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V Vandana
Nursing Tutor, Obstetric and Gynaecological Nursing Department, M.M. College of Nursing, Mullana, Haryana, India

K Simarjeet
Assistant Professor, Obstetric and Gynaecological Nursing Department M.M. College of Nursing, Mullana, Haryana, India

K Amandeep
Assistant Professor, Obstetric and Gynaecological Nursing Department M.M. College of Nursing, Mullana, Haryana, India

Correspondence
V Vandana
Nursing Tutor, Obstetric and Gynaecological Nursing Department, M.M. College of Nursing, Mullana, Haryana, India

Assessment of knowledge of adolescent school going girls regarding menstruation and menstrual hygiene

V Vandana, K Simarjeet and K Amandeep

Abstract
The onset of menstruation is one of the most important physiological changes occurring among girls during adolescent years of life. Menstruation heralds the onset of physiological maturity in girls. A study was carried out on two hundred adolescent school going girls regarding menstruation and menstrual hygiene with the aim to assess the knowledge of adolescent school going girls regarding menstruation and menstrual hygiene in selected schools of Ambala Haryana. Quantitative research approach with descriptive (non experimental) research design was used. The sample comprised of 200 adolescent school going girls studying in class 8th, 9th and 10th who were selected by Purposive sampling technique from Farooka Khalsa Sr. Sec. School, Bhartiya Public School, D.A.V Public School, Ambala Haryana. The tools used for data collection was structured knowledge questionnaire. The content validity and reliability (0.82) was established. Findings revealed mean knowledge score of adolescent school going girls regarding menstruation and menstrual hygiene was 11.72, median was 11.5 and standard deviation was 3.02. Half (50%) of the subjects have below average knowledge regarding menstruation and menstrual hygiene. There was significant association of level of knowledge of adolescent school going girls with knowledge regarding menstruation prior to onset of menarche, source of information, interval between each menstrual cycle and presence of pre-menstrual symptoms.

Keywords: Knowledge, Adolescent School Going Girls, Menstruation, Menstrual Hygiene

1. Introduction
Adolescence is derived from Latin word adolescere, meaning "to grow up". WHO identifies adolescence as the period in human growth and development that occurs after childhood and before adulthood, from ages 10 to19 years. Adolescent girls constitute a vulnerable group not only with respect to their social status but also in relation to health [1]. Adolescence constitute more than 1.2 billion worldwide, and about 21% of Indian population. The population of Adolescent in Haryana is 5,346 adolescents including 2,962 boys and 2,384 girls [2].
Puberty is a key process of human development into adulthood, Hormonal changes lead girls to experience their first menstruation (menarche), while boys will have their first ejaculation (semenarche). [3] For girls, Menstruation is a physiological phenomenon which is unique to females that begins in adolescence. It is monthly uterine bleeding for 4-5 days (average) coming regularly every 28-30 days. Normally females get 13 menses in a year and around 400 menses in her reproductive life. In India, the age of menarche is between 10-16 years, menstrual blood contains the blood and tissues (tissues of shed layer of uterus i.e endometrium) in it [4].
Menstrual hygiene refers to the personal hygiene practices during menstruation. A girl needs to practice a high level of personal hygiene during her periods and the personal hygiene starts from the selection of best sanitary products, its proper usage, disposal, body cleanliness, diet, etc. Menstrual hygiene is important because it is a natural process of hygiene related to practice of girls during menstruation as it has an impact in terms to prevent reproductive tract infections and urinary tract infections, used pads should be dispose off by wrapping in paper and then into the dustbin because if blood socked pad comes in environment (without any covering on it) flies will suck that blood and cause various type of infection [4].
For most girls menarche is a negative, frightening, experience, or at the best, a nuisance or is

something to fear or to be ashamed of. Restrictions in daily activities such as not being allowed to take bath, change clothes, comb hair and enter holy places and dietary restrictions (taboo on consumption of food like rice, curd, milk, lassi, potato, onion, sugarcane etc.) during the menstrual period are also imposed [5].

Kamath R, Ghosh D, Lena A, Chandrasekaran V conducted a cross sectional study on 550 adolescent school going girls of urban and rural area to check their knowledge regarding menstruation. Results showed that a majority of the respondents in both urban (91.9%, n=248) and rural (92.1%, n=258) were aware about the normal duration of menstrual cycle i.e. 3-7 days. Regarding the knowledge on the normal interval between menstrual cycles, 47.8% among urban (n=129) and 39.6% among rural (n=111) adolescents knew that the normal range was between 25-32 days [6].

Most of the females suffer from the pre-menstrual symptoms (pre-menstrual symptoms occur between ovulation and start of menstrual bleeding), and they may vary greatly from cycle to cycle and be worse during times of increased stress. Common physical symptoms are Fatigue, Headache, Back pain, Breast tenderness, constipation and Mood and behavior symptoms like Sad or Depressed mood, Anger irritability, Anxiety, Mood swings etc. Average blood flow during menstruation is 80-90 ML per cycle [7].

Young and growing children have poor knowledge and lack of awareness about physical and physiological changes associated with the onset and presence of adolescence. They learn about sexuality and secondary sex characteristics primarily from their peer groups or other inappropriate sources. Most girls are not informed about menarche and how to manage menstrual bleeding, and adolescents also lack knowledge about reproductive health issues. Therefore the need for creating awareness and increasing access to the requisite sanitary infrastructure related to menstrual hygiene is important [8].

A study was conducted on impact of health education on knowledge and practices about menstruation among adolescent school going girls of Kalamboli, Navi-Mumbai. The study concluded that hundred percent of the girls were aware of menstruation. Ideally, all mothers should make their daughters aware of menstruation even before they could attain menarche [9].

A Descriptive cross sectional study was conducted among 160 adolescent girls of a Secondary school situated in the field practice area of rural health unit and training centre, Singur, West Bengal, with the help of a pre-designed and pre tested questionnaire. The result showed that 108(67.5%) girls were aware about menstruation prior to attainment of menarche. Mother was the first informant regarding menstruation in case of 60(37.55%) girls. One hundred and thirty eight (86.25%) girls believed it as a physiological process. Seventy eight (48.75%) girls knew the use of sanitary pad during menstruation, but during practice, only 18(11.25%) girls used sanitary pads during menstruation. For cleaning purpose 156(97.5%) girls used both soap and water. Regarding restrictions practiced, 136(85%) girls practiced different restrictions during menstruation [10].

Based on the review of literature and clinical experience, the researchers felt need to find the major differences in knowledge regarding menstrual hygiene among rural and urban adolescent school going girls that will help them to improve their self care ability and follow healthy and hygienic practices, and school girls are chosen to collect sample because school is the only place where researcher can find out a large sample together from different culture, from different family background, from different socio economic status.

Materials and Methods

Quantitative (Non Experimental) research approach with descriptive research design was used. The sample of the study comprised of 200 adolescent school going girls studying in 8, 9 and 10 class in Farooka Khalsa Sr. Sc. School, Bhartiya Public School, D.A.V Public School Ambala, Haryana of Ambala, Haryana. Sample was selected by Purposive sampling technique with the inclusion criteria who had attained menarche, studying in 8, 9 and 10 class, willing to participate in the study. Structured knowledge questionnaire was used to assess knowledge regarding menstruation and menstrual hygiene of adolescent school going girls. It comprised of 25 knowledge items which included concept of menstruation, anatomy and physiology of menstruation, menstrual hygiene. The maximum possible score of the structured knowledge questionnaire was 25 and minimum score was zero. Content validity of the tools was established by submitted to seven experts, one expert from Medical Surgical Nursing, two experts from Community Health Nursing, four experts from Obstetrics & Gynecology Nursing. The reliability of structured knowledge questionnaire was found to be 0.82 and checked by KR20 method. Formal Administrative approval were taken from the Principal of Farooka Khalsa Sr. Secondary, School, Bhartiya Public School, D.A.V Public School. There was no interference on the routine practices while collecting data. Professional norms were maintained. Consent was taken from study subjects regarding willingness to participate in the research project. Confidentiality of the information was maintained. The data collection for the final study was done in the 23rd and 25th February' 2016. The structured knowledge questionnaire was administered to assess the knowledge regarding menstruation and menstrual hygiene by using paper pencil technique. It took approximate 20-25 minutes to fill Structured knowledge Questionnaire.

Results

Demographic Variables

Data showed that most (66%) of adolescent school going girls were in age group of 14-16 years, less than half (45%) of the adolescent school going girls were from 9th class followed by (35.5%) were from 8th class and (19.5%) were from 10th class. Majority (86.5%) of the adolescent school going girls belonged to Hindu religion followed by (12%) belonged to Sikh religion and (1.5%) were muslim. Education of mother of less than half (31.5%) of adolescent school going girls was graduation whereas only (11.5%) had higher education. Majority (80.5%) of mothers of adolescent school going girls were Home maker whereas (3%) were self employed. Nearly half (49.5%) of the adolescent girls belonged to joint family followed by nuclear family 46% and extended family 4.5%. Majority (79.5%) of adolescent school going girls were living in urban area followed by rural area 20.5%. Most (73%) of adolescent school going girls were vegetarian followed by non-vegetarian (20%) and eggetarian (7%). Less than half (37%) of the adolescent school going girls were having family income more than 15000Rs/month whereas only (10.5%) were having family income23 10001-15000 Rs/month.

Menstrual Characteristics

Table 1: Frequency and Percentage Distribution of Adolescent School Going Girls in terms of History of Menstruation N= 200

Sr. No.	History of Menstruation	Frequency (F)	Percentage (%)
1.	**Age of menarche**		
1.1	11-12	74	37%
1.2	13-14	121	60.5%
1.3	15-16	5	2.5%
2.	**Knowledge regarding menstruation prior to onset of menarche**		
2.1	Yes	161	80.5%
2.2	No	39	19.5%
	If, yes source of Information		
2.1.1	Mother	100	62.1%
2.1.2	Friends	26	16.1%
2.1.3	Teachers	21	13.2%
2.1.4	Elder sister	12	7.4%
2.1.5	Internet/ books/T.V/newspaper	2	1.2%
3.	**Were you prepared for menstruation prior to onset of menarche**		
3.1	Yes	120	60%
3.2	No	80	40%
4.	**Reaction towards first menstruation**		
4.1	Felt dirty	72	36%
4.2	Become angry	8	4%
4.3	Thought why girls have menses and boys not	25	12.5%
4.4	Got irritated	24	12%
4.5	Felt good that I am growing up	9	4.5%
4.6	Normal reaction	62	31%
5.	**Regularity of menstruation**		
5.1	Regular	153	76.5%
5.2	Irregular	47	23.5%
6.	**Intervals between each menstrual cycle**		
6.1	<21 days	32	16%
6.2	21-25 days	52	26%
6.3	26-28 days	56	28%
6.4	>28 days	60	30%
7.	**Duration of menstruation**		
7.1	<3 days	43	21.5%
7.2	3-6 days	132	66%
7.3	>7 days	25	12.5%
8.	**Do you have pre-menstrual symptoms**		
8.1	No	90	45%
8.2	Yes	110	55%
	If, yes then specify		
8.1.1	Anxiety	5	4.55%
8.1.2	Fatigue	5	4.55%
8.1.3	Dysmenorrheal pain	60	54.55%
8.1.4	Acne	40	36.6%
9.	**Complaints during menstruation**		
9.1	Increased appetite	14	7%
9.2	Vomiting	10	5%
9.3	Hypothermia	2	1%
9.4	Back ache	174	87%

Data represented in Table 1 depicts the frequency and percentage distribution of adolescent school going girls in terms of history of menstruation. Most (60.5%) of adolescent school going girls attained menarche at the age of 13-14 years. Majority (80.5%) of the adolescent school going girls were having knowledge regarding menstruation prior to onset of menarche. Most (62.5%) of adolescent school going girls had mothers as source of information. Most (60%) of adolescent school going girls were prepared for menstruation prior to onset of menarche whereas (36%) of adolescent school going girls felt dirty in response to first menstruation. Majority (76.5%) of the adolescent school going girls had regular menstruation cycle whereas only (30%) of adolescent school going girls had interval between is menstruation cycle of (>28days). Most (66%) of the adolescent school going girls had 3-6 days of cycle duration of menstruation. More than half of the adolescent school going girls (55%) had associated pre-menstrual symptoms, more than half (54.5%) of the adolescent school going girls suffered from dysmenorrhea. Majority (87%) of adolescent school going girls had complaints of backache during menstruation.

Table 2: Range, Mean, Standard Deviation, Median of Knowledge Score of Adolescent School Going Girls Regarding Menstruation and Menstrual Hygiene N= 200

Test	Range	Mean ± SD	Median
Knowledge	04-20	11.72±3.02	11.5

Maximum score-25 **Minimum score- 0**

The data represented in table 2 depicts the range, mean, standard deviation, median of knowledge score of adolescent school going girls regarding menstruation and

menstrual hygiene. The mean of knowledge score was 11.72, standard deviation was 3.02 and median is 11.5.

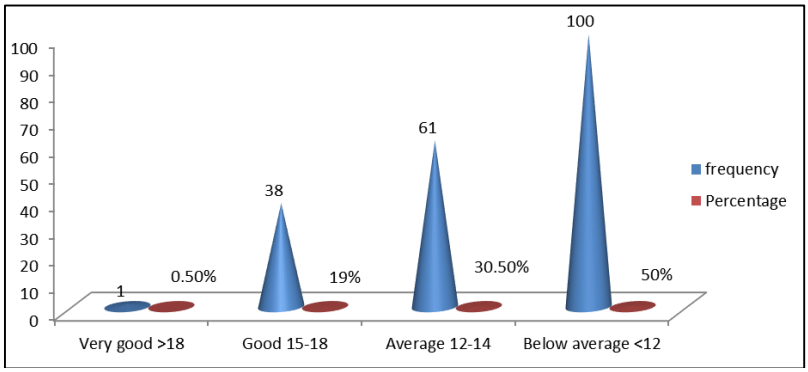

Fig 1: Frequency and Percentage Distribution of Level of Knowledge of Adolescent School Going Girls Regarding Menstruation and Menstrual Hygiene.

Table 3: Chi- Square value showing association of level of knowledge of Adolescent School Going Girls regarding Menstruation and Menstrual Hygiene with selected Demographic variables N=200

Sr. No.	Demographic Variables	Level of Knowledge				df	X^2
		Very good	Good	Average	Below average		
1	Age (years)						
1.1	11-13	1	10	14	20	6	9.62^{NS}
1.2	14-16	0	28	42	62		
1.3	17-19	0	1	10	12		
2.	Class						
2.1	8^{th}	0	10	20	41	6	12.39^{NS}
2.2	9^{th}	1	25	20	44		
2.3	10^{th}	0	4	17	18		
3.	Religion						
3.1	Hindu	1	35	48	89	6	2.03^{NS}
3.2	Muslim	0	1	1	1		
3.3	Sikh	0	3	8	13		
4.	Education of mother						
4.1	Non-literate	0	5	11	15	12	12.29^{NS}
4.2	Primary	0	7	12	29		
4.3	Higher	0	2	11	10		
4.4	Secondary	0	8	8	19		
4.5	Graduation and above	1	17	15	30		
5.	Occupation of mother						
5.1	Home maker	1	34	44	82	9	7.45^{NS}
5.2	Self employee	0	0	4	2		
5.3	Govt. job	0	3	3	5		
5.4	Private job	0	2	6	14		
6.	Type of family						
6.1	Nuclear family	1	17	31	43	6	4.30^{NS}
6.2	Joint family	0	21	24	54		
6.3	Extended family	0	1	2	6		
7.	Place of residence						
7.1	Rural	0	6	13	22	3	1.11^{NS}
7.2	Urban	1	33	44	81		
8.	Dietary pattern						
8.1	Vegetarian	0	28	42	76	6	7.11^{NS}
8.2	Non-vegetarian	1	6	11	22		
8.3	Eggetarian	0	5	4	5		
9.	Birth order						
9.1	1^{st}	0	22	28	46	9	7.78^{NS}
9.2	2^{nd}	1	11	18	49		
9.3	3^{rd}	0	2	8	4		
9.4	4^{th} and above	0	4	3	4		
10.	Family income per month (Rs)						
10.1	5000/month	0	7	17	40	9	11.06^{NS}
10.2	5001-10000/month	0	6	13	22		
10.3	10001-15000/month	0	6	7	8		
10.4	Above 15000/month	1	20	20	33		

X^2 *(2)= 5.99*,X^2 (3)= 6.25, x^2 (4)=9.49 x^2(6)=12.59,x^2(8)=15.51, X^2= (9)=16.92, X^2 (10)=18.31, X^2(12)=21.03,X^2(14)=23.69, X^2(16)=24.99.
NS- Not Significant (p>0.05) *Significant (0.05)

Data presented in table 3 depicts chi square value showing association of level of knowledge scores of adolescent school going girls with selected demographic variables. The findings suggested that the computed chi square values of age (9.62), class (12.39), religion (2.03), education of mother (12.29), occupation of mother (7.45), type of family (4.30), place of residence (1.11), dietary pattern (7.11), birth order (7.78), family income per month (11.06) were found to be statistically non significant.

Hence, it inferred that the level of knowledge of school going girls regarding menstruation and menstrual hygiene was independent of their age, class, religion, education of mother, occupation of mother, type of family, place of residence, dietary pattern, birth order and family income per month

Table 4: Chi- Square value showing association of level of knowledge of Adolescent School Going Girls regarding Menstruation and Menstrual Hygiene with History of Menstruation N=200

S.No.	History Of MENSTRAUTION	Level Of Knowledge				DF	X2
		Very good	Good	Average	Below average		
1	**Age of menarche**						
1.1	11-12	1	18	26	29	6	4.65^{NS}
1.2	13-14	0	15	52	54		
1.3	15-16	0	1	2	2		
2.	**Knowledge regarding menstruation prior to onset of menarche**						
2.1	Yes	0	36	47	78	3	9.28^{*}
2.2	No	1	8	10	20		
If, yes source of Information							
2.1.1	Mother	0	21	31	48	12	22.16^{*}
2.1.2	Friends	0	1	4	21		
2.1.3	Teachers	0	4	9	8		
2.1.4	Elder sister	0	3	1	8		
2.1.5	Internet/ books/T.V/newspaper	0	0	1	1		
3.	**Were you prepared for menstruation prior to onset of menarche**						
3.1	Yes	0	31	30	59	3	6.48^{*}
3.2	No	1	8	20	51		
4.	**Reaction towards first menstruation**						
4.1	Felt dirty	0	23	32	17	15	23.16^{NS}
4.2	Become angry	0	1	2	5		
4.3	Thought why girls have menses and boys not	1	1	5	18		
4.4	Got irritated	0	7	15	2		
4.5	Felt good that I am growing up	0	2	4	3		
4.6	Normal reaction	0	15	40	7		
5.	**Regularity of menstruation**						
5.1	Regular	1	31	40	81	3	3.21^{NS}
5.2	Irregular	0	9	17	21		
6.	**Intervals between each menstrual cycle**						
6.1	<21 days	0	4	8	20	9	16.77^{*}
6.2	21-25 days	0	6	12	34		
6.3	26-28 days	1	10	19	26		
6.4	>28 days	0	19	18	23		
7.	**Duration of menstruation**						
7.1	<3 days	0	6	12	25	9	6.29^{NS}
7.2	3-6 days	1	27	35	69		
7.3	>7 days	0	7	9	9		
8.	**Do you have pre-menstrual symptoms**						
8.1	No	1	23	20	46	3	3.81^{NS}
8.2	Yes	0	15	34	61		
	If, yes then specify						
8.1.1	Anxiety	1	2	0	2	9	17.06^{*}
8.1.2	Fatigue	0	1	0	4		
8.1.3	Dysmenorrheal pain	0	9	0	51		
8.1.4	Acne	0	1	16	23		
9.	**Complaints during menstruation**						
9.1	Increased appetite	0	1	6	7	9	5.00^{NS}
9.2	Vomiting	0	2	1	7		
9.3	Hypothermia	0	0	1	1		
9.4	Back ache	1	36	49	88		

X^2 *(2)= 5.99,*X^2 (3)= 6.25 x^2 (4)=9.49 x^2(6)=12.59, x^2(8)=15.51, X^2= (9)=16.92, X^2 (10)=18.31, X^2(12)=21.03,X^2(14)=23.69, X^2(16)=24.99

NS- Not significant(p>0.05)

*Significant (0.05)

**Highly significant (0.01)[20]

The data presented in table 4 represents chi square value showing the association of level of knowledge of adolescent school going girls with history of menstruation. The computed chi square value of source of information (22.16), were you prepare for menstruation prior to onset of menarche (6.48), interval between each menstrual cycle (16.77), pre menstrual symptom (17.06) regarding menstruation and menstrual hygiene were found to be statistically significant whereas age of menarche (4.65) reaction towards first menstruation (23.16),regularity of menstruation (3.21) cycle, duration of menstruation (6.29), complaints during menstruation (5.00) regarding menstruation and menstruation menstrual hygiene was found to be not significant.

It inferred that the level of knowledge of adolescent school going girls regarding menstruation and menstrual hygiene is dependent with source of information, preparation prior to onset of menarche, interval between each menstrual cycle, pre menstrual symptom.

Discussion

The findings of the present study showed that majority (80.5%), of girls were aware about the menstruation prior to onset of Menarche 161 which were similar to the findings of EI-Mowafy Reda Ibrahim *et al*. [11] where 67% girls had knowledge prior to onset of menarche.

Findings showed that most (60.5%) of school going girl's mean age of menarche was 13-14 years. Findings are co-related with the findings of Modi Krunal, Leuva Mitali *et al*. [12] where 70% girls attained menarche at the age of 13 years.

Findings further showed that half (50%) of school going girls had below average knowledge regarding Menstruation and Menstrual Hygiene which were consistent with the findings of EI-Mowafy Reda Ibrahim, Moussa Maha Moussa Mohamed *et al*. [11] who revealed that 52% of the girls had knowledge regarding menstruation and menstrual hygiene prior to onset of menarche [13].

Findings illustrated that most (53.8%) of mothers were found to be main source of information for school going girls about the occurrence of menarche which are contradicting with the findings of Madian Abeer Abd EI-Aziz and EI-Lassy Bassiouny *et al*. [13] where source of information was elder sister (53.8%).

Conclusion

The mean knowledge score of adolescent school going girls regarding menstruation and menstrual hygiene was 11.72, Median was 11.5 and standard deviation was 3.02, half of the subjects have below average knowledge (50%) regarding menstruation and menstrual hygiene.

Implications

The findings of the study can be implicated to the adolescent girls in the school who are victim of poor menstruation and menstrual hygiene, teach the nursing students regarding menstruation and menstrual hygiene to enhance their knowledge and practices. Menstrual hygiene day can be celebrated in the schools and colleges for spreading awareness regarding menstruation and menstrual hygiene. There is a need to educate the adolescent girls regarding menstrual and menstrual hygiene so that they can prevent themselves from menstrual problems. The community health nurse can educate the mothers to educate their daughters regarding menstruation and menstrual hygiene. The school health nurse can check out the whether proper menstrual waste disposal facilities are provided in the school or not. Nurses and health workers can do door to door survey, identify adolescent girls and identify problems faces and hygienic practices related to menstruation. Accurate waste disposal can be taught by them to prevent environment pollution.

Recommendations

The researcher further recommended that the study can be replicated on large group of adolescent girls from different school of selected area for wider generalization of the study, to assess the menstrual practices and impact of menstruation on their life during menstruation, study may be conducted to compare the knowledge of adolescents school going girls in urban and rural area and study may be conducted to evaluate the effectiveness of alternative and complementary therapies for menstrual symptoms.

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