

Knowledge about Menstruation and Puberty Prior to Menarche and Hygienic Practices during Menstruation Among Adolescent Female College Students in Lahore

ASMA SOHAIL¹, TAJAMMAL MUSTAFA², RUBINA SARMAD³, AFIA ARIF², SYEDA BEENISH², TASNEEM F. RANA², GHASIA M. GILANI¹, FILZA HAQIQ², SIBGHAT MUJEEB²

¹ College of Statistics and Actuarial Sciences, Punjab University, ² Department of Community Medicine, Fatima Jinnah Medical College, ³ Department of Maternal and Child Health, Institute of Public Health, Lahore

Correspondence to: Tajammal Mustafa, Community Medicine, Fatima Jinnah Medical College, Lahore

ABSTRACT

Objective: To determine the knowledge about menstruation and puberty, and hygiene practices during menstruation among adolescent female college students.

Method: A Cross sectional study was conducted among adolescent girls from three colleges in Lahore. Data was collected by interviewing the students using a structured questionnaire after obtaining their consent. SPSS 17.0 was used for data entry and analysis.

Results: A total of 332 college girls participated in the study. The age ranged from 15-23 years. Ninety eight percent girls have had their first period at 13-15 years age. Before menstruation began, only 37.7% were aware of it, and the major source of their information was mother (29.6%). Majority of the girls (> 90%) knew about body changes like breast enlargement, appearance of pubic & axillary hair and onset of menstruation as bodily changes during puberty. Whereas, the knowledge about other body changes during puberty was lesser than 70%. Only 32.5% girls reported having received any information on about menstruation by any school teacher. Eighty percent girls said that education about menarche should be imparted in school and 67% thought during 7-8 grades.

Majority of girls reported that, at the time of their first period, they did not feel normal or were scared, worried, embarrassed or depressed and only 10% consulted a doctor after their first period. Majority (86.4%) reported their periods as regular. Most of the girls (75%) used disposable sanitary pad, changed pad 2-3 times a day (46.1%), had privacy in disposing pad (88.6%), and disposed pads in sanitary bag or in garbage (89%). Majority of the girls (88.3%) had not heard about premenstrual symptoms (PMS).

Conclusion: The level of knowledge on reproductive health is low in female college students due to lack of basic education and information. Appropriate awareness programs on RH are needed to improve awareness and to clarify misconceptions about reproductive health.

INTRODUCTION

The World Health Organization (WHO) defines adolescents as the age group 10–19. ¹ In general terms, it is considered a time of transition from childhood to adulthood, during which young people experience changes following puberty, but do not immediately assume the roles, privileges and responsibilities of adulthood. As a group, however, adolescents have sexual and reproductive health needs that differ from those of adults in important ways and which remain poorly understood or served in much of the world.

Adolescents represent 1/3rd of the global population with 84% of them residing in developing countries. These young people are not only present in larger numbers than before, but their proportion is rising relative to other age groups. It

is estimated that the youth comprise more than one fifth of the entire population of Pakistan.²

Adolescence is the time of experiencing a change in the physical, social, and emotional aspects of their life. In order to effectively deal with this transition, they require information and a clear picture of their bodily changes to prevent them from physical problems, guilt, ambiguity, and confusion.³

Puberty is an important period of biological changes that children go through as they move toward becoming adults. Puberty normally occurs at the ages of 8 and 13 for girls and 9 and 14 for boys. In addition to changes in their body and emotions, puberty includes maturation of their cognitive and moral development, and how they view themselves and others. It is important for

parents to talk to their children and prepare them for the changes that they are about to go through as they enter puberty.⁴

Menstruation is the periodic vaginal bleeding that occurs with the shedding of the uterine mucosa and is one of the signs of puberty, and occurs one or two years following the appearance of secondary sexual characteristics. Menstrual hygiene deals with the special health care needs and requirements of women during monthly menstrual period. Learning about hygiene during menstruation is a vital aspect of health education for adolescent girls as patterns that are developed in adolescence are likely to persist into adult life.

There are many misconceptions among youth regarding their puberty and menarche related problems. These misconceptions are usually transferred through family members and friends. Adolescent girls should be well informed about changes at puberty. Parents and teachers should educate them in advance and also help them to deal with sexual thoughts and questions and educate them about self hygiene. A research carried out among Pakistani youth shows that they do not discuss their pubertal problems unless the problem becomes acute. Majority of the young girls did not have prior knowledge of menstruation and went into panic the first time they had their periods.⁵

Although adolescence is a healthy period of life, many adolescents are often less informed, less experienced, and less comfortable accessing reproductive health information and services than adults. In many parts of the developing countries and Pakistan a culture of silence surrounds the topic of Reproductive Health, puberty, menstruation and related issues. As a result many young girls lack appropriate and sufficient information regarding these important issues. This may result in incorrect and unhealthy behavior during their reproductive years. Also, as mothers they will lack correct information and skills to communicate about RH which they will pass on to their children, leading to false attitudes, beliefs and practices in this regard.⁶

The present study was planned to evaluate adolescent college girls' knowledge of puberty and menstruation. It was envisaged that findings from the study will be a pointer to some adolescence reproductive health needs and will also provide foundation for policy makers and program managers to make rational decision on improving adolescence reproductive health in our country

METHODS

A cross-sectional study was conducted in three girls colleges in three areas of Lahore; for the purpose of anonymity these colleges are named as College A, College B, and College C. Non probability sampling method was used for the selection of colleges (convenient and purposive). Within the colleges, sections of 3rd year and 4th year classes were selected randomly, and all the students in the selected sections were included in the study. Permission was obtained from the principals of these colleges.

Informed consent was obtained from each student. Data was collected by in person interviewing the students using structured questionnaire. The information sought included demographic characteristics (age, occupation and education of parents, number of siblings). The specific questions were included to assess students' knowledge and practices regarding menstruation, problems related to menstruation, and reproductive health.

SPSS version 17.0 was used for the data entry and analysis. Initial analysis included computing frequency distribution for categorical variables, and mean and standard deviation for continuous variables. Chi-square test or Fisher's Exact test as appropriate were used to test for statistical significance between categorical variables.

RESULTS

A total of 332 students from three colleges participated in the study. Table 1 shows the demographic characteristics of the study participants. Most of the girls (89.2%) were aged between 15 to 20 years, and were third year students (60.5%). College C participants were mainly from 4th year (97.5%), statistically significantly higher than other colleges. Fathers of majority of the students (80%) had non-professional job, and had intermediate (12 grades) or higher education (58%). Whereas, majority of the mothers were housewives (91%), and had matric or below matric education level (59%).

Most of the girls (80%) belonged to a lower socioeconomic status, as their fathers had unprofessional jobs such as laborer, or shopkeeper. About 56.3% students had 1-4 siblings and 39.8% had 5-8 siblings. Fisher's Exact test showed that a statistically higher proportion of study participants of College B had 1-4 siblings (Table 1).

Knowledge about Menstruation and Puberty Prior to Menarche and Hygienic Practices during

Figure 1 shows the knowledge of students about the changes that take place during puberty. Majority of students knew that onset of menstruation (97.6%), breast enlargement (91.6%), appearance of axillary hair (91.6%), and pubic hair (91.6%) take place during puberty. Whereas, relatively lesser students knew about other changes like increase in body weight (76.5%) and height (72%), increase in pelvic diameter (64%), and increase in fat on buttocks and thighs (65%). Chi-square analysis showed no statistically significant differences between three colleges on knowledge about above mentioned changes during puberty.

Almost all the students (98.2%) have had their first periods. Majority (68.7%) had their first period between the age group 13-15 years, and 22.4%

had their first period at the age of 10-12 years (Table 2). Only 38% of students were pre informed about menstruation and 62% students did not know about menstruation before the start of their first period. The major source of this information was mother (29.6%), followed by sister (12.0%), Cousin (14.4%), someone else (23.2%), and teacher (5%). Fisher's exact test revealed differences on source of this information between three colleges (p-value 0.034). About 88% students had not heard about PMS, only 11.7% students had heard about PMS. Among the students who had heard about PMS, the major symptoms of PMS reported were backache (25.6%), sweating, pain, and vomiting (20.5%).

Table 1: Demographic characteristics of study participants, female college students, in Lahore

College A (N=138) %	College B (N=73) %	College C (N=121) %	Total (N=332) N(%)
Age (Year)			
15 - 20	88.4	91.8	88.4
21 - 30	9.4	1.4	5.0
Missing	2.2	6.8	6.6
Father's occupation			
Professional	21.0	13.7	12.4
Non Professional	73.9	83.6	85.1
Deceased	5.1	2.7	2.5
Father's education			
Uneducated	5.8	2.7	4.1
Matric or below	37.0	37.0	38.9
FA/BA	39.8	46.5	38.8
Higher education	2.3	9.6	14.9
Missing	5.1	4.1	3.3
Mother's occupation			
House wife	88.4	89.0	95.0
Working	10.1	6.8	3.3
Deceased	0.0	2.7	0.8
Mother's education			
Uneducated	10.1	6.8	5.0
Matric or below	50.0	45.2	56.2
FA/BA	37.0	42.5	27.3
Higher education	0.7	2.7	2.5
Missing	2.2	2.7	9.1
No. of siblings			
1-4	48.6	72.6	55.4
5-8	47.1	23.3	41.3
9-12	2.2	4.1	2.5
Missing	2.2	0.0	0.8

Table 2: Age at menstruation and prior knowledge about menstruation among female college students

College A (N=138) % % % N (%)	College B (N=73) % % % N (%)	College C (N=121) % % % N (%)	Total N=332
Have you had your first period?			
Yes	96.4	100.0	99.2 326 (98.2)
No	3.6	0.0	0.8 6 (1.8)
Age at first period			
≤ 9 Year	0.8	0.0	0.0 1 (0.3)
10-12 Year	22.6	21.9	22.5 73 (22.4)
13-15 Year	69.2	72.6	65.8 224 (68.7)
16-18 Year	7.5	5.5	11.7 28. (8.6)
Were you pre-informed about Menstruation before it began?			
Yes	34.1	39.7	40.5 125 (37.7)
No	65.9	60.3	59.5 207 (62.3)
Source of this information (N=125)			
Mother	42.6	34.5	14.3 37 (29.6)
Sister	14.9	10.3	10.2 15 (12.0)
Cousin	14.9	3.4	20.4 18 (14.4)
Friend	8.5	20.7	20.4 20 (16.0)
Teacher	2.1	10.3	4.1 6 (4.8)
Someone else/Other	17.0	20.7	30.6 29 (23.2)
Have you heard about PMS?			
Yes	3.6	13.7	19.8 39 (11.7)
No	96.4	86.3	80.2 293 (88.3)
What are the symptoms of PMS? (N=39)			
Backache	60.0	20.0	20.8 10 (25.64)
Changes before menstruation	20.0	10.0	8.3 4 (10.3)
Mood changes, Headache	0.0	30.0	0.0 3 (7.7)
Sweating, Pain, Vomiting	20.0	20.0	20.8 8 (20.5)
Restlessness	0.0	10.0	0.0 1 (2.5)
Depression	0.0	0.0	20.8 5 (12.8)
Irritation, nausea	0.0	0.0	25.0 6 (15.4)
Like to be alone	0.0	10.0	4.1 2 (5.1)

Thirty three percent students reported that their teacher gave information about menstruation in school (Table 3). Majority of the students (79.5%) felt that girls should be pre-informed about menstruation in the school. When asked what appropriate time for such education, majority (66%) said that girls should be pre-informed about menstruation during the 7th or 8th grade, and about 21% said in 6th grade.

At the time of first menstruation most of the students did not feel normal (70.5%), 79% were worried, 57.2% were scared, and 57.2% were embarrassed (Table 4). About 40% of the girls felt depressed, 37.3% considered it as a sign of a disease, and 27.1% felt lowered self esteem. Only 10% of the students consulted any doctor after their first menstruation. Most of the students had a cycle of 1 month periods (86.4%); most of the girls.

Knowledge about Menstruation and Puberty Prior to Menarche and Hygienic Practices during

(63.3%) reported having bleeding 3-5 days and 31.9% have bleeding for 6-7 days. Chi-square test revealed that a statistically significantly higher

proportion (74%) of girls from College C having bleeding for 3-5 days (Table 4).

Table 3: Prior information about menstruation and Students' perception about the need for education on puberty and menstruation in the school

College A (N=138) %	College B (N=73) %	College C (N=121) %	Total (N=332) %	
Did any teacher in the school ever give you information about menstruation?				
Yes	29.0	38.4	33.1	108 (32.5)
No	71.0	61.6	66.9	224 (67.5)
Do you think girls should be pre-informed about menstruation in school?				
Yes	82.6	78.1	76.9	264 (79.5)
No	17.4	21.9	23.1	68 (20.5)
If "Yes", in which class?				
5 th grade	2.6	5.3	5.4	11 (4.2)
6 th grade	16.7	24.6	23.7	55 (20.8)
7 th grade	37.7	24.6	30.1	85 (32.2)
8 th grade	36.0	33.3	34.4	92 (34.8)
Other	7.0	12.3	6.5	21 (8.0)
Most appropriate person to give this information				
Mother	70.2	64.9	64.5	177 (67.0)
Sister/Cousin	14.0	8.8	22.6	42 (15.9)
Teacher	6.1	8.8	5.4	17 (6.4)
Friend	7.0	10.5	5.4	19 (7.2)
Other	2.6	7.0	2.2	9 (3.4)

Most of the students (75.3%) used disposable sanitary pads, 10.2% used cotton, and 8.4% used old cloth (Table 5). About 46% girls changed their pads 2 times a day, 29.5% changed pad 3 times a day, 8.1% changed pad 4 or more times a day, whereas, 16.3% changed their pad only once a day. Most girls reported having privacy in disposing pads (88.6%), and disposed their pad in garbage (56.3%), or in sanitary bag (32.5%). Fifty percent reported taking bath less than normal during menstruation, and 16% reported not taking bath during menstruation.

Majority of the girls (75%) reported taking same food during menstruation, and 25% reported eating different food during menstruation (Table 5). Some students started taking more milk as well as some medicines. When asked what activities a girl can do during menstruation, majority of the girls said that during menstruation girls can go to

college (93.7%), can carry on usual routine (88%), can eat same food (85.5%), and can eat eggs, fish, and meat (85.8%). About 26.5% students thought that girls cannot take bath, and 60% thought that girls can not exercise during menstruation (Table 6).

The most commonly reported symptoms were pain (84.6%), weakness (79%), back pain (63.6%), clotting (52%) and cramps (47.6%). About 30% girls reported having excessive bleeding and 25% had unusual vaginal discharge (Figure 2).

Chi-square analysis showed that having been pre-informed about menstruation before it began was significantly associated with feeling normal, not being scared, worried, or embarrassed, and not taking it as a sign of fatal disease at first menstruation (Table 7).

Table 4: Feelings of female college students at the time of their first menstruation

College A (N=138) %	College B (N=73) %	College C (N=121) %	Total (N=332) N (%)	
At the time of your first menstruation, how did you feel?				
Normal				
Yes	32.6	32.9	24.0	98 (29.5)
No	67.4	67.1	76.0	234 (70.5)
Scared				
Yes	56.5	60.3	56.2	190 (57.2)
No	43.5	39.7	43.8	142 (42.8)
Sign of disease				
Yes	40.6	42.5	30.6	124 (37.3)
No	59.4	57.5	69.4	208 (62.7)
Fatal disease				
Yes	18.1	20.5	13.2	56 (16.9)
No	81.9	79.5	86.8	276 (83.1)
Embarrassed				
Yes	56.5	56.2	58.7	190 (57.2)
No	43.5	43.8	41.3	142 (42.8)
Lowered self esteem				
Yes	21.7	31.5	30.6	90 (27.1)
No	78.3	68.5	69.4	242 (72.9)
Worried				
Yes	76.1	80.8	81.0	262 (78.9)
No	23.9	19.2	19.0	70 (21.1)
Depressed				
Yes	39.9	42.5	37.2	131 (39.5)
No	60.1	57.5	62.8	201 (60.5)
Isolated				
Yes	29.0	21.9	22.3	83 (25.0)
No	71.0	78.1	77.7	249 (75.0)
Did you consult any doctor after first menstruation				
Yes	6.5	11.0	13.2	33 (9.9)
No	93.5	89.0	86.8	299 (90.1)

Table 5: Personal hygienic and dietary practices of female college students during menstruation

	College A (N=13) %	College B (N=73) %	College C (N=121) %	Total (N=332) N (%)
Number of times/day pad is changed				
One	13.8	9.6	23.1	54 (16.3)
Two	47.8	60.3	35.5	153 (46.1)
Three	29.7	23.3	33.1	98 (29.5)
Four or more	8.7	6.8	8.3	27 (8.1)
Have privacy in disposing sanitary pad?				
Yes	88.4	90.4	87.6	294 (88.6)
No	11.6	9.6	12.4	38 (11.4)
Place where pad is disposed				
In sanitary bag	30.4	43.8	28.1	108 (32.5)
Garbage	56.5	46.6	62.0	187 (56.3)
Flush out	6.5	2.7	3.3	15 (4.5)
Other way	6.5	6.8	6.6	22 (6.6)
How frequently you take bath during menstruation?				
Not at all	16.7	11.0	18.2	53 (16.0)
Same as normal	27.5	37.0	35.5	108 (32.5)
Less than normal	54.3	47.9	46.3	166 (50.0)
More than normal	1.4	4.1	0.0	5 (1.5)
What kind of food do you take during menstruation?				
Same as before	76.1	78.1	71.1	248 (74.7)
Different from normal	23.9	21.9	28.9	84 (25.3)
If different from usual, then what change?				
Avoid cold things	27.2	43.7	34.2	28 (33.3)
Did not feel much to eat	0.0	0.0	2.8	1 (1.1)
Egg, tea, milk, fruits in large amount	9.0	6.25	22.8	12 (14.2)
Liquids in large amount	3.0	0.0	0.0	1 (1.1)
Less intake of food, milk and water	12.1	12.5	8.5	9 (10.7)
Eat more hot things	3.0	6.25	5.7	4 (4.7)
Take milk as well as some medicines	45.4	31.2	25.7	29 (34.5)

Table 6. Perceptions of female college students regarding what girls can do during menstruation

	College A (N=13) %	College B (N=73) %	College C (N=121) %	Total (N=332) N (%)
Can take bath during menstruation				
Yes	69.6	78.1	75.2	244 (73.5)
No	30.4	21.9	24.8	88 (26.5)
Can eat same food				
Yes	83.3	90.4	85.1	284 (85.5)
No	16.7	9.6	14.9	48 (14.5)
Can eat egg, meat, fish				
Yes	85.5	90.4	83.5	285 (85.8)
No	14.5	9.6	16.5	47 (14.2)
Can go to college				
Yes	93.5	95.9	92.6	311 (93.7)
No	6.5	4.1	7.4	21 (6.3)
Can carry on usual routine				
Yes	89.9	94.5	81.8	292 (88.0)
No	10.1	5.5	18.2	40 (12.0)
Can do exercise				
Yes	37.7	57.5	32.2	133 (40.1)
No	62.3	42.5	67.8	199 (59.9)

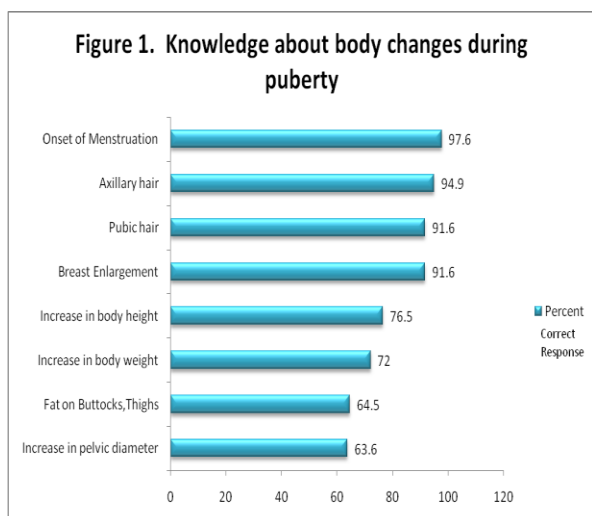


Figure 1: Female college students' knowledge about body changes during puberty.

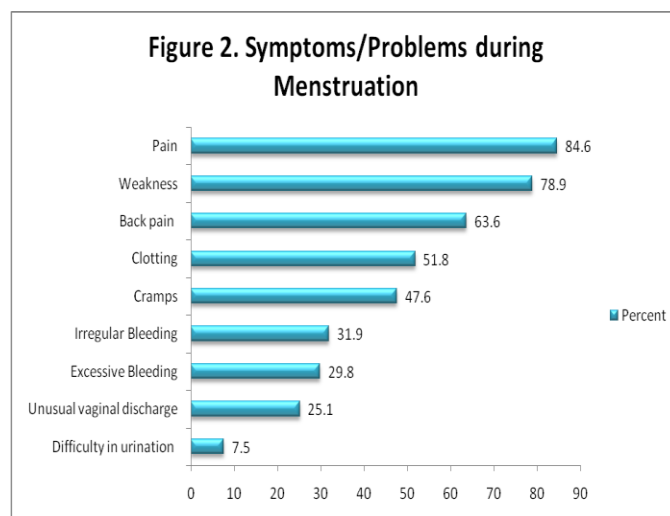


Figure 2: Symptoms/problems faced by adolescent females during menstruation.

Table 7: Association between prior knowledge about menstruation and feelings at first menstruation

	Pre-informed about menstruation		P-value
	Yes %	No %	
Felt Normal	40.0	23.2	0.002
Got Scared	42.4	66.2	0.000
Took as sign of a disease	27.2	43.5	0.003
Took as a sign of a fatal disease	9.6	21.3	0.006
Felt Embarrassed	47.2	63.3	0.040
Had lowered self esteem	24.0	29.0	0.373
Got Worried	74.4	81.6	0.128
Was Depressed	40.8	38.6	0.729
Felt Isolated	24.0	25.6	0.794

DISCUSSION

Menarche, the time of first menstruation after the onset of puberty, is a time of fear for most girls. The fear is a result of lack of information of the occurrence of menarche. In fact, at the onset of menarche, majority of girls believe that there is something wrong with them and they feel as though they are unable to talk about it to anyone, especially as it is considered to be a taboo subject in Pakistani society. Lack of knowledge about menarche before its onset, may impact psychological health and girls may not be able to deal with menarche in a proper hygienic way. In order to maintain good hygiene and feel relaxed about menstruation, pre-teenage girls should be informed on what menarche actually is and the appropriate way of managing it.

The present study showed that most of the girls knew about the changes in the body that take place during puberty. More than 90% knew about breast enlargement, appearance of axillary and pubic hair during puberty. About 30-35% did not know about changes in pelvic diameter, increase in height and weight and more fat on buttocks and thighs. Girls were most likely to hear about puberty from their mother, sister or a friend.⁷

Knowledge about menstruation before it begins helps to prepare the girls for coping with the upcoming situation. In this study only 38% girls had prior knowledge. Study by Reddy et al. found that knowledge of the process of menstruation existed in only a quarter of menarcheal girls although majority of them were studying in tenth grade⁸. In another study, majority of girls had no

knowledge of menstruation, its onset, the reasons for irregular periods, and what to do for discomfort.⁹

The basic source of information about menstruation was mother followed by cousins, friends & sisters. Teachers played least role in providing information about menarche. Similar findings were reported by other studies.^{12,13,15}

At the time of first menstruation, most of the students reported having various feelings like not normal (70%), worried (79%), scared and embarrassed. Several girls (27-37%) felt depressed or lowered self esteem. Our study clearly indicated that having prior knowledge before the onset of menstruation mentally prepares the girls and they do not feel scared, depressed, or worried at the start of menstruation. The findings in this study are similar to the findings from study by Qazi that showed that most girls were unprepared for the trauma of their first menstrual experience¹⁰. Our study highlights the need for the provision of information related to menstruation before the experience to help the adolescents cope with the change effectively.

Only 10% of the girls in our study reported having consulted a doctor after their first period. This shows lack of health consciousness and health seeking behavior. Awareness about pain in lower abdomen and back ache were found to be highest followed by weakness/tiredness, body ache, pain in thighs/legs, and headache. About 60% of the study subjects opted for allopathic treatment for their menstrual problems. Similar results have been reported in other studies.^{10,11,12}

Hygiene is an important aspect especially during menstruation. Proper understanding of menarche and personal hygiene during menstruation significantly influences the reproductive health of adolescents. Respondents had good awareness regarding hygienic aspects of menstruation; majority (75%) of students reported using disposable sanitary pads. These findings are similar to those reported by Dasgupta et al.¹² The study by Parvathy et al, reported the use of sanitary pads as 24%, whereas the majority (74.8%) of the girls used homemade sanitary pad, and 1.5% used cotton wool¹³.

Eighty four percent girls in our study reported changing their pads two or more times a day, 89% have privacy in disposing pads, and 56.3% disposed their pad in garbage and 32.5 disposed pads in sanitary bags. This shows that some girls lack the knowledge and need correct information for sanitary disposal of pads.

About 27% girls avoid bath during menstruation and 60% girls avoid exercise during menstruation which is similar to the findings reported by Parveen et al.¹⁴ A recent research focused on various misconceptions about menstruation such as girls perceived menstruation as the ability to give birth and bathing as harmful during menstruation, and females were considered unclean while menstruating. Some were made to sleep on a mat on the floor, had been forbidden to bath, and advised to avoid some food.^{11,13,14}

Twenty five percent girls reported taking different from normal food during menstruation which is similar to reports in other studies. In the present study, only 12.0% girls said they cannot carry usual routine work during menstruation which could be due to weakness superadded by anaemia due to blood loss.

The most commonly reported symptoms during menstruation were pain followed by weakness and back ache. Some reported excessive bleeding and unusual vaginal discharge which is consistent with the finding reported by other studies.^{7,13,14}

Forty nine percent girls had received education about menstruation in school or college. About 23% students reported that they had been taught in school or college about Reproductive health, STDs, and Family Planning.

In the present study, 88.3% girls think that girls should be given information about Reproductive health, Menstruation, STDs and Family Planning. In the study conducted by Mudey et al., majority of

the students supported school based Reproductive health education.¹⁵

The study was conducted in three colleges selected by convenient and purposive sampling method. The attempt was made to include students from low, middle, and high socioeconomic (SES) groups. However, the very low and high SES may be less represented as lesser girls from very low SES group will go to colleges. Similarly, a few girls from high and very high SES attend the study colleges. The results of the study must be generalized to similar populations.

CONCLUSION

The study findings show that the knowledge about puberty and menarche prior to onset of menstruation is very low. Only about one third girls had been pre informed about puberty & menarche before the onset of menstruation. This may lead to feeling of not being normal, being worried or scared, and feeling embarrassed at the time of first period. The knowledge about premenstrual syndrome (PMS) is also very low among girls which may result in improper management of dysmenorrhea. It is concluded that reproductive health knowledge is insufficient among female college students, which is primarily because of lack of education on the subject by parental and formal sources. There is a need to develop and implement health education in schools and colleges.

RECOMMENDATIONS

Strong efforts are needed to improve awareness and to clarify misconceptions about puberty and menarche. Improved access to mass media and education could improve their awareness about reproductive health. Having sound knowledge will promote the health of adolescents and family health as well. Peer, media and a family doctor could be an acceptable source of such information. Involving families and communities will enhance the effectiveness of youth programs.

Girls should be provided with basic information about the reproductive health. They should be informed by female teacher or their mother about menarche, menstruation, and PMS. Reassurance should be given to alleviate anxiety or depression. Girls should be informed about personal hygiene and sanitation, importance of using of disposable pads, and proper disposal of pads. In school and colleges, lidded boxes should be provided in washrooms for disposal of pads.

Girls should be encouraged to follow their normal dietary schedule and take care of personal hygiene during periods. Girls need to be informed about various problems and symptoms related to menstruation, and encouraged to consult doctor if they feel weakness, have irregular bleeding, unusual vaginal discharge, difficulty in urination or any other problem related to periods.

The level of knowledge about reproductive health can be improved by basic education in schools and colleges with the help of Government and NGOs. Further studies may include rural areas and compare the level of knowledge among males and females.

ACKNOWLEDGEMENT

We would like to thank the students of study colleges for their participation in the study, and the principals and teachers of these colleges for their support. Thanks are due to the faculty and staff of Community Medicine Department at FJMC and fourth year students for their help and assistance in data collection. We are thankful to Mr. Syed Umair, and Mr. Haroon Shakoor for their assistance with typing and photocopying of questionnaire and manuscript.

REFERENCES

1. WHO: "Reproductive health". http://www.who.int/topics/reproductive_health/en/. Retrieved 2008-08-1
2. Khan A and Pine P. Adolescent reproductive health in Pakistan: Status, policies, programs, and issues. Policy project report. Islamabad: policy and USAID, March 2003.
3. Sathar Z, ul Haque M, Faizunnisa A, Sultana M, Lloyd C, Diers J, and Grant M. Adolescents and youth in Pakistan: a nationally representative survey. Islamabad. Population Council, 2003.
4. Singh SP, Singh M, Arora M, and Sen P. Knowledge assessment regarding puberty and menstruation among school adolescent girls of district Varanasi, U.P. Indian Journal of Preventive and Social Medicine. 2006; 37(1&2).
5. Javed S, Sheraz A, Khan M, Syed RA, and Tanweer BD. Reproductive health of youth: perceptions, attitudes and practices. NIPS. Islamabad. 2003; xix, 47.
6. Mahajan P, and Sharma N. Perceived parental relationships and the awareness level of adolescents regarding menarche. Journal of Human Ecology. 2004; 16(3): 215-218.
7. Shaikh BT and Rahim ST. Assessing knowledge, exploring needs: a reproductive health survey of adolescents and young adults in Pakistan. European Journal of Contraception and Reproductive Health Care. 2006; 11(2): 132-7.
8. Reddy PJ, Rani DU, Reddy GB, and Reddy KK. Reproductive Health Constraints of Adolescent School Girls. Indian Journal of Social Work. 2005; 66(4): 411- 441.
9. Kamalam KJ, Rajalakshmi B. Reproductive Health Awareness among College Going girls. Indian Journal of Social Work. 2005; 66 (4): 414- 430.
10. Qazi YS. Adolescent reproductive health in Pakistan. In: Bott S, Jejeebhoy S, Shah I, and Puri C. (Eds). Towards adulthood: exploring the sexual and reproductive health of adolescents in South Asia. Geneva: World Health Organization. 2003; 79-81.
11. Sharma A, Taneja DK, Sharma P, and Saha R. Problems related to menstruation and their effect on daily routine of students of a medical College in Delhi, India. Asia Pacific Journal of Public Health. 2008; 20(3):234-41.
12. Dasgupta A and Sarkar M. Menstrual hygiene: How hygienic is the adolescent girl? Indian Journal of Community Medicine. 2008; 3(2): 77-80.
13. Parvathy N, Grover Vijay L, and Kannan AT. Awareness and practices of menstruation and pubertal changes amongst unmarried female adolescents in a rural area of East Delhi. Indian Journal of Community Medicine. 2007; 32(2).
14. Parveen N, Majeed R, Zehra N, Rajar U, and Munir AA. Attitude and knowledge of medical students of Isra University about dysmenorrhoea and its treatment. Pak MediNet. 2009; 21(3):159-62.
15. Mudey AB, Kesharwani N, Mudey GA, and Goyal RC. A Cross-sectional study on awareness regarding safe and hygienic practices amongst school going adolescent girls in rural area of Wardha District, India. Global Journal of Health Science. 2010; (2).