

**A CROSS-SECTIONAL STUDY ON NUTRITIONAL STATUS AMONG ADOLESCENTS
AGED 15-18 YEARS IN URBAN AREA OF GUNTUR****Dr. B. Bhavadharani^{*1}, Dr. P. Radha Kumari² and Dr. A. Sita Rama³**¹First Year PG, ²Professor ³Professor and HOD
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ABSTRACT

Background: Adolescence is the vulnerable period where the adolescents may get influenced by the lifestyles and dietary patterns of their peer group. Any excess or inadequate diet may affect their growth and development. If the nutrition remains uncorrected, they will carry this burden to the next generation. Hence, the present study was aimed to analyze the factors associated with the nutritional status of adolescents aged 15-18 years in Guntur.

Objectives: To know the prevalence of malnutrition and factors associated with the nutritional status and its association with socio-demographic patterns and dietary patterns. **Methodology:** An observational cross-sectional study was conducted from May 2022 to June 2022 in different schools and colleges in the urban area of Guntur.

The study population comprised of adolescents aged 15-18 years attending schools and colleges in Guntur. All the randomly selected adolescents aged 15-18 years were personally interviewed with the help of a pre-designed, pretested & semi-structured questionnaire regarding demographic factors, type of family, dietary pattern and socio-economic status. Anthropometric measurements like height (cm), weight (kg), body mass index (kg/m²), waist and hip circumferences(cm) were measured followed by clinical examination. **Results:** The prevalence of undernutrition was found to be 43% particularly among 15-16 aged adolescents whereas the prevalence of overnutrition was found to be 17%. **Conclusion:** Health education to adolescents regarding better lifestyle patterns and existing nutrition programmes and their benefits should be provided adequately.

KEYWORDS: Dietary habits; obesity; socio-demographic factors; undernutrition.

INTRODUCTION

The term "Adolescents" refers to the age group of 10-19 years. Adolescence is the transformation period where the adolescents require more nutrition to fulfill their energy demands for physical and physiological development. It is the vulnerable period where the adolescents may get influenced by the lifestyles and dietary patterns of their peer group. India has the largest adolescent population in the world which accounts to 253 million and every fifth person is between 10-19 years.^[1] The Ministry of Health and Family Welfare launched Rashtriya Kishor Swasthya Karyakram (RKSK) on 7th January 2014 to reach these 253 million adolescents to ensure holistic development of adolescents.^[2] Many adolescents are unaware of these nutrition programmes and their benefits.

Malnutrition refers to a pathological state which can result from either inadequate intake or excessive intake of one or more essential nutrients. It predisposes to infection and again infection predisposes to malnutrition which constitutes a vicious cycle. In most of the

developed countries, overnutrition is faced more than undernutrition nowadays. Due to this overnutrition adolescents are prone to non-communicable diseases like diabetes, hypertension and cardiovascular diseases in the later period thereby they transfer the diseases to the next generation.

Malnutrition is preventable by taking necessary life style modification and proper food intake. Nowadays people prefer poor diets even when healthy foods are available. Food fads and food taboos also plays a significant role in malnutrition. Malnutrition is the collective result of poverty, ignorance, inadequate education, large family size and lack of knowledge on nutritive value of foods. If the nutrition remains uncorrected, they will carry this burden to the next generation. Hence, it is important to address this problem. With this background, a cross sectional study was undertaken to assess the nutritional status in the present time among adolescents aged 15-18 years in the urban area of Guntur.

AIM

To assess the nutritional status among adolescents aged 15-18 years in Guntur.

OBJECTIVES

- To know the prevalence of malnutrition among adolescents aged 15-18 years in Guntur.
- To study the association between malnutrition & various socio-demographic factors.
- To study the relation between dietary patterns & nutritional status.

MATERIAL AND METHODS

- **Type of study**- An observational cross-sectional study
- **Study period**- May 2022 to June 2022
- **Study population**- Adolescents aged 15-18 years
- **Study setting**- two senior colleges and two schools in the urban area of Guntur selected by simple random sampling.

Sample size was calculated using the formula, $4pq/l^2$, where p is the prevalence of malnutrition taken from the previous study ($p=36\%$); $q=64(100-p)$; $l=10\%$.^[3] On applying this formula, sample size came to be 92.16 which was rounded off and taken as 200. 100 study participants were taken from the two schools and the remaining 100 study participants were taken from the two colleges which were selected randomly.

Pilot study was done in beforehand to assure the feasibility of the study and to test the validity of the questionnaire. Informed consent was obtained before starting the study.

Adolescents aged 15-18 years who were willing to participate in this study were included. Those who were not willing to participate and already suffering from acute and chronic diseases were excluded from the study.

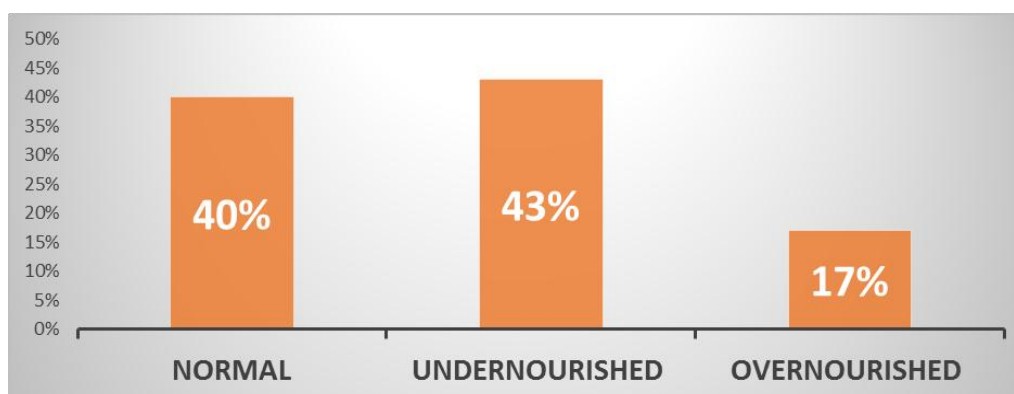
RESULTS

Fig. 1: Prevalence of malnutrition among 15-18 years based on BMI (BMI- Body Mass Index).

In the present study, the prevalence of undernutrition was found to be 43% whereas the prevalence of overnutrition was found to be 17% based on the BMI.

Major independent variables were height, weight and Body Mass Index (BMI) and dependent variables were nutritional status which includes both undernutrition and overnutrition i.e. overweight and obesity.

A pre-designed, pre-tested and semi-structured questionnaire was used and data was collected by face-to-face interview using Google forms. All the colleges and schools in the urban area of Guntur were listed and two schools and two colleges from the list were selected by simple random sampling. Anthropometric measurements like height (cm), weight (kg), waist and hip circumferences (cm) were measured by standardized methods. Height, weight, waist and hip circumference were measured using flexible measuring tape. WHO's BMI classification was used to differentiate underweight and overweight. Waist-hip ratio was calculated to rule out central obesity among the study population.

Socio-demographic variables like place of residential background, type of family, socio-economic status, education and occupation of parents were considered in this study. Modified B.G.Prasad scale, May 2021 was used to classify the socio-economic class.

Clinical examination was done to assess anaemia, vitamin and micro-nutrient deficiency. Questionnaire regarding dietary patterns like the frequency of junk foods and type of diet were also included.

Data Analysis

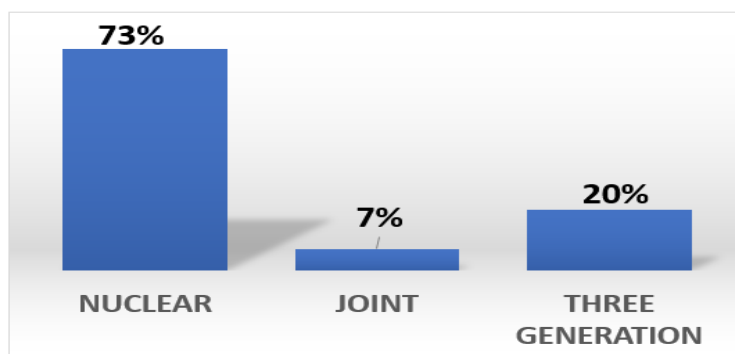
Data was entered in MS-Excel and exported to Statistical Package for Social Sciences (SPSS- version 25) for further analysis. The results of the study were represented in appropriate tables and figures. To determine the association between the socio-demographic variables and dietary patterns with the nutritional status, Chi-square test was applied. Statistical significance was considered when P was < 0.05 .

Table 1: Socio-demographic factors in the study.

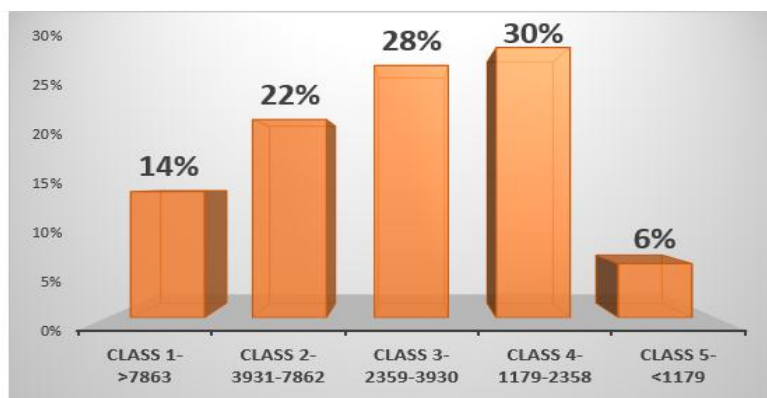
| SOCIO-DEMOGRAPHIC VARIABLES | MALNOURISHED (%) | NORMAL (%) | TOTAL PARTICIPANTS (%) |
|-------------------------------|------------------|------------|------------------------|
| AGE IN COMPLETED YEARS | | | |
| 15 | 40(33%) | 4(5%) | 44(22%) |
| 16 | 28(24%) | 14(17%) | 42(21%) |
| 17 | 12(10%) | 20(25%) | 32(16%) |
| 18 | 40(33%) | 42(53%) | 82(41%) |
| SEX | | | |
| Male | 60(50%) | 42(52%) | 102(51%) |
| Female | 60(50%) | 38(48%) | 98(49%) |
| RELIGION | | | |
| Hindu | 98(82%) | 64(80%) | 162(81%) |
| Christian | 18(15%) | 14(17%) | 32(16%) |
| Muslim | 4(3%) | 2(3%) | 6(3%) |
| RESIDENTIAL BACKGROUND | | | |
| Urban | 72(60%) | 40(50%) | 112(56%) |
| Rural | 48(40%) | 40(50%) | 88(44%) |

In the present study, most of the participants belonged to 18 years(41%) followed by 15 years of age(22%). Most of the study participants were males(51%) compared to

females(49%). Higher proportions were Hindus(81%) and were from urban background(56%).

**Fig. 2: Distribution according to the family.**

Most of the participants belonged to nuclear family(73%).

**Fig. 3: Distribution according to the socio-economic class.**

The higher proportions of the participants were from socio-economic class 4(30%) and 3(28%) according to socio-economic status of modified B.G.Prasad socio-

economic classification(May 2021) in this study but it showed no significance on applying chi-square test.

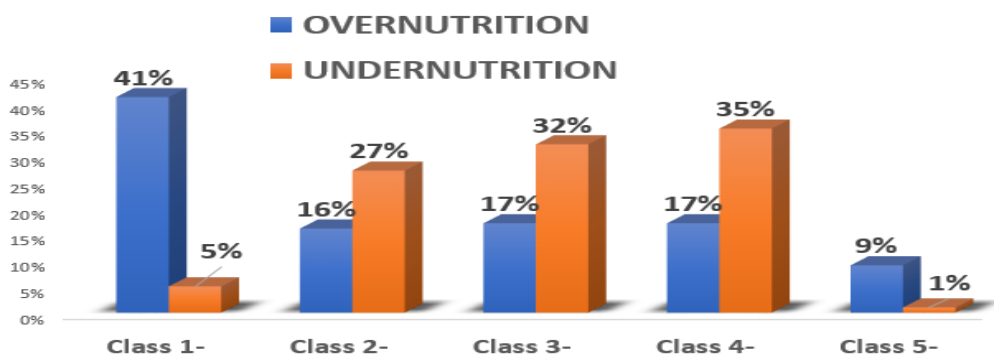


Fig.4: Distribution of malnutrition according to socio-economic class.

In the present study, higher proportions of participants who were undernourished were from class 4(35%) and class 3(32%) socio-economic status whereas higher proportions of overnourished participants were from

class 1 socio-economic status(41%). No statistical association was observed between the nutritional status and socio-economic status on applying chi-square test.

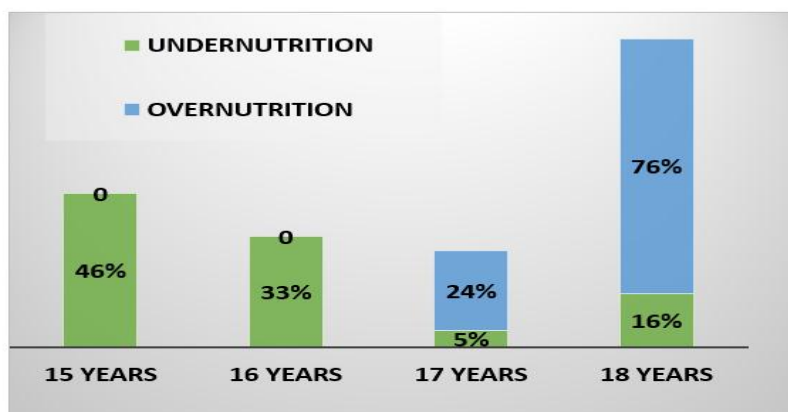


Fig. 5: Age-wise distribution of malnutrition

Undernutrition was found to be more among adolescents aged 15 (46%) and 16 years(33%) whereas overnutrition was seen more among 18 years(76%). It showed

statistical significance on applying chi-square test with p-value 0.00001. This shows significant association of malnutrition with age.

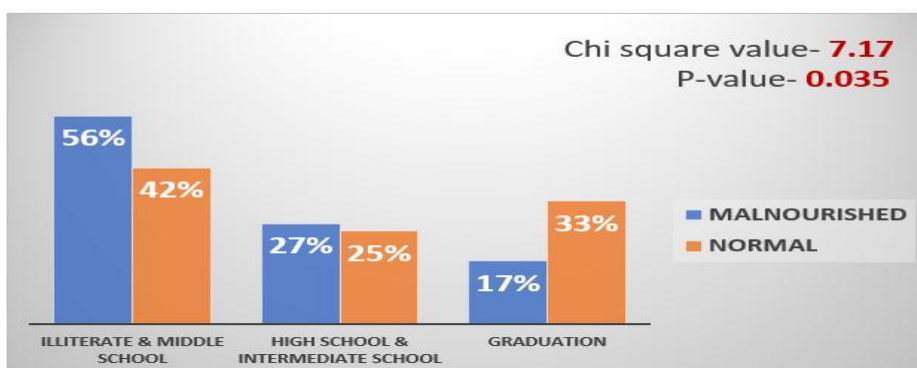


Fig. 6: Association of mother's education with malnutrition.

In the present study, it was found that as the educational status of the mother increases, nutrition is also improving. Malnutrition was seen in higher proportions

in the study participants whose mothers' educational status is low(56%). It showed the statistical significance on applying chi-square test with p-value 0.035.

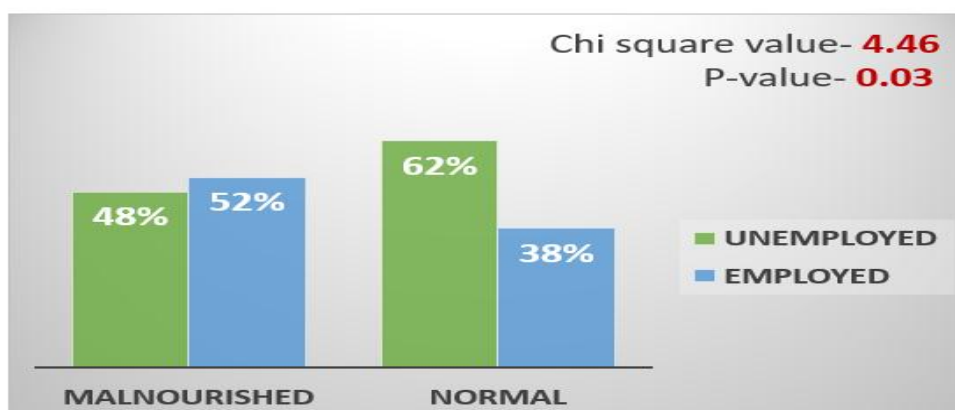


Fig. 7: Association with mother's employment.

Malnourishment was found to be more among the study participants whose mother were employed(52%) rather than the participants with mother as homemakers. It showed statistical significance on chi-square test(P=0.03).

On clinical examination, anaemia was found to be more in undernourished participants(34%) but it did not show any statistical significance. Higher proportions of adolescents aged 17-18 years were taking frequent junk foods (46%) but it did not show any statistical significance in this study.

DISCUSSION

From this present study, the prevalence of undernutrition was 43% which is similar to the study done by Abhilasha Nair et al where it was 36.4% and high as 57% in the study conducted by Maliye et al.^[4-5] These differences in the prevalence might be due to the different geographical diversities, their different cultural practices, socio-economic class and dietary habits. The prevalence of overnutrition was 17% in this study which was more in adolescents aged 17 and 18 years. This is similar to the study reported by Ghosh et al which stated that overnutrition increases with age.^[6] This might be due to the increased availability and exposure of junk foods and sedentary lifestyle habits.

Most of the participants belonged to urban background and nuclear family as in study done by Smitha et al and Dhivya et al.^[7] In this study, although it showed higher proportions of them belonged to urban and nuclear family but it does not show any statistical significance.

Adolescents aged 15-18 years with employed mothers have more malnourishment(52%) than those with unemployed mothers. This may be due to lack of attention or inadequate attention of employed mothers on their children.

Higher proportions of anaemia was found in undernourished participants(34%) but it did not show any significance in this study. It might be due to the improper, inadequate diet and nutritional unawareness among the adolescents. Higher proportions of overnutrition was seen among 17(24%) & 18(76%) years of age which might be due to the frequent intake of junk foods among them.

CONCLUSION

Irrespective of the socio-economic status, even though adolescents are having adequate affordability to easily available and affordable healthy foods, adolescents are not preferring healthy foods. This is partly associated with mother's education and employment status which have a significant impact on the nutritional status of adolescents. So, nutritional education, life style and behavioural practice changes should be inculcated during adolescent period in schools and colleges. Mothers of adolescents should also be counselled regarding the future risks of inadequate or excessive nourishment. Adolescents should be enlightened with the existent nutrition programmes like Rashtriya Kishor Swasthya Karyakram (RKSK) by health education to get them benefitted at their fullest.

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