Research Article

CORRELATION OF BODY MASS INDEX LEVELS WITH AGE AT MENARCHE IN WOMEN IN, SELECTED RURAL AREAS OF NELLORE: A CROSS SECTIONAL STUDY

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ABSTRACT

Background: Menarche is a milestone for adolescent girls. The timing of menarche is influenced by genetics, social status and nutritional status (e.g., height, weight and body mass index [BMI]) and impacts future health (e.g., obesity and breast cancer). Studies with adult woman have shown that prevalence of obesity is highest in those women who had experienced an early menarche in their adolescence.

Objective: The objective was to assess the Correlation of body mass index levels with Menarche among women.

Methods: The participants in this cross sectional study came from five rural areas of Nellore. A total of 220 women were randomly selected. Trained investigators administered a standard questionnaire to each participant during a face-to-face interview and carried out anthropometric measurements.

Results: The results shows that, out of 294 women attained menarche at age, 28 (09.5%) attained at less than 10 years, 135(45.91%) attained at 11-13 years, 131(44.55%) attained at 14-16 years.
Regarding BMI the women falls under underweight are 28 (9.52%), 106 (36.05%) are having normal BMI, and 160 (54.42%) are overweight. The correlation coefficient value is 0.9 which states that there is a positive correlation between age at menarche and BMI classification.

Conclusion: BMI is associated with the timing of menarche but socioeconomic factors are also important.

INTRODUCTION

Obesity is a major public health problem. It is associated with adverse physical health outcomes [including diabetes, coronary heart disease, cancer, and respiratory problems and psychosocial difficulties. The prevalence of obesity is increasing in adults in the United States, the United Kingdom[1], and worldwide [2]. Early age at menarche, together with other indicators of early biological maturity, has been shown to be associated with increased adult body mass index (BMI) [3].

If there is a true causal link between age at menarche and adult BMI, it could be argued that this association may play a role in explaining the temporal trends in obesity. Age at menarche has been declining (16-20) at the same time as adult BMI has been increasing, although the rate of decline has slowed or stopped in some countries in recent times [4]. Whether early age at menarche is causally associated with increased adult obesity is unclear because many factors are related to both age at

menarche and adult obesity. In particular, girls who have an early age of menarche have the highest childhood BMIs. In turn, BMI tracks between childhood and adult life, with high childhood BMI being predictive of high BMI in adulthood. Thus, the association between early menarche and adult obesity may be largely (or wholly) due to the association between earlier and later obesity. Other factors across the life course may also explain or mediate the relation between age at menarche and adult BMI. Socioeconomic position at birth and in adult life, parity, current smoking status, and alcohol intake are all associated with BMI in adult life. Social class is also negatively associated with age at menarche [5].

Studies with adult woman have shown that prevalence of obesity is highest in those women who had experienced an early menarche in their adolescence. The aim of this study was to assess the Correlation of body mass index levels with Menarche among women.

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Detailed Research Plan

Research Approach: Quantitative Approach.

Research Design: Descriptive design.

Research Setting: The study was conducted at Papi reddy Palem, Kaku palli, Allipuram, Enamadugu and Kovuru.

Sampling Technique: Convenience sampling technique

Sample Size: A total of 294 samples were included in this study. Among this, 35 samples belongs to Papi reddy Palem, 59 samples belongs to Kaku palli, 73 samples belongs to Allipuram, 56 samples belongs to Enamadugu and 71 samples belongs to Kovuru.

RESULTS AND DISCUSSION

Table 1 Frequency and percentage distribution of age at menarche

Age at menarche	F	%
a. Less than 10y	28	09.5%
b. 11-13y	135	45.91%
c. 14-16y	131	44.55%

The above table shows age at menarche, out of 294 samples 28 (09.5%) attained at less than 10 years, 135(45.91%) attained at 11-13 years, 131(44.55%) attained at 14-16 years. **(N=294)**

Table 2 Frequency and percentage distribution of BMI N=294

BMI Classification	F	%
a. < 18.5	28	9.52%
b. 18.6 – 24.99	106	36.05%
c. 25.0 – 29.9	160	54.42%

The above table shows the frequency and percentage distribution of BMI. Out of 294 samples 28 (9.52%) are under weight, 106 (36.05%) are having normal BMI, and 160 (54.42%) are overweight.

Table 3 Correlation between age at menarche and BMI (N=294)

Age at menarche	F	%	BMI Classification	F	%	Pearson correlation
a. Less than 10y	28	12.71%	< 18.5 kg/m² (Underweight)	28	12.72%	
b. 11-13y	135	61.30%	18.6 – 24.9 kg/m²(Normal)	106	48.18%	0.9
c. 14-16y	131	19.04%	25.0 – 29.9 (Overweight)	160	39.09%	

The above table shows the correlation between age at menarche and BMI. The Pearson correlation coefficient is 0.9 which shows a positive correlation between age at menarche and BMI.

CONCLUSION

BMI is associated with the timing of menarche but socioeconomic factors are also important.

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