Assessment of food habits and Body Mass Index (BMI) among urban and rural adolescent (13-16 years of age) girls of Vijayapura district of Karnataka

Shruti Nayak, Prashanth S. J.,*, Ashwini A., Savitha V. Jammanakatti

Department of Food Processing and Nutrition, Karnataka State Akkamahadevi Women's University, Vijayapura, Karnataka, India

A B S T R A C T

The present study was conducted to know the food habits among urban and rural adolescent girls of the Vijayapura district of Karnataka. Samples of 240 (120 urban and 120 rural) adolescent girls between the age group of 13-16 years were selected for the study. The self-structured questionnaire was used for the collection of data regarding food habits among adolescent girls. The results revealed that the majority of the girls were ova-vegetarian (42.5% urban and 50.8% rural), consume bakery products once a week (62.5% urban and 60% rural), 39.2% of urban adolescents skip meals, and an equal percentage of (33.3%) of rural adolescent girls skip meals every day and once in a week. The results also showed that locality and skipping of meals were significantly associated. Nearly two third of the adolescent girls (63%) had healthy weight, 16 percent were obese, 11 percent were underweight and 10 percent were overweight. Adolescence is a growing age and the body needs more nourishment. Skipping meals every day may hinder their growth and development as the body is at the peak of growth and development. It can further lead to undernutrition. Adolescence is the age of puberty in which, an individual can grow to the maximum. Consumption of bakery products may influence the food habits of adolescents. So adolescents can be given awareness regarding the importance of food in growth and development and complications of skipping meals or lower intake of food. And also policymakers can consider these results in the future.

Keywords: Food habits, adolescent girls, urban, rural, skipping of meals, BMI

INTRODUCTION

Adolescence is a period in which rapid growth takes place, it is the phase in which individuals are nutritionally vulnerable because of a growth spurt that demands high nutritional supplements (Rodrigues et al., 2017). The food habits of adolescents play an important role during development. Proper food habits can help to meet the nutritional demands and helps in proper development. Adolescents nowadays are under academic stress, are more concerned about their physical appearance, skip meals, etc. It is reported in many studies that adolescents consume more junk foods/ bakery foods. Food habits of each individual are influenced by socio-demographic variables like socio-economic status, income, educational status, locality,

occupation, etc. (Qorbani et al., 2021; Keats et al., 2018; Soyer et al., 2009). Keeping in view this study was an attempt to study the food habits among adolescent girls of Vijayapura district of Karnataka with the objectives to assess the food habits of urban and rural adolescent girls and know the association between locality and skipping of meals among adolescents.

MATERIALS AND METHODS

The present study was conducted among adolescent girls in the Vijayapura district of Karnataka. A sample of 240 adolescents of the age 13-16 years were randomly selected from urban (120 adolescents) and rural (120 adolescents) schools in the Vijayapura district of Karnataka. Prior permission was taken from the institute head to conduct the research in the schools. The adolescents as well as the institute head were informed about the research and were informed about confidentiality. Later the informed consent was taken from the adolescents to participate in the study. The self-structured questionnaire which consists of questions regarding food habits were used to assess the food habits of adolescent girls in urban and rural areas. The questionnaire is similar to the questionnaire prepared by Das (2020). The data were subjected to Pearson's chi-square test and frequency, and percentages were also calculated. BMI was calculated using BMI Percentile Calculator for Child and Teen developed by Centers for Disease Control and Prevention (CDC, 2022). The categories of BMI with percentiles given by CDC are mentioned in Table1.

Table 1. BMI for age (as per CDC)

Percentiles	BMI
95-100	Obese
85-95	Overweight
5-85	Healthy weight
0-5	Underweight

RESULTS AND DISCUSSION

Table 1 shows that the majority of the urban (69.2%) and rural (71.7%) adolescent girls who were 15 years old belong to the 9th standard (80% and 72.5%, urban and rural respectively). It was also found that 47.5% of mothers of urban adolescents completed high school education while 50.8% of mothers of rural adolescents completed primary education. About the father's education majority of the fathers of urban (35%) and rural (50.8) adolescents completed Pre-university education. The majority of both urban (80.8%) and rural (90%) adolescent girls belong to a nuclear family type.

Table 2. Descriptive statistics of adolescent girls

Variables	Category	Urban		Rural	
		Frequency	Percentage	Frequency	Percentage
	13	-	-	7	5.8
	14	16	13.3	22	18.3
Age	15	83	69.2	86	71.7
	16	21	17.0	5	4.2
	Total	**120**	**100.0**	**120**	**100.0**
	8th	16	13.3	31	25.8
Class/Std.	9th	96	80.0	87	72.5
	10th	8	6.7	2	1.7
	Total	**120**	**100.0**	**120**	**100.0**
	Illiterate	9	7.5	3	2.5
	Primary	40	33.3	61	50.8
	High school	57	47.5	43	35.8
Mother's education	PUC	7	5.8	13	10.8
	Degree	7	5.8	-	-
	Total	**120**	**100.0**	**120**	**100.0**

Father's education	Illiterate	4	3.3	-	-
	Primary	19	15.8	21	17.5
	High school	31	25.8	32	26.7
	PUC	42	35.0	61	50.8
	Degree	12	10.0	6	5.0
	Post grad	12	10.0	-	-
	Total	**120**	**100.0**	**120**	**100.0**
Family type	Joint	23	19.2	12	10
	Nuclear	97	80.8	108	90
	Total	**120**	**100.0**	**120**	**100.0**

Table 3 represents the food habits of urban and rural adolescent girls. It was found that 42.5% and 50.8% of adolescents were ova-vegetarians; almost equal percent of the adolescents in both urban (62.5%) and rural (60%) consume bakery products once in a week. It was also found that the majority of the respondents from both urban and rural area does not take any nutritional supplements. Concerning skipping meals 60.9 percent of urban and 81.7 percent of rural adolescents skip meals. Omidvar and Begum (2014) reported that more than half of the samples were breakfast skippers. In a study conducted by Gross et al. (2004) reported that urban samples were more likely to skip breakfast when compared to rural adolescents. Around 49 percent of the urban and 72 percent of the rural adolescents expressed that lack of time was the reason for skipping meals. In another study, it was found that nearly 60 percent of adolescents consumed their breakfast daily (Kotecha et al., 2013).

Table 3: Food habits of adolescent girls

Variables	Category	Urban		Rural	
		Frequency	**Percentage**	**Frequency**	**Percentage**
Orientation of food	Non-veg.	22	18.3	16	13.3
	Ova- veg.	51	42.5	61	50.8
	Veg.	47	39.1	43	35.8
	Total	**120**	**100.0**	**120**	**100.0**
How often do you consume bakery products?	No	15	12.5	9	7.5
	Everyday	9	7.5	6	5.0
	Once in a week	75	62.5	72	60.0
	Twice in a week	21	17.5	33	27.5
	Total	**120**	**100.0**	**120**	**100.0**
Do you consume Horlicks/Complan/ Bournvita etc.?	Boost	5	4.2	5	4.2
	Bournvita	11	9.2	11	9.2
	Horlicks	8	6.7	24	20.0
	No	96	80.0	80	66.7
	Total	**120**	**100.0**	**120**	**100.0**
Do you take nutritional supplements?	Energy drinks	1	0.8	-	-
	Minerals	1	0.8	-	-
	Protein	8	6.7	8	6.7
	Vitamins	7	5.8	13	10.8
	No	103	85.8	99	82.5
	Total	**120**	**100.0**	**120**	**100.0**
How often do you take nutritional supplements?	Everyday	-	-	-	-
	Once in a week	15	12.5	9	7.5
	Twice in a week	2	1.7	12	10.0
	No	103	85.8	99	82.5
	Total	**120**	**100.0**	**120**	**100.0**
Do you skip meals?	No	47	39.2	22	18.3
	Yes	73	60.9	98	81.7
	Total	**120**	**100.0**	**120**	**100.0**
How often do you skip meals?	Everyday	26	21.7	40	33.3
	Once in a week	28	23.3	40	33.3
	Twice in a week	19	15.8	18	15.0
	No	47	39.2	22	18.3
	Total	**120**	**100.0**	**120**	**100.0**
Reason for skipping of meals	Lack of food	8	6.7	1	0.8
	Lack of time	59	49.2	87	72.5

Unable to cook	6	5.0		10		8.3
No	47	39.2		22		18.3
Total	**120**	**100.0**		**120**		**100.0**

Table 4 reveals the association between locality and skipping of meals among adolescents. It was found that there was a significant association (X^2=12.713*) between skipping meals and urban and rural localities. This may be because of socio-demographic and cultural differences in urban and rural areas.

Table 4. Association of locality and skipping of meals

Variables	Category	Skipping of meals			
		Yes	No	Total	X^2
Locality	Urban	47	73	120	12.713*
	Rural	22	98	120	

*Significant at 0.05% level
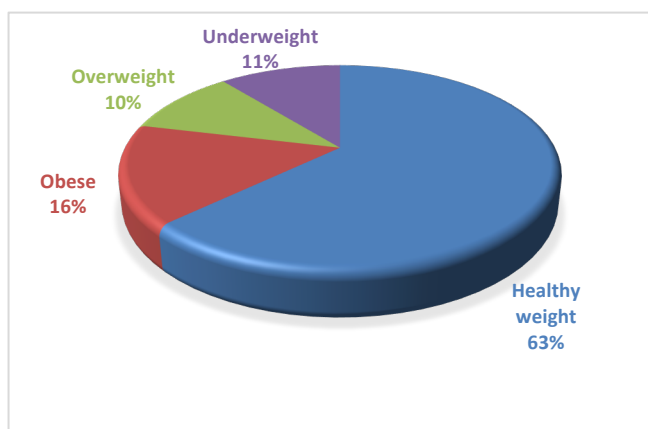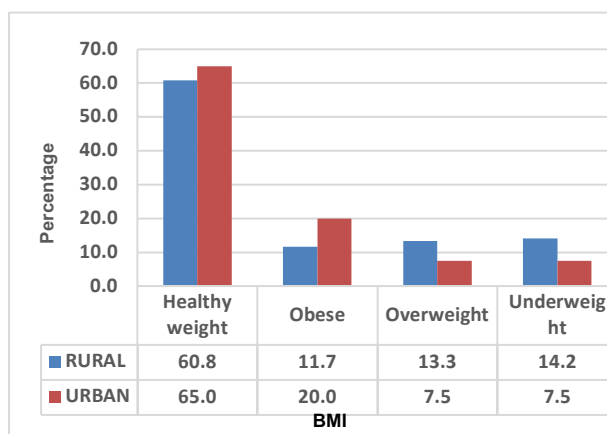

Fig. 1. BMI of adolescent girls (Total)

Fig. 2. BMI of urban and rural adolescent girls

The results also indicate that nearly two third of the adolescent girls (63%) had healthy weight (5th-85th percentile), 16 percent were obese (95th - 100th percentile), 11 percent were underweight (0th -5th percentile) and 10 percent were overweight (85th - 95th percentile) (Fig. 1). Manna et al., (2020) found that majority of sample had healthy weight (62.9 %), 9 percent were overweight, about 4 percent were obese and 23.7 percent were underweight. The majority of the study participants have healthy weight this may be because of their food habits and half of the sample expressed that they do not skip meals It was also found that about 61 percent of the rural and 65 percent of the urban adolescent girls had healthy weight, 11.7 percent of rural and 20 percent of urban adolescent girls were obese. Nearly 14 percent of rural and 7.5 percent of urban adolescent girls were overweight, 14.2 percent of rural and 7.5 percent of urban adolescent girls were underweight (Fig. 2). Sinha et al., (2022) reported that overweight and underweight was more in urban adolescent girls compared to rural counterparts. These results are in contradictory with the results of the current study.

CONCLUSION

The present research was conducted to know the dietary habits among urban and rural adolescent girls. In this study it was found that majority of the adolescent girls skip meals and also the large population of the study were underweight. The

percentage of underweight was more among adolescent girls of rural areas. It was also found that majority of the girls skip meals every day and once in a week. The skipping of meals may be because of stress, lack of time. The reason for underweight could be the skipping of meals which can hinder the growth and development. Since adolescence is the age of growth spurt, adolescents have to eat properly in order to meet the nutritional requirements by the body. If they are given awareness regarding importance of healthy diet and negative impact of skipping of meals, the problem of underweight can be overcome

REFERENCES

Das, D. 2020. An appraisal of nutritional status of adolescent girls with reference to socio-economic background. M.Sc. Thesis. An appraisal of nutritional status of adolescent girls with reference to socio-economic background.

Gross, M. S., Bronner, Y., Welch, C. Dewberry-Moore, N., and Paige D. 2004. Breakfast and lunch meal skipping patterns among fourth-grade children from selected public schools in urban suburban, and rural Maryland. Journal of the American Dietetic Association, 104. 420-3.

Keats, E. C., Rappaport, A., Jain R., Christina, O. H., Shah, S., and Bhutta, Z. A. 2018. Diet and eating practices among adolescent girls in low- and middle-income countries systematic review.

Kotecha, P. V., Patel, S. V., Baxi, R. K., Mazumdar, V. S., Shobha, M., Mehta, K. G., Mansi, D., and Ekta, M. 2013. Dietary pattern of school going adolescents in urban Baroda, India. Journal of Health, Population and Nutrition, 31(4):490-496.

Manna, S., Chauhan, N. T. 2020. Assessment of obesity among adolescents from an urban area of Western India. Journal of Comprehensive Health, 8(1): 34-38.

Omidvar, S., Begum, K. 2014. Dietary pattern, food habits and preferences among adolescent and adult student girls from an urban area, South India. Indian Journal of Fundamental and Applied Life Sciences, 4(2): 465-473.

Qorbani, M., Kasaeian, A., Rafiemanzelat, A., Sheidayi, A., Djalalinia, S., Nouri, K., Rastad, H., Salimi, D., Ghaderi, K., Motlagh, E. M., Heshmat, R., and Kelishadi, R., 2021. Social inequalities in meal skipping patterns among children and adolescents: The CASPIAN–V study. Obesity Science and Practice, 7:690–698.

Rodrigues, P. R. M., Luiz, R. R., Monteiro, L. S., Ferreira, M. G., Gonçalves-Silva, R. M. V., and Pereira, R. A. 2017. Adolescents' unhealthy eating habits are associated with meal skipping. Nutrition, 42:114-120

Sinha, S., Patil, M. S., Halki, S., and Sharma, S. M. 2022. Assessment of nutritional status of school going adolescents in rural and urban area of North Karnataka: A comparative study. Journal of Preventive Medicine and Holistic Health, 8(1):35-41

Soyer, M. T., Ergin, I., and Gursoy, S. T. 2008. Effects of social determinants on food choice and skipping meals among Turkish adolescents. Asia Pacific Journal of Clinical Nutrition, 17 (2):208-215.

Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion
https://www.cdc.gov/healthyweight/bmi/result.html?&method=metric&gender=f&age_y=14&age_m=0&hcm=145&wkg=40