

Research Article

Age at menarche and menstrual complications: a cross cultural study among hostel students in Tirupati, Chittoor district, Andhra Pradesh, India

Chandrasekhar Rao Pakala, Sudha Gujjula*

Post Doctoral Fellows, Department of Anthropology, Sri Venkateswara University, Tirupati, Chittoor district, Andhra Pradesh, India

Received: 09 March 2016

Accepted: 07 April 2016

***Correspondence:**

Dr. Sudha Gujjula,

E-mail: drgsudha@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial

ABSTRACT

Background: Menarche is an important biological and physiological event, which occur in the lifecycle of every normal female. This is accompanied by many morphological, physiological changes in the body. The age of menarche is generally between 10-16 years. The objectives was to assess the age at menarche and menstrual complications among hostel students during menstrual period.

Methods: This is a cross-sectional study in which 326 girl students staying at hostel were selected by retrospective method of recall and were evaluated. The exact date of menarche and also any complications occur during menstruation period like pre menstrual syndrome (PMS), irregular periods, painful periods etc. was noted.

Results: In the present study majority of the women attain menstruation at the 14th year of their age (31.0%). The mean menarcheal age was 13.83 ± 1.209 years. It was found that among 18.7% are getting irregular periods, 77.9% reported to have premenstrual symptoms and 31.3% students having a set of symptoms like abdominal or back pain / feeling heaviness of the body this was the major ailment suffered by most of the students. It was reported that 53.4% are having painful periods.

Conclusions: Create awareness related to reduce disease burden and poor health outcome associated with poor menstrual complications and self care has to be taken among this group to Promote positive attitudes towards the mean age at menarche and menstruation related problems among the adolescent girls is the need of the hour. Hence, we suggest that health education programs regarding PMS and other menstrual problems must be included in the curriculum of secondary schools to bring down the prevalence of such problems.

Keywords: Menarche, Menstrual complications, Cross cultural, PMS

INTRODUCTION

The Menarche is an important biological and physiological event, which occur in the life cycle of every normal female. This is accompanied by many morphological, physiological changes in the body. The term menarche introduced into medical literature by Kisch in 1910.¹ Beginning of menstruation i.e. menarche, marks the most important step in the pubertal growth of a

girl. The age of menarche is generally between 10-16 years; however it may vary depending on geographic variation, environmental condition, nutritional status etc.² Menstruation is an important landmark in the process of growth and maturation and prepares them for motherhood. Yesterday's girl is today's adolescent and tomorrow's mother.³ The literature reveals that the age at menarche varied across the populations of different regions of the world.⁴⁻⁸ Premenstrual syndrome (PMS)

occurs 7-14 days before the onset of menstruation and subsides with the commencement of menstrual flow. It is associated with physical, psychological and behavioural changes.⁹ PMS can affect menstruating women of any age and the effect is different for each woman.¹⁰ This is a difficult problem in adolescence as the psychological changes that are occurring during this time of a woman's life are often complex and stressful.¹¹

Menstrual bleeding is considered irregular if it occurs more frequently than every 21 days, lasts longer than 7 days or is heavy. Irregular bleeding also includes infrequent periods, including menstrual intervals greater than 35 days, skipped months or absent periods. Irregular periods are a common condition in women and can be caused by many things a problem with the uterus, ovary or a hormonal disorder. Most of the time the irregular periods are related to a condition called "anovulation". This is a medical term for an imbalance between the hormones of the pituitary gland, the ovaries and the hypothalamus.¹² Repetitive work may increase psychosocial load and cause psychological strain (stress symptoms), which in its turn may lead to musculoskeletal tenderness and pain by increased muscle tone, modified pain perception, reduced capacity to cope, or increased biomechanical load.¹³ Discomfort and pain in the neck, shoulders, and upper extremities are reported with increased frequency in repetitive work.¹⁴

In developing countries, the mean menarcheal age varied as high of 16.2 years in Nepal, 15.8 in Bangladesh, 14.3 in India (the Punjab), to as low of 13.5 in Sri Lanka, while in the Industrialized world, it ranged from as high of 13.3 years in Great Britain, 13.1 in France to as low of 12.8 in the United States.² Menstrual problems are generally perceived as only minor health concerns and thus irrelevant to the public health agenda, particularly for females in developing countries who may face life-threatening conditions.¹⁵ With the above background the present paper aims to assess the mean age at menarche and menstruation related problems during menstrual period among the hostel women belonging to cross cultural population of Tirupati, Chittoor district, Andhra Pradesh, India.

METHODS

The material for the present study consists of information on the date of onset of menarche and some parameters related to menstrual problems like pre-menstrual syndrome (PMS), irregular periods, painful periods etc., are drawn from a sample of 326 girl students staying at hostel, S.V. University, Tirupati, Andhra Pradesh, India. All the subjects were within the age range of 17 to 25 years. The information on age at menarche was collected by retrospective method of recall. Since, the informants are quite young and educated they could provide accurate information. The questionnaire were verbally interpreted in vernacular language and properly explained to avoid any form of ambiguity and to facilitate accurate response

from the subject. Informed consent of the subjects was obtained. The subjects were interviewed separately and privately. Their ages were recorded. The menstrual history was inquired; the exact date of menarche and also any complications occur during menstruation period like pre menstrual syndrome (PMS), irregular periods, painful periods etc. was noted. Data were collected after obtaining institutional ethical committee clearance and informed written consent from the heads of the institutions. Appropriate statistical tools were used for analyzing the data.

RESULTS

The frequency distribution of women by age at menarche is shown in Table 1. The menarcheal age ranges from 11 to 18 years, the mean age at menarche of the women is 13.83±1.209 years with majority of the girls attaining menstruation at the age of 14 years (31.0%). At the age of 17 and 18 years the proportion of girls menstruated was found to be the lowest (0.6%). When compared to the rest of the age groups it was (1.8%) in 11 years, followed by (10.4%) in 12 years, (28.2%) in 13 years, (20.9%) in 15 years and (6.4%) in 16 years.

Table 1: Frequency distribution of women by age at menarche.

Age in years	N	Percentage
11	6	1.8
12	34	10.4
13	92	28.2
14	101	31.0
15	68	20.9
16	21	6.4
17	2	0.6
18	2	0.6
Total	326	100.0
Mean age at menarche	13.83 ± 1.209	

Frequency distribution of the sample by irregular periods is presented in Table 2. It was found that among 326 samples, 61 (18.7%) said that they are getting irregular periods and remaining samples 265 (81.3%) are attaining their regular periods.

Table 2: Frequency distribution of the sample by irregular periods.

Irregular periods	N	Percentage
Yes	61	18.7
No	265	81.3
Total	326	100.0

Frequency distribution of students by PMS is presented in Table 3. Out of the 326 students who answered for the preliminary questionnaire on menstrual abnormalities, 254 (77.9%) reported to have premenstrual symptoms

followed by 72 (22.1%) students who answered the questionnaire, to have no premenstrual symptoms.

Table 3: Frequency distribution of students by PMS.

Pre menstrual syndrome	N	Percentage
Yes	254	77.9
No	72	22.1
Total	326	100.0

Frequencies and symptoms of PMS is presented in Table 4. Out of 326 sample, it was found that during menstruation, 102 (31.3%) students having a set of symptoms like abdominal or back pain / feeling heaviness of the body this was the major illness suffered by most of the students. Feeling heaviness of the body was noticed to an extent of 70 (21.5%). 49 (15%) were having the symptom of abdominal or back pain, 15 (4.6%) were having the combination of complications like abdominal or back pain/ headache/ feeling heaviness of the body, whereas, 8 (2.5%) having symptom of headache, the remaining 7 (2.1%) and 3 (0.9%) are having symptoms of headache/ feeling heaviness of the body and abdominal or back pain/ headache. It was noticed that 72 (22.1%) have no symptoms of PMS.

Table 4: Frequency distribution of complications in PMS.

Complications in PMS	N	Percentage
None	72	22.1
Abdominal or back pain	49	15.0
Headache	8	2.5
Feeling heaviness of the body	70	21.5
Abdominal or back pain/ headache	3	0.9
Headache/ feeling heaviness of the body	7	2.1
Abdominal or back pain/ feeling heaviness of the body	102	31.3
Abdominal or back pain/head ache/ feeling heaviness of the body	15	4.6
Total	326	100.0

Frequencies of painful periods are presented in Table 5. The most common reported problem during the menstruation was pain, i.e. dysmenorrhea. Out of 326 samples it was reported 53.4% are having painful periods and 46.6% have normal periods.

Table 5: Frequencies of painful periods.

Painful periods	N	Percentage
Yes	174	53.4
No	152	46.6
Total	326	100.0

DISCUSSION

In the study, we examined the age at menarche and menstrual complications of women staying at hostel, and the results show that the mean age at menarche of the students is 13.83 ± 1.209 years with majority of the girls attaining menstruation at the age of 14 years (31.0%). these findings are in good agreement with other studies, conducted study in Bhavnagar, they observed that mean age of menarche was 14.¹⁶

The findings of the present study show that 18.7% are having irregular periods and 81.3% are getting their regular periods. Similar work was observed in other study that 7.5% girl had irregular cycle, 92.7% of the adolescent girls were menstruating at the interval of 21 to 35 days.¹²

In the present study that 77.9% is having PMS. There are combinations of complications in PMS like headache/ feeling heaviness of the body were observed by most of the students 31.3%. It was reported by 21.5% students are having the symptom of feeling heaviness of the body and 22.1% are not having any symptoms of PMS. The remaining 7 (2.1%) and 3 (0.9%) are having symptoms of headache/ feeling heaviness of the body and abdominal or back pain/ headache. The same trend was observed in consistence with, who was reported that, the prevalence of PMS was (80.2%) among 253 unmarried female students, Elmina University.¹⁷

We found that 53.4% sample reported severe pain during menstruation. The same results were observed in other studies that among 363 women reporting severe pain 80%.¹⁸ Hence, we suggest that health education programs regarding PMS and other menstrual problems must be included in the curriculum of secondary schools to bring down the prevalence of such problems.¹⁹

CONCLUSION

Healthy eating habits, regular exercise, nutrition and education need to be promoted. Campaigns and seminars are to be conducted to improve adolescent menstrual hygiene and self-care should be organized by teachers and parents association, as well as health care organization. To create awareness related to reduce disease burden and poor health outcome associated with poor menstrual complications and self-care has to be taken among this group to promote positive attitudes towards the mean age at menarche and menstruation related problems among the adolescent girls is the need of the hour.

ACKNOWLEDGEMENTS

The HOD and teachers staffs were thankfully acknowledged for their permission to carry out research in the Department of Anthropology S. V. University,

Tirupati. Also authors are sincerely indebted to all the students who made this study possible.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethical Committee

REFERENCES

1. Kish EH. The Sexual Life of Women in the Physiological, Pathological and Hygiene Aspects. London: Rehman Ltd. 1910.
2. Thomas F, Renaud F, Benefice E, De Meeüs T, Guegan JF. International variability of ages at menarche and menopause: patterns & main determinants. *Hum Biol.* 2001;73:271-90.
3. Terri K. Essentials of Pediatric Nursing. India: Wolter Kluwer Publisher, 2008. ISBN-13: 978-0-7817-5115-2, ISBN-10: 0-7817-5115-2.
4. Chumlea WC, Schubert CM, Roche AF, Kulin HE, Lee PA, Himes JH, Sun SS. Age at menarche and racial comparisons in US girls. *Pediatrics.* 2003;111:110-3.
5. Malina RM, Bouchard C. Growth, Maturation, and Physical Activity. Champaign, IL: Human Kinetics Books. 1991.
6. Raji Y, Osonuga OA, Shittu OS, Akinsomisoye, VA, Togun VA, Azeez MO. Age at menarche and its predicting factors in cities of Ibadan and Ogbomoso of Southwestern Nigeria. *J Med Sci.* 2006;6:772-8.
7. Uche-Nwachi EO, Odekunle A, Gray J, Bethel T, Burrows Y, Carter J, Christie K, John Dillett, Evelyn C, Stubbs L, Osolo I, Workman T. Mean age of menarche in Trinidad and its relationship to body mass index, ethnicity and mothers age of menarche. *Online Journal of Biological Sciences.* 2007;7:66-71.
8. Whincup PH, Gilg JA, Odoki K, Taylor SJC, Cook DG. Age of menarche in contemporary British teenagers: survey of girls born between 1982 and 1986. *Br Med J.* 2001;322:1095-6.
9. Chau JPC, Chang AM. Effects of an educational programme on adolescents with premenstrual syndrome. *Health Education Research.* 1999;14(6):817-30.
10. Ray S, Mishra SK, Roy AG, Das BM. Menstrual characteristics: a study of the adolescents of rural and urban West Bengal, India. *Ann Hum Biol.* 2010;37(5):668-81.
11. Brien O. Premenstrual syndrome. In: Keith Edmonds D, eds. Dewhurst' Text book of Obstetrics and Gynaecology. 7th ed. USA: Blackwell publishing; 2007: 408-413.
12. Patil S, Angadi MM. Menstrual pattern among adolescent girls in rural area of Bijapur Manjula. *Al Ameen J Med Sci.* 2013;6(1):17-20.
13. Bonde JP, Mikkelsen S, Andersen JH, Fallentin N, Bælum J, Svendsen SW, Thomsen JF, Frost P, Kærgaard A. The PRIM Health Study Group. Understanding work related musculoskeletal pain: does repetitive work cause stress symptoms? *Occup Environ Med.* 2005;62:41-8
14. Kilbom A, Armstrong T, Buckle P, Fine L, Hagberg M, Haring-Sweeney M, et al. Musculoskeletal disorders: work-related risk factors and prevention. *Int J Occup Environ Health.* 1996;2:239-46.
15. Vijayalakshmi. J, Emmanuel M. A Study on Health Problems During Menstruation among Female Students. *The International Journal Of Humanities & Social Studies.* 2014;2(5):300-4.
16. Verma PB, Pandya CM, Ramanuj VA, Singh MP. Menstrual Pattern of Adolescent School Girls of Bhavnagar (Gujarat). *NJIRM.* 2011;2(1):38-40.
17. Seedhom A, Mohammed E, Mahfouz E. Life style factors associated with premenstrual syndrome among El-Minia University students, Egypt. *Hindawi Publishing Corporation ISRN Public Health.* 2013; ID 617123: p. 6.
18. Santer M, Warner P, Wyke S. A Scottish postal survey suggested that the prevailing clinical preoccupation with heavy periods does not reflect the epidemiology of reported symptoms and problems. *J Clin Epidemiology.* 2005;58:1206-10.
19. Ramya S, Rupavani K, Bupathy A. Effect of educational program on premenstrual syndrome in adolescent school girls. *Int J Reprod Contracept Obstet Gynecol.* 2014;3(1):168-171.

Cite this article as: Pakala CR, Gujjala S. Age at menarche and menstrual complications: a cross cultural study among hostel students in Tirupati, Chittoor district, Andhra Pradesh, India. *Int J Res Med Sci* 2016;4:1688-91.