

Original research article

## A Correlative Study on Menstrual Hygiene Among Rural and Urban Adolescent Girls in Field Practice Area of Darbhanga Medical College with Their Socio Demographic Profiles

Dr. Neha Savarna<sup>1</sup>, Dr. Hem Kant Jha<sup>2</sup>, Dr. Prabhat Kr Lal<sup>3</sup>, Dr. Vijay Kumar Choudhary<sup>4</sup>, Dr. Hemant Kumar<sup>5</sup>, Dr. Chittaranjan Rai<sup>6</sup>, Dr. (Mrs) Kamlesh Tiwari<sup>7</sup>

<sup>1</sup>Junior Resident, Department of P.S.M., Darbhanga Medical College, Laheriasarai, Darbhanga, Bihar, India

<sup>2</sup>Associate Professor & HOD, Department of P.S.M., Darbhanga Medical College, Laheriasarai, Darbhanga, Bihar, India

<sup>3</sup>Associate Professor, Department of P.S.M., Darbhanga Medical College, Laheriasarai, Darbhanga, Bihar, India

<sup>4</sup>Assistant Professor, Department of P.S.M., Darbhanga Medical College, Laheriasarai, Darbhanga, Bihar, India

<sup>5</sup>Assistant Professor, Department of P.S.M., Darbhanga Medical College, Laheriasarai, Darbhanga, Bihar, India

<sup>6</sup>Professor, Department of P.S.M., Darbhanga Medical College, Laheriasarai, Darbhanga, Bihar, India

<sup>7</sup>Assistant Professor, Department of Obstetrics & Gynecology, Vardhman Institute of Medical Sciences, Pawapuri, Nalanda, Bihar, India.

Corresponding Author: Dr (Mrs) Kamlesh Tiwari

### Abstract

**Introduction:** According to WHO, Adolescence has been defined as the period between 10-19 years of life. Adolescents constitute one-fifth of the world's population and in India. Adolescent girls constitute a vulnerable group, particularly in India, where the female child is the neglected one. For billions of women and girls worldwide, menstruation is a monthly reality. Menstrual Health and Hygiene encompasses Menstrual Hygiene Management and the broader systemic factors that link menstruation with health, well-being, gender equality, education, equity, empowerment and rights. The mothers play a vital role in shaping the girls' ideology about Menstruation. The socio-economic status can also be a contributing factor in the knowledge regarding Menstruation and related aspects.

**Materials & Methods:** A prospective study in 9-16 years 200 urban & 200 rural school going menstruating girls and their socio demographic Profile was done, and results analyzed.

**Observations:** The observations were recorded in tabular form and analyzed.

**Discussion:** The age profile, maternal education, other socio demographic profiles and cultures practiced are similar to various other studies.

**Conclusion:** Menstruation being a normal biological phenomenon has many implications on female health, and maternal education, socio economic status has a greater role in maintaining good healthy menstrual practices, minimizing adverse health conditions in adolescent girls.

**Key words:** adolescent menstruation, maternal socio demographic profile, healthy women hood

### Introduction

According to WHO, Adolescence has been defined as the period between 10-19 years of life<sup>1</sup>. Adolescents constitute one-fifth of the world's population<sup>2</sup> and in India, they constitute 21% of the total population, among which the adolescent girls comprise about 10.3%<sup>3</sup>. In India, adolescents (15-19 years) constitute 10% and majority live in rural areas<sup>4</sup>. Adolescent girls constitute a vulnerable group, particularly in India, where the female child is the neglected one<sup>5</sup>.

Menstruation is a natural phenomenon among matured females who experience shedding of blood for 1-7 days every month from the age of menarche until menopause<sup>6</sup>. The commencement of menstruation is known as menarche and it is considered as a very crucial stage for females as it marks the beginning of reproductive life.

For billions of women and girls worldwide, menstruation is a monthly reality. Yet in many countries including ours, people still face serious challenges when it comes to managing their periods. Myths, stigma and harmful gender norms around menstruation exacerbate the difficulties for girls and women across the world.

Menstrual hygiene is a hygienic practice during menstruation which can prevent women from the infection in reproductive and urinary tract.

Menstrual Health and Hygiene encompasses Menstrual Hygiene Management and the broader systemic factors that link menstruation with health, well-being, gender-equality, education, equity, empowerment and rights. These systemic factors have been summarized by UNESCO as accurate and timely knowledge, available, safe and affordable materials, informed and comfortable professionals, referral and access to health services, sanitation and washing facilities, positive social norms, safe and hygienic disposal and advocacy and policy<sup>7</sup>.

Menstrual Health and Hygiene is an integral component of the Sustainable Development Goals<sup>7</sup>. 6 Goals and 12 targets are directly or indirectly related to Menstrual Health. Another important strategy in this regard is the WASH Strategy 2016-2030, which comes under Goal<sup>6</sup>.

The continued silence around menstruation combined with limited access to information at home and in school results in millions of girls having very little knowledge about what is happening to their bodies when they menstruate and how to deal with it<sup>8</sup>. When a girl faces challenges in managing her periods in a healthy manner, it can cause a number of problems to her physical as well as her mental health. Along with an increased risk of infection, a woman's education, self-esteem and confidence also suffer in major way.

Although menstruation is a natural process, it is linked with several misconceptions and practices, which results in adverse health outcomes. Many girls do not have knowledge regarding menstruation until they first experience it.

The knowledge and awareness related to Menstruation among young girls depends on many factors; most importantly, the type of environment in which they are growing up. The knowledge of elder female family members, especially mothers, plays a vital role in shaping the girls' ideology about Menstruation. The socio-economic status can also be a contributing factor in the knowledge regarding Menstruation and related aspects<sup>9,10,11</sup>

In the present study, domains of menstrual health viz. knowledge on the concept, hygiene related aspects and restrictions practiced have been explored and observations have been made about influence of socio demographic profile on menstrual hygiene practices in these girls. Since no such study was done in the Mithilanchal Region, comprising more than 15 districts in north Bihar, this study was undertaken to find out how different are the MHM practices among rural and urban school-going adolescent girls in this area and to explore possible reasons for the same.

### **OBJECTIVES OF THE STUDY:**

1. To study and compare the knowledge and practice regarding menstrual hygiene among rural and urban school-going adolescent girls.
2. To correlate the influence of socio demographic profile on knowledge and practices regarding menstrual hygiene.

### **MATERIAL AND METHODS:**

#### **Study Design-**

The present study was a school-based, cross-sectional study

#### **Study Period-**

The study was conducted between January 2019 and December 2020.

#### **Study Area-**

The study are a comprised of rural and urban field practice areas, under the Department of Community Medicine, Darbhanga Medical College. Two schools each were taken from rural and urban settings, respectively.

#### **Study Population-**

The study population consisted of adolescent, school-going girls of the age group 13-16 years.

#### **Inclusion Criteria-**

1. Adolescent girls between 13-16 years
2. Willing to participate and ready for consent from parents
3. Studying in the school

#### **Exclusion Criteria-**

1. Girls who had not attained menarche
2. Physically or mentally challenged
3. Not willing to participate & no consent from parents.

#### **Sample Size-**

Considering the frequency of usage of sanitary pad practice among rural girls to be 49.24% (p1) and among urban girls to be 65.17% (p2), in 12 & taking absolute error to be 10% and 95% confidence interval, the sample size was calculated by the following formula,  $n = Z^2_{1-\alpha/2} [p_1(1-p_1) + p_2(1-p_2)] / D^2$

The sample size came out to be 184. After applying a non-response rate of 5%, the sample size was updated to be 193 (rounding off as 200 for study purposes). Applying a design effect of 2 on the sample, the sample size was further updated to be 400

#### **Study Tools-**

A pretested self-administered, semi-structured questionnaire was handed out to the participants. The Cronbach alpha was measured to determine the reliability, which determined the correlation of 90%.

An orientation of the selected participant's explaining the contents of the questionnaire before handing out was done.

#### Data Analysis-

The data collected was entered into Microsoft Office Excel 2010. For statistical analysis, SPSS v 20.0 software was used. Data were represented in forms of frequency distribution tables, bar diagram and pictorial forms. For finding out association, appropriate statistical tests were used. P-value <0.05 was considered to be statistically significant.

#### Ethical clearance-

Ethical clearance was obtained from Ethical Committee of Darbhanga Medical College, Laheriasarai, Darbhanga.

### OBSERVATIONS AND RESULTS

**Table 1: Number of girls from each age group**

Age group	Rural (%)	Urban (%)	Significance
13-14	92(23%)	90(22.5%)	$\chi^2=0.12$ $p=0.99$
14-15	110(27.5%)	110(27.5%)	
15-16	100(25%)	104(26%)	
16-17	98(24.5%)	96(24%)	
Total	400(100%)	400(100%)	

From the rural area, 92 girls were of 13 yrs while their counterpart were 90 in number from urban area, constituting 23% and 22.5% respectively. Girls of 14 years were same in number from both the areas, i.e. 110 (27.5%). 100 (25%) girls from rural area and 104 (26%) girls from urban area were of 15 years of age. 16 year olds were 98 (24.5%) from rural area and 96 (24%) from urban area. 14 year olds constituted the highest number of participants from both the areas. The difference was not significant statistically ( $\chi^2=0.12$ ,  $p=0.99$ ).

**Table 2: Mother's Educational Status**

Mother Education	Rural (%)	Urban (%)	Significance
Un educated	187(46.75%)	88(22%)	$\chi^2=80.69$ $p=0.00$
Primary school	117(29.25%)	110(27.5%)	
Secondary school	68(17%)	118(29.5%)	
Under graduate	26(6.5%)	62(15.5%)	
Post graduate	2(0.5%)	22(5.5%)	
Total	400(100%)	400(100%)	

In the rural area, 187(46.75%) of the mothers were uneducated and 88 (22%) from urban area were uneducated. 117(29.25%) from rural and 110 (27.5%) from urban area had completed

primary; while 68(17%) from rural and 118(29.5%) had completed secondary school. Under graduate mothers comprised 26 (6.5%) from rural area and 62(15.5%) from urban area; while post-graduation was done by 2 (0.5%) rural mothers and 22(5.5%) urban mothers. The difference in educational status of mothers was found to be statistically significant ( $\chi^2=80.69$ ,  $p=0.00$ ).

**Table 3: Socio-economic Status of the participants**

Socioeconomic class	Rural (%)	Urban (%)	Significance
<b>I</b>	27(6.75%)	45(11.25%)	$\chi^2=47.05$ $p=0.000$
<b>II</b>	76(19%)	138(34.5%)	
<b>III</b>	93(23.25%)	101(25.25%)	
<b>IV</b>	140(35%)	78(19.5%)	
<b>V</b>	64(16%)	38(9.5%)	
<b>Total</b>	400(100%)	400(100%)	

According to BG Prasad Scale, 27(6.75%) rural and 45(11.25%) urban belonged To Class I, 76(19%) rural and 138(34.5%) urban belonged to Class II, 93(23.25%) rural and 101 (25.25%) belonged to Class III, 140 (35%) rural and 78 (19.5%) urban belonged to Class IV and 64 (16%) rural and 38 (9.5%) urban belonged to Class V of the socio-economic scale. The difference was found to be statistically significant ( $\chi^2= 47.05$ ,  $p=0.00$ ).

**Table 4: Details Regarding Menstruation related information**

Source of knowledge	Rural (%)	Urban (%)	Total (%)	Significance
Mother	204(51%)	220(55%)	424(53%)	$\chi^2=23.41$ $p=0.000$
Friend	60(15%)	52(13%)	112(14%)	
Relative	62(15.5%)	30(7.5%)	46(5.75%)	
Teacher	70(17.5%)	78(19.5%)	74(9.25%)	
Media/Internet	4(1%)	20(5%)	12(1.5%)	
<b>Reason behind Menstruation</b>				
Biological	344(86%)	382(95.5%)	726 (90.75%)	$\chi^2=21.50$ $p=0.000$
Curse of God	56(14%)	18(4.5%)	74(9.25%)	
<b>First reaction to Menses</b>				
Scared	270 (67.5%)	228(57%)	498 (62.25%)	$\chi^2=9.38$ $p=0.00$
Not scared	130 (32.5%)	172(43%)	302 (37.75%)	

The main informant was mother in both the settings, 204 (51%) from rural and 220(55%) from urban; followed by friends 60(15%) rural and 52 (13%) urban, teacher 70 (17.5%) and 78 (19.5%) rural and urban, relatives 62 (15.5%) rural and 30 (7.5%) urban. Media and internet were the source of information among 4(1%) rural and 20(5%) urban school girls ( $\chi^2=23.41$ , $p=0.00$ ).344(86%) rural and 382(95.5%)urban girls knew that menstruation was biological phenomenon while 56 (14%) rural and 18 (4.5%) urban girls believed it to be the curse of god ( $\chi^2= 21.50$ ,  $p= 0.00$ ).270 (67.5%) rural respondents and228 (57%) urban respondents reported that they were scared at first, when they got menses( $\chi^2=9.38$ ,  $p=0.00$ ).The association was found to be statistically significant.

**Table 5: Knowledge on Various Hygiene related Practices during Menstruation**

Knowledge about Practices		Rural (%)	Urban (%)	Significance
Use of Sanitary Pads	Yes	325(81.25%)	342(85.5%)	$X^2 = 2.61$ p=0.11
	No	75(18.75%)	58(14.5%)	
Disposing of used menstrual absorbent in the dustbin after wrapping it properly	Yes	258(64.5%)	335(83.75%)	$X^2 = 38.64$ p=0.00
	No	142(35.5%)	65(16.25%)	
If using old cloth pieces after washing, reuse them after drying in direct sunlight	Yes	156(39%)	178(44.5%)	$X^2 = 2.49$ p=0.11
	No	244(61%)	222(55.5%)	
Washing of hands after changing menstrual absorbent	Yes	330(82.5%)	380(95%)	$X^2 = 32.29$ p=0.00
	No	70(17.5%)	20(5%)	
Taking bath regularly	Yes	211(52.75%)	287(71.75%)	$X^2 = 30.72$ p=0.00
	No	189(47.25%)	113(28.25%)	
Cleaning of external genitalia with soap and water for cleaning	Yes	325(81.25%)	342(85.5%)	$X^2 = 2.61$ p=0.11
	No	75(18.75%)	58(14.5%)	
Changing of absorbent at least thrice or more daily	Yes	310(77.5%)	330(82.5%)	$X^2 = 3.13$ p=0.08
	No	90(22.5%)	70(17.5%)	
	Yes	200(50%)	270(67.5%)	$X^2 = 25.27$ p=0.00
	No	200(50%)	130(32.5%)	

In this study, knowledge about the use of sanitary pads was found to be present among 325 (81.25%) rural and 342 (85.5%); not statistically significant ( $\chi^2 = 2.61$ ,  $p = 0.11$ ). However, knowledge about proper disposal of used absorbents was present among 258(64%) rural and 335 (83.75%) urban girls. This was found to be statistically significant ( $\chi^2 = 38.64$ ,  $p = 0.00$ ). In case of using old clothes as absorbents after washing, 156 (39%) rural and 178 (44.5%) urban participants knew that the cloth pieces should be dried in direct sunlight after washing. This difference was not found to be statistically significant ( $\chi^2 = 2.49$ ,  $p = 0.11$ ). 330 (82.5%) of rural and 380 (95%) of urban participants were aware that they should wash hands after changing menstrual absorbent, the difference of which was statistically significant ( $\chi^2 = 32.29$ ,  $p = 0.00$ ). Taking bath regularly 211 (52.75%) rural and 287 (71.75%) urban and changing of absorbent at least thrice or more daily ( $\chi^2 = 30.72$ ,  $p = 0.00$ ) 200 (50%) rural and 270 (67.5%) urban ( $\chi^2 = 25.27$ ,  $p = 0.00$ ) were other practices about which the participants knew and they were statistically significant. The difference in knowledge about cleaning external genitalia 325(81.25%) rural and 342(85.5%) urban ( $\chi^2 = 2.61$ ,  $p = 0.11$ ) was not significant.

**Table 6: Restrictions followed by participants**

Restrictions		Rural (%)	Urban (%)	Significance
Not attending school	Yes	172(43%)	62(15.50%)	$X^2 = 73.08$ p=0.00
	No	228(57%)	338(84.50%)	
Not attending religious function	Yes	370(92.5%)	376(94%)	$X^2 = 0.51$ p=0.48
	No	30(7.5%)	24(6%)	
Not entering Pooja Room	Yes	388(97%)	376(94%)	$X^2 = 4.19$ p=0.04
	No	12(3%)	24(6%)	

Not touching/reading holy books	<b>Yes</b>	376(94%)	356(89%)	$X^2 = 6.38$ p=0.01
	<b>No</b>	24(6%)	56(14%)	
Doing House hold Chores	<b>Yes</b>	250(62.5%)	232(58%)	$X^2 = 1.69$ p=0.19
	<b>No</b>	150(37.5%)	168(42%)	
Playing outdoor/ cycling/ exercise	<b>Yes</b>	162(40.5%)	155(38.75%)	$X^2 = 0.256$ p=0.613
	<b>No</b>	238(59.5%)	245(61.25%)	
Sleeping on Routine Bed	<b>Yes</b>	187(46.75%)	250(62.50%)	$X^2 = 20.02$ p=0.00
	<b>No</b>	213(53.25%)	150(37.50%)	
Avoiding certain food items	<b>Yes</b>	276(69%)	257(69.25%)	$X^2 = 2.02$ p=0.15
	<b>No</b>	124(31%)	143(31.75%)	
Taking bath during menses	<b>Yes</b>	287(71.75%)	305(76.25%)	$X^2 = 2.11$ p=0.17
	<b>No</b>	113(28.25%)	95(23.75%)	
Visit other's houses	<b>Yes</b>	158(39.50%)	142(35.5%)	$X^2 = 1.36$ p=0.24
	<b>No</b>	242(60.5%)	258(64.5%)	
Do not attend family functions	<b>Yes</b>	267(66.75%)	275(68.75%)	$X^2 = 0.37$ p=0.55
	<b>No</b>	133(33.25%)	125(31.25%)	
Do not enter kitchen	<b>Yes</b>	278(69.50%)	275(68.75%)	$X^2 = 0.05$ p=0.82
	<b>No</b>	122(30.5%)	125(31.25%)	
Staying inside the room alone	<b>Yes</b>	148(37%)	155(38.75%)	$X^2 = 0.26$ p=0.61
	<b>No</b>	252(63%)	245(61.25%)	
Not talking-tos boys	<b>Yes</b>	122(30.5%)	104(26%)	$X^2 = 1.99$ p=0.15
	<b>No</b>	278(69.5%)	296(74%)	

Not attending school 172(43%) rural & 62(15.50%) urban ( $\chi^2=73.08$ , p=0.00), not

Attending religious function 370 (92.5%) rural & 376(94%) urban

( $\chi^2=0.51$ ,p=0.48);not

Entering Pooja room 388(97%) rural and 376(94%) urban ( $\chi^2= 4.19$ ,p= 0.04);not touching

Holy books 376 (94%) rural and 356 (89%) urban ( $\chi^2=6.38$ ,p=0.01);sleeping on routine

Bed 187 (46.75%) rural and 250(62.50%) urban ( $\chi^2=20.02$ ,p=0.00) were there striations that were found to be statistically significant.

## DISCUSSION

Adolescents constitute a very vulnerable group of the population passing through a very crucial phase of life when the body under goes many physical and physiological changes. Although

Menstruation is a biological phenomenon, but many girls lack awareness, proper information & face imposition of restrictions and stigma. This could be found more in rural areas as compared to urban due to socio demographic profiles. Since menstrual health and hygiene is a very important component of the overall reproductive health, proper information about it is very essential.

This study was done to know the hygiene-related practices followed by rural and urban school-going adolescent girls during menstruation and their level of knowledge and awareness. The study was also done to know the gap of knowledge and practices between rural and urban school girls and to find the effect of socio economic and demographic conditions on their practices.

In this study (Table/ Figure -1) participants enrolled were between the age of 13-16 years with maximum number of girls were of 14 years of age from both the urban and rural settings. The age difference was not statistically significant ( $\chi^2= 0.12$ ,  $p= 0.99$ ) and similar to various other studies<sup>13-19</sup>.

(Table/Figure 2) The educational level of the mothers is a key factor as mostly the mothers are the information providers to their daughters. The present study shows the level of education of the mothers of the enrolled participants. From the rural area, mothers of the participants were uneducated 186 (46.75%) while majority of mothers of urban participants 118 (29.5%) were educated up to secondary school, followed by primary level

110(27.5%). Mother's educational status between the two settings was found to be statistically significant ( $\chi^2= 80.69$ ,  $p= 0.00$ ). In various similar studies almost similar findings were observed.

Vijay Agarwal et al<sup>15</sup>, in their study on 250 adolescent girls, 40 (16.0%) mothers of the respondents were illiterates and only 15 (6.0%) were graduates. Sharvanan E Udayar et al<sup>6</sup>, in their study comprising of 293 subjects, 30% of mothers of the participants were illiterates, while education up to middle school and higher secondary was almost 28% each. Another study was conducted in 2016 among rural adolescent girls in Varanasi, by Sangeeta Kansal et al<sup>20</sup>. It included 650 adolescent girls. About two-third respondent's mothers were illiterate and remaining was educated up to primary level.

(Table 3 & Fig.3) show the socio-economic status of the participants. Majority of the participants from both the rural and urban settings belonged to class II 135 (33.75%) and 138 (34.75%) respectively, followed by class IV 110 (27.5%) in rural area and class III 101(25.25%) in urban area. Out of the 132 rural school-going adolescent girls, the percentages of respondents from BPL families were higher from rural adolescent girls (64.39%) and 25.90% among urban participants. The difference was found to be statistically significant ( $\chi^2=47.05$ ,  $p= 0.00$ ).

Similar observations were made by various authors.<sup>14, 17, 19, 21</sup>

Table 4 shows that the main informant was mother in both areas, regarding menstruation, accounting for 204(51%) rural and 220 (55%) urban, followed by teachers 70 (17.5%) and 78(19.5%) respectively ( $\chi^2=23.41$ ,  $p=0.00$ ). Most of the respondents, i.e.

344(86%) rural and 382 (95.5%) urban considered menstruation to be a biological phenomenon ( $\chi^2=21.50$ ,  $p= 0.00$ ). However, the first reaction on attaining was getting scared among 270 (67.5%) rural respondents and 228 (57%) urban respondents ( $\chi^2= 9.38$ ,  $p=0.00$ ). All the associations were found to be statistically significant ( $p<0.05$ ).

Nikita Gandotraetal<sup>22</sup>, in their study, found that 62.5% adolescent girls, were knowing about menstruation prior to menarche & Friends were the major source of knowledge (35%) followed by mothers (27.5%); while teachers were the source of knowledge in only 10%.

Almost similar observations were made in other studies.<sup>12,13,4,21,24,25,26</sup>

From the table 5, it is shown that knowledge about the use of sanitary pads was present among 325 (81.25%) rural and 342 (85.5%) urban girls ( $\chi^2=2.61, p=0.11$ ); hence not statistically significant. Knowledge about the disposal of used menstrual absorbents in dustbin after wrapping it [258 (64.5%) rural and 335 (83.75%) urban], which is statistically significant ( $\chi^2=38.64, p=0.00$ ).

Washing of hands after changing menstrual absorbent (330 (82.5%) rural and 380 (95%) urban] was found to be statistically significant ( $\chi^2=32.29, p=0.00$ ). Taking regular bath (211 (52.75%) rural and 287 (71.75%) urban] was found to be statistically significant ( $\chi^2=30.72, p=0.00$ ). and change of menstrual absorbent at least thrice or more daily [200 (50%) rural and 270 (67.5%) urban] was also significant ( $\chi^2=25.27, p=0.00$ ).

Cleaning of external genitalia rural 325 (81.25%) and urban 342(85.5%) and use of both soap and water for cleaning rural 310 (77.5%) and urban 330(82.5%) were not significant.

Table 6 shows the various restrictions that were followed by the participants during menstruation. Not attending religious function rural 370 (92.5%), urban 376 (94%) With significance ( $\chi^2=0.51, p=0.48$ ) not entering Pooja room 388(97%) in rural, 376 (94%) in urban ( $\chi^2=4.19, p=0.04$ ); not touching or reading holy books 376 (94%) in rural and 356 (89%) in urban ( $\chi^2=6.38, p=0.01$ ) were the most common restrictions. Other statistically significant restrictions were not attending school, doing household chores, not sleeping on routine bed, avoiding certain food items, taking bath, not visiting others' houses, and not talking to boys.

Kalyani Set al<sup>10</sup> in their study conducted in 2019 found that, in a total of 236 adolescent school-going girls in North Goa, most of the study participants 151 (64%) were comfortable to discuss about menses with their family and friends; however 90(38%) were ashamed to buy sanitary pads from shops. The most common custom followed by 109(46%) of them was restriction in entry in the Pooja Room and restricted access to Holy Scriptures. In another study by Pradeep Senapathi and Hemant Kumar<sup>12</sup> in 2018, involving 244 adolescent rural (132) and urban (112) girls, several restrictions were observed to be followed. Among those, attending religious functions was the most common 127 (96.21%) rural and 94 (83.92%) urban girls. Other restrictions were doing household chores in 65 (49.24%) rural and 67(59.82%) urban, playing outdoor games in 113 (85.60%) rural and 47 (41.96%) urban, mingling with friends in 67 (50.75%) rural and 09 (08.03%) urban girls. 17 (12.87%) of rural girls were not allowed to sleep on routine bed while this restriction was not followed among urban counter parts. 86 (65.15%) rural girls and 26 (23.21%) urban girls were not allowed to help mother in kitchen. 79 (59.84%) rural 17 (15.17%) urban leptin another room while they were menstruating. 20 (15.15%) rural and 6 (05.35%) urban girls did not attend school while menstruation. 11 (08.33%) rural and 8 (07.14%) urban girls were prohibited to touch their family members while they were menstruating. Purva Shoor<sup>13</sup> in her study had found that out of 507 girls, maximum respondents (53.98%) were not allowed to do pooja or read Quran. One girl was segregated from home during periods. A total 54.51% of the girls admitted that they were forced to follow one or the other restriction during menstruation by their family members. 37.7% of the girls were not allowed to eat certain food items during menstruation like curds, buttermilk, milk products, spicy and salty food, nonveg, cucumber, papaya, sweets, orange, pickles and eggs. 76.4% of

Hindus were not allowed to do Pooja and also one Christian girl also was not allowed to perform religious ritual; however there were no significant association. 56.4% adolescent girls who practiced restrictions by the force of family were 13-16 years of age and 52.5% were in the age group of 16-19 years. It was thus concluded that older girls followed more restrictions by force as compared to younger girls. Kuldeep Jagan nath, Dabade and Sheetal, Kuldeep Dabade<sup>4</sup> in their study in 2017,

Found that restrictions practiced of any kind during menstrual period were urban 91 (74.0%) and rural 72 (67.3%) area; however this was not statistically significant ( $p=0.26$ ). Sharvanan E Udayaretal<sup>6</sup> had conducted a study in 2016, comprising 293 subjects between the ages 10-19 years. It was found from the study that, out of the various restrictions practiced during menstruation; most common was not attending religious functions (52%). Other restrictions were not attending school (20.5%), not touching sacred books (11.6%), not playing or doing any outing (9.6%) and keeping the menstruating girls separately (4.4%). In a study done by Dixit Sanjay et al<sup>18</sup>, published in 2016, 100 school going adolescents were studied, out of which 50 were from government and 50 from private school respectively. They found that, during menstruation, several restrictions like not attending religious occasion, marriages, school; not visiting holy places and playing or doing house hold work, were practiced by 81% of girls and 19% did not.

Another study was done in 2016 by Latha Krishnamurthy et al<sup>23</sup>, on 171 adolescent girls. 52 (72.2%) of them were not allowed to attend any religious occasions during menstruation. 2 (2.8%) were not allowed to school. Restrictions were followed for milk, milk products, fruit like mango, guava, sweets etc. As study done by Vyas Shaileet al<sup>63</sup>, in 2015 involved 301 college going adolescents and 77 out of college adolescents of the age group 17-19 years. In this study, most girls reported to be forced to follow certain restrictions during the periods. The most common restrictions were denied to go to the temple (93.3% college going and 85.7% out of college), restricted to enter the kitchen (23.2% college going and 19.5% out of college); household activity (13.4% college going and 10.4% out of college). Only 1.9% girls said that there was no restriction imposed on them during menses.

Suresh N Ughade<sup>25</sup>, in study in 2015, done on 387 school-going adolescent girls, found that only 102 (26.36%) of the subjects did not practice any restrictions. 285 (73.64%) girls practiced different restrictions during menstruation. Among them, 173 (71.78%) girls did not attend any religious functions or visit temples, 102 (26.36%) girls were not allowed to do any household work, 102 (26.36%) girls were not allowed sleep on the routine bed, 97 (24.81%) girls were not allowed to touch anybody, and 20 (5.17%) girls were not allowed to attend their schools during menstruation. The urban and rural difference was statistically significant with respect to separation of the girls from others, restrictions in touching stored food, being seated on the threshold of the house and restrictions in touching family members and in playing and working outside ( $p=0.001$ ). With regards to going to school, no significant difference among rural and urban girls was found.

Ray Sudeshna and Das gupta Aparajita<sup>26</sup> in their multivariate analytical study on menstrual hygiene done in 2012, found some restrictions that were practiced during by menstruation by the 190 adolescents. Among the restrictions followed, avoiding sour food (80%) and not visiting temple (75.6%) were the most common ones. In a 2008 study conducted by A. Das gupta and M Sarkar<sup>5</sup>, 160 school-going adolescents were enrolled and only 24 (15%) girls did not practice any restriction. 136 (85%) practiced different restrictions during menstruation. Among them, 96 (70.59%) girls did not attend any religious functions, 68 (50%) avoided

certain food items such as sour foods, banana, radish and palm. 58 (42.65%) girls did not play, 46 (33.82%) girls did not perform any house hold work, 22 (16.18%) girls did not attend school and 14 (10.29%) girls did not attend any marriage ceremony during the menstrual period.

D. S. Deo and C.H.Ghattargi<sup>27</sup> had conducted a comparative study in 2005, 94 adolescent girls from urban school and 74 girls from rural school were studied. The number of girls not practicing any taboo was significantly more among rural girls (21.6%) as compared to urban girls (4.3%). ( $Z=2.2$ ,  $p<0.01$ ). Restrictions on type of clothing was observed in 22 (23.4%) of urban girls and 26 (35.1%) of rural girls. 20 (21.3%) urban and 22 (29.7%) rural girls avoided interaction with boys during periods. Physical activity was found to be restricted among 10 (10.6%) urban and 15 (20.3%) rural and 5 (05.3%) urban and 14 (18.9%) rural participants were not allowed to leave or travel alone while they were on periods.

## CONCLUSION

Menstruation is a biological process of shedding of uterine blood through vagina, every month. It is a sign of healthy reproductive system in females. Menstrual health and related hygiene practices adopted at the advent of menstruation can be very fruitful for the later life of the girls. Knowledge about menstruation prior to menarche was more prevalent among urban adolescents as compared to rural. Mothers were the major informants in both the cases. Mostly the girls had correct idea about the reason behind menstruation.

Hygiene related practices were better among urban girls than their rural counterparts. The most common reason for not using sanitary napkin was un-affordability.

Washing of hands after changing the absorbent was almost satisfactory in both the groups. Also, most of the girls cleaned their external genitalia on a regular basis. However, the use of both soap and water for cleaning purposes was higher in urban setup.

Maternal education and socio demographic and socio economical profiles of families had influence on knowledge and attitude on menstrual hygiene practices.

Therefore we need to build on appropriate methods of health education and communication so that girls and women can lead healthy life in a positive environment.

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