Relationship of age at menarche on anthropometric measurement and menstrual problems of young adolescent girls in Coimbatore district

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***Abstract*:** Adolescence is the transitional phase of physical and mental development between childhood to adulthood and is characterized by immense hormonal changes. Menarche age is the age to begins menstruation and it is sensitive indicator of physical, biological and psychological environment. The aim of the current study is to evaluate the menarche age and survey the relationship between current age at menarche with anthropometric measurement and menstrual problems of young college going students in Coimbatore district. In the present study 100 students were participated and offered structural designed questionnaire as a survey tool which includes anthropometric indices (height, weight, and BMI), menstrual pattern and menstruation per year. Here the subjects were grouped as 2 categories, i.e., 18-19years (78%) and 20-21years old (22%). Statistical analysis was carried out in SPSS software, version 16.0.the data were analysed using descriptive statistics and correlation coefficient. The height was recorded as (r= -.177), weight as (r= -.073) and BMI as (r= -.037). Body Mass Index (BMI) positively associated(p=>0.05) with Age menarche and Bleeding Scale. Premenstrual symptoms and menstrual abnormalities and were the most frequent problems encounter. The anthropometric parameters have strong relationship with the menstrual problems. Bleeding scale was also significantly high in the girls who were high in BMI. Lifestyle modifications like regular physical activity, decreasing the intake of junk food and promoting healthy eating habits should be emphasised in school/college health education programs to improve their menstrual health.
***Index terms*:** Adolescence, BMI, Menstrual problems, Lifestyle modification.

I. Introduction:

Adolescence is the transition period between childhoods to adulthoods. During this period, individual move towards physiological changes, psychological maturity, economic independence, social influences and obtain their adult identity. Demographically, India is a developing country and today a more than 70 percent of the population is under the age group of adolescence (18 to 21years) in both men and women. Adolescence is an intense anabolic period when requirements for all nutrients increases. Developing countries account for about 5 million adolescents of the total adolescent population, and in India about 21% of the total population are adolescents (Chandrakumari, 2019). According to WHO, World population census 2012, there are 236.5 million adolescents in the age group of 10 to 19 years. Anaemia is global community health problem which have an impact on both developing and developed countries with major consequences for human health as well as social and economic development. It occurs at all the stages of the life cycle but is more prevalent in pregnant women and adolescent girls (14 to 18 years).

In India, many studies were reported that the prevalence of anaemia in adolescent girls is fairly high (Roseline, 2016). Hence, there is increasing concern regarding the nutritional status of young women who are at the threshold of adulthood and contribute an important segment to the vulnerable groups. Apart from healthy food habits, inadequate physical activity is also a common feature running of most public health problem across the world. Due to lacking of these two factors like unhealthy food habits and inadequate physical activities, adolescents face more health challenges and chronic disease like asthma, anaemia, neurological abnormalities, emotional and behavioural problems, chronic physical disabilities, early age menarche or irregular menstruation, birth defects, and developmental delays. There have been many studies show about the impacts of height, weight, and body structure on the menarche age. However, there is disagreement for the roles of those components. In this present study, we focused on s, weight, body mass index (BMI), with menstrual problems, and age in a large number of young adolescent college going girls in order to explicate the impact of age on anthropometric indices and menstrual irregularity in adolescents.

II. Methodology:

Selection of Subjects: The study was carried out for 1 year in the campus of a private college which is located in urban area of Coimbatore district, Tamil Nadu. The college girls were selected by using random sampling technique between the age group 18 to 21 years. The Exclusion criterion was adolescent girls below the age of 18years and above the age of 21 years. A total of 100 girls were enrolled in the study and categorized into two groups according to age. In order to assess their anthropometric status and menstrual problems by using questionnaire with proper permission from our head of the department.

Methods: The survey tool was a structural designed questionnaire that included questions on anthropometric data (height, weight and BMI, menstrual problems, symptoms, and informed consent was obtained from all participants.

Statistical Analysis: The data were analysed using SPSS version 16.0 and P< 0.05 was used to determine the statistical significance. The difference among anthropometric indices according to age group were analysed by analysis of variance. Correlation analyses were used to investigate associations between age with anthropometric measurement and menstrual problems.

III. Result and discussion:

Table 1: Correlation between Age and height

Correlations

		Age	Height
Age	Pearson Correlation	1	-.177
	Sig. (2-tailed)		.079
	N	100	100
Height	Pearson Correlation	-.177	1
	Sig. (2-tailed)	.079	
	N	100	100

The above **Table 1** depicts correlation between Age and Height. It shows that Age (r=- .177) is negatively correlated with Height. Thus, Age doesn't be contingent on Height.

Table 2: Correlation between Age and Weight

Correlations

		age	Weight
age	Pearson Correlation	1	-.073
	Sig. (2-tailed)		.470
	N	100	100
Weight	Pearson Correlation	-.073	1
	Sig. (2-tailed)	.470	
	N	100	100

The above depicts correlation between Age and Weight. It shows that Age (r=- .073) is week negatively correlated with Weight. Thus, Age is not based on Weight.

Table 3: Correlation between Age and BMI

Correlations

		age	BMI
age	Pearson Correlation	1	-.037
	Sig. (2-tailed)		.714
	N	100	100
BMI	Pearson Correlation	-.037	1
	Sig. (2-tailed)	.714	
	N	100	100

The above **Table 3** depicts correlation between Age and BMI. It shows that Age (r=- .037) is week negatively correlated with BMI. Thus, Age is not depending on BMI.

Table 4: Correlation between BMI and Cycle regularity

		BMI	**Cycle regularity**
BMI	Pearson Correlation	1	**.197***
	Sig. (2-tailed)		.049
	N	100	100
Cycle regularity	Pearson Correlation	**.197***	1
	Sig. (2-tailed)	.049	
	N	100	100

***Correlation is significant at the 0.05 level (2-tailed).**

The above **Table 4** depicts correlation between BMI and cycle regularity. It shows that BMI **(r=0.197)** is greater than 0.05 which is positively correlated with the Cycle regularity. Thus, Cycle regularity is strongly related with BMI.

Table 5: Correlation between BMI and Bleeding scale

		BMI	**Bleeding scale**
BMI	Pearson Correlation	1	**.144**
	Sig. (2-tailed)		.154
	N	100	100
Bleeding scale	Pearson Correlation	**.144**	1
	Sig. (2-tailed)	.154	
	N	100	100

The above **Table 5** depicts correlation between BMI and Bleeding scale. It shows that BMI**(r=0.144)** is greater than 0.05 which is positively correlated with the Bleeding scale. Thus, Bleeding scale is strongly related with BMI.

IV. Conclusion:

The height of the selected subject grouped under 3 ranges. Here 29% of the subject falls under 143-155 cm, 55% of the majority subject falls under 156-165cms, 16% of the subject falls under 166-176cms of the total subject. The weight of the selected subject in percentage 75% of the majority subject falls under the weight of 40-50 kgs. 21% subject falls under the weight of 51-60kgs.4% subject falls under the weight of 61-70kgs. The BMI distribution of the selected subject it is divided into 4 categories, 9% of subject is grouped under 15-17(underweight),74% of highest subject is grouped under 18-24(normal),16% of subject is grouped under 25-35(obese),1% of subject is grouped under 36-45(over weight) according to WHO. Our findings in this study with the help of anthropometric parameters correlation was performed, the selected subject's BMI are strongly correlated with cycle regularity and bleeding scale during menstruation.

V. References:

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