

# A Comparative Study of Nutritional Status Between Urban and Rural Late Adolescent Girls in Prayagraj District

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**ABSTRACT** A cross-sectional comparative study had conducted in 7 Schools of urban from Allahabad city and 7 Schools of rural from Bahadurpur block of Prayagraj district in 11<sup>th</sup> and 12<sup>th</sup> standard adolescent girls. A total of 400 samples (200 urban and 200 rural) were selected from purposive and systematic order random sampling methods. Data were collected by interview schedule and calculate BMI from instrument and dietary intake measured by 24 hour recall method. Analysis has been done by SPSS 16 software. In the present study, it was found that the majority of respondents 58.5% of urban area and 73.5% of rural area were belonged to normal weight in B.M.I scale given by WHO, 37.5% of urban and 22% of rural respondents were belonged to underweight, only 45 urban and 4.5% rural respondents were belonged overweight. There was high significant difference between urban and rural respondent's B.M.I. level.

**Keywords:** A crosses sectional, BMI

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## INTRODUCTION

Adolescence is a time of various changes, including physiological, mental, social, sexual, and moral transformations. Many psychologists define late adolescence as the era between the ages of 15 and 18, when many girls are in Intermediate school. During this time, excellent nutrition plays a critical role in the correct development of teenage girls. And socio-demographic-status crucially affects the nutritional status of late adolescent girls.

Adolescent girls, who make up roughly a tenth of the Indian population, are an important part of society. Girls are a particularly susceptible population, particularly in underdeveloped countries, where they are usually married at a young age and have a higher risk of reproductive illness and mortality. Adolescent girls, in general, are the biggest victims of many forms of malnutrition due to their high nutritional needs and poor social power (Chaudhary *et al.*, 2003).

The transition from childhood to adulthood, known as adolescence, is characterized by rapid and intense physiological, psychological, and sexual growth. Adolescents, as a result,

require more nutrition than adults. Adolescents with nutrition deficiencies are more likely to have a short physique, cognitive impairment, mental functioning, and reduced immunity, whereas overweight and obese adolescents have low self-esteem, a distorted body image, and are more likely to develop non communicable diseases, such as mental disorders (Saha, 2021). In India, malnutrition is a social issue. While sex discrimination and women's low social position in rural India are key contributors, low literacy rates and a lack of education among girls exacerbate the problem. Junk food consumption is high in metropolitan areas, resulting in inadequate iron intake. When the BMI of the teenagers in this study was calculated, it was discovered that 36.4% of them were malnourished, while the rest had a normal BMI. The study attempted to link sociodemographic variables such as birth order, presence of siblings, teenage domicile, and education to adolescent nutrition, which had not been done in previous studies (Chandrashekarappa *et al.*, 2018).

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Adolescent girls have to need a well-balanced diet rich in macronutrients and micronutrients to support rapid growth and increasing physical activity. According to the National Family Health Survey, around 41.9% of females aged 15-19 years were thin, whereas 4.2% were overweight (NFHS-4), 2016. Vitamin A, B complex, C, iron, zinc, and calcium deficiency are all frequent micronutrient deficiencies. Dry conjunctiva and a weakened immune system are symptoms of vitamin A insufficiency. Anemia is exacerbated by vitamin B complex, which leads to mouth ulcers and angular stomatitis. Bleeding tendencies are caused by a vitamin C deficiency. Anemia and impaired motor and cognitive development are caused by iron deficiency (Debnath Mondal, 2018).

Zinc deficiency weakens the immune system, resulting in infections that are harmful to one's health. Calcium insufficiency causes stunted growth and brittle bones. Snacking, missing meals, especially breakfast, inconsistent meal times, fast food, and other poor dietary habits are frequent among teenagers in the school-aged age group. Poor eating habits and a sedentary lifestyle might contribute to serious morbidity later in life.

The nutritional condition of teenagers is linked to socio-demographic and economic factors such as the adolescent's age, mother's age, parents' occupation and income, literacy level, dietary habits, and cultural factors (Phuljhele *et al.*, 2021). The majority of adolescent girls in rural areas were malnourished. This will have an impact on their health and academic achievement. There was a substantial link between adolescent girls' socioeconomic position and their nutritional status, as well as a highly significant link between adolescent girls' age and their BMI (Hospital, 2015).

Majority 54% of adolescent girls have a normal BMI, while 34% have a lower BMI. If their nutritional needs are not met, they are more likely to give birth to undernourished children, passing the disease on to future generations. It is therefore critical to provide nutritional education to adolescent girls, particularly in slum areas and among the poor. It is critical to provide adolescent-friendly health services at the primary care level, with a focus on dietary counseling for both married and unmarried adolescents. This would reduce the number of malnourished adolescent mothers, who are more likely to give birth to babies with low birth weight, perpetuating a cycle of health problems that is passed down from generation to generation (Singh and Bansal, 2017). Girls from disadvantaged backgrounds are a major source of worry. The difficult living conditions in the slum contribute to insufficient dietary intake, low health-care utilization, and a lack of knowledge about the causes of infectious diseases and how to treat them properly. (Srivastava *et al.*, 2012). Girls living in

such circumstances are at high risk of malnutrition. A study in Jaipur city, with regard to weight for age criteria, considerable percentage of school going girls were suffering from grade 1 (28.2%), grade 2 (26.1%), grade 3 (14.8%) and grade 4 (2.8%) malnutrition and only 28.2% of them were in the normal category. On the basis of height for age, 35.9% of the girls were suffering from mild stunting, 1.0% had severe stunting and rest of the girls (63.4%) were in the normal category (Goyle, 2009). The weight, height, and BMI of rural and urban school girls were compared. It was discovered that the urban girl's means were greater than those of the rural girls in all of the parameters (weight, height, and BMI). There was a statistically significant difference in overall weight (0.05), height (>0.01), and BMI (>0.05) (Maiti *et al.*, 2011).

## Objective

1. To find out nutritional status of urban and rural intermediate adolescent girls.
2. To know the effect of demographic profile on the level of BMI of urban and rural intermediate adolescent girls.

## METHODOLOGY

### Hypotheses

- There will be no significant difference between urban and rural respondents nutritional status.
- There will be no significant correlation between the respondent's BMI and demographic profile.

## METHOD AND MATERIAL

This cross-sectional study had consisted of a survey method; data were collected by interview schedule & BMI calculated by the formula = weight (in kg)/Height (in meter)<sup>2</sup>.

### Inclusion Criteria

- Aged 15-18 years.
- Intermediate girl students in UP Board government schools.

**Area and Population:** The population of this study are late adolescent girls in the 11<sup>th</sup> and 12<sup>th</sup> grades who attend UP Board intermediate schools in both urban and rural areas of Prayagraj district in UP. The urban region was chosen from Allahabad, and the rural area was chosen from the Bahadurpur block of Prayagraj District UP.

**Sample and Sampling Technique:** This cross-sectional study used a Purposive and systematic order random sampling method was used in this cross-sectional study. A total of 400 samples (200 urban and 200 rural) were selected. 200 (50%) of urban samples were selected from 7 Intermediate Schools

of Allahabad city And 200 (50%) rural samples were selected from 7 Intermediate Schools of Bahurpur block of Prayagraj district in Uttar Pradesh, India.

### Statistical Analysis

This study was conducted in the duration between April 2019 and July to September 2019. Data Analysis has been done by SPSS 16 software. Mean, standard deviation, T. Test, ANOVA test, Chi-square test had used in data analysis.

### Tools

**1. Height:** A measuring tape was used to record the height in Centimeters on a wall. All of the girls were measured against the wall without shoes and in heels, with their heads positioned perpendicular to the body and their gaze perpendicular to the body. A glass scale was placed at the highest point on the head (Soumyajit *et al.*, 2011).

**Weight:** The individuals were requested to remove their shoes before the weight was measured using a weighing machine (Virgo) with an accuracy of +100 g. After each measurement, the scales were re-calibrated. The weighing scale's accuracy was periodically checked against known weights (Deshmukh *et al.*, 2006).

**BMI:** The study subject's BMI was determined using the formula weight (Kg)/height (m)<sup>2</sup> and classified according to WHO standards (Singh and Bansal, 2017)

**2. Socio-Demographic Questionnaire:** A socio-demographic questionnaire will be prepared to consist of age, gender, education, religion, category, family income, family type, residence. Modified B. G. Prasad's Classification 2018 used for family income.

## RESULTS

This cross-sectional study was conducted in the Prayagraj district. A total of 400 samples were collected from Purposive

and systematic order random sampling methods. There are 200 samples from urban and 200 from rural areas. A total of 400 maximum 39.8% belong to 16-17 year age group, maximum 94% belong to Hindu religion only 6% belong to Muslim Religion. Majority of 55.5% belong to O.B.C. Caste, 25.3% from general caste and 19.2% belong to Sc/St caste.

The above table represented that majority of respondents 58.5% of urban and 73.5% of rural were normal weight in B.M.I scale of given by WHO. 37.5% of urban and 22% of rural respondents were underweight, only 45 urban and 4.5% rural respondents were overweight. There were highly significant difference between urban and rural respondent's B.M.I.

The above table illustrated that average BMI ± Sd. of fifteenth year aged respondents in Urban and Rural area were 16.72 ± 2.41 and 17.68 ± 1.67 were respectively. There was satisfactory significant difference between urban and rural fifteenth year aged respondent's level of BMI. Average BMI ± Sd of sixteenth year aged respondents in Urban and Rural area were 17.81 ± 2.83 and 18.85 ± 2.81 were respectively. There was satisfactory significant difference between urban and rural sixteenth year aged respondent's level of BMI. Average BMI ± Sd. of seventeenth year aged respondents in Urban and Rural area were 17.95 ± 3.08 and 18.72 ± 3.46 were respectively. There was no significant difference between urban and rural seventeenth year aged respondent's level of BMI. Average BMI ± Sd. of eighteenth year aged respondents in Urban and Rural area were 18.25 ± 2.46 and 19.55 ± 2.18 were respectively. There was no significant difference between urban and rural eighteenth year aged respondent's level of BMI. There were no significant difference among 15<sup>th</sup>, 16<sup>th</sup>, 17<sup>th</sup>, and 18<sup>th</sup> year respondent's level of BMI in urban area but there were satisfactory significant differences among different age of late adolescent girls level of BMI in rural area, and difference was exist only 15<sup>th</sup> and 18<sup>th</sup> year old respondents.

**Table 1: Distribution of BMI Level of Urban and Rural Respondents**

BMI	Area					
	Urban		Rural		Total	
	No.	%	No.	%	No	%
Under Weight	75	37.5	44	22	119	29.8
Normal	117	58.5	147	73.5	264	66
Overweight	8	4	9	4.5	17	4.2
<b>Total</b>	<b>200</b>	<b>100</b>	<b>200</b>	<b>100</b>	<b>400</b>	<b>100</b>
<b>Mean+Sd</b>	<b>17.64±2.81</b>		<b>18.59±2.77</b>		<b>18.12±2.83</b>	

Note: t = 3.42; df = 398; P<0.01.

**Table 2: A Comparative Study About Average BMI Between Urban and Rural Respondents in Different Age**

Age	Region					
	Urban	Rural	Total	t	df	P
	Mean ± Sd.	Mean ± Sd.	Mean ± Sd.			
15 <sup>th</sup>	16.72 ± 2.41	17.68 ± 1.67	17.21 ± 2.11	2.25	93	<0.05
16 <sup>th</sup>	17.81 ± 2.83	18.85 ± 2.81	18.35 ± 2.86	2.31	157	<0.05
17 <sup>th</sup>	17.95 ± 3.08	18.72 ± 3.46	18.32 ± 3.27	1.22	107	>0.05
18 <sup>th</sup>	18.25 ± 2.46	19.55 ± 2.18	18.85 ± 2.39	1.69	35	>0.05
<b>Total</b>	<b>17.64 ± 1.67</b>	<b>18.59 ± 2.77</b>	<b>18.12 ± 2.83</b>	<b>3.42</b>	<b>398</b>	<b>P&lt;0.01</b>
	<b>F=2.37</b>	<b>F=2.77</b>	<b>F=4.82</b>			
	<b>P&gt;0.05</b>	<b>P&lt;0.05 Sig pairs</b>	<b>P&lt;0.01 Sig Pairs</b>			
		<b>(15 vs 18)</b>	<b>(15 vs 16, 17, 18)</b>			

**Table 3: A Comparative Study About Average BMI Between Urban and Rural Respondents in Different Religion and Caste**

Religion	Region					
	Urban	Rural	Total	t	df	P
	Mean ± Sd.	Mean ± Sd.	Mean ± Sd.			
Hindu	17.62 ± 2.81	18.67 ± 2.76	18.14 ± 2.83	3.63	374	<0.001
Muslim	17.95 ± 2.87	17.56 ± 2.78	17.74 ± 2.77	0.34	22	<0.05
<b>Total</b>	<b>17.64 ± 2.81</b>	<b>18.59 ± 2.77</b>	<b>18.12 ± 2.83</b>	<b>3.42</b>	<b>398</b>	<b>P&lt;0.01</b>
	<b>t=0.38</b>	<b>t=1.40</b>	<b>t=0.68</b>			
<b>df=198</b>	<b>p&gt;0.05</b>	<b>p&lt;0.05</b>	<b>p&lt;0.05</b>			
Caste	Region					
	Urban	Rural	Total	t	df	P
	Mean ± Sd.	Mean ± Sd.	Mean ± Sd.			
General	18.36 ± 2.94	18.53 ± 2.82	18.43 ± 2.88	0.28	99	>0.05
Obc	17.43 ± 2.48	18.69 ± 2.85	18.15 ± 2.76	3.43	220	<0.001
St/Sc	17.18 ± 3.14	18.30 ± 2.39	17.62 ± 2.90	1.68	75	>0.05
	<b>F=2.88</b>	<b>F=0.25</b>	<b>F=1.86</b>			
	<b>p&gt;0.05</b>	<b>p&gt;0.05</b>	<b>p&lt;0.05</b>			

Above table represented that average BMI ± Sd. of Hindu respondents in Urban and Rural area were 17.62 ± 2.81 and 18.67 ± 2.76 were respectively. There was highly significant difference between urban and rural Hindu respondent's level of BMI. Average BMI ± Sd. of Muslim respondents in Urban and Rural area were 17.95 ± 2.87 and 17.56 ± 2.78 were respectively. There was satisfactory significant difference

between urban and rural Muslim respondent's level of BMI. There was no significant difference between Hindu and Muslim respondent's level of BMI in urban but satisfactory significant difference found in rural area.

Above table also depicted that average BMI ± Sd. of General Caste respondents in Urban and Rural area were 18.36 ± 2.94

and  $18.53 \pm 2.82$  were respectively. There was no significant difference between urban and rural general caste respondent's level of BMI. Average BMI  $\pm$  Sd. of OBC respondents in Urban and Rural area were  $17.43 \pm 2.48$  and  $18.69 \pm 2.85$  were respectively. There was highly significant difference between urban and rural OBC respondent's level of BMI. Average BMI  $\pm$  Sd. of Sc/St respondents in Urban and Rural area were  $17.18 \pm 3.14$  and  $18.30 \pm 2.39$  were respectively. There was no significant difference between urban and rural Sc/St respondent's level of BMI There was no significant differences among General, OBC and Sc/St caste respondent's level of BMI in urban and also rural area.

Above table depicted that average BMI  $\pm$  Sd. of lower class respondents in Urban and Rural area were  $17.57 \pm 2.63$  and  $18.74 \pm 3.02$  were respectively. There was satisfactory significant difference between urban and rural low class respondent's level of BMI, Average BMI  $\pm$  Sd. of middle class respondents were  $17.44 \pm 3.04$  and  $18.40 \pm 2.25$  BMI in Urban and Rural area. There was satisfactory significant difference between urban and rural middle class respondent's level of BMI. Average BMI  $\pm$  Sd. of upper class respondents in Urban and Rural

area were  $18.82 \pm 3.15$  and  $18.59 \pm 3.58$  were respectively. There was no significant difference between urban and rural upper class respondent's level of BMI. There was satisfactory significant differences among lower, middle, and upper class respondent's level of BMI.

The above table represented that majority of 43% of urban and 56% of rural respondents were vegetarian, 29% of urban and 18.5% of rural respondents were non-vegetarian and 28% urban and 25.5% rural respondents were ova-vegetarian. There were no significant difference between urban and rural respondent's different dietary pattern.

Above table depicted that average BMI  $\pm$  Sd. of vegetarian respondents in Urban and Rural area were  $17.70 \pm 2.96$  and  $18.57 \pm 2.83$  were respectively. There was satisfactory significant difference between urban and rural vegetarian respondent's level of BMI. Average BMI  $\pm$  Sd of non-vegetarian respondents in Urban and Rural area were  $17.43 \pm 2.69$  and  $18.14 \pm 2.19$  were respectively. There was no significant difference between urban and rural non-vegetarian respondent's level of BMI. Average BMI  $\pm$  Sd of ova-

**Table 4: A Comparative Study about Average BMI Between Urban and Rural Respondents in Various Socio Economic Status**

Socio Economic Status	Region					
	Urban	Rural	Total	t	df	P
	Mean $\pm$ Sd.	Mean $\pm$ Sd.	Mean $\pm$ Sd.			
Lower	$17.57 \pm 2.63$	$18.74 \pm 3.02$	$18.11 \pm 2.87$	3.15	230	<0.01
Middle	$17.44 \pm 3.04$	$18.40 \pm 2.25$	$17.99 \pm 2.65$	2.12	136	<0.05
Upper	$18.82 \pm 3.15$	$18.59 \pm 3.58$	$18.72 \pm 3.28$	0.19	28	>0.05
<b>Total</b>	<b><math>17.64 \pm 2.81</math></b>	<b><math>18.59 \pm 2.77</math></b>	<b><math>18.12 \pm 2.83</math></b>			
	<b>F=1.69</b>	<b>F=0.34</b>	<b>F=0.80</b>			
	<b>P&gt;0.05</b>	<b>p&gt;0.05</b>	<b>P&lt;0.05</b>			

**Table 5: Area Wise Distribution of Respondents According to Their Dietary Habit**

Food Habit	Area					
	Urban		Rural		Total	
	No.	%	No.	%	No	%
Vegetarian	86	43	112	56	198	49.5
Non-Vegetarian	58	29	37	18.5	95	23.7
Ova-Vegetarian	56	28	51	25.5	107	26.8
<b>Total</b>	<b>200</b>	<b>100</b>	<b>200</b>	<b>100</b>	<b>400</b>	<b>100</b>

Note:  $\chi^2 = 8.29$ ,  $df = 2$ ,  $P < 0.05$ .

**Table 6: A Comparative Study About Average BMI in Urban and Rural Respondents in The Basis of their Food Habits**

Food Habits	Region					
	Urban	Rural	Total	t	df	P
	Mean ± Sd.	Mean ± Sd.	Mean ± Sd.			
Vegetarian	17.70 ± 2.96	18.57 ± 2.83	18.19 ± 2.91	2.1	196	<0.05
Non Vegetarian	17.43 ± 2.69	18.14 ± 2.19	17.70 ± 2.52	1.35	93	>0.05
Ova-Vegetarian	17.77 ± 2.73	18.98 ± 2.99	18.35 ± 2.91	2.19	105	>0.05
Total	17.64 ± 2.81	18.59 ± 2.77	18.12 ± 2.83			
	F=0.25	F=1.01	F=1.45			
	p>0.05	p>0.05	p<0.05			

vegetarian respondents in Urban and Rural area were 17.77 ± 2.73 and 18.98 ± 2.99 were respectively. There was no significant difference between urban and rural ova-vegetarian respondent's level of BMI There was no significant differences among vegetarian, non-vegetarian, and ova-vegetarian respondent's level of BMI in urban and also rural area.

## RESULTS AND DISCUSSION

### Major findings

1. There were high significant difference between urban and rural respondent's BMI. There was highly significant difference between urban and rural Hindu respondent's level of BMI. Highly significant difference was showed between urban and rural OBC respondent's level of BMI.
2. There was satisfactory significant difference between urban and rural fifteenth and also sixteenth year aged respondent's level of BMI. Satisfactory significant differences were presented among different age of late adolescent girls level of BMI in rural area, and difference was exist only 15<sup>th</sup> and 18<sup>th</sup> year old respondents. There was satisfactory significant difference between urban and rural Muslim respondent's level of BMI. A satisfactory significant difference was showed between urban and rural low class respondent's level of BMI There was satisfactory significant difference between urban and rural vegetarian respondent's level of BMI. There was satisfactory significant difference between urban and rural middle class respondent's level of BMI.
3. There was no significant difference between urban and rural seventeenth and also eighteenth year aged respondent's level of BMI. There were no significant difference among 15<sup>th</sup>, 16<sup>th</sup>, 17<sup>th</sup>, and 18<sup>th</sup> year respondent's level of BMI in urban area. There was no significant difference between Hindu and Muslim respondent's level

of BMI in urban and also rural area. There was no significant difference between urban and rural General and also Sc/St respondent's level of BMI There was no significant differences among General, OBC and Sc/St caste respondent's level of BMI in urban and also rural area. There was no significant difference between urban and rural non-vegetarian and also ova-vegetarian respondent's level of BMI. There were no significant differences between urban and rural respondent's different dietary pattern. There was no significant difference between urban and rural upper class respondent's level of BMI. There was no significant differences among lower, middle, and upper class respondent's level of BMI in urban and also rural area. The present cross sectional study revealed that majority of respondents 58.5% of urban and 73.5% of rural were normal weight in B.M.I scale of given by WHO. 37.5% of urban and 22% of rural respondents were underweight, only 45 urban and 4.5% rural respondents were overweight. There were highly significant difference between urban and rural respondent's BMI. Rural respondents were better than urban respondent's level of BMI the cause behind that at present lots of government schemes work for development of education system in rural areas and majority of students of urban UP Board schools belong to low socio-economic-status, So both of urban and rural government school of UP Board have same atmosphere. An another study by Singh and Bansal (2017). Found that out of 100 adolescent girls, more than 54% were having BMI between 18.5-24.9 and 34% were below 18.5 only 12% were above 24.9 and at higher risk of developing obesity. Same as an another study by Field *et al.* (2020). Found that prevalence of thinness and severe thinness in the present study was found to be 19.5% and 6.3% respectively with overall prevalence of 25.8%. 17(4.3%) girls were overweight and

5(1.2%) girls were obese with overall prevalence of Overweight to be 5.5%. Rests of the 275 (68.7%) girls were found to be having normal BMI. Same as an another study by Saha (2021) was found that 19.6% of participants had low BMI (<-2SD), 8.9% were overweight, and 2.6% were obese. An another study doing by Barman *et al.*, (2015) concluded that Thinness, severe thinness and overweight were prevalent among 34.4%, 5% and 7.3% of adolescent girls, respectively, according to body mass index for age. Prevalence of overall thinness decreased with increase in age but statistically not significant. Overall thinness decreased with attainment of thinness decreased with increase in age but statistically not significant. Overall thinness decreased with attainment of higher socio-economic status, higher educational status and nuclear family, which was statistically significant.

In this study satisfactory significant differences among lower, middle, and upper class respondent's level of BMI. Same as a study by Hospital (2015) concluded that significant association between Socio- economic status and nutritional status of adolescent girls and highly significant association between age of adolescent girls and Body Mass Index Recognizing.

In this study average BMI  $\pm$  SD of Hindu and Muslim respondents were  $18.14 \pm 2.83$  and  $17.74 \pm 2.77$  respectively, Muslim respondents have greater risk of underweight. Satisfactory significant difference was found in Hindu and Muslim respondent's level of BMI. Same as a study by Phuljhele *et al.* (2020) found that religion-wise analysis of nutritional status showed that 59.37% of Hindu girls were stunted as compared to 57.75% of Muslim girls and the association between underweight and religion was statistically significant. 36.20% of Hindu girls were thin as compared to 70.42% in Muslim girls which was statistically significant.

Average BMI  $\pm$  Sd of General Caste respondents in Urban and Rural area were  $18.36 \pm 2.94$  and  $18.53 \pm 2.82$  were respectively. There was no significant difference between urban and rural general caste respondent's level of BMI. Average BMI  $\pm$  Sd. of OBC respondents in Urban and Rural area were  $17.43 \pm 2.48$  and  $18.69 \pm 2.85$  were respectively. There was highly significant difference between urban and rural OBC respondent's level of BMI. Average BMI  $\pm$  Sd of Sc/St respondents in Urban and Rural area were  $17.18 \pm 3.14$  and  $18.30 \pm 2.39$  were respectively. In total number of respondents there nutritional status was satisfactory significantly associated with their caste. An another study by Hospital (2015) concluded that Nutritional status of adolescent girls was found significantly ( $P < 0.05$ ) associated with their caste. Under nutrition was significantly high among girls who belonged to schedule caste category, under different caste categories.

8%, 14% and 6% study subjects were underweight in SC, OBC and other caste groups, respectively.

## CONCLUSION

The present study was concluded that nutritional status of urban and rural intermediate adolescent girls of UP Board were not so good under nutrition was present in both of urban and rural area. There were highly significant difference between urban and rural respondent's level of B.M.I. Rural respondents were better than urban respondent's level of BMI. The cause behind that at present lots of government schemes work for development of education system and adolescent girl's health in rural areas and majority of students of urban UP Board schools belong to low socio-economic-status. There was satisfactory significant difference between urban and rural fifteenth and also sixteenth year aged respondent's level of BMI. Satisfactory significant differences were presented among different age of late adolescent girls level of BMI in rural area, and difference was exist only 15<sup>th</sup> and 18<sup>th</sup> year old respondents, underweight BMI found in 15<sup>th</sup>, 16<sup>th</sup> and 17<sup>th</sup> year aged urban and 15<sup>th</sup> year aged rural respondents. There was satisfactory significant difference between urban and rural Muslim respondent's level of BMI. Highly significant difference was showed between urban and rural OBC respondent's level of BMI There was satisfactory significant difference between urban and rural vegetarian respondent's level of BMI. There was high significant difference between urban and rural respondent's BMI. There was highly significant difference between urban and rural low class respondent's level of BMI.

There was satisfactory significant difference between urban and rural middle class respondent's level of BMI. In present study this is found that age, religion, caste, and socio-economic-status were affect nutritional status of adolescent girls.

## LIMITATIONS OF THE STUDY

- This cross-sectional study conducted on UP Board Intermediate students.
- This cross-sectional study conducted on 15-18 year aged girl students.
- This cross-sectional study conducted on Allahabad city and Bahadurpur Block from Prayagraj district.

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