Comparison of Menarcheal Status of Adolescent Girls

Kankana De
Vidyasagar University, India

Corresponding author: Kankana De, Vidyasagar University, India, Tel: +91-9474714273; E-mail: dekankana@gmail.com

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Abstract

Adolescence (from Latin adolescere, meaning "to grow up") is a transitional stage of physical and psychological human development that generally occurs during the period from puberty to legal adulthood (age of majority). The period of adolescence is most closely associated with the teenage years though its physical, psychological and cultural expressions may begin earlier and end later. For example, although puberty has been historically associated with the onset of adolescent development. Menarche is the first menstrual cycle, or first menstrual bleeding, in female humans. From both social and medical perspectives, it is often considered the central event of female puberty, as it signals the possibility of fertility.

Girls experience menarche at different ages. The timing of menarche is influenced by female biology, as well as genetic and environmental factors, especially nutritional factors. The average age of menarche has declined over the last century, but the magnitude of the decline and the factors responsible remain subjects of contention. The worldwide average age of menarche is very difficult to estimate accurately, and it varies significantly by geographical region, race, ethnicity and other characteristics. Various estimates have placed it at 13. Some estimates suggest that the median age of menarche worldwide is 14 and that there is a later age of onset in Asian populations compared to the West.

Secular trend in age at Menarche shows general improvement of nutrition status and living condition and better health services. Government of West Bengal of health services. Provide counselling services (e.g. Anwesha Clinic) which provide Adolescent Friendly Health Services Menarche is the most important biological event occurring girls during puberty. Girls experience menarche at different ages. The timing of menarche is influenced by female biology, as well as genetic and environmental factors, especially nutritional factors. The worldwide average age of menarche is very difficult to estimate accurately, and it varies significantly by geographical region, race, ethnicity and other characteristics.

Age at menarche is a significant indicator of growth and sexual maturation in girls. During adolescence, anthropometry provides a tool for monitoring and evaluating the hormone-mediated changes in growth and reproductive maturation. Menarche is defined as the first menstrual period. It is considered to be the most obvious sign of puberty in girls. It has been regarded in many cultures as a transitional step to womanhood.

Keywords: Adolescent; Nutrition; Menarche

Introduction

This is a cross sectional study which is done on 1009 school girls, study is done on Salboni block of district Paschim Medinipur of West Bengal, India. To study effect of nutrition on mean age at Menarche different anthropometric measurements are applied. The study had been done on 10-19 Adolescents school girls.

Discussion

Objectives of study

• To study mean age at Menarche of studied population and to compare with others.
• To study whatever nutritional status effects mean age at menarche.
• To study anthropometric characteristics of studied population.

Materials and Method

Area of study

The investigation was carried out in a field survey among adolescent girls in an Adolescent Clinic (Anwesha Clinic) of Salboni Rural Hospital. This hospital is situated in the Salboni block of Paschim Medinipur, West Bengal, India.

The Hospital is situated in rural areas about 24 km to the north from the heart of the town Medinipur and which is conveniently located being connected by road and railways to Midnapur town. Salboni is located at 22.6°N 87.19°E. It has an average elevation of 25 metres (85 feet). It is on NH 60. As per 2001 census, Salboni CD Block had a population of 165,193, out of which 84,247 were males and 80,946 were females. Growth of population in the 1991-2001 decade was 16.71 per cent (Table 1).
Sample of the study

An Adolescent Counselling centre (Anwesha Clinic) of Salboni Rural Hospital of Salboni block has been chosen for present field survey for collecting required samples. All the girls of the school age ranging 10 to 19 years were called to participate in present research survey; this short age range was designed, firstly, to minimize the effect of age on anthropometric trait, secondly, to access the immediate effect of menarche on anthropometric parameter under study; thirdly, to reduce error of recalling age at menarche as it is evident from the typical menarcheal age range of Bengali speaking Hindu girls [1,2].

There were altogether 1009 Adolescents (aged 10-19 years) in Adolescent Clinic, they are voluntarily participated in this. The sample data are collected by one-year interval; in every age group there are 100 adolescent girls, To collect data socio-economic data schedule questionnaire are used, anthropometric measurement is done through different instruments like anthropometric rod weighing machine, Skin fold Caliper (Table 2).

Table 1: Age wise comparison of post menarcheal and premenarcheal of anthropometric variable.

| Variable            | 10 years | 11 years | 12 years | 13 years | 14 years |
|---------------------|----------|----------|----------|----------|----------|
| Height (cm)         |          |          |          |          |          |
| Premenarcheal       | 145.88 (4.8) | 147.47 (3.58) | 148.65 (3.46) | 148.61 (2.99) | 153.32 (4.39) |
| Post menarcheal     | 146.01 (4.94) | 148.07 (3.76) | 149.82 (3.82) | 150.44 (3.70) | 151.53 (4.41) |
| Weight (kg)         | 41.71 (4.16) | 43.42 (3.92) | 43.39 (3.32) | 44.16 (3.47) | 45.75 (3.34) |
| BMI (kg/m²) post menarcheal | 19.53 (1.7) | 19.72 (1.56) | 19.25 (1.3) | 19.44 (1.32) | 19.98 (1.41) |
| Premenarcheal       | 16.93 (1.37) | 17.20 (2.46) | 17.20 (2.46) | 16.76 (1.19) | 15.87 (6.53) |
| Combined            | 18.23 (2.03) | 18.96 (2.19) | 18.72 (2.19) | 19.12 (1.57) | 19.65 (1.76) |

Table 2: Mean and body mass index of different body mass index.

Results

Among studied sample 896 girls have experienced menarche, their mean age at menarche is 11.88 years (1.23) to compare anthropometric variable premenarcheal and post-menarcheal girls that mean anthropometric measurement of premenarcheal girls is more higher than post menarcheal girls (at 10 mean height of premenarcheal girls is 145.88 cm, post-menarcheal girls is 146.33 cm); in studied girls minimum age at menarche is 9 years and maximum age at menarche is 17 years. The menarcheal age of the present sample was lower than the most of previous studies conducted among the bengalee Hindu girls of Kolkata [3,4]. The average age at menarche of this population is going down rapidly in 1920 and moderately in 1950s and currently a possible stability in age at menarche among the adolescent reproductive health, hygiene, nutrition). In the median age at menarche of rural adolescent girls of Pinjore-Nalagarh dun Valley. Using probit analysis was found to be 12.88 ± 1.08 years [5].

Table 3: Menarcheal status of studied group in different nutritional categories.

| Nutritional categories | CED I | CED II | CED III | Normal | Overweight | Total |
|------------------------|-------|--------|---------|--------|------------|-------|
| Post Menarcheal        | 136   | 2      | 4       | 740    | 4          | 884   |
| Premenarcheal          | 28    | 36     | 40      | 21     | 0          | 125   |
| Total                  | 164   | 38     | 42      | 761    | 4          | 1009  |
from LSE. Nevertheless, the estimates indicate that menarche was delayed significantly (p<0.01) among girls from LSE [8] (Table 4).

| Author (Year of publication) | Sample size | Mean   | SD    |
|------------------------------|-------------|--------|-------|
| Curje (1920)                 | 268         | 13.62  | 1.8   |
| Sen (1953)                   | 647         | 12.78  | 1.27  |
| Sarkar and Roy (1968)        | 169         | 12.9   | 0.91  |
| Sen (1988)                   | 1837        | 12.48  | 1.27  |
| Sen (1994)                   | 35          | 11.94  | 1.09  |
| Bhadra (2000)                | 123         | 12.04  | 1     |
| Present study                | 896         | 11.88  | 1.23  |

Table 4: Age at menarche in Bengali populations: Indian context.

Conclusion

All anthropometric measurement has significantly increased by increasing with Age. Height, weight, Biceps Skin folds, Triceps are increasing with age because 10-19 years are growing stage of human life cycle and human reaches thus in pubertal growth stage.

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