hygiene is also likely to be affected by contextual factors, such as access to places where girls can manage menstruation-related washing in privacy and

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comfort. These factors are influenced by having access to water, hygiene and sanitation facilities at school or household^[9,10]. According to India's 2011 census, 89 percent of the nation's rural population lives in households that lack toilets. This absence of proper sanitation presents public health challenges and affects Indian women disproportionately. The grave lack of facilities and appropriate sanitary products has also affected their education, sometimes driving them out of school permanently. Effective menstrual hygiene is vital to health, well-being, dignity, empowerment, mobility and productivity of women and girls.^[11]

The menstrual hygiene in India, which is bleeding, needs to stop now. Menstrual hygiene is a priority intervention under RMNCH +A strategy.^[6] fulfillment of which can also contribute in attainment of SDG 3-5.

Therefore, this study is aimed to assess the knowledge, attitude and practice of menstrual hygiene among school girls in Dehradun, the information can be used in further programme planning.

2. Objectives

- 1) To assess the knowledge regarding menstrual hygiene and estimating the gap between the knowledge of menstrual hygiene among school going girls in rural and urban schools.
- 2) To identify the factors influencing the hygiene behaviour among menstruating school girls.
- 3) To map out the various hygiene practices followed during menstruation.

3. Materials and Method

Study Design: A school based cross sectional study was done among 505 school going girls in urban (256) and

rural areas (249), (Government and Private schools) in Dehradun city of Uttarakhand.

Consent: School going girls of Government and private schools under the urban and rural field practice area of Dehradun and who had given the consent for filling the questionnaire on menstrual health and hygiene were included in the study. Before commencing the study, all class teachers of the schools were explained about the purpose of the study and with the help of them, briefing of the objectives was done to the students and then questionnaires were filled by the study population.

Participants: 505 respondents studying in class 9th to class 12th in Government and Private schools of Dehradun were selected using simple random sampling.

Study Tool: A semi-structured and pretested close and open ended questionnaire was prepared and given to the study population. The questionnaires were constructed in both Hindi and English language to obtain maximum results.

Statistical Methods: After data collection, each questionnaire was given a unique code and entered into MS-Excel. This data was then exported to SPSS and analysis was done. Frequencies of variables were used to check for missed values and outliers. Descriptive analysis was used, among others, for the socio-demographic characterization of the respondents. Descriptive statistics (means, proportions, percentages) and appropriate statistical test were applied with 5% level of significance.

4. Results

During this study 505 girls were assessed to study about the knowledge, attitude and practices of menstrual hygiene. [Table 1] gives information about the demographic profile of the study candidates.

Table 1: Demographic details of the study participants

Age in Years	Number of Participants (N=505)	Number of Participants (in %)
12	65	12.87
13	126	24.95
14	154	30.49
15	115	22.77
≥16	45	8.91
Age at Menarche:		
9-11	88	17.43
12-14	337	66.73
≥15	80	15.84
RESIDENTIAL STATUS:		
RURAL	249	49.30
URBAN	256	50.69
MOTHER'S OCCUPATION:		
Agriculture	2	0.39
Business	24	4.75
Labour	03	0.59
Housewife	418	82.77
Service	58	11.48

It is seen that the mean age of the study subjects was 13.90 ± 1.156 years, while their age range was 12-18 years. 249 candidates (49.30%) belonged to rural residences and 256

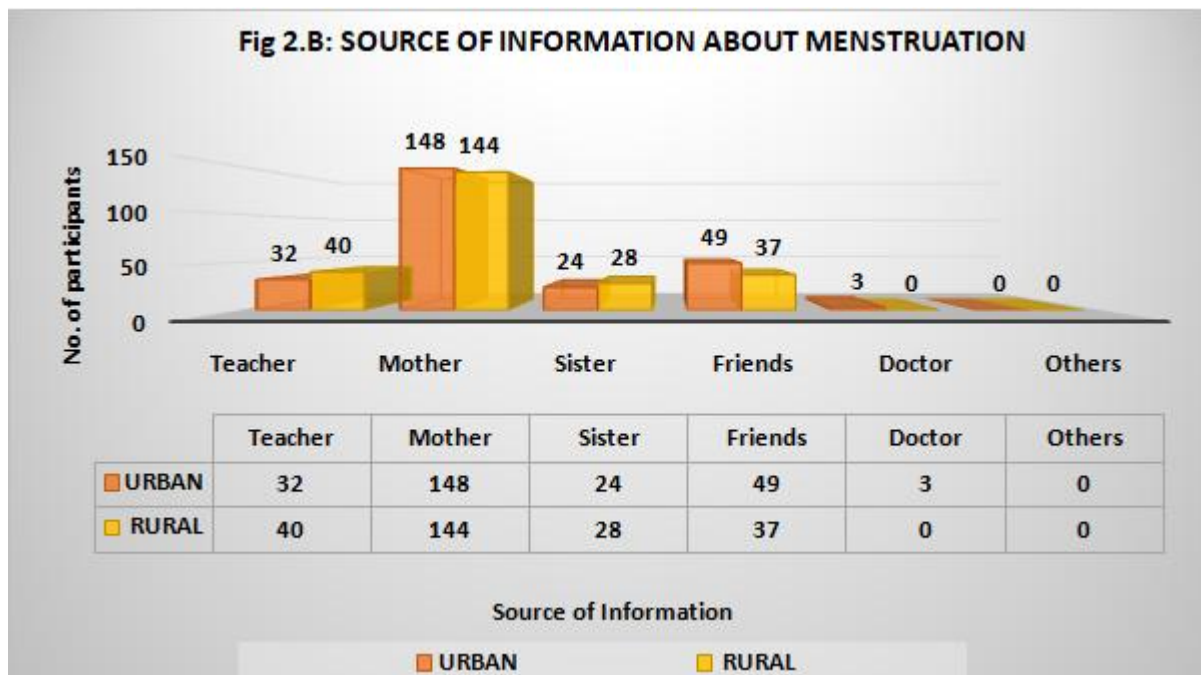
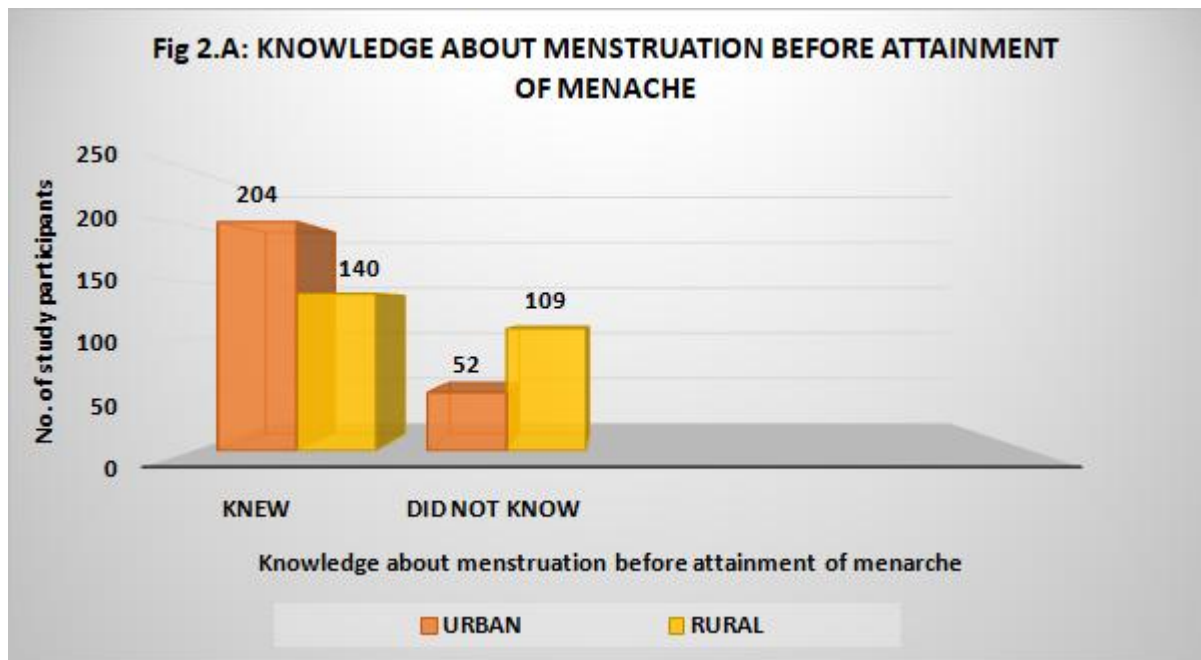
(50.69%) resided in the urban areas. The mean age at menarche calculated was calculated to be 12.95 ± 1.730 years. A majority of the mothers of the study candidates

were housewives 418 (82.77%), followed by service done by 58 mothers (11.48%).

about it in comparison to 204 (79.69%) girls of urban areas.

[Fig 2.A] throws light upon the knowledge of the study girls on the topic of menstruation before attaining menarche. Only 140 (56.22%) girls from rural area knew

[Fig 2.B] shows that in both rural and urban setup the chief source of information about menstruation was mother, friends, teacher and only 3 girls of urban setup came to know about it from a doctor.



[Table 3] shows the reaction of study candidates to their first menstruation. Among girls from urban areas 149 (58.20%) felt discomfort whereas a majority of rural girls 120 (48.19) were scared when they had their first period. In both the rural and urban setup, the reaction of family towards menarche was no specific. 242 (94.53%) girls of urban areas described menstruation as a physiological process and about 99.60% said it is caused by hormones, whereas, only 182 (73.09%) of girls from rural setup

believed it to be a physiological process. 15.66% and 7.23% girls from rural areas believed that it was due to a curse of god and due to a disease respectively. From urban areas nearly 70% girls said that uterus was the source of menstrual blood while nearly 43% girls from rural areas believed it to be from vagina. In both the areas majority of the girls reported that average duration of menstrual flow lasts for 5-7 days.

Table 3: Knowledge and attitude towards menstruation and menstrual hygiene

Category	Urban (N= 256) Number, (%)	Rural (N=249) Number, (%)	Total No of Participants (N=505) Number, (%)
REACTION TO FIRST MENSTRUATION:			
HAPPY	22 (8.59)	24 (12.64)	46 (9.11)
SCARED	56 (21.88)	120 (48.19)	176 (34.85)
DISCOMFORT	149 (58.20)	74 (29.72)	223 (44.16)
EMOTIONAL DISTURBANCE	29 (11.33)	31 (12.45)	60 (11.88)
REACTION OF FAMILY TOWARDS FIRST MENSTRUATION:			
HAPPY	26 (10.16)	18 (7.23)	44 (8.71)
SAD	1 (0.39)	5 (2.01)	6 (1.19)
CELEBRATED	5 (1.95)	17 (6.83)	22 (4.36)
HUMILIATED	1 (0.39)	4 (1.61)	5 (0.99)
NO SPECIFIC REACTION	223 (87.11)	205 (82.32)	428 (84.75)
WHAT IS MENSTRUATION:			
PHYSIOLOGICAL PROCESS (NATURAL)	242 (94.53)	182 (73.09)	424 (83.96)
PATHOLOGICAL PROCESS (ABNORMAL)	5 (1.95)	8 (3.21)	13 (2.57)
UNSURE	9 (3.51)	59 (23.69)	68 (13.47)
CAUSE OF MENSTRUATION:			
HORMONES	255 (99.60)	192 (77.10)	447 (88.51)
CURSE OF GOD	0 (0.00)	39 (15.66)	39 (7.72)
CAUSED BY A DISEASE	1 (0.39)	18 (7.23)	19 (3.76)
SOURCE OF MENSTRUAL BLOOD:			
UTERUS	174 (67.97)	65 (26.10)	239 (47.32)
VAGINA	76 (29.69)	107 (42.97)	183 (36.24)
URINARY BLADDER	4 (1.56)	60 (24.10)	64 (12.67)
ABDOMEN	2 (0.78)	17 (6.83)	19 (3.76)
DURATION OF NORMAL MENTRUAL FLOW:			
≤ 3 DAYS	68 (26.56)	91 (36.55)	159 (31.49)
5-7 DAYS	186 (72.65)	141 (56.63)	327 (64.75)
≥ 7 DAYS	2 (0.78)	17 (6.83)	19 (3.76)

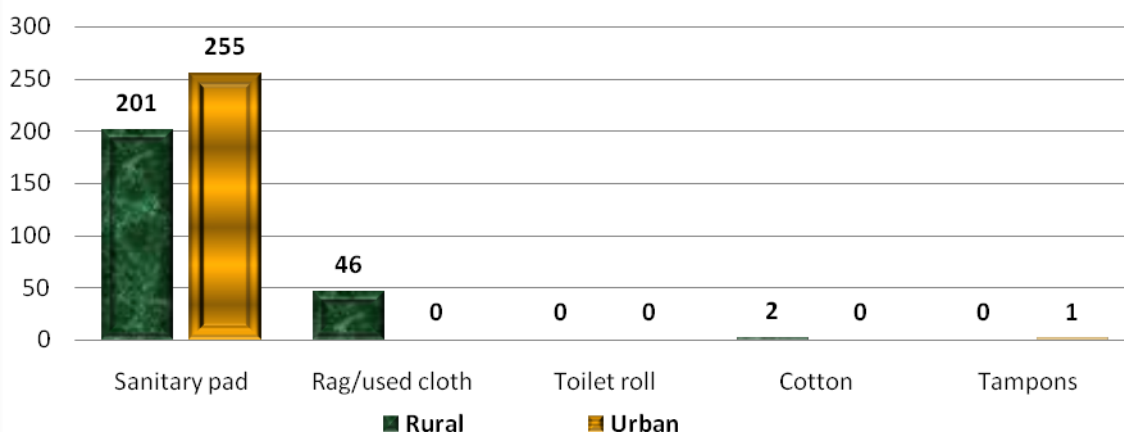
[Table 4] reveals that use of sanitary is approximately 100% in urban areas whereas only 201 girls from rural areas used it. The use of rag/cloth during menstruation is still prevalent in rural areas and [Fig 5] graphically depicts the same. The frequency of changing sanitary material in a day was poor in both urban and rural areas with only 29.68% girls changing it three times or more in urban and 18.47% in rural areas. While no girl reported the use of same used sanitary aid again in urban area, 63 (25.30%) girls in rural areas used the same aid again. In 99.21% of the urban and in 82.32% of the rural girls, the method of

disposal of the used sanitary material was found to be dustbins. A proportionately small number 32 (12.85%) of the rural girls disposed it by throwing it in open fields. Most of the girls, 252 in urban and 241 in rural areas, wash hands after disposing the used sanitary material. 75.90% of rural girls considered that it is essential to wash genital area during menstruation and 77.91% washed it in comparison to nearly 94% of girls from urban areas. Use of vaginal wash/products was reported in 43.36% of urban girls and in only 16.06% of rural areas.

Table 4: Knowledge and practice of menstrual hygiene

Category	Urban (N= 256) Number, (%)	Rural (N=249) Number, (%)	Total (N=505) Number, (%)
TYPE OF SANITARY MATERIAL USED:*			
SANITARY PAD	255	201	456
RAG/CLOTH	0	46	46
TOILET ROLL	0	0	0
COTTON	0	2	2
TAMPON	1	0	1

Figure 5: Types of Sanitary Material Used by Girls in Urban and Rural Setup



FREQUENCY OF CHANGING SANITARY MATERIAL IN A DAY:

Frequency	Rural	Urban
ONCE	44 (17.18)	104 (41.76)
TWICE	136 (53.12)	99 (39.76)
≥ 3 TIMES	76 (29.68)	46 (18.47)

USAGE OF SAME USED SANITARY AID AGAIN:

Usage	Rural	Urban
YES	0 (0.00)	63 (25.30)
NO	256 (100.00)	186 (74.69)

METHOD OF DISPOSAL OF USED SANITARY MATERIAL:

Method	Rural	Urban
DUSTBIN	254 (99.21)	205 (82.32)
DRAINS	0 (0.00)	10 (4.02)
TOILET FLUSH	0 (0.00)	0 (0.00)
OPEN FIELDS	1 (0.39)	32 (12.85)
OTHERS (burn it, hide, etc)	1 (0.39)	2 (0.80)

WASH HANDS AFTER DISPOSING THE USED SANITARY MATERIAL:

Wash	Rural	Urban
YES	252 (98.43)	241 (96.78)
NO	4 (1.56)	8 (3.21)

IS IT ESSENTIAL TO WASH GENITAL AREA DURING MENSTRUAL:

Essential	Rural	Urban
YES	240 (93.75)	189 (75.90)
NO	16 (6.25)	60 (24.09)

DO YOU WASH YOUR GENITAL AREA DURING MENSTRUATION:

Wash	Rural	Urban
YES	239 (93.35)	194 (77.91)
NO	17 (6.64)	55 (22.09)

DO YOU USE ANY VAGINAL WASH/PRODUCT DURING MENSTRUATION:

Use	Rural	Urban
YES	111 (43.36)	40 (16.06)
NO	145 (56.64)	209 (83.93)

*Multiple responses

[Fig 5] illustrates the various types of sanitary materials used by girls during menstruation. It is seen that even the most popular material is sanitary pad, a significant portion of girls (17%) in rural areas still use rag/cloth during menstruation. However the use of cloth/rag is not seen in urban areas.

[Table 6] depicts the different types of restrictions which were practiced during menstruation. 143 (55.85%) girls from urban areas and 53% of girls from rural areas faced various types of restrictions. In both the cases the most

practiced (46.90% girls (42.66% girls from urban and 51.5% girls from rural)) restriction was to avoid prayers/going to religious places, followed by avoid celebrations and festivities in 32.71% of girls (38.47% girls from urban and 26.5% girls from rural). The practice of not going to school/outside was also seen in rural setup. Doing housework and touching certain food items were avoided by 14.34% girls (4.19% girls from urban and 9.85% girls from rural) and 11.37% girls (14.68% girls from urban and 7.57% girls from rural) respectively.

Table 6: Restrictions Practiced during Menstruation

Restriction	Urban (N= 256) Number, (%)	Rural (N= 249) Number, (%)	Total (N= 505) Number, (%)
NO RESTRICTION FACED	113 (44.15)	117 (47)	230 (43.54)
RESTRICTIONS FACED*	143 (55.85)	132 (53)	275 (56.46)
Total	256	249	505
If the participants faced restrictions during menstruation then the type of restrictions			
AVOID CELEBRATIONS AND FESTIVITIES	55 (38.47)	35 (26.5)	90 (32.71)
AVOID TOUCHING CERTAIN FOOD ITEMS	21 (14.68)	10 (7.57)	31 (11.37)
AVOID DOING HOUSEWORK	06 (4.19)	13 (9.85)	19 (14.34)
AVOID PRAYERS/GOING TO RELIGIOUS PLACES	61 (42.66)	68 (51.5)	129 (46.90)
AVOID GOING OUT/SCHOOL	0 (0.00)	06 (4.54)	06 (2.18)
Total	143	132	275
*Multiple responses			

If the participants faced restrictions during menstruation then the type of restrictions.

5. Discussion

Menstruation is an important developmental process in every girl. Lack of correct information about this process leads to poor knowledge and hygienic practices on menstruation. In our study 505 girls of rural and urban areas of Dehradun were included and it was seen that the mean age at menarche was 12.95 ± 1.730 years which is consistent with a study conducted in Rajasthan by Khanna et al^[12], where it was found to be 13.2 years. This study shows that 79.69% of urban girls had prior knowledge about menstruation before starting it, in comparison to only 56.22 % of girls in rural areas. Prior awareness regarding menarche and menstruation among girls is generally low in most of the cultures especially in rural areas. Menarche is an important event in girls and usually mothers are the main source of information about it. In this study, mothers were the first informants for only 57.82% of the girls, which is similar to the results of a study conducted by Dasgupta et al^[7]. This gap of communication may be due to the low level of literacy of the mothers in rural areas or hesitations for the mothers in talking to their daughters regarding the importance of hygienic practices and a healthy attitude towards menstruation. It was observed in this study, that 83.96% of the girls believed menstruation to be physiological process correlating to another study^[7]. Most of the girls (88.51%) knew the cause of the menstrual bleeding to be hormones. Only 47.32% of the study girls stated that menstrual bleeding came from the uterus and the rest were wrong about it. A small portion of girls from rural areas were ignorant about the use of sanitary pads during menstruation. This may be due to lack of proper health education regarding menstruation in the school as well as poverty.

It was also observed in our study that 44.16% of the respondents felt discomfort followed by 34.85% who were scared and 11.88% who experienced emotional disturbance and only 9.11% felt happy. Various restrictions during menstruation were more among the rural girls as compared to the urban girls. This difference may be due to the lack of scientific knowledge in the rural areas and due to the association of more stigmas with

menstruation in the rural areas as compared to the urban areas.

56.46% of the respondents (55.85% in urban areas and 53% in rural areas) experienced restrictions during menstruation whereas 43.54% did not experience it in our study whereas according to the study by Dipali Nemade^[13], 100% of girls are facing discrimination during menstruation. The hygiene related practices of women during menstruation are of considerable importance, as they affect their health by increasing their vulnerability to infections, especially of genital tract. The type of sanitary material used is of importance, as reuse of the material could be a source of infection if not handled properly. Even though our study revealed that most of girls used disposable sanitary pads during periods, a significant portion of girls in rural areas (17%) still used old cloth/rag during menstruation while no girl in urban area did the same. Improper washing and handling of these rags/cloth can potentially endanger the reproductive health of the user. 82.32% or rural school going girls disposed the used sanitary aid in dustbins in comparison to 99.21% of urban school going girls. Nearly 13% of the girls from rural areas disposed it in open fields, further increasing the chances of spread of infections and contamination.

In comparison to urban area, lesser number of rural girls cleaned their genitalia during menstruation. The reasons for not cleaning the external genitalia could be the lack of knowledge about menstrual hygiene and privacy. A study which was conducted by another author revealed that only 34.33% of the girls satisfactory cleaned their genitalia^[5]. The use of vaginal wash/products to maintain adequate menstrual hygiene was also very low among rural girls (16.06%). Various restrictions during menstruation were more among the rural girls as compared to the urban girls. This difference may be due to the lack of scientific knowledge in the rural areas and due to the association of more stigmas with menstruation in the rural areas as compared to the urban areas.

Even though this study reveals some important findings regarding gap in knowledge and practice of menstruation among girls of rural and urban areas, the findings of this

study are subject to some limitations, due to it being a cross sectional study and the self-reported form of obtaining information may be subject to bias.

6. Recommendations and Conclusion

The study concluded that majority of the school going girls especially of rural areas do not observe good hygiene practice during menstruation even though they have a relatively good knowledge of menstruation and menstrual hygiene. Efforts have to be put into, both by parents and teacher, to ensure that adolescent are well educated about menstruation, importance of good hygienic practice both in schools and at home. With respect to mothers, it is very important that they be provided with correct and appropriate information on reproductive health, so that they can pass on the knowledge to their children. There is also a need to address issues of restrictions which are imposed on or practiced by the adolescent school girls in the rural and urban areas. These restriction often hamper the normal development of personality of girls which may affect them later in life. Thus, an initiative must be taken to educate the girl as well as the family about the negative effects of restrictions. This can be achieved through educational television programmes, compulsory sex education in school curriculum and health education of the parents, so that there is proper psychological development regarding menstruation which in the long run will help in removing the stigmas associated with it. In the grass root level all the health providers like Asha, Aanganwadi Worker and ANM should be trained to provide correct information regarding menstruation to the rural girls. This essentially will contribute to the attainment of SDGs, particularly 3, 4 and 5.

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