

A Comparative Study on Nutritional Status of Adolescents Girls of Different Rural Area of West Bengal

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Introduction

Adolescence is transitional stage of human lifecycle where they face different kind of physiological change. Adolescence is threshold of adulthood. It is period of physiological, psychological, and social maturity from Childhood to Adulthood. Childhood and adolescence are stages of rapid growth and final maturity of human development. During this period, individuals gain about 50% of adult body weight and height growth with a unique pattern of sexual dimorphism.

In adolescent girls, short stature that carries on into adulthood is associated with many concurrent and future adverse health and pregnancy outcomes. Under nutrition is better assessed a thinness (low body mass index) than wasting (low weight for Height) for Age sex specific cut off values of 2-8 years age group [1]. During the period of adolescence nutrient needs are the greatest.

Adolescents therefore constitute a nutritionally group for several reasons, including their high requirements for growth, their eating patterns, and their susceptibility to environmental influences. Compounded with growth, adolescent vulnerable pregnancy exposes both mother and child to adverse health and socioeconomic consequences, particularly if the mother is stunted or undernourished. Hard physical work, as commonly observed in low-income populations, may impose additional physiological stress on nutritional requirements in adolescence. Girls are particularly at high risk because of gender discrimination. In addition to this, adolescent girls may be at risk for inadequate intake of iron and calcium. The main nutritional problems of adolescents are under nutrition and Iron deficiency anaemia along with other micronutrient deficiencies.

There is a dearth of data on adolescent's nutritional status despite the fact that adolescent's nutritional problems represent a heavy health burden since they make up roughly 20% of the total world population and almost 21% of the population in West Bengal (Figure 1) [2].

Methods

The cross-sectional community is based on the Study of 386 rural adolescents girls of Paschim Medinipur [3,4]. Anthropometric measurements such as height and weight were made by a trained investigator (SD) following the internationally accepted standard techniques (WHO) [5]. Height and weight measurements were recorded to the nearest 0.1 cm and 0.5 kg respectively. Weight, Height, Height is measured through Anthropometric rod; Weight is taken by weighing machine. The BMI was computed using the following formula: $BMI = \text{Weight (kg)} / \text{Height (m}^2\text{)}$.

The BMI was used to evaluate the nutritional status of the subjects. BMI cut-off points were followed to define thinness. The age and sex specific cut off values were established based on international surveys.

ANOVA test were used to test for sex and age differences in weight, height, and BMI. All statistical analyses were performed using the SPSS statistical package. Statistical significance was set up to p value less than 0.05.

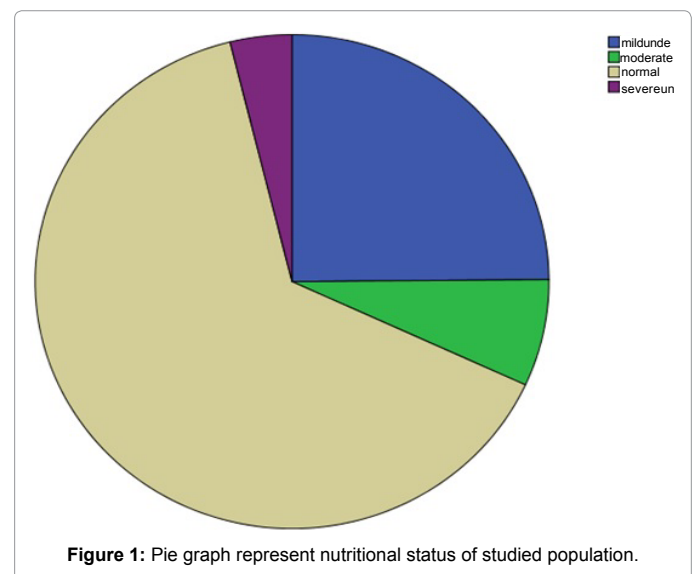
Results

Age wise height (cm), weight (kg) of adolescent girls have steady increase, Mean (19.44kg/m²) BMI (kg/m²) is highest at 19 years. 24.9% subjects belong to mild under nutrition, 1.8% belongs to severe under nutrition represented in Tables 1 and 2. Only 64.2% adolescent girls are falls in form normal range. At age of 11 years mean weight (kg) and Height (cm) increase much from previous age shown in Figures 2 and 3.

Discussion

In Bolpur, Santal girls show higher percentage (30.16%) of severe underweight, in present study of adolescent girls 1.8% girls belongs to severe underweight. A cross sectional study of 749 rural adolescents aged 10-18 years of Salboni Block Paschim Medinipur represent the overall prevalence of undernutrition which was 48.3% [6,7]. In present study 35.8% adolescent's girls have prevalence of underweight (Figures 4 and 5).

The rate of undernutrition among adolescent girls is 30.61%



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Mukhopadhyay et al. [8], severe malnutrition (29%) in rural school girls in Darjeeling is studied by Dey et al. [3]. In Haryana rural adolescent girls undernutrition is 40% as reported by De et al., Venkaih et al. reported 48.3% under nutrition among rural adolescent of Salboni block [4,9].

Age In years)	Mild under nutrition	Moderate Under nutrition	normal	Severe under nutrition	Total
10	11	4	20	4	39
11	8	4	21	3	36
12	10	2	17	2	31
13	12	3	20	3	38
14	8	6	24	1	39
15	11	0	28	0	39
16	9	5	27	0	41
17	8	2	33	0	43
18	11	0	26	2	39
19	8	1	32	0	41
Total	96	27	248	15	386

Table 1: Age wise nutritional Status of Adolescent girls aged (10-19) years.

Age (years)	N	Height (cm) SD (Mean)	Weight (kg)SD (Mean)	BMI (kg/m ²)SD (Mean)
10	39	142.74 (4.54)	38.05 (4.17)	18.72 (2.02)
11	36	147.75 (5.95)	40.79 (5.01)	18.77 (1.86)
12	31	149.26 (5.03)	41.86 (4.34)	18.90 (1.90)
13	38	150.73 (5.93)	42.38 (4.38)	18.84 (1.98)
14	39	150.76 (4.41)	42.47 (3.77)	18.72 (1.56)
15	39	151.48 (6.04)	43.37 (1.71)	18.98 (0.88)
16	43	151.60 (6.85)	43.81 (4.28)	19.01 (1.49)
17	43	151.97 (6.18)	44.57 (4.53)	19.19 (1.27)
18	39	152.36 (6.24)	45.30 (5.32)	19.44 (1.86)
19	41	153.65 (5.71)	45.50 (3.80)	19.44 (1.23)
Anova (N)	386	11.1*	21.93*	1.905 (ns)

Table 2: Age wise Height (cm), Weight (kg), BMI (kg/m²) of Adolescent girls.

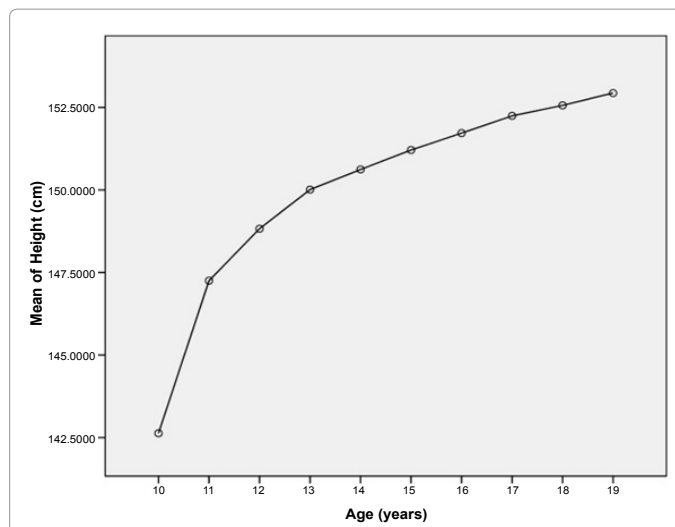


Figure 3: Age wise graphical representation of mean height of adolescent girls aged (10-19) years.

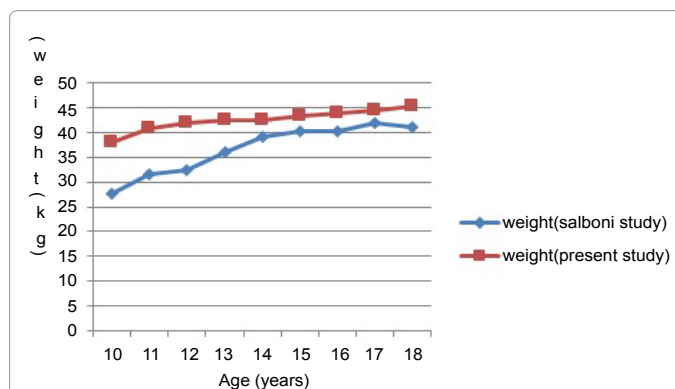


Figure 4: Age wise comparative study of mean weight (kg) of adolescent girls.

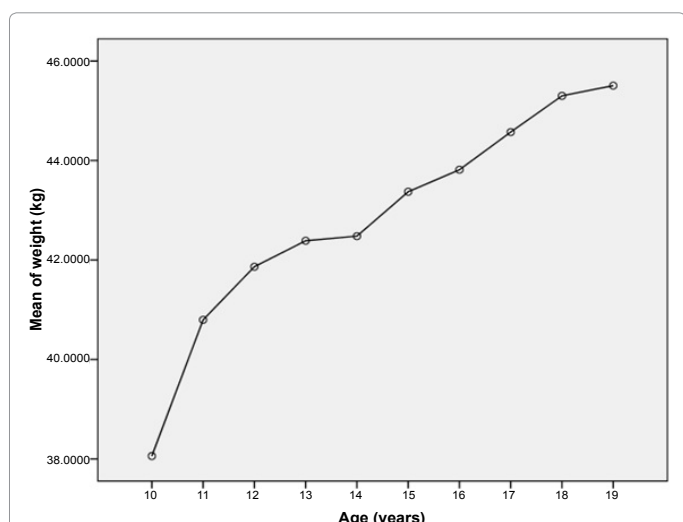


Figure 2: Age wise graphical presentation of mean weight (kg) of adolescent girls (10-19) years.

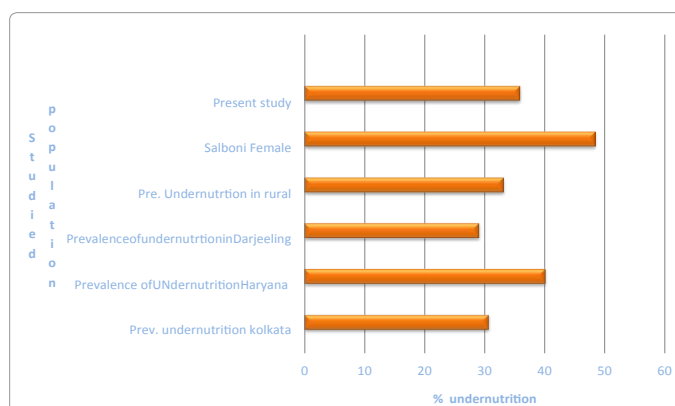


Figure 5: Comparative prevalence of undernutrition (%) among studied population.

Conclusion

Present study population (rural Adolescents of Paschim Medinipur) are suffering from under nutrition which indicate serious situation according to WHO guideline. To overcome this situation people should be aware of their food habits, dietary intake. Under nutrition affect physical growth of Adolescent, Adolescent counselling will support more on health-related issue, menstrual Problem, under nutrition causes iron deficiency which causes anaemia which relates to different health hazard. Nutrition supplement (including iron supplement) improves health condition of the population.

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