A comparative study of perception and practices regarding menstrual hygiene among adolescent girls in urban and rural areas of Jodhpur district, Rajasthan

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ABSTRACT

Context: There are vast disparities of information gap between urban and rural adolescent girls in India, which do have an impact on the practices during menstruation. Aim: To assess and compare the knowledge, perceptions, and practices of adolescent girls regarding menstrual hygiene in rural and urban areas of Jodhpur. Settings and Design: It was a cross-sectional study, which was conducted on school going adolescent girls in urban and rural schools of Jodhpur. Materials and Methods: The sample size for the study was 450, which was divided into rural and urban adolescent girls. A self-administered questionnaire was used for data collection. Statistical Analysis Used: Data were analyzed using SPSS v. 16. Inferences were drawn using Chi-square test and t test. Results: The mean age of menarche was 13.41 ± 1.07 years. A significantly more number of girls from an urban area (56.2%) were using sanitary napkins during menstruation. Only around one-fourth of the girls in study area had ever been counseled for menstrual hygiene. Awareness about adolescent health clinic was significantly more among urban girls. Conclusion: Significant differences were observed among urban and rural adolescent girls in terms of knowledge, perception, and practices related to menstrual hygiene.

Keywords: Adolescents, hygiene, knowledge, menstruation, perception

Introduction

Menstruation is a normal physiological process that indicates the beginning of reproductive life. It is, but sometimes it is considered as an impure phenomenon in the Indian society owing to cultural taboos and insufficient and incorrect information and causes unnecessary restrictions in the day to day normal activities of the menstruating girls. As a cultural practice, the information is passed from mother to daughter which is often not sufficient and sometimes even incorrect. Girls also seek information from their peers who themselves do not know much better. Thus, there is a continuous information gap in this regard.

Many studies have indicated that there are vast disparities of this information gap between urban and rural adolescent girls, which do have an impact on the practices during menstruation. Hence, this study was done with the aim to assess and compare the knowledge, perceptions, and practices of adolescent girls regarding menstrual hygiene in rural and urban areas of Jodhpur.

Subjects and Methods

This was a school-based cross-sectional study, which was conducted from April to July 2018 in Jodhpur district of Rajasthan state. Adolescent girls who had attended their menarche were included in the study. From the literature search, the prevalence of awareness about the menstruation among adolescent girls varies from 30% to 75%. Hence, the sample size was
calculated assuming 50% prevalence and 10% relative margin of error by formula \( z^2 \frac{pq}{L^2} \). Considering 10% non-responses, the final sample size was 450. This was distributed between urban and rural area by adopting a probability proportion to size depending on the total number of girls enrolled in selected schools.

Three urban and three rural Government schools were selected from the Jodhpur district. Girls from 8th to 12th standards were selected depending on availability at school on the day of the survey. Prior written permission was obtained from District Education Officer, Jodhpur, and due clearance was taken from the institutional ethics committee. A self-administered semi-structured questionnaire was prepared and pretested. The questionnaire was translated into vernacular and validated after retranslation with the help of language experts. The questionnaire along with accent form were distributed to adolescent girls in classes, and the objective of the study was explained. A total of 60 min were given for each group of girls to fill the questionnaire. One by one questions were read by the investigator and girls were instructed to fill it carefully. Data were analyzed using SPSS v. 16. Appropriate tables and graphs were prepared, and inferences were drawn using Chi-square test and t test.

**Results**

Table 1 depicts that a total of 450 adolescent girls were included in the study with the mean age of 15.04 ± 1.62 years. Majority of them were unmarried. Joint family system was prevalent. The overall status of illiteracy was significantly higher for parents of rural adolescent girls.

The mean age of menarche was 13.41 ± 1.07 year. Abnormal responses to pubertal changes and first bleeding were significantly predominant among rural girls. Immediateness in passing the information about first bleeding was significantly higher among urban adolescent girls [Table 2].

Table 3 depicts that significantly more number of girls from an urban area were using sanitary napkins during menstruation.

### Table 1: Socio-demographic profile of adolescent girls

| Age groups (adolescence) | Urban (n=235) | Rural (n=215) | Total | P   |
|--------------------------|--------------|--------------|-------|-----|
| Age groups (adolescence) |              |              |       |     |
| 10 to 13 (Early)         | 45 (19.1)    | 44 (20.5)    | 89 (19.8) | 0.850 |
| 14 to 16 (Middle)        | 145 (61.7)   | 127 (59.1)   | 272 (60.4) |       |
| 17 to 19 (Late)          | 45 (19.1)    | 44 (20.5)    | 89 (19.8) |       |
| Mean age                | 14.99±1.58   | 15.08±1.66   | 15.04±1.62 | 0.566 |
| Education               |              |              |       |     |
| 8th                      | 63 (26.8)    | 39 (18.1)    | 102 (22.7) | 0.028 |
| 9th to 10th              | 97 (41.3)    | 104 (48.4)   | 201 (44.7) | 0.130 |
| 11th to 12th             | 75 (31.9)    | 72 (33.5)    | 147 (32.7) | 0.722 |
| Maternal status          |              |              |       |     |
| Unmarried                | 233 (99.1)   | 205 (95.3)   | 438 (97.3) | 0.012 |
| Married                  | 2 (0.9)      | 10 (4.7)     | 12 (2.7)   |       |
| Type of Family           |              |              |       |     |
| Joint                    | 148 (63.0)   | 146 (67.9)   | 294 (65.3) | 0.273 |
| Nuclear                  | 87 (37.0)    | 69 (32.1)    | 156 (34.7) |       |
| Mean family size         | 7.38±3.93    | 7.44±2.92    | 7.41±3.48 | 0.858 |
| Religion                 |              |              |       |     |
| Hindu                    | 194 (82.6)   | 203 (94.4)   | 397 (88.2) | <0.01 |
| Muslim and others        | 41 (17.4)    | 12 (5.6)     | 53 (11.8)  |       |
| Cast category            |              |              |       |     |
| SC/ST                    | 56 (23.8)    | 69 (32.1)    | 125 (27.8) | 0.051 |
| OBC                      | 148 (63.0)   | 130 (60.5)   | 278 (61.8) | 0.584 |
| Other                    | 31 (13.2)    | 16 (7.4)     | 47 (10.4)  | 0.046 |
| Educational status       |              |              |       |     |
| Father*                  |              |              |       |     |
| Illiterate               | 17 (7.3)     | 37 (17.3)    | 54 (12.1)  | 0.001 |
| Up to primary            | 45 (19.3)    | 54 (25.2)    | 99 (22.1)  | 0.132 |
| 6-12 class               | 157 (67.4)   | 113 (52.8)   | 270 (60.4) | 0.002 |
| >12 class                | 14 (6.0)     | 10 (4.7)     | 24 (5.4)   | 0.531 |
| Mother*                  |              |              |       |     |
| Illiterate               | 59 (25.4)    | 131 (61.5)   | 190 (42.7) | <0.01 |
| Up to Primary            | 63 (27.2)    | 55 (25.8)    | 118 (26.5) | 0.750 |
| 6-12 class               | 104 (44.8)   | 26 (12.2)    | 130 (29.2) | <0.01 |
| >12 class                | 6 (2.6)      | 1 (0.5)      | 7 (1.6)    | 0.076 (Fishers) |

Bold: P values which are significant (P<0.05)
As much as 84.3% girls were reusing the cloth after washing. Urban girls were significantly more aware of the subsidy on sanitary napkins.

Table 4 represents that urban girls were following significantly more restriction practices. Most common restrictions were not allowing girls to enter the kitchen followed by avoiding going to

| Table 2: Attributes related to menarche among adolescent girls |
|---------------------------------------------------------------|
| Urban (n=235) | Rural (n=215) | Total | P  |
|----------------|----------------|-------|----|
| Mean age of menarche (years) | 13.25±1.14 | 13.59±0.97 | 13.41±1.07 | 0.001 |
| Reaction about bodily changes |               |       |     |    |
| Normal | 147 (62.6) | 102 (47.4) | 249 (55.3) | 0.001 |
| Scared/Depressed | 88 (37.4) | 113 (52.6) | 201 (44.7) | <0.01 |
| Reaction about bleeding |               |       |     |    |
| Normal | 112 (47.7) | 55 (25.6) | 167 (37.1) | <0.01 |
| Scared/Depressed | 123 (52.3) | 160 (74.4) | 283 (62.9) | <0.01 |
| Aware about the menarche | 159 (67.7) | 127 (59.1) | 286 (63.6) | 0.059 |
| Source of information* |               |       |     |    |
| Mother | 86 (54.1) | 53 (41.7) | 139 (48.6) | 0.038 |
| Sister | 33 (20.8) | 54 (30.4) | 87 (30.4) | <0.01 |
| Friend | 25 (15.7) | 13 (10.2) | 38 (13.3) | 0.174 |
| Others | 15 (9.4) | 7 (5.5) | 22 (7.7) | 0.216 |
| First informant about menarche |               |       |     |    |
| Mother | 192 (81.7) | 137 (63.7) | 329 (73.1) | <0.01 |
| Sister | 29 (12.3) | 58 (27.0) | 87 (19.3) | <0.01 |
| Friend | 10 (4.3) | 22 (4.9) | 32 (7.1) | 0.515 |
| Others | 4 (1.7) | 12 (2.7) | 16 (3.7) | 0.184 |
| Time of first information about menarche |               |       |     |    |
| Immediately | 170 (72.3) | 116 (54.0) | 286 (63.6) | <0.01 |
| Same Day | 42 (17.9) | 72 (33.5) | 114 (25.3) | <0.01 |
| Next Day | 13 (5.5) | 16 (7.4) | 29 (6.4) | 0.410 |
| Later | 10 (4.3) | 11 (5.1) | 21 (4.7) | 0.665 |

*Out of those who were aware about menarche

| Table 3: Distribution of adolescent girls according to hygienic practices during menstruation |
|-----------------------------------------------|
| Urban (n=235) | Rural (n=215) | Total | P  |
|----------------|----------------|-------|----|
| Toilet facility at home | 213 (90.6) | 180 (83.7) | 393 (87.3) | 0.028 |
| Takes daily bath | 229 (97.4) | 209 (97.2) | 438 (97.3) | 0.876 |
| Satisfactory cleaning of external genitalia | 210 (89.4) | 131 (60.9) | 341 (75.8) | <0.01 |
| Material used during menstruation |               |       |     |    |
| Only cloth | 47 (20) | 27 (12.6) | 74 (16.4) | 0.033 |
| Only sanitary napkin | 132 (56.2) | 63 (29.3) | 195 (43.3) | <0.01 |
| Both | 56 (23.8) | 125 (58.1) | 181 (40.2) | <0.01 |
| Pads/cloths changing timings |               |       |     |    |
| Once daily | 41 (17.4) | 29 (13.5) | 70 (15.6) | 0.247 |
| Twice a day | 90 (38.3) | 99 (46) | 189 (42) | 0.096 |
| Thrice a day | 89 (37.9) | 71 (33) | 160 (35.6) | 0.283 |
| More than Thrice | 15 (6.4) | 16 (7.4) | 31 (6.9) | 0.658 |
| Reuses the cloth* | 87 (38.5) | 128 (58.4) | 215 (84.3) | 0.956 |
| Wash clothes with soap and water** | 86 (98.9) | 115 (89.8) | 201 (93.5) | 0.009 |
| Dry cloth in sunlight** | 41 (47.1) | 43 (33.6) | 84 (39.1) | 0.046 |
| Reuse of sanitary pads*** | 38 (20.2) | 15 (8) | 53 (14.1) | 0.001 |
| Methods of disposal of sanitary pads*** |               |       |     |    |
| Throw in dustbin | 150 (79.8) | 45 (23.9) | 195 (51.9) | <0.01 |
| Burn | 34 (18.1) | 128 (68.1) | 162 (43.1) | <0.01 |
| Bury in pit | 4 (2.1) | 14 (7.4) | 18 (4.8) | 0.016 |
| Flush in toilet | 0 (0) | 1 (0.5) | 1 (0.3) | NA |
| Place to buy sanitary pads*** |               |       |     |    |
| Medical shop/General store | 182 (96.8) | 107 (56.9) | 289 (76.9) | <0.01 |
| School/Public health facility | 6 (3.2) | 81 (43.1) | 87 (23.1) | <0.01 |
| Aware about subsidy on sanitary pads*** | 70 (29.8) | 28 (13) | 98 (21.8) | <0.01 |

*Bold: P values which are significant (P<0.05). *Out of those who were using cloth, **Out of those who were re-using cloth, ***Out of those who were using sanitary napkins
temple, attending religious function, and going to school. Contrary to this, food restrictions were significantly more prevalent among rural girls. It was shocking to know that 23.3% of girls perceived that restriction practices should be imposed during menstruation.

It is evident from Table 5 that significantly more number of urban girls received counseling for menstrual hygiene. Mother was declared as main counselor. Most girls (92.7%) had ever faced any kind of health problem during menstruation. Urban girls were significantly more aware about adolescent health clinic.

**Discussion**

The mean age of menarche for the girls was 13.41 ± 1.07 years. The finding is almost similar to the findings from other studies conducted in various parts of the country.

| Table 4: Toilet facilities at school and restriction practices during menstruation |
|------------------------------------------|----------|----------|---------|---------|
| Urban | Rural | Total | P |
| Changes pads in the school | 70 (29.8) | 43 (20) | 113 (25.1) | 0.017 |
| Toilet facility at school | 223 (94.9) | 211 (98.1) | 434 (96.4) | 0.063 |
| Clean* | 167 (74.9) | 157 (74.4) | 324 (74.7) | 0.908 |
| Dirty* | 56 (25.1) | 54 (25.6) | 110 (25.3) | |
| Privacy in toilets at school** | 131 (58.7) | 136 (64.5) | 267 (61.5) | 0.222 |
| Restriction practices | 116 (49.4) | 66 (30.7) | 182 (40.4) | <0.01 |
| Food restrictions | 57 (24.3) | 83 (38.6) | 140 (31.1) | 0.001 |
| Perception about restriction practices | |
| Should be imposed | 42 (17.9) | 63 (29.3) | 105 (23.3) | 0.004 |
| Should not be imposed | 114 (48.5) | 94 (43.7) | 208 (46.2) | 0.309 |
| Do not know | 79 (33.6) | 58 (27) | 137 (30.4) | 0.126 |
| Periods disturb the life | 176 (74.9) | 159 (74) | 335 (74.4) | 0.819 |
| Menstruation make impure | 97 (41.3) | 86 (40) | 183 (40.7) | 0.783 |

Bolder P values which are significant (P<0.05). *Out of those who were having toilet facilities at school **

**Awareness regarding menstruation**

Approximately, two-thirds of the adolescent girls reacted abnormally to the first bleeding, and this was significantly higher among rural girls. Similar kind of findings have been observed by many other studies. Deo et al. (2012) reported these abnormal reactions were significantly higher among urban adolescent girls. Approximately, two-thirds of girls were aware about menarche before its onset, which is similar to the findings from other studies. Comparatively, low level of awareness has also been reported by many authors. For every second girl, mother was the main source of information, which is supported by many other studies.

**Hygienic practices during menstruation**

It was observed that 87.3% of girls were having toilet facilities at their home. Similar kind of observations have been made by other studies. Majority (97.3%) of the girls were taking a daily bath during menstruation, which is much higher than the findings of Jothy K et al. (2012). Present study revealed that 89.4% urban girls and 60.9% of rural girls were having good practice of satisfactory cleaning (≥2 times a day) of external genitalia (P < 0.01). Variable findings have been reported by different authors in this regard.

More than half of the girls from an urban area were using sanitary napkins, whereas in a rural area significantly less number of girls (29%) were doing so. Similar kind of observations have been made by many other studies. Contrasting findings have also been reported by many studies. In this study, 84.3% of the girls were using cloth after washing, which is quite higher than the findings reported by other authors. Most of them (93.5%) were reusing it after washing with soap and water. Similar findings have been reported by Sarkar I et al. (2017).

Only 47% of girls in an urban area and around one-third girls

| Table 5: Health seeking behavior during menstruation |
|------------------------------------------|----------|---------|---------|
| Urban (n=235) | Rural (n=215) | Total | P |
| Ever been counseled for menstrual hygiene | 67 (28.5) | 42 (19.5) | 109 (24.2) | 0.026 |
| Who counseled for menstrual hygiene* | |
| Mother | 47 (70.1) | 25 (59.5) | 72 (66.1) | 0.254 |
| Sister | 11 (16.4) | 3 (7.1) | 14 (12.8) | 0.159 |
| Friends and others | 9 (13.4) | 14 (33.3) | 23 (21.1) | 0.013 |
| Ever faced any health problem during menstruation | 216 (91.9) | 201 (93.5) | 417 (92.7) | 0.522 |
| With whom discussed the health problem** | |
| Mother | 133 (61.6) | 110 (54.7) | 243 (58.3) | 0.156 |
| Sister | 46 (21.3) | 64 (31.8) | 110 (26.4) | 0.015 |
| Friend | 33 (15.3) | 18 (9) | 51 (12.2) | 0.049 |
| Others | 4 (1.9) | 9 (4.5) | 13 (3.1) | 0.123 |
| Consult the doctor for that health problem** | 18 (8.3) | 23 (11.4) | 41 (9.8) | 0.287 |
| Reasons of not taking consultation from doctor*** | |
| Feels shy | 38 (19.2) | 47 (26.4) | 85 (22.6) | 0.095 |
| Felt no need | 147 (74.2) | 114 (64) | 261 (69.4) | 0.032 |
| Fear of adverse effect of medicine | 10 (5.1) | 5 (2.8) | 15 (4) | 0.267 |
| Not aware/ Others | 3 (1.5) | 12 (6.7) | 15 (4) | 0.010 |
| Awareness about adolescent health clinic | 59 (25.1) | 7 (3.3) | 66 (14.7) | <0.01 |

Bold P values which are significant (P<0.05). *Out of those who were ever counseled for menstrual hygiene. **Out of those who ever faced any health problem during menstruation. ***Out of those who faced any health problem during menstruation but did not consulted doctor.
in a rural area had a good practice of drying the washed cloth in sunlight. This is higher than the findings of Patle et al. (2014) but lower than the findings of other studies.\(^9\,^{13}\)

Throwing the used sanitary napkin in dustbin was a common method of disposal. Similar methods of disposal have also been reported by many other studies.\(^3\,^{5},\,^{6},\,^{9},\,^{22}\) In the present study, approximately 20% of the girls were aware about subsidy on sanitary napkins. This awareness was quite lower than the findings of Gupta et al. (2018).\(^8\)

Toilet facilities at school and restriction practices during menstruation

Present study depicts that one out of four girls were changing pads in the school. This practice is quite higher than reported by other authors.\(^3\,^{8}\) Most common reason for not changing pads at school was feeling shy/uncomfortable, followed by no facility of the dustbin and uncleaned toilets. Kamath et al. (2013) also observed similar findings.\(^13\) Almost all adolescent girls accepted the existence of toilet facility at school, and out of them, more than three-fourth\(^8\) girls perceived these facilities as clean. Shockingly, approximately 40% of girls claimed of not having privacy in toilet facilities at schools. This is supported by the findings of Jothy K et al. (2012).\(^8\)

Around half of the urban girls and 30% of the rural girls were following any restriction practices during menstruation. These are quite lower than the findings reported in many other studies.\(^8\,^{15},\,^{16},\,^{22}\) Slightly less than one-third of the girls were following certain food restrictions, which is quite lower than the practices reported by other authors.\(^8\,^{19}\)

Health seeking behavior during menstruation

Majority of the girls had ever faced any kind of health problem during menstruation, and most of them discussed this with their mother. Similar kind of observations have been made by other studies.\(^16\,^{22}\) Most common health problem during menstruation was pain in abdomen followed by irritation, heavy bleeding, and backache. This is supported by the findings of other studies also.\(^9\,^{10},\,^{15},\,^{16}\) Less than 10% of the girls in the study area had ever consulted a doctor for their health problems. This is quite similar to the findings of Mohite et al. (2013).\(^12\)

Conclusion and Recommendations

This study reveals that significant differences were observed among urban and rural adolescent girls in terms of knowledge, perception, and practices related to menstrual hygiene. The findings are comparable to other parts of the country. Ignorance, false perceptions, and unhygienic practices were also prevailing among adolescent girls. This indicated an urgent need for health promotion interventions in the form of regular awareness sessions and counseling for menstrual hygiene management at primary care level.

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Conflicts of interest

There are no conflicts of interest.

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