Nutritional Status of adolescent girls of rural Haryana

M KALHAN, B Vashisht, V kumar, S Sharma

Citation

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Abstract

RESEARCH QUESTION
: What is the nutritional status of rural adolescent girls?
OBJECTIVES
: 1.To assess the anthropometric status of school going girls (13-16yrs). 2. To study the relation between Haemoglobin status and Body mass index(BMI).
STUDY DESIGN:
Cross-sectional study.
SETTINGS:
Block Lakhanmajra under Deptt. Of Community Medicine, PGIMS, Rohtak.
PARTICIPANTS:
322girls (13-16yrs) from 2 randomly chosen Girls High schools of the block. .
METHODOLOGY:
Height and weight of the girls were measured and BMI was calculated. Haemoglobin was measured by Cyanmethaemoglobin method
. STATISTICAL ANALYSIS:
Simple proportions, Chi-square test, ANOVA test.
RESULTS:
Mean weight of the girls was observed as 37.6 ± 5.46kg, 40.6 ± 5.4kg and 41.3 ± 7.9kg in the age group 13-14yrs, 14-15yrs and 15-16yrs respectively. Mean height of the girls as 151.1±5.8cm, 153.4±5.4cm and 153.6±6.1cm respectively in the above said age groups. About 80% of the girls were under-nourished (BMI <18.5). The anthropometric measurements of SC/BC girls were lower than that of other castes. Mean Hb in girls with BMI <16, 16-18.5 and ≥18.5 are 9.49±1.2, 10.08±1.2and 10.83±1.18 respectively and the difference between the groups has been found to be significant.

INTRODUCTION

Adolescents are the best human resources. But for many years, their health has been neglected because they were considered to be less vulnerable to disease than the young children or the very old. Their health attracted global attention in the last decade only. Though the issues like STDs, reproductive health have been given due importance, but limited attention has been paid to their nutritional status. The girls constitute a more vulnerable group especially in the developing countries where they are traditionally married at an early age and are exposed to greater risk of reproductive morbidity and mortality. Under-nutrition among adolescent girls is a major public health problem leading onto impaired growth and nutritional anaemia, etc.

AIMS AND OBJECTIVES

1. To assess the anthropometric status of school going girls(13-16yrs)

2. To study the relation between Haemoglobin status and Body mass index(BMI)

MATERIAL AND METHODS

STUDY AREA:

The present study was carried out in block Lakhanmajra which is the field practice area attached to the Department of Community Medicine, Pt. B.D.Sharma PGIMS, Rohtak.

STUDY PARTICIPANTS:

The study subjects were school going girls in the mid

adolescent phase (13-16yrs). There were 11 Govt. Girls High Schools in the block, out of which 2 high schools were randomly selected and all the girls studying in 8th, 9th and 10th standard formed part of the study.

METHODOLOGY:

Anthropometric measurements (height and weight) were done using standard techniques. Body mass index (BMI) was calculated from these parameters. Haemoglobin estimation was done by Cyanmethaemoglobin method. Appropriate statistical tests were applied for the analysis of the data.

OBSERVATIONS

Figure 1

Table-I AGEWISE MEAN WEIGHT OF GIRLS (n=322)

AGE (YRS)	NO. OF GIRLS (n)	WEIGHT (Kg)	
		MEAN±S.D	<3rdcentile of NCHS value
13-14	152	37.6±5.5	18(5.3%)
14-15	80	40.6±7.9	16(19.7%)
15-16	90	41.3±5.6	34(38.2%)
TOTAL	322	39.2±5.6	72(22.3%)

Table shows that weight of the girls was far less than the reference values in all the age groups.

Overall 22.3% of the girls had wt. <3rd percentile of NCHS values.

Figure 2

Table-II AGEWISE MEAN HEIGHT OF GIRLS (n=322)

AGE (YRS)	No. OF GIRLS (n)	HEIGHT (cm)	
		MEAN±S.D	<3rd centile of NCHS value N(%)
13-14	152	151.1±5.8	21(13.8)
14-15	80	153.4±5.4	8(9.8)
15-16	90	153.6±6.1	19(21.3)
TOTAL	322	152.3±5.9	48(14.9)

Table shows that about 15% of the girls had height <3rd percentile of the reference values.

Figure 3

Table-III DISTRIBUTION OF GIRLS ACCORDING TO THE VARIOUS GRADES OF UNDERNUTRITION

GRADES OF UNDERNUTRITION	B.M.I	No. OF GIRLS n(%)
GRADE-3 THINNESS	< 16.0	97(30.1)
GRADE-2 THINNESS	16.0-16.99	83(25.7)
GRADE-1 THINNESS	17.0-18.49	76(23.6)
NORMAL	18.5-24.99	66(20.6)
OVERWEIGHT	25.0-29.99	NIL
OBESE	>30.0	NIL
TOTAL		322(100.0)

Table shows that 79.4% girls were under-nourished (BMI≤18.5). Girls suffering from Chronic energy deficiency grade I, II and III were 23.6%, 25.7% and 30.1 % respectively. Out of the total 322 girls, none of the girls was found to be overweight or obese.

Figure 4

Table-IVANAEMIA IN RELATION TO BMI (n=322)

BMI	Mean Hb	Anaemic	Non-anemic	Total
<16	9.49±1.37	91(93.8)	6(6.2)	97(100.0)
16-18.5	10.08±1.2	139(87.4)	20(12.6)	159(100.0)
>18.5	10.8±1.83	42(63.6)	24(36.4)	66(100.0)
	10.06±1.18	272	50	322

F=22.2, P<.0001

Analysis of Variance observed a highly significant association between BMI and mean Hb conc. As the BMI improves, a higher mean Hb conc. was observed.

RESULTS

Present study observed that the measurements were less as compared to the NCHS standards. About 80% of the girls were under-nourished (BMI <18.5). Analysis of variance showed that the anthropometric measurements of SC/BC girls were lower than that of other castes. Mean Hb in girls with BMI <16, 16-18.5 and ≥18.5 are 9.49±1.2, 10.08±1.2and 10.83±1.18 respectively and the difference between the groups has been found to be significant (P<0.01).

Verma A et al (2004) observed significant association between BMI and anaemia.[1] Singh N & Mishra CP (2001) observed that 51.43% of adolescent girls from Varanasi were suffering from Chronic Energy Deficiency (CED). Stunting was present in 10% of the girls. Chaturvedi S et al (1996) studied the nutritional status of adolescent girls as assessed by body mass index revealing that 8.1% of adolescent girls suffered from chronic energy deficiency (CED) grade I, 6.6% grade II CED, and 78.8% grade III CED.[3] Kapoor G & Aneja S (1992) reported 35.5% of adolescent girls (11-18 years) of Delhi to be undernourished (W/H² less than the 5th percentile of reference standard) [4].

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Author Information

MEENAKSHI KALHAN, M.D
Assistant Professor, DEPARTMENT OF COMMUNITY MEDICINE, PT.B.D.SHARMA PGIMS

B.M Vashisht
Professor, DEPARTMENT OF COMMUNITY MEDICINE, PT.B.D.SHARMA PGIMS

Vijay kumar
Associate Professor, DEPARTMENT OF COMMUNITY MEDICINE, PT.B.D.SHARMA PGIMS

Seema Sharma
Senior Resident, DEPARTMENT OF COMMUNITY MEDICINE, PT.B.D.SHARMA PGIMS