



# A study on knowledge and practices regarding menstrual hygiene among rural and urban adolescent girls in Udupi Taluk, Manipal, India

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## ABSTRACT

**Background** Adolescent girls often lack knowledge regarding reproductive health including menstruation hygiene which can be due to socio-cultural barriers in which they grow up. **Objectives:** To explore the knowledge, practices and sources of information regarding menstruation and hygiene among adolescent girls in Udupi taluk, India. **Methods:** An epidemiologic study was undertaken using cross-sectional study method among 550 school-going adolescent girls aged 13-16 years. A total of 270 were from urban and 280 from the rural area. Stratified cluster sampling was adopted to select the schools and simple random sampling technique to select the participants. Data was collected using a pre-tested questionnaire and analyzed using SPSS version 15.

**Results** Around 34% participants were aware about menstruation prior to menarche, and mothers were the main source of information among both groups. Overall, 70.4% of adolescent girls were using sanitary napkins as menstrual absorbent, while 25.6% were using both cloth and sanitary napkins. Almost half of the rural participants dried the absorbent inside their homes. **Conclusions:** There is a need to equip the adolescent girls with knowledge regarding safe, hygienic practices to enable them to lead a healthy reproductive life.

**Keywords:** Adolescent girls, menarche, menstruation, hygiene, practices

## INTRODUCTION

Adolescence is a significant period in the life of a woman. Adolescent girls often lack knowledge regarding reproductive health including menstruation which can be due to socio-cultural barriers in which they grow up. These differences create various problems for the adolescent girls. The need of the hour for girls is to have the information, education and an enabling environment to cope with menstruation issues.<sup>1</sup>

The hygiene-related practices of girls in the adolescent period related to menstruation can have an effect on their health<sup>2</sup>. The event of menarche

may be associated with taboos and myths existing in our traditional society which has a negative implication for women's health, particularly their menstrual hygiene<sup>3</sup>. Studies have shown that the girls lack knowledge about menstruation and due to lack of hygiene, they are likely to suffer from RTI's<sup>4,5,6</sup>. Attitude of parents and society in discussing the related issues are barriers to the right kind of information, especially in the rural areas. Menstruation is thus construed to be a matter of embarrassment in most cultures. It was therefore decided to conduct a study to explore the level of knowledge and practices regarding menstrual hygiene among the adolescent girls of urban and

rural areas in Udupi taluk and recommend interventions to improve health among adolescent girls.

#### MATERIALS AND METHODS

An epidemiologic study was undertaken using the cross-sectional study method among 550 school-going adolescent girls in the age group of 13-16 years in Udupi Taluk, Karnataka, India. The schools were categorized into urban and rural strata. Stratified cluster sampling was adopted to obtain participants from the respective schools. Based on the average of

40 adolescent girls per school in the urban area, seven schools were chosen. Similarly, on an average of 35 adolescent girls per school, eight schools in the rural area were selected. Considering 67% knowledge regarding menstruation as reported by A Dasgupta A and Sarkar M, applying a non-response rate of 5% and a design effect of 2, the sample required in the urban area was 270 participants and 280 from the rural area selected using the simple random sampling method.

$$\frac{Z^2 \alpha p (1-p)}{d^2}$$

#### Estimating

$Z\alpha$  = value at specified confidence level (1.96),  
 $P$ = the proportion of the event in population (67% or .67)  
 $d$ = margin of error (8.5%) =  $.085 \times .67 = .05695$   
 $q = (1-p) = 1 - .67 = .33$

Applying the values in the above formula,

$$\begin{aligned} n &= (1.96)^2 \times 0.67 \times .33 / (.05695)^2 \\ n &= 0.84937776 / .0032433 \\ n &= 261.88 = 262 \end{aligned}$$

Applying a non-response rate of 5 % the sample = 13  
 $= 262 + 13 = 275$

Required sample size =  $275 \times 2$  (design effect)  
 $= 550$

Using proportional stratification method the stratum specific sample size ( $n_h$ ) is calculated by the formula:-

$$(N_h / N) \times n$$

Where,  $n_h$ : - stratum specific sample size  
 $N_h$  :- population size for stratum h.  
 $N$ : - total population size.  
 $n$ : - total sample size

Required Number of adolescent girls in Urban schools ( $N_u$ ) = $[3050/6000] \times 550$ $= 270$	Required number of adolescent girls in Rural schools ( $N_r$ ) = $[2950/6000] \times 550$ $= 280$
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**Therefore stratum specific size for urban schools is 270 and rural schools 280**

Due clearance was obtained from the institutional ethics committee. Willingness to participate in the study was obtained by written consent from the participants after explaining the objectives of the study. A pre-designed, pre-tested semi-structured questionnaire was used. Care was taken to ensure privacy and confidentiality. The participants were

made comfortable by maintaining anonymity in the questionnaire administered to them. The pre-tested questionnaire was administered under supervision of the investigator to prevent the participants from sharing responses. The semi-structured questionnaire included topics relating to knowledge regarding menstruation, source of information

regarding menstruation and hygiene practiced during menstruation. Following data collection, queries from the participants relating to menstrual and reproductive health were clarified by the investigator. Data obtained was analysed using the SPSS Version 15, and findings were reported in the form of descriptive statistics.

## RESULTS

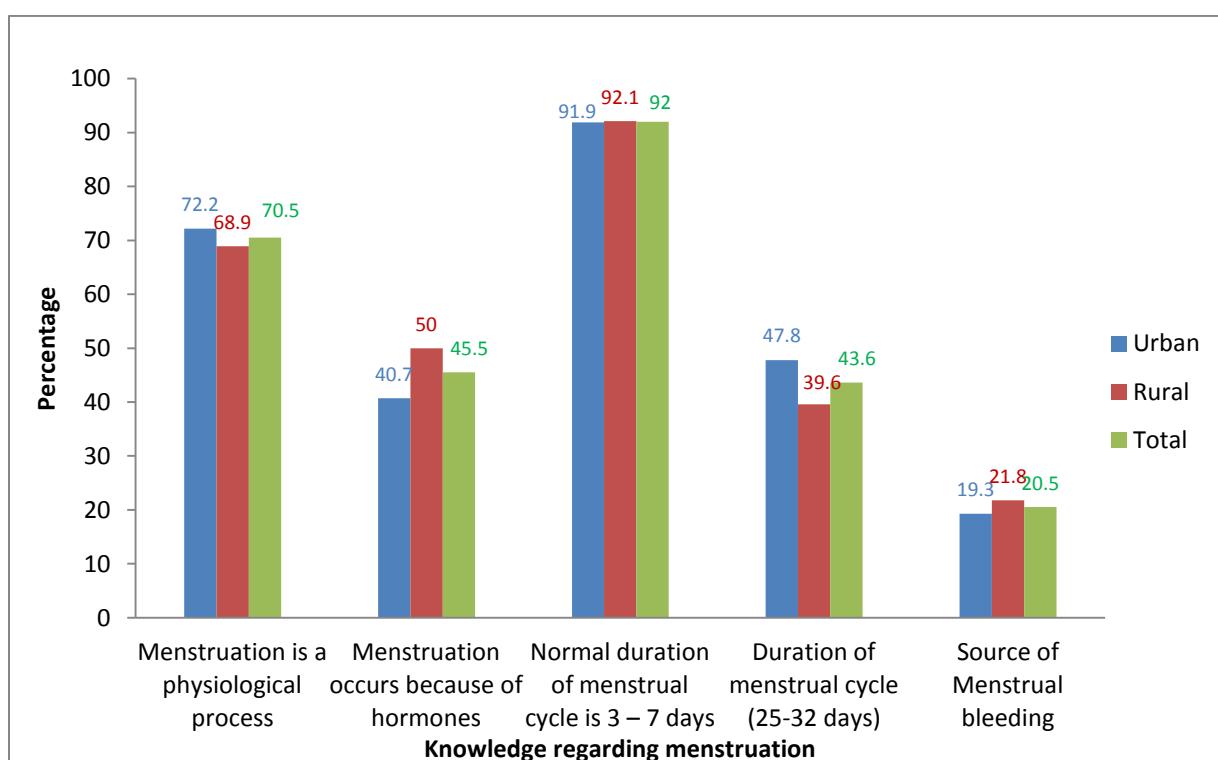
A total of 550 adolescent girls of whom 280 (50.9%) were from rural villages and 270 (49.1%) from urban areas participated in the study. The overall mean age of the participants was 13.98 with a range of 10-16 years. The mean age of the urban adolescents was 12.39 years and that of the rural adolescents was 12.31 years respectively. The family structure showed 72.2 % (n=195) in the urban and 73.6% (n=206) from rural areas lived in nuclear family. In both groups of adolescents, Hindu religion was the major religion ascribed to.

Mothers of most of the respondents were housewives in both the urban (72.6%, n=196) and in the rural (70.4%, n=197) areas followed by unskilled workers in

the urban (15.6%, n=42) and rural areas (20%, n=56). Majority of the respondents' fathers in the urban (33.7%, n=91) as well as the rural areas (34.6%, n=97) worked as unskilled labourers.

On assessing for knowledge on the process of menstruation, Table 1 shows that 72.2% (n=195) of urban and 68.9% (n=193) of rural adolescent girls knew that menstruation was a physiologic process. It was striking to note that only 19.3% (n=52) of urban girls and 21.8% (n=61) of rural girls stated they knew about the source of menstrual bleeding while 42.2% (n=114) and 31.1% (n=87) from urban and rural areas did not know.

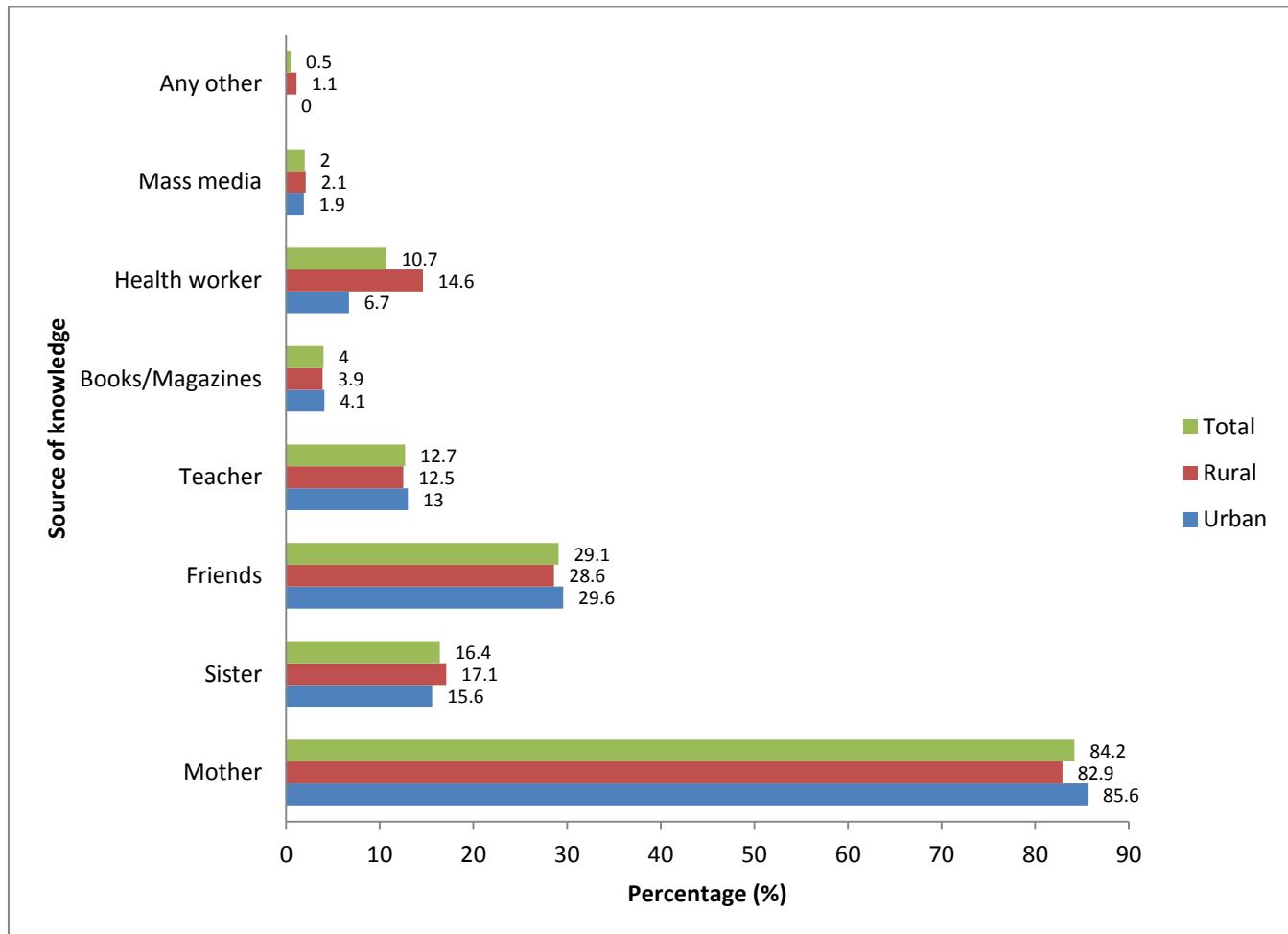
**Figure 1** shows that a larger majority of the respondents in both urban (91.9%, n=248) and rural (92.1%, n=258) were aware about the normal duration of menstrual cycle i.e. 3-7 days. Regarding the knowledge on the normal interval between menstrual cycles, 47.8% among urban (n=129) and 39.6% among rural (n=111) adolescents knew that the normal range was between 25-32 days.



**Figure 1 Knowledge regarding menstruation**

**Figure 2** shows that the main source of information after attaining menarche were the mothers among

both urban 85.6% (n=231) and 82.9% rural (n=232) groups followed by sisters and friends.



**Figure 2 Source of information regarding menstruation**

**Figure 3A** shows that even though most of them had heard about menstruation, a large majority of the participants showed varied reactions. Principal emotions associated with menstruation among urban and rural participants included fear 125 (46.3%) and 148 (52.9%), followed by a feeling of embarrassment 50 (18.5%) and 77 (43%), and anxiety in 38 (14.1%) and 44 (15.7%) respectively. There wasn't any reaction from 26.3% and 16.8% of the urban and rural adolescent girls respectively.

It is also observed (**Fig 3B**) that majority of the participants 222 (82.2%) and 195(69.6%) were

comfortable to discuss menstrual issues with mother 68 (25.2%) and 93(33.2%) followed by friends 25.2% and 33.2% and, sisters 39 (14.4%) and 31 (11.1%) and teachers 9 (3.3%) and 7 (2.5%) in the urban and rural areas respectively.

Majority of the urban 209 (77.4%) and rural 216 (77.4%) respondents expressed the need for information regarding menstrual hygiene. Mostly, urban 193 (92.3%) and rural 185 (85.6%) respondents believed the mother to be the best source of information followed by friends, sisters, teachers, magazines, media, and relative.

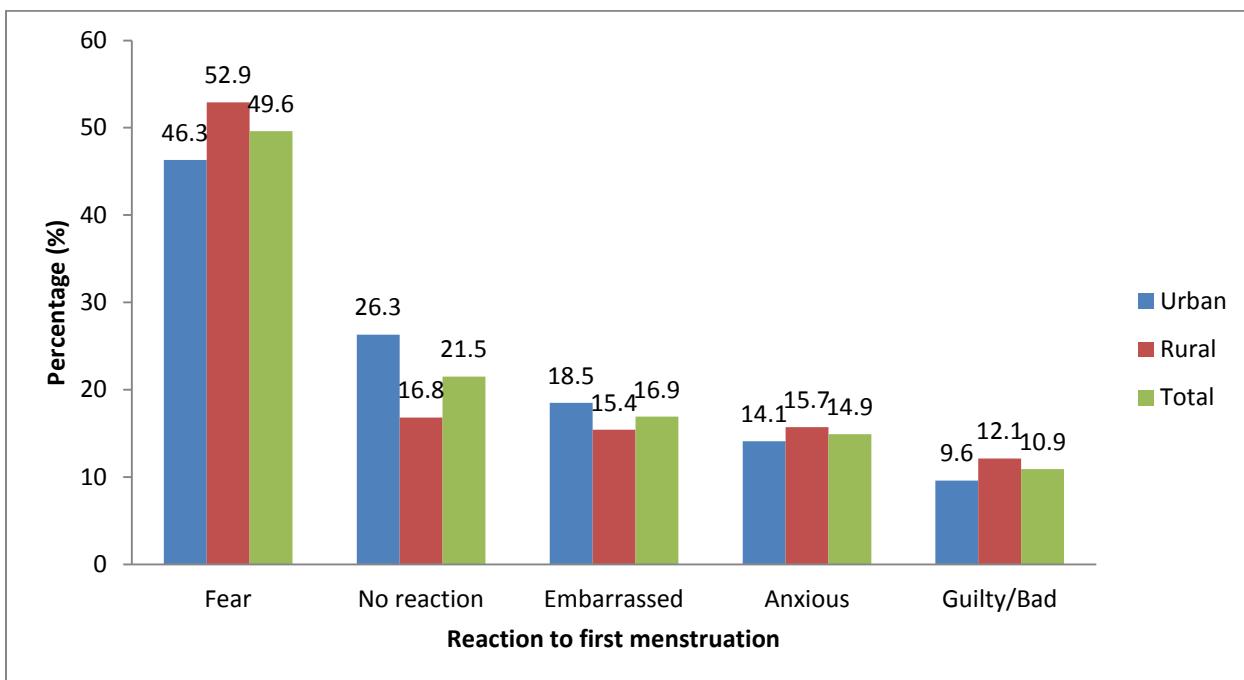


Figure 3A Reaction to menstruation

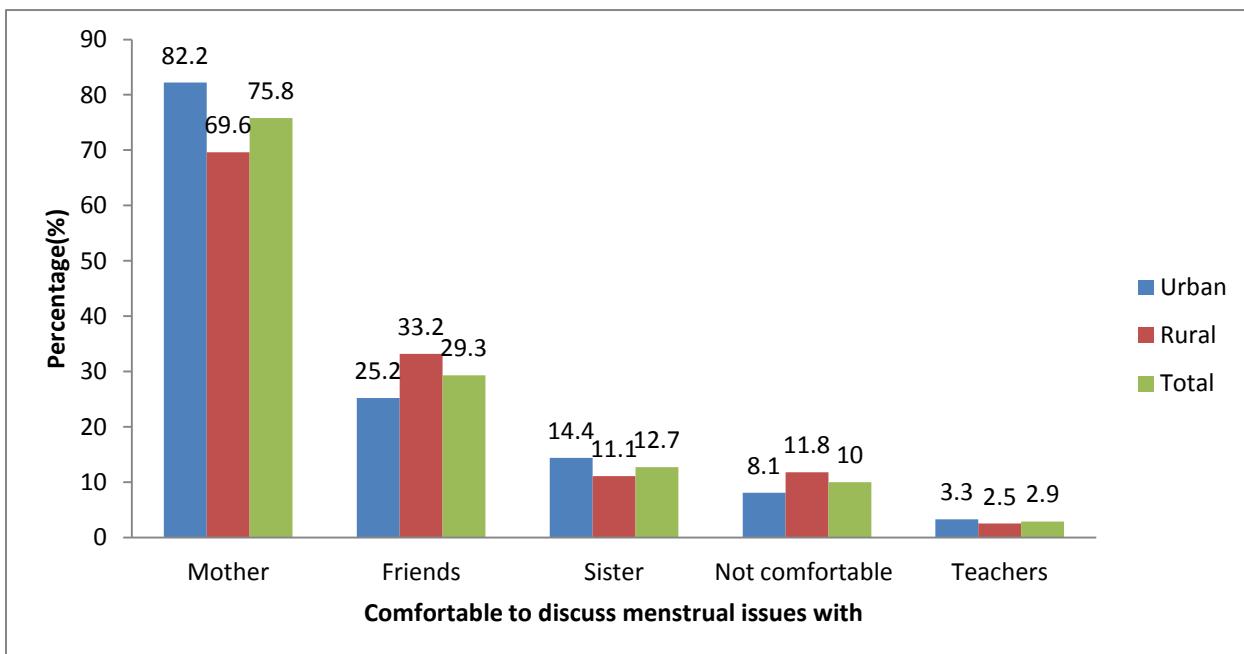
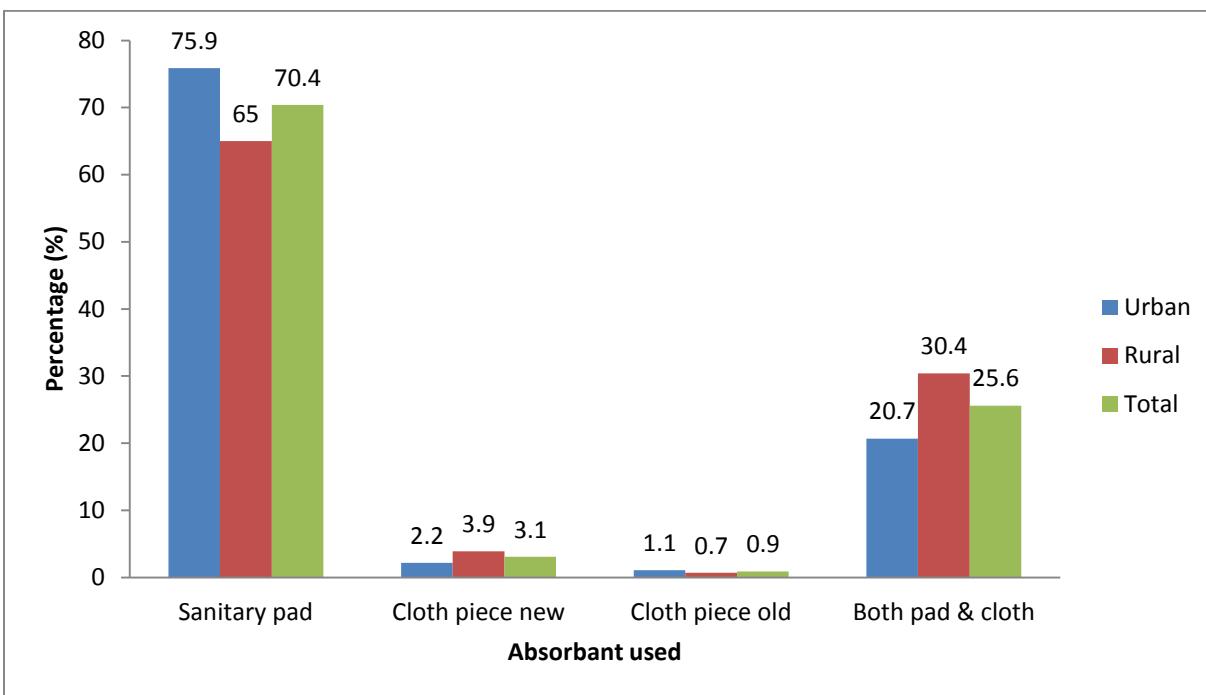


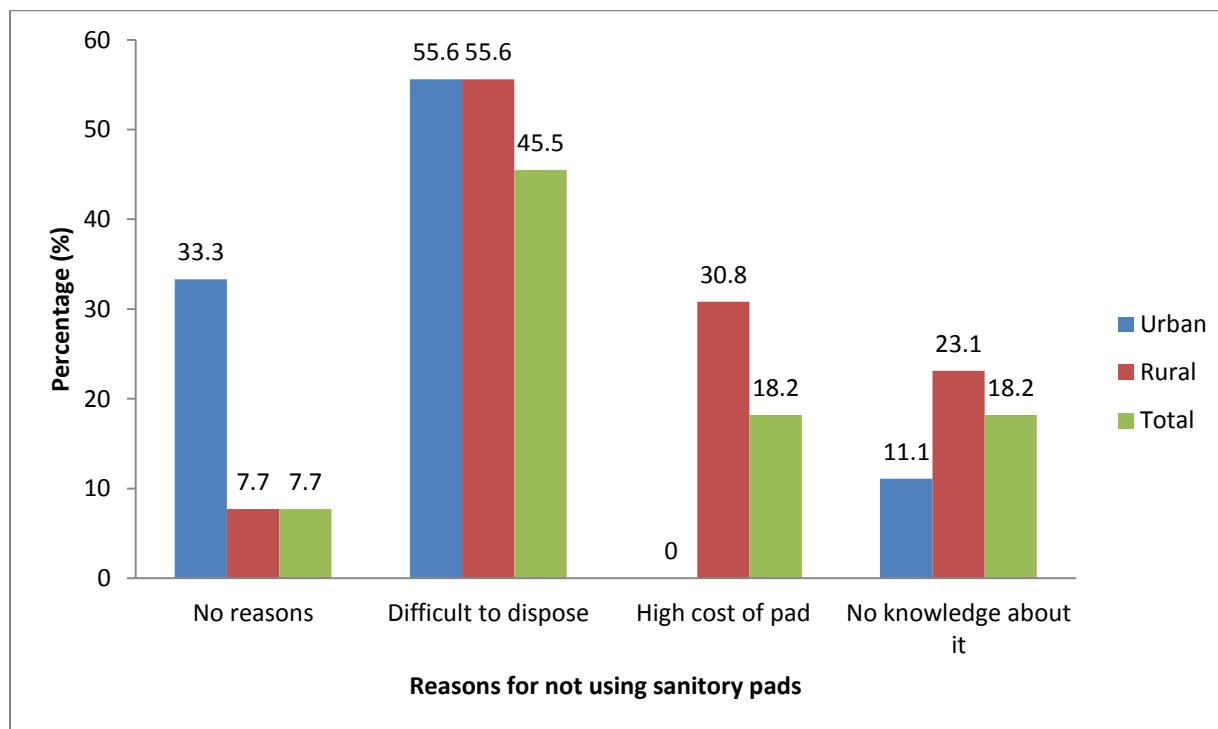
Figure 3B Comfort level of respondents to discuss menstrual issues

**Figure 4A** depicts that the majority in the urban (75.9%) and (65%) in rural area used sanitary pads

followed by the use of both pad and cloth as absorbents 20.7% and 30.4% respectively.



**Figure 4A Type of absorbents used during menstruation**



**Figure 4B Reasons for not using sanitary pads**

**Figure 4B** depicts the reasons for not using sanitary pads which include difficulty in disposing 5(55.6%) in both urban and rural areas followed by and high cost of pad in rural areas 4 (30.8%). Of all participants, 30% of urban and 44% of rural 44% adolescent girls dried the menstrual cloth used as absorbents inside their homes.

Overall the most prominent reason cited for not changing pads in schools included feeling uncomfortable among both groups (72.6%). It was observed that among the rural participants, 24.2% stated that water and disposal facilities were not available, while 6.2% also mentioned unhygienic conditions for not changing absorbents in their schools.

## DISCUSSION

The study shows that the mean age at menarche was 12.39 years ( $S.D \pm 0.908$ ) in the urban schools and 12.31 years ( $SD \pm 0.984$ ) in the rural schools with overall mean age of 13.98 years. Age at menarche of the participants ranged between 11 to 15 years (88.5%) which is comparable to the study conducted in Rajasthan by Khanna A et al<sup>7</sup> who reported the mean age at menarche to be 13.2 years and a study conducted by Kajal Jain<sup>8</sup> where mean age at menarche was noted to be 13.16 years while Deo DS and Ghattargi CH<sup>9</sup> highlighted that the age of menarche in their study ranged from 12 to 17 years with the maximum number of girls between 13 and 15 years of age.

The present study showed that only 83 (33.27%) and 197 (35.82%) of the urban and rural participants respectively had awareness about menstruation prior to menarche. Similar findings were observed by other researchers<sup>1,5,6,10</sup>. Interestingly, a study conducted by Adrija et al<sup>11</sup> reported that 72.1% of the urban participants and only 39.1% rural participants had knowledge prior to menstruation. There was no significant difference regarding awareness on menstruation between urban and rural participants in the present study.

Mothers followed by friends and sisters were the more common sources of information in both rural and urban participants. Similar findings were

reported by other authors where mother was the first informant. An Indian Council for Medical Research<sup>12</sup> (ICMR) study and research carried out by A Dasgupta A and Sarkar M<sup>2</sup>, Omidvar S and Begum K<sup>13</sup>, Ray Sudhesna and other researchers<sup>14,15,16,17</sup> also reported similar findings.

The varied reactions to menarche may depend on the extent to which the girls have been prepared regarding the same. Fear and panic was the reaction observed in the study conducted by Shubha Dube and Kirti Sharma<sup>10</sup> and Deo DS and Ghattargi CH<sup>9</sup>. Majority 88.5% of urban participants and 96.1% of rural participants expressed negative reactions to menstruation. It highlighted the fact that girls with no previous knowledge about menstruation felt more scared at menarche. These negative feelings associated with menstruation could be because of participants not being psychologically prepared for attaining menarche which is an important milestone in their life. This could also be a reflection of the culture and taboos in the society regarding menstruation.

The unawareness of girls about menstruation might be the cause for the girls in the present study to feel embarrassed, anxious or scared at onset. It was noted that there was no difference observed between urban and rural girls.

It is observed in the present study that use of sanitary napkin is higher in the urban area (75.9%) compared to rural participants (65%) and this could be due to the awareness and literacy of the mothers. Regarding the drying of the cloth, it is observed that more of rural participants dried them inside the house because menstruation is considered as impure and dirty and meant to be hidden which reflects the taboos found in the society. Similar findings were also reported in a study conducted by Sudhesna Ray<sup>14</sup>. Majority (77.4%) of the participants desired for more information regarding menstruation and hygienic practices in the present study which is comparable to the study reported by Omidvar S and Begum K<sup>13</sup> (76%). The important finding reported in this study is that teachers were not considered neither as a good source of information nor were they preferred to provide education regarding these matters. During

the informal interaction session, the participants opined that they did not feel comfortable broaching the subject of reproductive health with their teachers. And it was also observed that when the teachers were approached, they expressed being embarrassed and hesitant in discussing these issues with their students. This is a matter of concern as teachers could be important points of contact in providing information on reproductive health to students. The secrecy associated with the reproductive health issues hitherto considered taboo are some of the underlying reasons for the silent spread of RTIs.

The study showed that there was no difference regarding knowledge between rural and urban participants. Activities related to dissemination of health education are being carried out by health personnel in schools to increase awareness regarding menstruation and hygiene including using of sanitary pads manufactured at low cost are made available to girls and women in rural areas. Local sponsors have taken the initiative to provide the low cost sanitary

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napkins manufactured locally to the adolescent girls in the rural schools free of cost. Better literacy level of mothers in the local area and awareness as well as the influence of media could also contribute to the almost equal knowledge seen between rural and urban participants in this population.

## CONCLUSION

There is a need to provide education and equip them with skills regarding safe and hygienic practices and to make appropriate choices so as to enable them to lead a healthy reproductive life and prevent the risk for reproductive tract infections. There is also a need to empower mothers and teachers to function as primary sources of information on menstruation including reproductive health as they are accessible to handle adolescent issues and facilitate referrals as the need arises.

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