



Knowledge, Attitude and Practice towards Menstrual Hygiene among Adolescent Girls: A case study from Dehradun, Uttarakhand

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Abstract

Menstrual hygiene is a prime key of prevention from various reproductive tract infections, which may lead to severe health consequences among girls sometimes infertility, cervical and endometrial cancer. The study aims to find the knowledge, attitude and practice regarding menstrual hygiene among adolescent girls in a Government school of Dehradun. The study was conducted on 200 girls who willingly participated in the survey, from the girl's school in Dehradun. Girls were interviewed with the help of structured questionnaire and data was evaluated using SPSS version 21.0 licensed software. One-way ANOVA test was used for assessing the data P value (<0.05) was considered significant. The majority of girls 143 (71.5%), were > 16 years of ages, belonging to middle class 68(34%) and joint family 136(66%) set up. In spite of average knowledge 55.83% about menstruation, 145 (72.5%) girls were aware about menstruation process, Girls agreed they can enter kitchen (41/91%), can take bath (54.54%), and they agreed they can sleep on same bed 50.50% during menstruation, need not be separated at this specific time indicates positive attitude and 66.33% girls have overall good practice during menstruation. .

Key Words- Menstrual hygiene, Adolescent girls, Knowledge, Practice, Government Girls School, Dehradun

Introduction

Menstruation is a natural unique process, which is an unavoidable and important stage of women's life, where her body undergoes different reproductive changes (Deshpande et al 2018). Menstruation process involved shedding of uterus lining under strict hormonal control secreted by pituitary gland (Poureslami, Osati-Ashtiani 2002,). The onset of menstruation is known as Menarche, the onset age is different for every girl from 13-17 years based on studies (Chumlea et al 2003, Aryeetey et al 2011, Dambhare et al 2012, Tunau et al 2012, Gultie et al 2014, Yasmin et al 2013). Due to lack for scientific knowledge in different cultures and religions, menstruating females perceive psychological and social burden in terms of shame, disgust and fear⁹. Lack of



menstrual knowledge may lead to low hygiene and malpractice during menstruation. This unhygienic behavior is responsible for various reproductive tract and urinary tract infections along with some pelvic inflammatory conditions also (Thomas et al 2001, Barathalakshmi et al 2014).

Menstrual hygiene term indicates menstrual healthcare needs and requirement during menstrual cycle (Sommer, Sahin 2013). According to United Nation “Menstrual hygiene management in females is defined as usage of clean absorbent material for the collection and absorption of menstrual blood, which can be privately changed during menstruation period, availability of soap and water for washing the body whenever required and the disposal facilities for the used absorbent material (UNESCO 2013, Reid , Bruce 2003). Every year approximately 10% females affect with reproductive tract infection, urinary tract infection and bacterial vaginosis, almost 75% females have history of such infection in their reproductive ages. The risk factors involved in these infections are pregnancy and menstrual unhygienic (Goel et.al. 2018).

Girls with sound knowledge about menstruation during their menarche can effectively manage menstruation, which is a milestone for a better reproductive health later in their life. Different misconceptions related to menstrual practice are available in India, females and girls have restrictions for certain activities during this period ¹⁵. Mothers and Elder Sisters are first to interact with girls regarding menstruation, so it is very important to evaluate their knowledge, attitude related to this process and practical approach regarding this specific period.

Material and Method

This school based study was conducted by interviewing students of (class 9th-12th) of Government Girls Schools around Rajpur Road in Dehradun during November-December, 2019 by student pharmacists. All girl students were informed about this study and those who agreed to enroll themselves were interviewed after getting signed informed consent form. A pre-designed questionnaire was used for this purpose; it was prepared in Hindi and English language for better understanding of students. The questionnaire included socio-economic status and educational qualification of parents, 6 knowledge related questions, 8 attitude related questions and 6 practice related question during menstruation. Participants were assured about confidentiality of data. After interview participants were educated about facts and importance of hygiene during menstruation by student pharmacist. UNICEF guidelines were applied for the practice



assessment(Reid , Bruce 2003). The completely filled questionnaire data was coded for minimal errors. One way ANOVA test was used for assessing the data using SPSS version 21.0 licensed software. P value (<0.05) was considered significant.

Result

Socio-demographic Profile: The socio-demographic profile of the respondents is shown in (Table 1). In this study, the majority, 143 (71.5%), were > 16 years of ages, (mean age of study population = 15.38 ± 1.08 years), were Hindu, 176 (88%), and were living in a joint family 136(66%). In this study most of the students were studying in class 12th, 58 (29%). Most of their parents 68(34%) belonging to the middle social class i.e. 3196-6390 rupees/ month salary. The education status of parents was primary education for both mother and father i.e 79 (39.5%) and 108(54%) respectively. Mostly 93 (46.5%) father belongs to private job and mothers were involved as home maker 94 (47%).

Awareness toward menstruation: Awareness towards menstruation among school girls is presented in Table 2. According to this study 145(72.5%) girls were aware about menstruation process, out of 200 participants 148 (74.0%) girls have heard about menstruation before attaining menarche. Most of the girls were not aware about

Table 1: Subject distribution as per socio-demographic profiles

Variable (200)	Number (%)
I. Age	
a. more than 16	143 (71.5)
b. Less than 16	57(28.5)
II. Class	
a. 9th	54 (27)
b. 10th	50 (25)
c. 11th	38(19)
d. 12th	58(29)
III. Economic status	
a. (\geq 6391	62((31)
b. 3196- 6390	68(34)
c. 1917 -3195	30(15)
d. (959 -1916	10(7.5)
e. (\leq 958	30(15)
IV. Type of family	
a. Nuclear	64(32)
b. Joint	136(66)



V. Religion	
a. Hindu	176(88)
b. Muslim	18(09)
c. Other	06(03)
VI. Father's Education status	
a. Secondary or higher	50(25)
b. Middle	23(11.5)
c. Primary	108(54)
d. Illiterate	19(9.5)
VII. Mother's Education status	
a. Secondary or higher	21(10.5)
b. Middle	53(26.5)
c. Primary	79(39.5)
d. Illiterate	47(23.5)
VIII. Occupation of father	
a. Government job	23(11.5)
b. Private Job	93(46.5)
c. Self employed	84(42)
IX. Occupation of Mother	
a. Government job	16(08)
b. Private Job	37(18.5)
c. Self employed	53(26.5)
d. Homemaker	94(47)
X. Primary source of information	
a. Mother	121 (61.1%)
b. Sister	10 (5.05%)
c. Relative	10 (5.05%)
d. Neighbor	06 (03%)
e. Teacher	53 (26.76%)
XI. Reaction to first menstruation	
a. Scared	48 (24.24%)
b. Usual	96 (48.48%)
c. Discomfort	56 (28%)

term "Menstrual Hygiene" as only 49 (24.5%) answered positive for this question. Again only 47 (23.5%) students were aware about unhygienic condition of menstrual blood.

Table 2: Table demonstrating distribution of awareness regarding menstruation

Question	Yes (n %)	No (n %)
Awareness regarding menstruation process	145 (72.5%)	53 (26.5%)
Heard about menstruation before attaining menarche	148 (74.0%)	52 (26.0 %)
Knew about menstrual hygiene	49 (24.5%)	151 (75.5%)
Knew that there is foul smelling during menstruation	49 (24.5%)	151 (75.5%)
Knew that menstrual blood is unhygienic	47 (23.5%)	153 (76.5%)



Knowledge about Menstrual Hygiene: Table 3 describes knowledge towards menstruation among school girls; the overall knowledge was 55.83% as per this study. Only 50 girls (25%) out of 200 girls have knowledge about correct source of menstrual bleeding. 147 girls (73.5%) have accurate knowledge that this is a physiological process. As per this study, 20 girls out of 200 (10%) said, it is a Curse of god, 22 girls out of 200 (11%) says menstrual bleeding is resulted due to some Disease and only 11 girls out of 200 (5.5%) said menstruation results because of some sin done by a female. The 150 (75%) participants in this study answered correctly regarding Normal interval between menstrual cycles i.e. (28-35 days), only 50 (25%) participants answered incorrectly i.e. (40-45days). The 53 (26.5%) girls answered positive regarding pregnancy during menstruation, while 147 (73.5%) responded negative for this question. The 141 (70.5%) girls have correct knowledge that poor menstrual hygiene can leads to infections, 129 (64.5%) girls were known to ovulation period i.e. a time when females are more fertile during menstrual cycle.

Attitude regarding menstruation : Table 4 illustrate attitude of girls regarding menstruation. As per this study only 14 (7.07%) girls were strongly disagree about entering the temple during periods. 83 (41.91%) girls agrees a woman can enter kitchen or cook food during menstruation. Also 108 (54.54%) girls agrees for taking bath during menses, whereas 121 (61.1%) girls i.e. more than 50% percent of study population agree for hair wash during menstruation. 100 (50.50%) girls agree for using same bed with others for sleep during menstruation. A menstruating woman can touch pickle was agreed by 103 (52.02%) girls, In this study 84 (41.41%) girls agreed that a woman need not avoid any foods during menstruation, when asked about sexual intercourse during menstruation, 97 (48.98%) girls have disagreed in this study.

Table 3: Knowledge of girl students regarding Menstruation

Variable	Number (%)	Correct knowledge score	% Correct score
Source of menstrual bleeding			
Uterus	50(25)		
Urinary bladder	81(40.5)	50	25%
Don't know	79(39.5)		



What is the menstruation process			
Physiological	147(73.5)		
Curse of god	20(10)	147	73.5%
Disease	22(11)		
Result of some sin	11(5.5)		
Normal interval between menstrual cycles			
Correct(28-35 days)	150(75)	150	75%
(40-45days)	50 (25)		
Can woman ever be pregnant during menstrual flow?			
Yes	53(26.5)	53	26.5%
No	147(73.5)		
Poor menstrual hygiene can lead to infections			
Yes			
No	141(70.5)	141	70.5%
	59(29.5)		
Is there a period women are most fertile?			
Yes	129(64.5)	129	64.5%
No	71 (35.5)		
Percentage	score	for	knowledge
55.83%			

Practice toward Menstruation:

Menstruation practice of school girls was depicted in Table 5. The overall good practice percentage was 66.33% in this study. Only 159 girls (79.5%) out of 200 girls were using sanitary napkins for soakage of menstrual bleeding, only 41 girls (20.5%) were using clothes for the same. The Storage of soakage material was also practiced well by 133 girls (66.5%) out of 200 participants as the unused cloths and pads were wrapped in tissue or plastic bag for further use. Only 41 girls (21 %) stored sanitary pads in the storage area, whereas 26 girls (13%) were ill practising the storage of pads with other household material.

The changing frequency of soakage material was practiced well by 103 (51.5%) girls as these girls were changing it for every 3-4 hrs. Also 51 (26%) girl's changing frequency was at every 6 hrs. 46 (23%) girls were worse in practicing it as they were changing it at 12 hrs. 125 girls (62.5%) were practicing good for soakage material disposal as they were wrapping a pad in a paper to make a clean package in the bin so it can be burned later. Whereas 75 girls (37.5%) were involved in wrong practice as the pads were disposed in an open dustbin. 131 (65.5%) girls were practicing Bath during Menstruation, whereas only 09 girls (4.5%) were not bathing during



menstruation and 60 girls (30%) were occasionally bathing during menstruation. Washing of genitals after micturition was practised by 145 (72.5%) girls, 35 (17.5%) girls were not washing it during menstruation which can lead to different infections, and 20 (10%) girls were doing it occasionally.

Table 4: Table demonstrating distribution of attitude regarding menstruation

Question	Strongly disagree (0)	Disagree (1)	Neutral (2)	Agree (3)	Strongly agree (4)
A woman can enter temple/pray during menstruation	14 (7.07%)	72 (36.36%)	20 (10.0%)	65 (32.82%)	29 (14.64%)
A woman can enter kitchen/cook food during menstruation	07 (3.53%)	44 (22.22%)	50 (25.0%)	83 (41.91%)	16 (8.08%)
A woman can take bath during menstruation	11 (5.55%)	19 (9.59%)	32 (16.0%)	108 (54.54%)	30 (15.15%)
A woman can wash hair during menstruation	13 (6.56%)	18 (9.09%)	19 (9.5%)	121 (61.1%)	29 (14.64%)
A woman can sleep on same bed as others during menstruation	11 (5.55%)	27 (13.63%)	33 (16.5%)	100 (50.50%)	29 (14.64%)
A woman can touch pickle during menstruation	08 (4.04%)	37 (18.68%)	17 (8.68%)	103 (52.02%)	35 (17.5%)
A woman need not avoid any foods during menstruation	23 (11.5%)	62 (31.31%)	20 (10.1%)	82 (41.41%)	13 (6.5%)
A woman can have sexual intercourse during menstruation	10 (5.05%)	97 (48.98%)	29 (14.64%)	45 (22.72%)	19 (9.5%)

Table 5: Table demonstrating distribution of Practice regarding menstruation

VARIABLE	Subgroups	NUMBER %	Good practice score	% Good practice
Soakage Material Sentry	I. Napkin	159(79.5)	159	79.5
	II. Cloth	41(20.5)		



Storage of soakage material	I. Unused cloths and pads clean (wrapped in tissue or plastic bag) for further use.	133(66.5)	133	66.5
	II. Pads safely stored in the storage area.	41(21)		
	III. Stored with other household material	26(13)		
Frequency of changing soakage material	3-4 hrs. After 6hrs. 12 hrs.	103(51.5) 51(26) 46(23)	103	51.5
Disposal of soakage material	I. Wrap a pad in a paper to make a clean package in the bin so it can be burned later.	125(62.5)	125	62.5
	II. Disposed in an open dustbin	75(37.5)		
Bathing during menstruation	I. YES	131(65.5)	131	65.5
	II. NO	09(4.5)		
	III. OCCASIONALLY	60(30)		
Washing of genitals after micturition	I. YES	145(72.5)	145	72.5
	II. NO	35(17.5)		
	III. OCCASIONALLY	20(10)		
Total percentage score for practice				66.33%

Interrelationship between socio-demographic status and KAP

Interrelationship between various socio-demographic variables with positive knowledge, attitude and practices involving menstruation is shown in Table 6 (P values using One-way ANOVA)

Table 6:

Socio-demographic variable	Knowledge	Attitude	Practice
I. Age distribution:			
a. Less than 16 years	0.43	0.401	0.5
b. More than 16 years	0.06	0.09	0.12
II. Level of education:			
a. Below high school	0.07	0.08	0.56
b. High school	0.034	0.05	0.024
c. Intermediate	0.001	0.03	0.02
III. Socioeconomic status:			
a. ≥ 6391	0.001	0.045	0.003
b. 3196-6390	0.04	0.32	0.02
c. 1917-3195	0.032	0.56	0.03
d. 959-1916	0.23	0.54	0.023
e. ≤ 958	0.21	1.2	0.9



IV. Education status:			
a. Illiterate	1.2	1.9	2.1
b. Primary level	0.98	0.87	0.76
c. Middle school	0.82	0.65	0.04
d. Secondary school	0.05	0.04	0.02
V. Type of family:			
a. Joint	0.4	0.23	0.03
b. Nuclear	0.3	0.04	0.02
VI. Religion:			
a. Hindu	0.02	0.001	0.71
b. Muslim	0.03	0.003	0.56
c. Others	0.01	0.04	0.34
VII. Occupation of father:			
a. Private job	0.04	0.04	0.05
b. Government job	0.02	0.003	0.003
c. Self-employed	0.05	0.002	0.001
VIII. Occupation of mother:			
a. Private job	0.56	0.12	0.03
b. Government job	0.43	0.85	0.37
c. Self-employed	0.24	0.34	0.23
d. Home-maker	0.04	0.02	0.04
IX. Primary source of information:			
a. Mother			
b. Sister	0.001	0.02	0.01
c. Relative	0.02	0.03	0.002
d. Neighbor	0.001	1.3	0.34
e. Teacher	1.6	1.56	0.51
	0.004	0.003	0.002

Interrelationship between various socio-demographic variables with positive knowledge, attitude and practices involving menstruation: The overall good knowledge was found in 55.83% girls, While identifying the interrelation with age a significant association was found with age ($p=0.06$) and knowledge, also attitude and practice during menstruation were not associated with age of participant, student's education level also associated with their knowledge, attitude and practice, students in intermediate class have significant knowledge ($p=0.001$), attitude ($p=0.003$) and practice ($p=0.02$) towards menstruation. Socio-economic status of family was also associated with student's knowledge ($p=0.001$), attitude ($p=0.045$) and practice ($p=0.003$). Education status of mother also affects the knowledge ($p=0.05$), attitude ($p=0.04$) and practice ($p=0.02$) of girls during menstruation. Type of student's family does not affect the knowledge of girls during menstruation although it has significantly affected the attitude (nuclear family $p=0.04$) and practice (nuclear family $p=0.02$) of girls during menstruation. As per the study the



religion of student has not found significantly associated with attitude and practice toward menstruation, but the knowledge of girls were significantly associated with all the studied religions (Hindu, Muslim, others) in this study. Occupation of father was positively associated with knowledge, attitude and practice, while mothers who were housewives showed positive association with participant's knowledge attitude and practice. Girls who attained information from neighbours were not significant in their knowledge, attitude and practice, while remaining sources were significantly associated with their knowledge, attitude and practice.

Discussion

Menstruation leads to hormonal changes in the body, which converts a girl child into a woman who attained sexual maturity with physical and psychological changes (Rembeck et al 2006). It has been found in various studies that girls with proper knowledge about menstruation showed positive attitude towards menstruation also positive practice and hygiene, which is further responsible for better reproductive health of females, as unhygienic behaviour during menstruation leads to different infections, contributing to infertility later in their life (Dhingra et al 2009). In this study, the smallest girl was 12 year old and eldest girls were 18 year old. This study depicts that majority of students were more than 16 year in age i.e.71.5%, these results are similar to other studies where most of participants were in their late menarche, reported in India (Jain et al 2017, Deshpande et al 2018). This study reported 88% were Hindu; this result was also almost similar to the study reported in South India where 90.2% participants were Hindu.

Educational level of mother determines the overall attitude of family regarding self-hygiene specifically adolescent girls; also mothers were the 1st person who told girls about menstruation in this study and only 29.5% mothers were illiterate, so the mothers being 1st resource person to the girls they must have educated the girls efficiently regarding basics of menstrual practices. Which indicates a positive attitude among girl students, the present study reported result were almost similar to previously reported studies in other parts of India (Geetha et.al. 2013, Omidvar, Begum 2011). Teacher's role for educating girls about menstruation was decreased to 26.76%, which was not similar to studies reported in other countries where Teachers were 1st resource person for educating girls about menstruation (Evans Paul 2016, Dhingra , Kumar 2009).



Different reported studies say that type of family also affects status of hygiene in the family; most of the girl students (66%) were from joint family in this study, whereas different studies reported nuclear family set ups in India (Omidvar S, Begum 2011). This study also examined the socio-economic status of family which was found lower middle class for 34% students in this study. Previous studies reported in India showed lesser awareness about menstruation before achieving menarche, whereas 74% girl students in this study were aware about it before achieving menarche (Shanbhag et al 2012, Goel et al 2018). This awareness among girls indicates better knowledge related to menstruation practice.

In India, as a general practice, mothers are the one who first interact with girls about menarche and provide them sanitary material to handle their menstruation, this study also reported, mothers as primary source of information (61.1%) about menstruation, similar to various other reported studies (Shanbhag et al, 2012, Goel et al 2018). Almost half (48.48%) of Girl student's first reaction toward menstruation was usual in this study; probably because girls were already familiar with this process before reaching menarche. Only 25% girls know about correct source of bleeding in spite of this 73.5% girls know this is a physiological process. 75% Girls have correct knowledge about normal interval of menstrual cycle, along with correct knowledge regarding infection occurrence due to poor menstrual hygiene, 70.5% girls answered correct about this question. Our study showed student's positive attitude during menstrual cycle in terms of entering kitchen, taking bath, hair wash and touching pickles, also they have a positive attitude to sleep with others during menses these findings were different from other reported studies in India (Deo, Ghattargi 2005). Students have negative attitude towards entering temples and sexual intercourse during menstruation. The study did not found any strict restrictions towards menstruation. These finding suggests the modifications in cultural beliefs regarding menstruation, which reflects better developed knowledge among girl students. Maintenance of hygienic practices during menstrual period save females from various reproductive infections, sexually transmitted diseases and urinary tract infections, which are responsible for life-threatening condition such as cervical cancers.

Overall good practice score for girls in our study was 66.33%, which is far better than a study reported in Gujjar girls where only 3.1% girls have good menstrual practice (Lawan et al 2010). Although these results were lower than previously reported studies in Ethiopia and North



western Nigeria, where (90.9%) and (88.7%) participants have good menstrual practice (Patavegar et al 2014). This study reported 79.5% girls used sanitary napkin whereas 20.5 % girls were using cotton cloth for dealing their menstruation. This result was almost similar to a reported study (UNICEF. 2008), where 85.92% girls were using sanitary pads, it was better in comparison to a reported study in Delhi where only 60% girls were using sanitary napkins (Omidvar S, Begum 2011). Middle class socio-economic status of parents could be reason for the easy accessibility and affordability of disposable pads during menstruation. Girls have showed a satisfactory menstrual practice (66.5%) regarding the storage of sanitary material both (disposable sanitary pads and cotton cloths) as per UNICEF guidelines (Pokhrel et a 2014). The frequency of changing sanitary napkins was also almost satisfactory as 51.5% girls were changing pads 3-4 times in a day, which was a better practice than other reported studies(Dasgupta, Sarkar 2008).

The Girls in our study were not using proper practice regarding disposal of soakage material as only 61.5% girls were disposing pads in a proper package in the dustbin, later on which can be burned, this practice was similar to other reported studies(Sudeshna, Aparajita 2012). Other encountered practices were reported satisfactory, where 65.5% girls were allowed to bath during menstruation and 72.5% girls were washing their genitals after micturition. These self-hygiene practices are essential to maintain healthy urinary and reproductive conditions and also to protect themselves from various infections; which may be life threatening .

Our study also have limitations as this was carried out with a small data, the study was performed in only one government school level at urban area, which do not represent the complete perspective of whole state. A large data study (including rural, urban and town area of the state) could be conducted for better understanding of menstrual practice among adolescent girls.

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