International Journal of Community Medicine and Public Health
*Sinha S et al. Int J Community Med Public Health. 2016 May;3(5):1200-1203*
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20161384

**Research Article**

# A study of menstrual pattern and prevalence of dysmenorrhea during menstruation among school going adolescent girls in Lucknow district, Uttar Pradesh, India

**Shivani Sinha[1]*, Jyoti Prakash Srivastava[2], Beena Sachan[3], Raj Bahadur Singh[4]**

[1]Assistant Professor, Department of Community Medicine, Narayan Medical College and Hospital, Jamuhara, Sasaram, Bihar, India
[2]Professor and Head of department, Department of Community Medicine, Era's Lucknow Medical College and Hospital, Lucknow, Uttar Pradesh, India
[3]Associate Professor, Department of Community Medicine, Era's Lucknow Medical College and Hospital, Lucknow, Uttar Pradesh, India
[4]Assistant Professor, Department of Anaesthesiology, Narayan Medical College and Hospital, Sasaram, Bihar, India

**Received:** 03 March 2016
**Revised:** 13 March 2016
**Accepted:** 13 April 2016

***Correspondence:**
Dr. Shivani sinha,
E-mail: shivani.sinha2005@gmail.com



## ABSTRACT

**Background:** The world health organization (WHO) has defined adolescence as the age group of 10-19 years. One of the major physiological changes that take place in adolescent girls is the onset of menarche, which is often associated with problems of irregular menstruation, excessive bleeding, and dysmenorrhea. Objective of the study is to study the menstrual pattern and the prevalence of dysmenorrhoea among school going adolescent girls in Lucknow district of Uttar Pradesh, India.
**Methods:** It was a school based cross-sectional study carried out in Lucknow district from October 2013 to September 2014. A total of 640 adolescent girls were included in the study. Data was collected, compiled and tabulated using Microsoft Excel and analysed using SPSS 17.0 version for calculation of percentages.
**Results:** The overall prevalence of dysmenorrhoea was found to be 73.9% with 74.4% girls in urban schools and 72.7% girls in rural schools.
**Conclusions:** The mean age at menarche was 12.87 years (S.D±1.45). In urban area it was 12.69 years (S.D±1.37) and 13.22 years (S.D±1.56) in rural areas. There is a need of health education for adolescents. Menstruation is an important milestone for adolescent girls and menstrual problems are common among adolescent girls.Education regarding menstrual hygiene could be given at school, college, and community level.

**Keywords:** Adolescence, Menstrual problems dysmenorrhea, WHO, Lucknow, Uttar Pradesh

## INTRODUCTION

The world health organization (WHO) has defined adolescence as the age group of 10-19 years.[1,2] It is a period of rapid growth and development, physiologically, psychologically and socially. One of the major physiological changes that take place in adolescent girls is the onset of menarche, which is often associated with problems of irregular menstruation, excessive bleeding, and dysmenorrhea. Among these dysmenorrhea is one of

the common problems experienced by many adolescent girls. Dysmenorrhea and pre-menstrual syndrome (PMS) are common menstrual problems experienced by many adolescent girls.[3] Various studies in India revealed that the prevalence of dysmenorrhoea varies from 33% to 79.67%. However the true incidence and prevalence of dysmenorrhoea are not clearly established in India.[4]

Objective to study the menstrual pattern and the prevalence of dysmenorrhoea among school going adolescent girls in Lucknow district of uttar pradesh.

## METHODS

It was a school based cross-sectional study carried out among adolescent girls in Lucknow district from October 2013 to September 2014. A total sample size of 640 (448 urban and 192 rural) school-going adolescent girls of Lucknow district, aged 10-19 years, was selected and were interviewed and examined.

The study protocol was submitted to the Institutional Ethical Committee and clearance was obtained. Before conducting the actual study a meeting was organized with the principal and teacher of both urban as well as rural schools. Permission was obtained from the school committee. Informed consent of the principals and teacher of schools was taken before the study and assent from the selected adolescents was also obtained, before initiation of the study. A time schedule was worked out. The examination was conducted in a separate hall, not in the classroom. By interviewing the adolescent girls information about menstrual history were collected using pre-tested interview schedule. The girls were interviewed separately and privately and the exact date of menarche was noted. The schedule was pretested on 40 adolescent girls 20 each from both urban and rural schools. Necessary modifications were made to overcome the difficulties encountered during pretesting.

Multi-stage random sampling technique was used to select the requisite number of eligible girls.

### *Selection of sample*

*Requisite sample size was reached in following stages:*

*First stage*

At first stage lucknow district was divided into urban and rural areas. Then urban area of lucknow was divided into six zones. From that six zones randomly four zone were selected.

*Second stage*

At second stage from each zone one senior secondary school was selected randomly. Similarly rural lucknow was divided into eight blocks. From eight blocks two blocks were randomly selected. In the next step from each block one senior secondary school was randomly selected.

*Third stage*

At the third stage in a given school students from classes V1 to XII of age group 10-19 years were selected. Students within the class were selected through Simple random sampling technique. By using this multistage random sampling technique four schools were randomly selected in urban area and 448 adolescent girls were chosen from these schools. Similarly in rural area two schools were randomly selected. From there 192 adolescent girls were chosen.

### *Statistical analysis*

Data was tabulated on Microsoft Excel Sheet and checked for any inconsistency. The master chart was prepared for data analysis and tables were formed accordingly. Chi-square test was used to make categorical comparisons. The p-value <0.05 has been taken as significant. All the analysis was carried out by using SPSS 17.0 version.

## RESULTS

Table 1 shows that out of the total adolescent girls 86.8 % girls had attained menarche, 84.8% in urban schools and 91.6 % in rural schools. The overall mean age at menarche was 12.87 years (S.D±1.45), while in urban schools it was 12.69 years (S.D±1.37) and 13.22 years (S.D±1.56) in rural schools. A maximum of 51 % and 38.1 % girls had their menarche between ages 12-14 years in urban and rural schools respectively. About 16.8 % girls in urban schools and 36.9 % girls in rural schools had their age at menarche between ages 14-16 years. The age at menarche was significantly associated with place of schools (p value=0.000).

**Table 1: Distribution of adolescent school girls according to age at menarche.**

| Age at menarche | Urban (n=380) | | Rural (n=176) | | Total (n=556) | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| 10-12yrs | 122 | 32.1 | 44 | 25 | 166 | 29.9 |
| 12-14yrs | 194 | 51.0 | 67 | 38.1 | 261 | 46.9 |
| 14-16yrs | 64 | 16.8 | 65 | 36.9 | 129 | 23.2 |
| Total | 380 | 100 | 176 | 100 | 556 | 100 |
| Mean age±S.D | 12.69±1.37 | | 13.22±1.56 | | 12.87±1.45 | |
| $\chi^2$= 27.279 , p value = 0.000 | | | | | | |

Table 2 shows that overall about one fourth of the girls in all the three age groups had irregular menstrual cycle. In urban schools in age group 10-13 years a maximum of 29.4% girls had irregular cycle and in age group 17-19 years a minimum of 16.1% girls had irregular cycle. In

rural schools in age group 17-19 years a maximum of 30.61% girls had irregular cycle and in age group 14-16 years a minimum of 11.8% girls had irregular cycle and this difference was statistically significant (p value=0.022).

Table 3 shows that a total of 73.9% girls had dysmenorrhoea with 74.4 % girls in urban schools and 72.7 % girls in rural schools had dysmenorrhoea. Place of school is not significant in relation to presence of dysmenorrhea.

**Table 2: Distribution of Adolescent school girls according to menstrual cycle irregularity and age.**

| Age (year) | Urban (n=380) | | | Rural (n=176) | | | Total (n=556) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Irregular cycle | | | | | | | | |
| | n | No. | % | n | No. | % | N | No. | % |
| 10-13 | 95 | 28 | 29.4 | 34 | 6 | 17.6 | 129 | 34 | 26.3 |
| 14-16 | 223 | 56 | 25.1 | 93 | 11 | 11.8 | 316 | 67 | 21.2 |
| 17-19 | 62 | 10 | 16.1 | 49 | 15 | 30.61 | 111 | 25 | 22.5 |
| Total | 380 | 94 | 24.7 | 176 | 32 | 18.1 | 541 | 126 | 23.2 |
| $\chi^2$=, 3.63 p value=0.163 | | | | $\chi^2$=7.62 p value=0.022 | | | $\chi^2$= 1.39 p value=0.499 | | |

**Table 3: Distribution of adolescent school girls according to dysmenorrhoea.**

| Dysmenorrhoea | Urban (n=380) | | Rural (n=176) | | Total (n=556) | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Present | 283 | 74.4 | 128 | 72.7 | 411 | 73.9 |
| Absent | 97 | 25.5 | 48 | 27.2 | 145 | 26 |
| Total | 380 | 100 | 176 | 100 | 556 | 100 |
| $\chi$2= 0.190, p-value= 0.663 | | | | | | |

## DISCUSSION

In our study the mean age at menarche was 12.87 (SD±1.4) years. Factors such as heredity, diet and overall health can accelerate or delay menarche. Sachan et al[5] and Guduri et al[6] reported mean age at menarche 12.84 (SD±1.4) years and 12.23 years respectively which was almost similar to the present study. The mean age at menarche was 13.22 years in rural school girls, of our present study and this was similar to Nair et al[7], in rural area of Delhi who reported mean age at menarche at 13.6 years.

In the present study, it was observed that irregular menstrual cycle was present in 23.2% of adolescent girls. This observation is somewhat similar to Sachan et al[5] and Sharma et al[8] who reported that irregular cycle was observed in 22.6% and 31.8% girls respectively. Although irregular cycles is a common finding in adolescents, as the initial cycles are anovulatory which results in abnormal uterine bleeding However Singh et al[9] and Deo et al[10] in their study found that the irregular menstrual cycle was present only in 2.3 % and 6.6% of school girls respectively.

Our study revealed that the menstrual cycle irregularity was more in urban (24.7%) school girls when compared with rural (18.1%) school girls. Reason for higher percentage of irregular cycles in urban schools may be stress related or eating disorders (both bulima and anorexia). As the girls of urban schools in my study area were more oriented in academic activities than the girls of rural schools leading to stress. Similar finding was observed by Sachan et al,[5] where menstrual cycle irregularity was 24.7% in urban school girls and 18.1%. in rural school girls. Rather contrast finding was reported by Deo et al,[10] among urban (7.95% ) and rural (2.86%) school girls.

The prevalence of dysmenorrhoea was 73.9% in our study. This is similar to observation by Sachan et al[5] were dysmenorrhoea was seen in 73.7% of girls. Almost similar finding was reported by Agarwal et al[11] in adolescent girls (79.6%).

## CONCLUSION

There is a need of health education for adolescents. Menstruation is an important milestone for adolescent girls and menstrual problems are common among adolescent girls. This education could be given at school, college, and community level. Menstruation management should be included as a necessary part of curriculum at school level for the adolescent girls.

Since it was a school based study so we were not able to appreciate the difference regarding menstrual pattern and prevalence of dysmenorrhea during menstruation between the school-going and non–school-going adolescent girls. Menstrual problems are widely prevalent among school going adolescent girls of urban as well as rural areas of lucknow district. The age at menarche,

menstrual cycle irregularities, and duration of menstrual flow were significantly associated with place of schools.

## ACKNOWLEDGEMENTS

Authors would sincerely thank the principal, teachers and the adolescent girls for their valuable help and cooperation during the study.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Adesina AF, Peterside O, Anochie I, Akani NA. Weight status of adolescent in secondary school in port harcourt using body mass index. Ital J Pediatr. 2012;38:31.
2. Jain K, Garg SK, Singh JV, Bhatnagar M, Chopra H, Bajpai SK. Reproductive health of adolescent girls in an urban population of meerut, Uttar pradesh. Health and population: prospective and issues 2009;32:204-9.
3. John C. A study of menstrual problem in adolescent girls. I M A Kerala Medical Journal. 2010;(1)7-10.
4. Kumbhar KS, Reddy M, Sujana B, Reddy KR, Bhargavi DK, Balkrishna C. Prevalence of dysmenorrheal among adolescent girls(14-19 yrs) of Kadapa District and its impact on quality of life. A cross sectional study. Natl J Community Med. 2011(2):265-68.
5. Sachan B, Idris MZ, Jain S, Kumari R, Singh A. Age at menarche and menstrual problems among school-going adolescent girls of a north indian district. Journal of Basic and Clinical Reproductive Sciences. 2012;1(1):56-9.
6. Guduri BG, Avvaru K, Naidu AS. IOSR Journal of Dental and Medical Sciences. 2014;31(4):31-3.
7. Agarwal, S, Fatma A, Singh CM. A study of knowledge and attitude of adolescent girls towards reproductive health and related problems. Indian J Prev Soc Med. 2007;38(1-2):36-41.
8. Agarwal A, Agarwal AK. A study of dysmenorrhea among adolescent girls (15-20 years). Indian J Prev Soc Med. 2008;39(1-2):45-8.
9. The chief public health officer's report on the state of public health in Canada, 2011. Chapter 3. The health and well-being of canadian youth and young adults.
10. Nair P, Grover VL, Kannan AT. Awareness and practices of menstruation and pubertal changes amongst unmarried female adolescents in a rural area of East Delhi. Indian J Com Med. 2007;32(2): 156-57.
11. Deo DS, Ghattargi CH. Menstrual problems in adolescent school girls: a comparative study in urban and rural area. Indian J Prev Soc Med. 2007;38(1-2):64-8.

**Cite this article as:** Sinha S, Srivastava JP, Sachan B, Singh RB. A cross-sectional study of awareness regarding dog bite and its management in rural community of Maharashtra. Int J Community Med Public Health 2016;3:1200-3.