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## Original Research Article

## A study to assess the knowledge and practices related to menstruation and menstrual hygiene among adolescent girls of selected school of District Ambala, Haryana

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## ABSTRACT

**Background:** Menarche, among Adolescence girls, signifies the adaptation to womanhood as it is associated with pubertal changes and beginning of the capacity to reproduce. This is a period of gonadal development and growth spurt. Menstrual hygiene is crucial to healthy reproductive system and in return to good physical health and wellbeing. Therefore, enhanced awareness regarding menstruation and related hygiene, right from adolescence may escalate safe practices that are helpful in alleviating the distress of millions of women.

**Aim:** To assess the knowledge and practices related to menstruation and menstrual hygiene among adolescent girls of selected schools of District Ambala, Haryana

**Settings and Design:** A descriptive cross sectional study was conducted in selected schools of Mullana and Barara District Ambala, Haryana.

**Materials and Methods:** Total enumeration sampling technique was used to enroll 192 adolescent girls from class 9<sup>th</sup> to class 12<sup>th</sup> from selected schools after obtaining written informed consent from parents and verbal consent from girls. Ethical clearance was obtained from Institute Ethics committee. Doubts of the participants were cleared after data collection.

**Results:** Among 192 girls, nearly half girls were aware of menstrual hygiene and reported use of sanitary napkins and 40.1% girls were aware of the symptoms of poor menstrual hygiene.

**Conclusion:** There is a need to implement an education program for adolescent girls on menstruation and menstrual hygiene to ensure healthy menstrual practices.

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### 1. Introduction

Menstrual cycle is a unique natural phenomenon to females. It happens in a predictable pattern, during month. It starts at puberty and continues until the menopause. Certain

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body hormones rise and fall during the month, causing the menstrual cycle to occur. At age of 15 years, 98% of females usually have had menarche. Menstrual hygiene has been an issue of concern worldwide especially in developing nations. Social, cultural and religious factors have an impact on adjustment to menstrual hygiene. There are number of myths, misconceptions, superstitions and cultural and/or religious taboos concerning menstrual blood and menstrual hygiene, for instance in Jewish, menstruating women and everything they touch is considered to be impure. In Hindus, menstruation is considered as dirty and restrictions during menses is linked to auspiciousness and positivity.<sup>1,2</sup> In certain tribes of Nigeria, menstruating women must isolate themselves in menstruation huts, because they believed that menstrual blood pollutes the home.<sup>3</sup> Such taboos have a major impact on mentality, lifestyle, emotional state, and most importantly, health of women.<sup>4</sup>

The factors influencing menstrual hygiene also include socio-economic status, environmental constraints, humiliation and stress, lack of knowledge, lack of facilities such as water, menstrual stigma, gender norms bathroom and privacy.<sup>5,6</sup> One of the studies from Saudi has reported that girls get limited knowledge from their mothers, sisters and from religious books. A study found that 71% of girls in India report having no knowledge of menstruation before their first period.<sup>7</sup> National Family Health Survey 2015-2016 estimates that only 36 percent women are using sanitary napkins. Many girls use unhygienic undried rags and clothes.<sup>8</sup>

Improper menstrual hygiene leads to reproductive and urinary tract infections.<sup>9,10</sup>

Despite effort of WHO, UNICEF & National Government like Kishori Shakti Yojana (KSY) to address menstruation and menstrual hygiene issues it continues to remain a factor that affect health of adolescent girls. In Haryana, India poor menstrual hygiene has been one of the insufficiently acknowledged problems. It was observed that there was no information available on these issues so the present study was under taken to assess knowledge and practices related to menstruation and menstrual hygiene among adolescent girls.

## 2. Aims

To assess the knowledge and practices related to menstruation and menstrual hygiene among adolescent girls of selected schools of District Ambala, Haryana

## 3. Materials and Methods

A descriptive cross sectional study with non experimental research approach was conducted in selected schools of Mullana and Barara of District Ambala, to assess the knowledge and practices related to menstruation hygiene among adolescent girls. Ethical clearance was obtained

from Institute Ethics Committee and permission to conduct research was obtained from the Head of schools. Written Informed consent was obtained from parents after providing detailed parent information sheet to them. Data was collected using self structured questionnaire which was validated by 9 experts from the same field.

The tool was given to 9 experts in the field of Nursing for validation. The calculated Content Validity Index (CVI) was 0.87. The questionnaire consisted of socio-demographic profile, knowledge of adolescent girls regarding the menstrual hygiene and practices related to menstrual hygiene. Total enumeration sampling technique was used to enroll 192 adolescent girls from class 9<sup>th</sup> to 12<sup>th</sup> of selected schools. The girls who were willing to participate, and were able to understand either Hindi or English or Punjabi were included. The girls who did not achieve menarche or were having amenorrhoea for more than three months were excluded. Participants were made to sit in a separate room so that they can feel comfortable and privacy was ensured. The questionnaires were distributed and 45 minutes were provided to complete the questionnaire. Data collection was terminated after clearing all the doubts of participants. Data obtained was coded and was analyzed using descriptive and inferential statistics by statistical package for the social sciences (SPSS)-16.

## 4. Results

Socio-Demographic variables of adolescent girls are depicted in Table 1. More than half 81 (42.1%) girls were between age group of 12-14 years, 111 (57.8%) were between in age group 15 to 17 years. Half of the parents 95 (49.47%) had income in between 5000-10000 Rupees/month, 66 (34.3%) parents had income greater than 10000 Rupees/month and 31 (16.1%) parents had income less than 5000 Rupees/month. Majority of girls 128 (66.6%) were living in rural community and 64 (33.3%) girls were living in urban community. Half of the girls 96 (50%) were having separate room, 44 (22.9%) were living with their male and female siblings, 38 (19.79%) were living with others, 14 (7.2%) had their rooms with their parents. All 192 (100%) adolescent girls were having toilet facility at their home. Majority of girls 164 (85.4%) were living in a nuclear family and few of them 28 (14.5%) were living in joint family. Data about mothers of girls revealed that more than half 115 (59.8%) of them were less than 40 years and 66 (34.3%) and 62 (31.8%) were educated up to primary level, and higher secondary level respectively, 36 (18.7%) were illiterate and 28 (14.5%) were educated up to secondary level. None of them were graduate or above.

**Table 1:** Socio-demographic variables of adolescent girls and their mothers N=192

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
Age:		
12-14 year	81	42.19
15-17 year	111	57.81
Height:		
4-4.5	11	5.73
4.6-5	71	36.98
5.1-5.5	110	57.29
Weight:		
40-50kg	172	89.58
50-60kg	20	10.42
Class:		
9 <sup>th</sup>	40	20.83
10 <sup>th</sup>	36	18.75
11 <sup>th</sup>	73.0	38.02
12 <sup>th</sup>	43.0	22.40
Income:		
>5000	31	16.14
5000-10000	95	49.48
<10000	66	34.38
Place of residence:		
Rural	128	66.67
Urban	64	33.33
House:		
Kuccha	33	17.19
Pucca	159	82.81
Rooms:		
Separate	96	50
With male/female siblings	44	22.91
With parents	14	7.29
With others	38	19.79
Toilet:		
Yes	192	100
Family:		
Nuclear	164	85.42
Joint	28	14.58
Age of mother:		
<40years	115	59.90
40-50years	71	36.98
>50years	6	3.12
Education of mother:		
Illiterate	36	18.75
Primary	66	34.48
Secondary	28	14.88
Higher secondary	62	31.89

**Table 2:** Knowledge and source of information regarding Menstruation and Menstrual Hygiene

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
Menstruation :		
Physiological process	120	62.5
Pathological process	46	24
Curse	19	9.9
Abnormality	7	3.6
Frequency of menstruation:		
Once a month	118	61.5
Twice a month	45	23.4
Thrice a month	19	9.9
More than three times in a month	10	5.2
Menstruation cycle is regulated:		
Cerebrum	38	19.8
Cerebellum	41	21.4
Hypothalamus	69	35.9
None of above	44	22.9
Estimated amount of blood loss:		
10-20ml	52	23.3
40-50ml	73	38
50-200ml	36	18.8
150-250ml	21	19.9
Content of menstrual flow		
Dead cell	37	19.3
Blood and ovum	67	34.9
Mucous and endometrial lining	32	16.7
All of above	56	29.1
Normal duration of menstruation:		
2-4 days	62	32.3
3-7 days	79	41.1
1-3 weeks	36	18.8
3-7 weeks	15	7.8
Organ of menstruation:		
Bladder	36	18.8
Urethra	50	26.4
Anus	30	15.6
Vagina	56	29.2
Normal age for onset of menses:		
10-12 year	44	22.9
13-14 year	95	49.5
14-18 year	29	15.1
18-20 year	24	12.5
Approx. age of menopause:		
40-45 year	27	14.1
45-50 year	60	31.3
50-55 year	59	30.7
55-60 year	46	24
Meaning of Menstrual hygiene		
Clean perineal area during menses	23	12
Use sanitary pads	44	22.9
Proper disposal of pads	32	16.7
All of above	93	48.4
Possible source of information regarding menstrual hygiene		

*Continued on next page*

Table 2 continued

T.V	13	6.6
Newspaper	28	14.6
Internet	35	18.2
Library	31	16.3
All of above	85	44.3
Common symptom of menstrual unhygiene		
Itching	27	14.6
Abnormal smelly vaginal discharge	49	25.5
Infection	40	20.8
All of above	77	40.1
Advantages of menstrual hygiene:		
Protect from infection	25	13
Provide sense of wellbeing	41	21.4
Avoidance of foul smell	33	17.2
All of above	93	48.4
Perineum should be cleaned		
Before changing pad	26	19.5
Every time after passing urine	47	24.5
Once day in morning	32	16.7
Morning and evening	37	49.3
Nature of pain during menses:		
Regular	36	18.8
Irregular	54	28.1
After some time of onset of menses	67	34.9
Continuous	35	18.2
Cause for increase in pain:		
Heavy lifting	39	20.3
Plenty of cold drinks	54	28.1
Running	48	25
In adequate diet	51	26.6
Method to decrease the pain:		
Hot application	66	34.4
Cold application	35	18.2
Exercises	32	16.7
Pain killer	59	30.7
Requirement of Iron rich diet during menses		
True	124	64.6
False	68	35.4
Requirement of Nutritious diet and sleep of 6-8 hours during menses:		
True	130	67.7
False	62	32.3
Can sexual activity be performed during menses		
yes	112	63.5
no	20	36.5

4.1. Menstrual profile of adolescent girls

Majority 180 (93.7%) girls had regular menstrual flow; few 12 (6.25%) girls had irregular menstrual flow (Figure 1). More than half 113 (58.8%) girls achieved menarche at age of 1-12 years, 72 (37.5%) girls achieved menarche at age 13-15 years, very few 7 (3.6%) girls achieved menarche at age 16-18 years (Figure 2).

4.2. Knowledge and source of information regarding Menstruation and Menstrual Hygiene

Most of girls 130 (67.7%) were getting the information regarding menstruation from their mother whereas 36 (18.55) girls were getting information from their sister, few 5 (2.6%) from their fathers, 3 (1.5%) from friends, very few (0.5%) were getting information from books (Figure 3). Source of information regarding menstrual hygiene was T.V, news papers, internet, library for nearly half 85 (44.3%) girls (Figure 4). Menstruation was identified as a physiological process by more than half 120 (62.5%) girls whereas 46 (24%) girls reported it as pathological process, few 19 (9.9%) girls said it a curse and very few i.e. 7(3.6%) reported it as an abnormality. Nearly half 93 (44.4%) girls were aware of meaning of menstrual hygiene i.e. cleaning perineal area during menses, using sanitary pads, proper disposal of pads, all are part of menstrual hygiene. Content of menstrual flow was correctly reported by one fourth 56 (29.2%) girls that it is dead cells, blood and ovum, mucus and endometrial lining 77 (40.1%) girls correctly responded that itching, abnormal smelling vaginal discharge and infection and all are common symptoms of poor menstrual hygiene. Advantages of menstrual hygiene were correctly reported by nearly half 93 (48.4%) girls. One fourth of 47 (24.5%) girls correctly responded that cleaning of perineum, it should be done every time after passing urine (Table 2).

Regarding pain, 67 (34.9%) girls reported that pain starts after some time of onset of menstruation, 54 (28.1%) girls responded it as irregular, 36 (18.8%) girls responded it as regular and 35 (18.2%) girls responded it is continuous. Related to method used to reduce the pain 66 (34.4%) girls responded that it can be decreased by hot application, 59 (30.7%) girls responded that it can be decreased by pain killers, 35 (18.2%) girls responded that it can be decreased by cold application and 32 (16.7%) girls responded that exercise decrease pain.

Regarding diet, recommendation of iron rich diet, nutritious diet and sleep of 6-8 hrs was identified by majority of adolescent girls (124 (64.6%) and 130 (67.7%) respectively)

More than half 112 (63.5%) girls reported sexual activity is safe to perform during menses (Table 2).

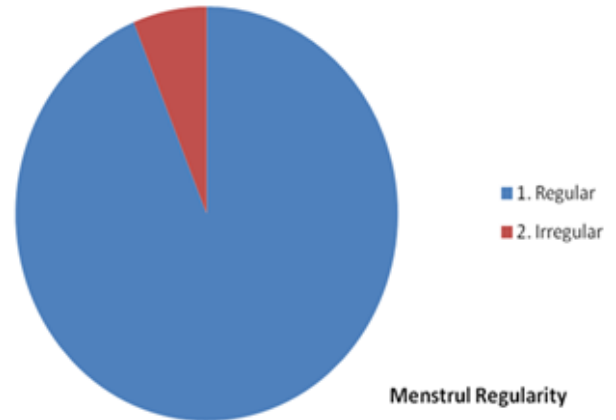


Fig. 1: Menstrual profile of the adolescent girls.

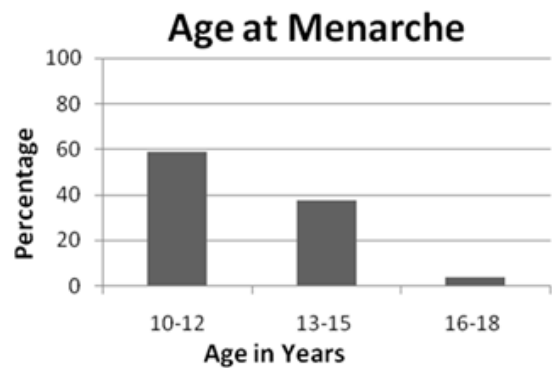


Fig. 2: Age at Menarche

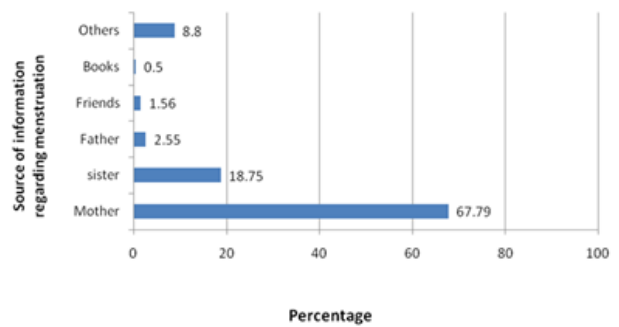
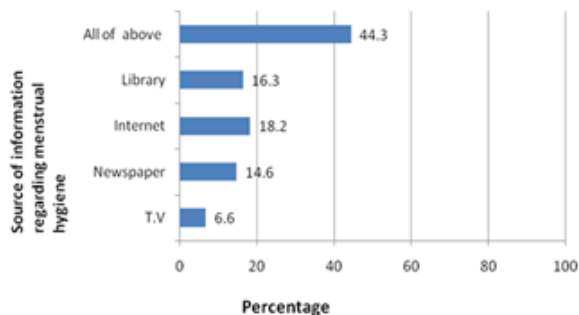


Fig. 3: Source of information regarding menstruation

**Table 3:** Practices of Adolescent Girls regarding Menstruation and Menstrual Hygiene. N=192

Variables	Frequency	Percentage
Type of pad used during menstruation:		
Cotton	28	14.6
Clothes	38	19.8
Cotton and clothes	37	19.2
Market pads	89	46.4
Frequency of changing pads:		
Once daily	19	9.9
Twice daily	47	34.5
Thrice daily	41	31.4
More than three times daily	23	24.2
Method of pad disposal:		
Covering with newspaper and put it in dustbin	98	51
Washing and rolling	47	24.5
Rolling with covering	30	15.6
Rolling without covering	17	8.9
Products used to clean perineum :		
Soap and water	56	24.2
Only water	78	40.6
Dettol / savlon	32	16.5
Potassium permanganate	27	14.
Any other solution	11	4.7
Technique used to clean perineal area:		
Front to back	22	11.3
Back to front	49	25.5
Both ways	78	40.6
Do not consider it important	43	22.6
Dry your undergarments :		
Under sunlight	87	45.3
Under tube light	40	20.8
By covering with towel/clothes	43	22.4
Inside the room	22	11.5
Method used to reduced the pain:		
Hot application	14	7.3
Cold application	26	13.5
Pain killer	42	22.9
Rest	58	40.2
Exercise	19	9.9
Other	12	6.2
Do rest and sleep help to reduced the pain:		
Agree	84	43.8
Disagree	45	23.4
Strongly agree	46	24.5
confused	14	8.3
Avoid some food products to reduced pain		
Yes	112	68.1
No	65	31
Eat some food products to reduced pain		
Yes	98	51
No	94	49

Comfortable to talk about problems during menses:		
Mother	75	39.1
Sister	39	20.3
Friends	43	22.4
teachers	35	18.2
Problems faced during menses:		
Dysmenorrhea	46	26.2
Fatigue	56	29.2
Weakness	73	3.8
Headache	51	26.6
Spotting	23	14.2



**Fig. 4:** Source of information regarding menstrual hygiene

#### 4.3. Practices of adolescent girls regarding menstruation and menstrual hygiene

Market pads were preferred to use by nearly half 89 (46.4%) girls whereas 38 (19.8%) girls used clothes, 37 (19.3%) girls used both cotton and clothes and 28 (14.6%) girls use only cotton during menstruation (Table 3). Related to frequency of changing pads 23 (12%) girls reported that it is more than three times in a day, 47 (24.5%) girls reported twice daily, 41 (21.4%) girls reported thrice daily and few girls i.e. 19 (9.9%) reported once daily. Nearly half 98 (51%) girls reported that preferred method of sanitary pad disposal was to throw it in dustbin.

To clean perineum, 78 (40.6%) girls were using only water, 56 (29.2%) girls reported use of both soap and water, 32 (16.5%) reported using dettol/savlon, 27 (14.1%) reported using potassium permagnate, and few 11 (5.7%) reported using other solution to clean the perineum. Technique used to clean perineal area was both front to back and back to front technique by 78 (40.6%) girls. 43 (22.6%) girls do not consider it as important, and 22 (11.5%) girls practice front to back technique to clean perineal area. Nearly half 87 (45.3%) girls used direct sunlight to dry undergarments whereas, 43 (22.4%) girls covered them with towel/clothes, 40 (20.8%) girls used to dry them under tube light and few girls i.e. 22 (11.5%) used to dry their undergarments inside the room.

Less than half 75 (39.1%) girls felt more comfortable to talk about menses with their mothers, 43 (22.4%) girls

with their friends, 39 (20.3%) girls with their sisters and 35 (18.2%) girls feel more comfortable to talk with their teachers. Regarding problems faced during menses, 73 (38%) girls reported weakness, 56 (29.2%) girls reported fatigue, 51 (26.6%) girls reported headache, 46 (24%) girls reported dysmenorrhea.

## 5. Discussion

Menstruation and Menstrual hygiene is surrounded by myths, misconceptions, superstitions and (social, cultural and/or religious) taboos. Education by parents concerning reproductive health, sexuality and related issues is considered almost everywhere as a “no –go” area. In the present study it was found that adolescent girls had limited knowledge regarding Menstruation and Menstrual hygiene. Most of the girls the source of information was mother followed by sister, fathers, friends whereas very few were getting information from books. Similar results were reported in previous study that girls get most of knowledge about Menstruation and Menstrual hygiene from their mothers.<sup>11</sup> Another study on attitudes and knowledge regarding menstruation reported lack of sufficient information about menstruation and about the use of tampons.<sup>12</sup>

Various studies have reported use of boiled and dried cloths rags torn from old saris, sanitary pads and tampons during menstruation. National family health survey reported that girls used cloth followed by sanitary pads and locally prepared napkins. Whereas, in the present study girls preferred using sanitary pads however difficulty to procure pads was also reported, and same was reported in report of NFHS-4.<sup>13</sup> According to latest data by Ministry of Health only 12% of women have access to sanitary napkins in India therefore they have to rely non unhygienic and outdated methods.<sup>13</sup> Another study conducted in South region of India revealed that, women and girls in poor countries cannot afford to change pads around four times a day during menstruation. Instead, the vast majority of women and girls used rags. These were usually torn from old saris.<sup>14</sup> Similarly in the present study use of cotton and cloth during menstruation was reported.



In the present study, girls were aware about menstruation and believed it is a physiological process. The results were similar to metaanalysis and systematic review on menstrual hygiene in which half of the girls considered it normal process.<sup>11</sup> Another study on perineal hygiene reported use of both soap and water for the cleaning of perineum during menstruation but in present study more girls used only water to clean perineum followed by soap and water.<sup>15,16</sup>

Menstruation and menstrual hygiene is associated with various practices avoiding certain foods, drinks and activities, including showering and performing perineal care, and practiced several indigenous rituals during the period. A study reported self imposed restrictions during menstruation on exercise, food items, visits and sex to lessen discomfort and avoid embarrassment.<sup>3</sup> Similar results were found in present study. Adolescent girls reported avoiding cold drink, citrus fruits, spicy foods, pickle, cold food, dry fruit, fried items and increased consumption of hot milk, hot tea, coffee, soft diet, hot soup, hot water, *Trachyspermum coticum* (commonly known as ajwain), medicine, ghee and milk, vegetables, rice, kidney beans, banana, bread and pumpkin. Hot application followed by pain killers medication and cold application was used to ease with menstrual pain. Current study found that girls have lack of knowledge regarding menstruation and menstrual hygiene and related practices and similar finding have been reported by other in developing countries

## 6. Conclusion

The study results revealed that the adolescent girls were having lack of knowledge regarding menstruation and menstrual hygiene and were following inadequate practices regarding the same. These findings of study were mind boggling and are suggestive of a need to conduct a research to assess the effectiveness of some strategies to improve knowledge and practices of adolescent girls regarding menstruation and menstrual hygiene so that infection can be prevented. Awareness raising programmes, health personnel, enthusiastic school teachers and knowledgeable mothers can play a prominent role in communicating the crucial message of maintaining proper menstrual hygiene to the adolescent girl of today.

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## 8. Conflict of Interest

The authors declare that there are no conflicts of interest in this paper.

## 9. Source of Funding

None.

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