Lean Body Mass Influence Morbidity

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Mini Review

Abstract

The BMI is an attempt to quantify the amount of tissue mass (muscle, fat, and bone) in an individual, and then categorize that person as underweight; normal weight, overweight or obese based on that value. Study group girls suffer from anaemia, stunting, worm infestation, skin disease.

Government of India launch weekly iron folic acid supplement program to fight against anaemia and provide albandazole to fight against worm infestation.

1. Introduction

Adolescence is usually associated with the teenage years but its physical, psychological or cultural expressions may begin earlier and end later. For example, puberty now typically begins during preadolescence, particularly in females. Physical growth (particularly in males), and cognitive development can extend into the early twenties. Thus age provides only a rough marker of adolescence, and scholars have found it difficult to agree upon a precise definition of adolescence.

Lean body mass is fat free mass which is components of body composition; it is index superior to body weight it helps in assessing metabolic disorder. Lean body mass equals body weight minus body fat [1-5].

The BMI is an attempt to quantify the amount of tissue mass (muscle, fat, and bone) in an individual, and then categorize that person as underweight, normal weight, overweight or obese based on that value.

The BMI is generally used as a means of correlation between groups related by general mass and can serve as a vague means of estimating adiposity. The duality of the BMI is that, while it is easy to use as a general calculation.

Body Mass Index (BMI) is used as a useful population-level measure of overweight and obesity. It is used as the same for both sexes and for all ages of adults. The relationship between BMI and body fat percentage (BF %) has been studied in various ethnic groups to estimate the capacity of BMI to predict adiposity [6-10].

2. Objectives

To study relation between lean body mass and morbidity and to find different mortality factors of adolescent.

3. Methodology

Structured questionnaire is followed to collect data about self-reported morbidity. Anthropometric data are collected by anthropometric instruments, measure height by anthropometric rod, weight by weighing machines; different skin-folds are measured by skinfold calliper. Adolescent counselling centre name is as Anwesha clinic which deliver counselling service about health, hygiene, how to improve personal hygiene

3.1 Sample size

Sample is collected from Salboni block which is situated 25 km away from district town; it is a rural area, sample size is 1009 adolescent girls of 10-19 years.

Results

The results are mentioned in table Table 1-4.

Table 1. Relation of mortality with nutritional status.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
Constant	31.294	0.257		121.8	0	30.79	31.798
Mortality	3.88	0.294	0.384	13.173	0	3.302	4.457

Table 2. Relation of fat mass and fat free mass with mortality.

Pearson Correlation	1	0.355**	0.384**
Sig. (2-tailed)	-	0	0
N	1014	1005	1005
Pearson Correlation	0.355**	1	0.537**
Sig. (2-tailed)	0		0
N	1005	1009	1009
Pearson Correlation	0.384**	0.537**	1
Sig. (2-tailed)	0	0	
N	1005	1009	1009

Table 3. Frequency of different RI range in studied girls.

Variable	10 years	11 years	12 years	13 years	14 years	15 years	16 years	17 years	18 years	19 years	F
BMI	18.28	19.02	18.58	18.96	19.65	19.86	20.05	20.02	20.16	20.17	17.3*
(kg/m²)	-2.07	-2.2	-1.62	-1.59	-1.76	-1.6	-1.69	-1.22	-1.22	-1.05	
Waist-hip	0.911	0.9206	0.909	0.916	0.916	0.927	0.939	0.937	0.939	0.929	3.53*
ratio	-0.073	-0.0772	-0.072	-0.556	-0.0468	-0.0468	-0.063	-0.051	-0.06	-0.058	
Waist–height	0.505	0.51	0.506	0.512	0.512	0.52	0.526	0.526	0.532	0.533	0.072*
ratio	-0.023	-0.0257	-0.0351	-0.033	-0.042	-0.0401	-0.04	-0.044	-0.05	-0.043	

Table 4. Age wise change in anthropometric characters of adolescent girls.

Different RI Indicator	Frequency	Percent	Valid Percent	Cumulative Percent
1.00	74	7.3	7.6	7.6
2.00	104	10.2	10.7	18.3
3.00	154	15.1	15.8	34.1
4.00	215	21.1	22.1	56.2
5.00	426	41.8	43.8	100.0

Range variation: Very low ≤ 1.12, Low (1.13-1.19), Middle (1.20-1.25), Upper middle (1.26-1.32), High (1.331.39), Very high=1.40, Healthy range: 1.2-1.6

4. Discussion

Due to undernutrition adolescence experience development delay, this causes delayed puberty and delayed menarche. Malnourished adolescence is suffering from kwashikor, marasmus; under nutrition compromises with immune system, in rural areas poor sanitary system.

Early adolescents (10-15 years), in whom the growth spurt takes place, were observed to be at the highest risk of being underweight (58.88%), which was also found to be statistically significant ($P<0.05$) as compared to late adolescents (16-19 years) (47.62%). The prevalence rate of underweight was significantly associated with the type of family and socio-economic status ($P<0.05$), but not with religion of the study population.

Inadequate nutrition in adolescence can put them at high risk of chronic diseases particularly if combined with other adverse lifestyle behaviours the problem of malnutrition arises.

High prevalence of above morbidity conditions may be due to poor personal hygiene, lack of awareness regarding common diseases and overcrowding. The present study has revealed the prevalence of ARI as 6% while Chopdar A reported a higher prevalence of 7.1%

5. Conclusion

Undernutrition is cause of poor immunity; due to inadequate diet, intake of less nutritive food. Adolescent suffer from under nutrition which cause weak immunity. So they become susceptible to various diseases. Study group girls suffer from anaemia, stunting, worm infestation, skin disease.

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