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Research Article

NEUTRITIONAL STATUS OF RURAL ADOLESCENT SCHOOL GIRLS IN DISTRICT RAIGARH, CHHATTISGARH

Anita Pandey

Kirodimai Govt. Arts& Science College, Raigarh C.G. District- Raigarh C.G

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ABSTRACT

A study was conducted to assess the growth and nutritional status of adolescent school girls in rural Areas. My objective aimed at assessing the nutritional status, prevalence of anemia and other nutrient deficiency in rural adolescent girls from Raigarh region of Chhattisgarh. Present study was conducted among adolescent girls studying in 6th to 11th standard (age group of 11 to 16 years) of seven government recognized school in Sarangarh Tehsil, district Raigarh, Chhattisgarh. Physical growth of 400 girls was assessed through anthropometry. Data on weights and heights of girls were collected using standardized techniques. The study found that 44% of the adolescent girls were thin (BMI<18.5). The prevalence of chronic energy deficiency based on BMI (grade I, II and III) were, 9.25%, 19%, and 15.75 % respectively. Only 3.6 percent girls were overweight and no girl was found to be obese. 54.5 girls were found normal. The mean age of subjects is 13.2. All these observations suggest that school going early adolescent girls need better nutrition to fight the problem of under nutrition

Objective: The objective of this study is to assess the nutritional status, prevalence of nutrient deficiency and disorders in rural adolescent girls from Chhattisgarh region of the country.

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INTRODUCTION

Adolescents constitute one fifth (19.1%) of total Indian's population. (Census2011). Malnutrition is a major health problem of Indian adolescents. Poor nutritional status, gender discrimination resulting coupled with under nutrition and reduced body mass is a great challenge to Indian Health system. As adolescence is crucial period physiological and psychological development, we need to do a lot more for girls of this age group. In recent decade's state and Centre governments have been doing much for school girls of this age group, yet much more is to be done. Rural adolescent girls have to work harder physically as compared to the urban adolescent girls; hence they require more nutrition to sustain their physical and psychological health. Poor nutrition among adolescent girl is a main public health problem in rural India. The global data evidences that there are more than 1.2 billion adolescent, that is roughly one in every six person is an adolescent. More than half of all adolescents live in Asia and India has the highest adolescent population; it accomodates around 243 million (21% of population) than any other country. (Poonam K Trivedi 2016). Adolescence, a period of transition between childhood and adulthood, occupies a crucial position in the life of human beings. H.R. Shivaramakrishna (2011).

Adequate nutrition and Healthy eating and physical exercise habits at this age are foundations for good health in adulthood (Ashok Kumar 2012). Adolescent girls constitute a large chunk of child laborers. They share the household works from fire wood collection to kitchen works and laundry works that is not counted as work at all. In certain Indian societies they are the bread earners or the main source of generation income for the family. (Anuradha Goyle 2009). Health and nutrition of adolescents did not receive adequate attention at ruler sector India. (SoumyajitMaiti 2011) Short stature in adolescents resulting from chronic under-nutrition is associated with reduced lean body mass and deficiencies in muscular strength and working capacity (Shahin Rahman 2016). Adolescent's period is characterized by rapid increase in height and weight and hormonal changes resulting in sexual maturation. (Purushottam Pramanik 2015). The nutritional status of adolescent girls, the future mothers, contributes significantly to nutritional status of the community. (Poonam K Trivedi 2016). The undernourished adolescent girls thus initiate the vicious cycles of malnutrition by transmitting it to future generations. (Dr. Manisha Sarkar 2015). Even when they survive, poorly nourished adolescent mothers are more likely to give birth to low birth-weight babies, perpetuating a cycle of

*Corresponding author: **Anita Pandey**

Kirodimai Govt. Arts& Science College, Raigarh C.G. District- Raigarh C.G

health problems which pass from one generation to the next. (Ashok Kumar 2012). This will enable the government and non-governmental agencies to formulate policies and initiate strategies for well-being of the adolescents. (Nitish Mondal 2010). The tribal population is at a higher risk of under-nutrition, because of the socio-cultural, socio-economic and environmental factors influencing the food intake and health seeking behaviour. (K.M. Rao 2006).

Keeping in assessment, the present study has been explain to assess the nutritional status of rural school going adolescent girls in rural area of Raigarh city, Chhattisgarh.

The adolescents are classified into various grade based on BMI according to WHO International Standard. That is, Grade 1 thinness (BMI 17-18.49 kg/m²), Grade 2 thinness (BMI 16-16.9 kg/m²), Grade 3 thinness (BMI < 16 kg/m²), Normal (BMI 18.5-24.99 kg/m²), Overweight (BMI 25-29.99 kg/m²) and Obese (BMI >30 kg/m²).

METHODOLOGY

Study Area

Chhattisgarh is a developing state in Central India. The state was established on November 1, 2000 by partitioning Madhya Pradesh. Raigarh is a district of Chhattisgarh.

The study was conducted among adolescent school girl (11-16yrs of rural area Raigarh district, Chhattisgarh. The girls under study lived in village around the school. Selected girls were studying in 6th, 7th, 8th, 9th and 10th. Total 400 girls were measured and the period of the study was 2016- 17 academic session. Height and weight were measured using standard Methods. BMI was calculated from height and weight. The result shows that the weights and heights of these girls were below the standard value. As age estimation Assessment of age is most essential for conducting growth studies, the Accurate age of the adolescent girls was recorded from the school registration books.

Measurements

Height

Height was measured using a vertical measuring rod with headpiece without wearing footwear. The arms suspended freely by the side and head back, buttocks and heels in contact with measuring rods. The height was recorded to the nearest 1 cm.

Weight

Weight was recorded using a weighing machine. It was calibrated against known weights regularly. The zero error was checked for and removed if present, each time. Weight was taken with standard minimal clothing required to maintain privacy. The girls were asked to stand quietly in midpoint of the weighing machine platform without shoe and socks. Their weight was recorded to the nearest 500 grams.

Ethical consideration

Permission for the study was obtained from the school authorities prior to commencement of the survey.

Socio-economic profile

About 47% families were nuclear, while about 53% were joint families. Majority of the girls belonged to low income families (50.05%). The percentage of families belonging to agriculture has been 24.5. 14% families depended on seasonal small businesses. Rest 10.5% belongs to the facilities who work in government or semi government sector. Thus in total 86% of the families belong to low income group. (57.25%) families are vegetarian, rest (42.75%) are non-vegetarian.

The body mass index (BMI) was calculated by the standard formula: BMI (kg/m²) = Weight (kg) / Height² (m²).

BMI	Category	Number of girls
<16.0	Grade 3 thinness	63 (15.75%)
16.0 -16.99	Grade 2 thinness	76 (19%)
17.0 -18.49	Grade 1 thinness	37 (9.25%)
18.50 -24.99	Normal	218 (54.5%)
25.0 -29.99	Overweight	06 (1.5%)
>30.0	Obese	00
Total		400 (100)

Selected characteristics of the study population N = 400

Education of father		Education of Mother
Variables	Frequency	Frequency
Illiterate	24(6)	(17) 4.25%
Primary	23(5.75)	(41)10.25%
Middle	245(61.25)	(19) 4.27%
Matriculate	103(25.75)	(261) 65.25%
Graduate and above	5(1.5)	(62)15.5%
Occupation of father		Occupation of Mother
Government sector	(04) 1%	06
Private sector	(38) 9.5%	12
Business	(202) 50.05%	09
Agriculture	(98) 24.5 %	146
Seasonal working	(56) 14 %	85
Not working/house wife	(02) 0.5%	142
Father Income		
	>1000	103
	10000-5000	248(60)
	<5000	57
Family Type		
	Joint	212 (53%)
	Nuclear	188(47%)
Diet habit		
	vegetarian	229(57.25%)
	Non vegetarian	171(42.75)

RESULT AND DISCUSSION

Estimation of body mass index (BMI), from the height and weight measurements of individuals, is a widely accepted measure of nutritional status. In this study I used BMI for age as an indicator to define thinness or overweight. BMI for age as recommended by WHO as the best indicator for use in adolescents to determine under nutrition (thinness) or overweight. Based on the BMI, girls are classified four class ,as abnormally thin if their BMI is less than 18.5; normal if their BMI is 18.5 or higher ,overweight or obese if their BMI is 25.00 or more; and but less than 25.00 subjects with a BMI

which is less than 18.5 are usually classified as having chronic energy deficiency.

In the present study, out of the total 400 selected adolescent girls, 44% of the adolescent girls were thin ($BMI \leq 18.5$). Based on BMI (grade I, II and III). The prevalence of chronic energy deficiency were 9.25%, 19%, and 15.75 % respectively. No girl was found to be obese. Only 1.5 percent girls were overweight and 54.5 % girls were found normal. The mean age of subjects is 13.2.

Present study indicates that 44% girls were under-nourished ($BMI \leq 18.5$). Soumyajit Maiti *et al* reported an overall prevalence of 37.70% of thinness & stunting among adolescents; which is parallel observation to present study. H.R. Shivaramakrishna observed BMI (grade I, II and III) were 23.0%, 28.3%, and 22.2 %, over weight 1% respectively, from Rural Area of Kolar District. Which was more than my study & observation of obese (0%) is similar my study. Whereas Poonam K Trivedi 2017 in their study, reported a prevalence of thinness 27.4% from Rural Gujarat, India which was less than my study. Purushottam Pramanik (2015) & Nitish Mondal (2010) have similar observation (32.0%) of Prevalence of thinness.

The present study shown that different grades of malnutrition are widely prevalent among the girls in our study area. All these observations suggest that school going early adolescent girls need better nutrition to fight the problem of under nutrition. Further studies should be made to identify the factors responsible for it.

CONCLUSION

Rural adolescents and specially adolescents require immediate attention. These two groups are at a higher risk of under-nutrition, for o the socio-cultural and socio-economic factors influencing the food intake and health behavior Undernutrition in early adolescent school girl is thoughtful problem in rural area. The present study states that government should run nutrition awareness programs to reduce the prevalence of undernutrition in this early adolescent. The tribal adolescents are at a higher risk of under-nutrition because the socio-cultural and socio-economic factors influence the food intake and health behavior. Under-nutrition in early adolescent school girl is chronic problem in rural area. The present study states that government should run nutrition awareness programs to reduce the prevalence of under-nutrition in this early adolescent.

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