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A STUDY OF THE PREVALENCE OF OVERWEIGHT AND OBESITY IN SCHOOL-GOING CHILDREN OF JAMSHEDPUR, JHARKHAND, INDIA

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ABSTRACT: Background: Childhood obesity is an emerging public health concern in India and worldwide. A school-based study was conducted to estimate the prevalence of overweight and obesity in school-going children and educate them about obesity and its ill effects on health. **Methods:** The present study is an observational cross-sectional study on 426 6- to 14 students (Boys: 217, Girls: 209) from randomly selected schools in Jamshedpur City, Jharkhand. WHO, Standard Age, and Sex-specific Growth Reference charts defined overweight and obesity. Modified B.G Prasad Classification for socioeconomic scale (2022) was adopted to assess the family's socioeconomic status. **Results:** Based on World Health Organization BMI references among 426 children, 15.5% and 6.1% of children were found overweight and obese, respectively. Obesity in children was found to have a significant association ($P = 0.032$) with age. The prevalence of overweight and obesity was higher among upper socioeconomic-class children ($P = 0.004$). **Conclusion:** Overweight and Obesity is prevalent in the study population. The high familial income, private school, dietary patterns, and decreased physical activity among the urban population were identified as the major factors influencing the obesity status of school-going children.

INTRODUCTION: Childhood obesity is a major public health problem developing in populations worldwide. The prevalence of obesity was 19.7% and affected about 14.7 million children and adolescents¹⁻². As per data from the centre for disease control, for children in 2017-20, obesity prevalence was 12.7% among 2- to 5-year-olds, 20.7% among 6- to 11-year-olds, and 22.2% among 12- to 19-year-olds³.

WHO designated that prevalence of obesity among children in the age group of 5-19 years has increased from 4% in 1975 to 18% in 2016, which is much higher than the three-time increase⁴. India is a fast-growing economy. With the nutritional transition, non-communicable diseases (NCDs country) are increasing. There is a change in eating habits and physical activity among children⁵⁻⁸.

Too many children are living in an obesogenic environment today. Globalization and rapid urbanization have forced children of all socioeconomic strata to depend on ultra-processed, high-calorie, cheap, and readily available foods that lack nutrition^{4-5, 9}. The advent of online food apps has compounded the problem, increase in 'pocket money' and busy working patterns of parents with

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little or no time for outdoor activity. Obesity and its associated diseases are also on the rise in India, particularly in children and adolescents. The prevalence of overweight and obesity among children and adolescents aged 5–19 has risen dramatically from just 4% in 1975 to just over 18% in 2016¹⁰⁻¹¹. There has been a rise in rural obesity in India. The rise in rural obesity is closely associated with the urbanization of its rural spaces⁶. Every year, obesity causes at least 2.8 million deaths¹². According to NFHS-3 data, among the three states studied, the percentage of obese women (BMI \geq 25 kg/m²) was highest in Tamil Nadu (24.4%), followed by Maharashtra (18.1%) and Jharkhand (5.9%) and similar orders among men in the three states were reported to be obese at 19.8, 15.9 and 5.3 percent, respectively¹³. The magnitude of overweight ranges from 9 to 27.5%, and obesity ranges from 1 to 12.9% among Indian children¹⁴. Assessing this emerging problem is important to implement effective prevention to ensure a healthy transition in children. The need of the hour is to estimate the burden of overweight and obesity in school-going children of Jamshedpur, Jharkhand, India.

Aims & Objectives: The objective of our study was to estimate the prevalence of overweight and obesity in school-going children and to educate school children about obesity and its ill effects on health.

MATERIALS & METHODS:

Study Design: The design of the study was observational cross-sectional.

Study Population: The study included school-going children (06-14 Years) of both sexes from government and private Schools in Jamshedpur city of Jharkhand.

Study Duration: The study was from January 2019 to January 2020.

Inclusion Criteria: Formal administrative approval from the District Education officer of East-Singhbhum was obtained before the study. The list of schools in each zones of the city was collected. School-going children (06-14 Years) of both sexes from Government and private schools of Jamshedpur were consenting included after consent from their parents and school Principal.

Exclusion Criteria: Students not co-operating for anthropometry were excluded. Adolescent students with chronic major illness as well as those on corticosteroid therapy and known chromosomal disorder were excluded from the study.

Sample size: Considering the prevalence of overweight & Obesity in India as 11.6%²⁹. The sample size was calculated for our study using the given formula. $N = P(1-p) Z^2/E^2$ Where P=11.6%, CI=95%, Margin of error: 5%, Z score: 1.96. Sample size worked out to 158 subjects with the above formula. As the study progressed 426 children were included in the study.

Sampling Process: Using simple random sampling technique, schools from the each zone were selected for the study. All children studying in the 1st to 9th standards of age (6-14th years) were selected.

Study Procedure: Sampling frame comprised of cumulative population of School of Jamshedpur. A Town/ ward-wise list of all schools (Primary, middle and secondary schools) showing total number of children was prepared and one school from each cluster was selected randomly. The selected schools participated in the study with the prior permission from school authorities.

Children's (boys and girls) aged 6-14 years were selected from five schools, from the attendance register by simple random sampling technique ensuring equal representation in each age/gender category. Written consent for carrying out general check up was obtained from the parents of the selected students 1 day prior to the survey with the help of Principal/Teachers of the school.

All parents were interviewed personally by the investigator. Information regarding the sociodemographic, Physical activity and food habits, and types of diet variables influencing the weight status of children was collected using structured questionnaire. Parents of each participant were briefed about the study purpose through telephone. Standardized instruments and techniques were used for anthropometric measurements such as height and weight of the children.

A standardized, calibrated digital weighing scale of (Dr. Morepen) was used to measure the weight.

The weight of the students was obtained while the students stood upright barefooted on the weighing machine. The height was measured by standardized, calibrated stadiometer (MCP handheld ultrasonic). The height was recorded in centimeters while the students stood straight with horizontal gaze and barefooted. WHO Standard Growth Reference for BMI for specific age and gender was used as reference standards. BMI was computed using the formula:

BMI = Bodyweight in kilograms divided by height in meters squared.

As per WHO protocol Standard Age and Sex specific Growth Reference charts for children within the age of 5-14 years (2007), weight of the children was categorized as: (i) Normal weight: Weight corresponding to the WHO Growth Standard median, (ii) Overweight: BMI for age greater than 1 standard deviation above the WHO Growth Standard median, (iii) Obesity: BMI for age greater than 2 standard deviations above the WHO Growth Standard median and (iv) Underweight: BMI for age less than 2 standard deviations below the WHO Growth Standard median. Children were classified in three categories as per revised IAP 2015 growth chart as normal [Below 23], overweight [23 to below 27] and obesity [27 and above] [20]. Modified BG Prasad Socioeconomic Status Scale 2022 was used to assess the family's socioeconomic status. Based on the total score, the socioeconomic status of the families of the children was classified as "I (Upper

class), II (Upper middle class), III (Middle class), IV (Lower middle class), V (Lower class)"¹⁵.

Ethical Issues: Ethical clearance was obtained from the institutional ethics committee of MGM Medical College, Jamshedpur (IEC No. MC/EC/03/18). Confidentiality of the study participants was maintained throughout the conduction and dissemination of the study results.

Statistical Analysis: The data were analyzed using Epi-Info. BMI was classified using WHO Tables. The data was presented using percentages in frequency tables. The association of variables with obesity & overweight is analyzed using chi squares test. $p < 0.05$ was considered significant.

RESULT & DISCUSSION: Out of 426 study subjects, 50.9% were male and 49.1% were female.

TABLE 1: PREVALENCE OF OVERWEIGHT AND OBESITY

BMI	No. of Children	% of Children
Normal	334	78.4
Overweight	66	15.5
Obesity	26	6.1
Total	426	100.0

Table 1 shows that the overall prevalence of overweight and obesity was 15.5%, 6.1%, respectively. So, the total prevalence of overweight and obesity was 21.6%. The prevalence of overweight and obesity was higher in boys in comparison to girls.

TABLE 2: DISTRIBUTION OF PARENTS AND CHILDREN AGED 6–14 YEARS (N=426) AS PER SOCIODEMOGRAPHIC CHARACTERISTICS

Sl. no.	Variables	Frequency	Percentage
1	Types of School		
	Government School	148	34.7
	Private School	278	65.3
2	Sex		
	Male	217	50.9
	Female	209	49.1
3	Age group		
	6-8	96	22.5
	9-11	160	37.6
	12-14	170	39.9
4	Class		
	1-5	221	51.9
	6-8	187	43.9
	9	18	4.2
5	Religion		
	Hindu	347	81.5

	Muslim	60	14.1
	Sikh	5	1.2
	Christian	6	1.4
	Tribal	8	1.9
6	Types of Family		
	Nuclear	297	69.7
	Joint	129	30.3
7	Father's Education Level		
	illiterate	140	32.9
	Primary Education	79	18.5
	10th& above	175	41.1
	Graduation	32	7.5
8	Father occupation		
	Private Job	133	31.2
	Business	195	45.8
	Government Job	98	23.0
9	Mother's Education Level		
	illiterate	210	49.3
	Primary Education	75	17.6
	10th& above	113	26.5
	Graduation	28	6.6
10	Mother's occupation		
	House wife	394	92.5
	Private Job	20	4.7
	Business	10	2.3
	Government Job	2	.5

Table 2 shows the sociodemographic data of the study population. The majority 170 (39.9%) belonged to the age group of 12-14 years and 160 (37.6%) were 9-11 years old. Gender-wise, the

distribution of male and female were 217 (50.9%) and 209 (49.1%), respectively. The majority of children 69.7% were from nuclear families. 30.3% of participants belonged to a joint family.

TABLE 3: DISTRIBUTION OF PHYSICAL ACTIVITY-RELATED BEHAVIOR OF SCHOOL-GOING CHILDREN AGED BETWEEN 6–14 YEARS, (N = 426)

Sl. no.	Variables	Frequency	Percentage	$\chi^2 / P\text{-Value}$
1	Mass media used at home			
	TV	332	77.9	20.292/.027
	Radio	7	1.6	
	Computer	17	4.0	
	Computer with Internet	10	2.3	
	Magazines	6	1.4	
	Mobile Applications & Other activities	54	12.7	
2	Form of transport going to school.			
	cycle	20	4.7	19.417/.035
	car	12	2.8	
	Van	64	15.0	
	Auto	186	43.7	
	on Foot	13	3.1	
	Other Mode	131	30.8	
3	Participation in sports activities during physical education Period (times per week)			
	01 time	235	55.2	4.793/.309
	02 time	135	31.7	
	03 time	56	13.1	
4	Sleeping			.276/.871
	Yes	425	99.8	
	No	1	.2	
5	Indore games like Toys /Chess/ludo/carom/etc			6.539/.038
	Yes	326	76.5	
	No	100	23.5	

	No	169	39.7	
6	Roping activity			1.796/.407
	Yes	76	17.8	
	No	350	82.2	
7	Badminton activity			2.958/.228
	Yes	151	35.4	
	No	275	64.6	
8	Swimming activity			.445/.801
	Yes	14	3.3	
	No	412	96.7	
9	Football Playing			.461/.794
	Yes	123	28.9	
	No	303	71.1	
10	Volleyball playing			.074/.964
	Yes	39	9.2	
	No	387	90.8	
11	Aerobics activity			2.291/.318
	Yes	12	2.8	
	No	414	97.2	
12	Running			.924/.630
	Yes	202	47.4	
	No	224	52.6	
13	Cycling			.460/.795
	Yes	191	44.8	
	No	235	55.2	
14	Cricket playing			.111/.946
	Yes	142	33.3	
	No	284	66.7	
15	Basketball playing			4.343/.114
	Yes	17	4.0	
	No	409	96.0	
16	Tennis playing			.195/.907
	Yes	17	4.0	
	No	409	96.0	
17	Yoga activity			3.666/.160
	Yes	113	26.5	
	No	313	73.5	
18	Jogging			1.066/.587
	Yes	82	19.2	
	No	344	80.8	
19	Athletics activity			1.960/.375
	Yes	7	1.6	
	No	419	98.4	
20	Singing/playing /music			5.803/.055
	Yes	164	38.5	
	No	262	61.5	
21	washing clothes by hand			5.359/.069
	Yes	91	21.4	
	No	335	78.6	
22	Dancing activity			.192/.909
	Yes	104	24.4	
	No	322	75.6	

Table 3 represents the level of physical activity among study participants. Most children (43.7%) used auto-rickshaws to attend school. 110 (30.8%) participants used another mode of transportation. The association between mode of transport &

overweight and obesity was significant. 55.5% of the children participated in physical sports activities, out of which 141 (88.7%) performed for more than 30 min. The majority of the participants 76.5% were playing an indoor game.

77.9% used to watch television at home. The association between the use of TV versus others and overweight obesity was found to be significant $P = 0.027$.

TABLE 4: DISTRIBUTION AND ASSOCIATION OF DIETARY HABITS OF SCHOOL-GOING CHILDREN AGED BETWEEN 6–14 YEARS, (N = 426)

Sl. no.	Variables	Normal	Overweight	Obesity	Total	P Value
1	Eat (per week) junk foods/soft drinks sold in school or away from home					
	once	213[63.8%]	35[53.0%]	18[69.2%]	266[62.4%]	.707
	2-4times	39[11.7%]	10[15.2%]	2[7.7%]	51[12.0%]	
	5-6times	1[0.3%]	0[0.0%]	0[0.0%]	1[0.2%]	
	>6times	81[24.3%]	21[31.8%]	6[23.1%]	108[25.4%]	
2	Tiffin specifics.					
	Healthy food	189[56.6%]	45[68.2%]	19[73.1%]	253[59.4%]	.000
	Home made	1[0.3%]	0[0.0%]	0[0.0%]	1[0.2%]	
	light food	6[1.8%]	3[4.5%]	3[11.5%]	12[2.8%]	
	Mid day Meal	132[39.5%]	14[21.2%]	2[7.7%]	148[34.7%]	
	No Food	6[1.8%]	4[6.1%]	2[7.7%]	12[2.8%]	
3	Fruit Intake /week					
	0 Never	26[7.8%]	8[12.1%]	6[23.1%]	40[9.4%]	.093
	1-2/week	134[40.1%]	22[33.3%]	9[34.6%]	165[38.7%]	
	3-7/week	174[52.1%]	36[54.5%]	11[42.3%]	221[51.9%]	
4	Eating Vegetable/week					
	1-3/week	31[9.3%]	3[4.5%]	0[0.0%]	34[8.0%]	.130
	4-7/week	303[90.7%]	63[95.5%]	26[100.0%]	392[92.0%]	
5	Eat Mayonnaise/ Butter/Full cream Milk/Ice-cream/soup/Cheese/Others/day					
	0 Never	58[17.4%]	12[18.2%]	10[38.5%]	80[18.8%]	.035
	1-2/Day	142[42.5%]	27[40.9%]	4[15.4%]	173[40.6%]	
	3-7/Day	134[40.1%]	27[40.9%]	12[46.2%]	173[40.6%]	
6	Eat Sweets/chocolate/cake/Jam/Jelly/Pizza/Noodles/day					
	0 Never	62[18.6%]	10[15.2%]	8[30.8%]	80[18.8%]	.170
	1-2/Day	153[45.8%]	33[50.0%]	6[23.1%]	192[45.1%]	
	3-7/Day	119[35.6%]	23[34.8%]	12[46.2%]	154[36.2%]	
7	Eat Non-Vegetarian food (Mutton/Chicken/Fish/Egg)/day					
	0 Never	71[21.3%]	16[24.2%]	7[26.9%]	94[22.1%]	.681
	1-2/Day	195[58.4%]	34[51.5%]	12[46.2%]	241[56.6%]	
	3-7/Day	68[20.4%]	16[24.2%]	7[26.9%]	91[21.4%]	
8	Eat breakfast before going to school					
	Yes	297[88.9%]	55[83.3%]	20[76.9%]	372[87.3%]	.119
	No	37[11.1%]	11[16.7%]	6[23.1%]	54[12.7%]	
9	How many times do you have meals (including snacks)					
	One time	13[3.9%]	4[6.1%]	2[7.7%]	19[4.5%]	.050
	Two times	37[11.1%]	4[6.1%]	2[7.7%]	43[10.1%]	
	Three Times	118[35.3%]	16[24.2%]	3[11.5%]	137[32.2%]	
	Four times	166[49.7%]	42[63.6%]	19[73.1%]	227[53.3%]	
	Total	334	66	26	426	

Table 4 shows the food habits of the study population. 173 (40.6%) of participants had consumed Mayonnaise/ Butter/Full cream Milk/Ice-cream/soup/Cheese and others at least 1-2 times per day in a week, followed by 173 (40.6%) children who 3-7 times per day in a week. About 80 (18.8%) participants did not consume above food at all. The association was statistical significance $<P=0.035$. On assessing the life style habits of the participants, it was found that 266(62.4%) ate junk foods/soft drinks once a week,

while 51 (12%) drank 2-4 times a week. As far as consumption of junk food (Sweets/ chocolate/ cake/ Jam Jelly /Pizza/ Noodles) is concerned, it was found that 241 (56.6%) consumed at least 1-2 times per day in a week, followed by 91(21.4%) 3-7 times per day in a week. Rest 80 (18.8%) did not consumed junk food at all. More than 80% of children with overweight and obesity consumed mixed type (meals including snacks) of food. The association was statistically significant.

56.6% of participants consumed Non-Vegetarian food (Mutton /Chicken/Fish/Egg) every week. Whereas 51.9% and 38.7% of children with overweight and obesity consumed fruits 2-7 days in a week. Regarding school tiffin consumption, it was found that 253 (59.4%) had consumed healthy

food at private school and 12 (2.8%) did not consume Tiffin's food. 148 (34.7%) of Government school children consumed Mid-day Meal in school. Results revealed a statistically significant association between the consumption of Tiffins and the obesity status of study subjects ($P = 0.000$).

TABLE 5: ASSOCIATION OF CHILD AGE IN YEARS, TYPES OF SCHOOL, MOTHER'S EDUCATION & OCCUPATION, FATHER'S EDUCATION LEVEL AND SOCIO-ECONOMIC STATUS ACCORDING TO BMI CATEGORY OF STUDENTS STUDIED

Sl. no.	Variables	Normal	Overweight	Obesity	Total	P Value
1	Children Age Group					
	6-8	86[25.7%]	9[13.6%]	1[3.8%]	96[22.5%]	.032
	9-11	121[36.2%]	26[39.4%]	13[50.0%]	160[37.6%]	
	12-14	127[38.0%]	31[47.0%]	12[46.2%]	170[39.9%]	
2	SES as per BG Prasad Classification					
	Upper	63[18.9%]	20[30.3%]	14[53.8%]	97[22.8%]	.004
	Upper Middle	101[30.2%]	21[31.8%]	7[26.9%]	129[30.3%]	
	Middle	77[23.1%]	11[16.7%]	3[11.5%]	91[21.4%]	
	Lower Middle	55[16.5%]	10[15.2%]	1[3.8%]	66[15.5%]	
	Lower	38[11.4%]	4[6.1%]	1[3.8%]	43[10.1%]	
3	Types of School					
	Government School	132[39.5%]	14[21.2%]	2[7.7%]	148[34.7%]	.000
	Private School	202[60.5%]	52[78.8%]	24[92.3%]	278[65.3%]	
4	Mother's Education Level					
	illiterate	174[52.1%]	29[43.9%]	7[26.9%]	210[49.3%]	.037
	Primary Education	57[17.1%]	14[21.2%]	4[15.4%]	75[17.6%]	
	10th& above	87[26.0%]	16[24.2%]	10[38.5%]	113[26.5%]	
	Graduation	16[4.8%]	7[10.6%]	5[19.2%]	28[6.6%]	
5	Mother's occupation					
	House wife	313[93.7%]	60[90.9%]	21[80.8%]	394[92.5%]	.086
	Private Job	13[3.9%]	4[6.1%]	3[11.5%]	20[4.7%]	
	Business	7[2.1%]	2[3.0%]	1[3.8%]	10[2.3%]	
	Government Job	1[0.3%]	0[0.0%]	1[3.8%]	2[0.5%]	
6	Father's Education Level					
	illiterate	115[34.4%]	17[25.8%]	8[30.8%]	140[32.9%]	.006
	Primary Education	62[18.6%]	16[24.2%]	1[3.8%]	79[18.5%]	
	10th& above	139[41.6%]	25[37.9%]	11[42.3%]	175[41.1%]	
	Graduation	18[5.4%]	8[12.1%]	6[23.1%]	32[7.5%]	
7	BMI Classification as per sex					
	Variables	Boys	Girls	Total		0.231
	Normal weight	164[75.6%]	170[81.3%]	334[78.4%]		
	Overweight	40[18.4%]	26[12.4%]	66[15.5%]		
	Obesity	13[6.0%]	13[6.2%]	26[6.1%]		
	Total	217	209	426		

Table 5 shows that the present study has shown an increase in the prevalence of obesity with the age of school children, with the highest prevalence of obesity in the age group of 13-15 years and least prevalence in the age group of 12-14 years. Results revealed statistically significant association between the age and obesity status of study subjects ($P = 0.32$). The prevalence of overweight and obesity was higher in high socioeconomic classes in comparison to middle and lower socioeconomic class **Table 4**. The prevalence of overweight and

obesity was more among children from upper socioeconomic class. The difference was statically significant ($P = 0.004$). 278[65.3%] of the study participants were studying in Private schools compared to 148[34.7%] from Government schools. The difference was statistically significant. 113[26.5%] mothers were & 41.1% of fathers were educated up to 10th & above. 20[4.7%] of mothers were private job employed in Private Job. The association was statistically significant.

DISCUSSION: Obesity among children has emerged as an important public health hazard in many countries, including India. Prevalence of overweight and obesity is increasing due to attributed behaviors and community; environment changes that influence excess weight gain, including eating high-calorie, low-nutrient foods and beverages, not getting enough physical activity irregular sedentary activities such as watching television or other screen devices, and sleep routines¹⁶. It is important to assess the prevalence of obesity and overweight among children to identify the problem's magnitude and implement appropriate action strategies to stop its progression into adulthood¹⁷. The prevalence of overweight was 15.5 % and obesity was 6.1 % in school-going children of Jamshedpur in our study. This is similar to as reported by Krishnaswamy SV *et al.*¹⁸.

The prevalence of overweight and obesity was more among boys who studied in private schools. Boys were more overweight (18.4%) than girls (12.4%). Many studies show that boys and privately-funded school children had a significantly higher prevalence and risk of being overweight and obese. School-going children from private schools are at greater risk of being overweight and obese¹⁹⁻²². In our study girls reported slightly more obesity & 6.2% as compared to boys 6%. In some studies, there was high prevalence of obesity in girls.

The higher prevalence of overweight/obesity in girls may be attributed to more indoor activity like academic work, computer, internet, and household work) rather than outdoor activities like sports and games²². The prevalence of overweight and obesity was higher in upper socioeconomic class (SES) in comparison to the middle and lower socioeconomic class. The difference was statistically significant. Y Ke *et al* found similar result identical to our study. The observed higher prevalence rates of obese children in upper class may be because of sedentary lifestyles, altered eating patterns and increased sugar and fat content of their diet Poor Physical life style was more often present in overweight and obese children as compared to not overweight children²³. Findings of the study revealed that age group between 9-11, 8.1% obese and 16.3% were overweight children and age group between 12-14, 7.1% obese and 18.2% were overweight. In the case of prevalence among different age groups, the

proportion of overweight and obesity was marginally higher 12-14 years as compared to 9-11 years age group. The higher prevalence of overweight and obesity in the younger age group can be explained by the fact that there is an associated increase in adipose tissue and overall weight gain during the pubertal growth spurt²⁴. Studies show that type of diet, such as soft drinks, cream milks, junk food and chocolate eating habits and frequency of outside food per day and week have roles in obesity. In the present study, we found that junk food and chocolate eating habits are significantly associated with the prevalence of obesity and overweight.

These results correlate well with previous reports, which suggest that junk food (bakery items, pizza, burger, cheese, butter, oily items) chocolate intake tends to be more common among overweight and obese adolescents than among normal-weight adolescents. Fat is less satiating than carbohydrates, and dietary fat is stored more efficiently than carbohydrates or protein, resulting in obesity or overweight. Similarly, irregular food intake deleteriously affects nutritional health, reduces energy levels and promotes the consumption of high-caloric food later in the day²⁵.

Overweight/obesity was found to be in the children indulging in many meals, including unhealthy snacking, compared to those not indulging. A number of studies have reported the association unhealthy of snacking with weight gain²⁶⁻²⁷. Prevalence of overweight and obesity was higher (77.9%) among children who spent more than one hour/day watching TV when compared to non-TV viewers. A number of studies have shown the association between increasing hours of TV watching and the prevalence of overweight and obesity²⁸. The present study suggests that being overweight and obese is a health problem among children from higher socioeconomic strata, with less physical activity leading to a sedentary lifestyle and indulging in fatty food intake. The absence of public awareness about healthy nutrition may explain the prevalence of obesity among children of mothers with low levels of education.

CONCLUSION: The present study found a significant association between overweight and obesity with age, type of school, use of the mode of

transport to school, participation in outdoor sports, participation in indoor sports, duration of TV watching, the habit of eating snacks, Junk food, fatty drinks, sweets. Healthy meals with snacks and Parent's education level. Lifestyle modification is important in reducing the risk of overweight and obesity among school-going children. Therefore, promoting a healthy lifestyle, such as improving fruit and vegetable intake and regular physical activity, are essential. In addition, special attention needs to be given to children from high-income families and those enrolled in private schools. In today's world, where modernization and digitalization are playing an important role, focus should be on exercise and physical activities.

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Limitation of the Study: The sample selected for the present study is of a limited population and may not represent the community. The cross-sectional nature of the study may not help in establishing temporality.

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