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# Comparison of Snacking Behavioral Pattern between Government School and Private School Going Children Aged (10-17 Years Old) and Assessment of Their Nutritional Status

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## ABSTRACT

**Background**: Commercially available snacks are loaded with calories, extra sugar, salt and most of them are deep fried. The aim of the present study was to assess the nutritional status and compare snacking behaviour pattern between children studying in Zilla Parishad High School (Government aided School) vs. Private schools aged (n=200, 10-17 years old).
**Methods**: Data was collected by using a pre-designed questionnaire. Anthropometric measurements were recorded and compared against the standard Z-score.
**Results:** According to BMI for age parameter 56% of girls and 42% of boys from Government school and 32% of girls and 52% of boys from Private school, fall under the Normal weight category. Severe wasting was observed in 24% of boys and 6% of girls in the Government school set-up. It was observed that 10% of girls from private schools are obese. Government school children reported to consume snacks twice in a day, 34% in girls and 30% in boys respectively. Whereas in children belonging to private schools, the percentage increased to 50% in girls and 58% in boys which could be attributed to the higher purchasing capacity.
Chi square test reveals a significant difference in stress induced snack intake between Government School children vs. Private school children with values ranging from 54% of girls and 66% of boys reporting the intake in Private Schools.
**Conclusions:** The snacks consumed by children contribute to excess fat intake followed by Sodium, Energy and inadequate amounts of micro nutrients. It was concluded that unhealthy snacking pattern was observed equally in Government and Private school children and creating a healthy meal and snack pattern can help them to consume nutritious food throughout the day and thereby reduce the incidence of childhood obesity.

***Keywords:*** Children; Schools; Snacks; Stress, healthy, nutrients.

## INTRODUCTION

Adolescence is also a period of increased vulnerability to obesity. Lack of physical activity and outdoor sports, along with the consumption of fat-rich 'junk' foods, is the major cause of obesity among the affluent population. [1] Snacking refers to the consumption of food and drinks including items such as chips, chocolates, and soft drinks. Studies from across the globe have shown high rates of snacking among young people, especially school-going students. Consumption of snacks in between the regular meals amounts to poor snacking behaviour. Irregular snacking behaviour poses extreme risks to the health of children and adolescents including cardiovascular, neurological, and metabolic complications. [2] The extent of harmful effects increases with an early age of onset of irregular snacking behaviour. Irregular eating habits are attributed to various factors like peer influence, parental behaviour, and influence of western food. Irregular snacking may even lead to skipping of regular meals and increased frequencies of

snacking in between. Snacks are a part of healthy diet for children. Creating a meal and snack pattern can help them in providing nutritious food throughout the day. [3] Traditional snacks are prepared from ingredients commonly available at home. Nowadays, healthy nutritious snacks have been replaced by junk food. Junk foods are rich sources of Trans- fats, salt and sugar. Junk foods are quite popular among children owing to taste, appearance and hype created by mass media. However, increased incidence of lifestyle disorders, seen now-a-days at an early age could be attributed to fast foods. Children consuming more "junk food" are likely to have a lower intake of vitamins, minerals and essential fatty acids, particularly omega-3 and omega-6, which are vital building blocks for brain function. [4] Whilst the link between omega-3 fatty acids and mood is topical. Several Indian studies showed that, changing lifestyles, food habits, organized food retail market, and urbanization are the key factors for increasing the usage of highly processed and convenience food especially among children. Furthermore, there are more families in which both parents work, and time limitations have become an important factor in determining the types of foods consumed. The food industry responded to these new family issues by increasing the availability of convenience foods and prepared meals. [5] Food habits learned in childhood tend to persist in adulthood also. It is essential to educate and encourage the children to consume healthy foods especially during their snack time as it supplements to overcome their nutritional deficiencies. Dietary choices made by the children and their families influence their health and may contribute towards both malnutrition and 'over nutrition'.

The main objective of the study was

- Assessment of nutritional status and quantifying the snacking behaviour pattern of children studying in Government schools vs Children studying in Private schools (10-17 years old).
- To assess the influence of media & television advertising on their snack choices.
- To calculate the macronutrients & micronutrients obtained from snacks and percentage of daily contribution to the Recommended Daily Allowances.

## METHODS

The present study was conducted to evaluate the snacking pattern in school going children aged between 10-17 years among two different co-educational high school students of $6^{th}$- $9^{th}$ standards in Hyderabad.

Through random sampling, 200 school going children of both the genders (100 girls and 100 boys) in the age group of 10-17 years who were willing to be a part of the study were included after obtaining authorized consent from management of Oxford Grammar school and ZillaParishad High School (ZPHS).

Data was collected by using a pre-designed questionnaire. Anthropometric measurements were recorded and compared against the standard Z-score. 24hour dietary recall is done to assess the common snacks consumed by the students. The subjects were interviewed using standard cups, serving size and amount of food consumed was recorded. The nutritive value for Energy, Protein, Fat, Carbohydrate, Iron, Vitamin A, Calcium and Sodium was calculated using Indian food composition tables developed by NIN, ICMR.

The mean intake of above nutrients was compared with RDA. Various statistical applications like Mean, Standard deviation and Chi-square test were used to analyze the data.

**STATISTICAL ANALYSIS**:

Entire collected data was entered into MS Excel spread sheet for compilation. Means, standard deviation were computed to present the respondents demographic data and anthropometric measurements

Percentages were used to represent the nutrient consumption and Chi square test

was applied to compare the data in between schools.

## RESULTS

The total sample size is 200 children, 100 girls (50 from government school and 50 from private school) and 100 boys (50 from government school and 50 from private school) with different age groups ranging between 10-17 years.

### Anthropometric Measurements

**TABLE 1: Mean and SD of Anthropometric measurements of the subjects (n= 200)**

| Parameters | Mean ( ±SD) | | | |
|---|---|---|---|---|
| | Government school Girls (n=50) | Private school Girls (n=50) | Government school Boys (n=50) | Private school Boys (n=50) |
| Age(years) | 13 ± 2 | 12.5 ±0.75 | 14 ± 2 | 12.8 ±0.92 |
| Height(cm) | 143.9 ±9.49 | 152.3 ±6.48 | 149 ± 10.15 | 155.4 ±8.5 |
| Weight (kg) | 38.3± 9.03 | 49.5 ±12.6 | 39.6±8.9 | 47.1 ±10.6 |
| BMI(kg/m$^2$) | 18.4 ±3.29 | 21.2 ±5.02 | 17.4±3.02 | 19.4 ±3.77 |

TABLE 1, Represents the demographic Age group and Anthropometric measurements of the subjects (n=200) the mean age of girls studying in Government school is 13 (± 2) years. The mean height and weight is 143.9(±9.49) cm and 38.3(±9.03) kg respectively. The mean BMI is calculated as 18.4(± 3.29) kg/m$^2$. According to the WHO standards (2007) the mean age of girl's height should be 156.4 cm and BMI 18.8 kg/m$^2$. It is observed that the BMI of girls is close to the WHO standards and there is difference of height from the WHO standards.

The mean age of girls studying in Private school is 12.5(±0.75) years. The mean height and weight is 152.3(±6.48) cm and 49.5(±12.6) kg respectively. The mean BMI is calculated as 21.2(± 5.02) kg/m$^2$. According to the WHO standards (2007) the mean age of girl's height should be 153.6 cm and BMI 18.3 kg/m$^2$. It is observed that the height of girls is close to the WHO standard and the BMI is greater than the WHO standard. The BMI of private school girls is more may be due to increased consumption of energy dense foods and due to lack of physical exercise.

The mean age of boys studying in Government school is 14 (± 2) years. The mean height and weight is 149(±10.15) cm and 39.6(±8.9) kg respectively. The mean BMI is calculated as 17.4(±3.02) kg/m$^2$. According to the WHO standards (2007) the mean age group of 14 years of boy's height should be 163.2 cm and BMI 19.0 kg/m$^2$. It is observed that the mean Height and BMI of boys is less than the WHO standards.

The mean age of boys studying in private school is 12.8(± 0.92) years. The mean height and weight is 155.4(±8.5) cm and 47.1(±10.6) kg respectively. The mean BMI is calculated as 19.4(± 3.77) kg/m$^2$. According to the WHO standards (2007) the mean age of 12.8 years of boy's height should be 153.6 cm and BMI 18 kg/m$^2$. It is observed that the BMI of boys studying in Private school is slightly greater than the WHO standards and the mean height is close to the WHO standards. The BMI of Government school boys is less than the WHO standards may be due to the poor dietary habits and lack of balanced diet.

**TABLE 2: Classification of BMI of subjects according to Z-score**

| Classification of BMI | Government school | | Private school | |
|---|---|---|---|---|
| | Girls (n=50) | Boys (n=50) | Girls (n=50) | Boys (n=50) |
| Normal weight | 28(56%) | 21(42%) | 16(32%) | 26(52%) |
| Severe wasting | 3(6%) | 12(24%) | 0% | 0% |
| Wasting | 8(16%) | 9(18%) | 6(12%) | 7(14%) |
| Risk of overweight | 7(14%) | 6(12%) | 19(38%) | 10(20%) |
| Overweight | 3(6%) | 0% | 4(8%) | 5(10%) |
| Obese | 1(2%) | 2(4%) | 5(10%) | 2(4%) |

TABLE 2, Represents the classification of BMI in to Normal weight, wasting, Moderate wasting and severe

wasting, risk of overweight, overweight and obese according to BMI Z-score, out of 50 girls studying in government school 56% are of normal weight, 6% fall under severe wasting and 16% are wasted, 14% are at possible risk of becoming overweight, 6% are overweight and 2% are obese. Out of 50 girls studying in private schools 32% are of normal weight, 12% are wasted and 38% are at possible risk of overweight, 8% are overweight and 10% are obese.

Out of 50 boys studying in Government school 42% are of normal weight, 24% are severely wasted and 18% fall under moderate wasting and 12% are under risk of overweight, 4% are obese. Out of 50 boys studying in private school 52% are of normal weight, 14% fall under moderate wasting and 20% are at possible risk of overweight, 10% are overweight, 4% are obese. It is observed that 56% and 52% of girls and boys studying in Private school are of normal weight, severe and moderate wasting is mostly observed in Government school children than in Private school students, risk of being overweight and obesity is observed in private school students. Only this may be due to excess intake of junk food in their diet and may be due to lack of physical activities.

Similar finding were reported by Joseph et al., (2014), [6] the results reveal that Mean age of boys was 13.5±0.9 years. Out of 300 participants, 41(13.7%) were overweight and 8(2.7%) were obese. The results reported in this present study are consistent with the findings conducted by Joseph et al., (2014)

**Snacking behavior:**

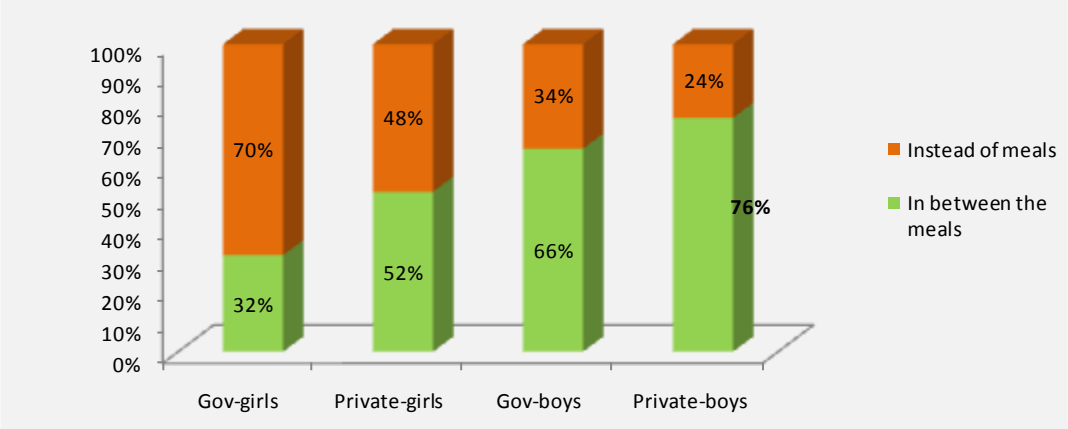


**FIGURE 1: Definition of snacks according to the school children**

FIGURE 1, Represents the definition of snacks according to the school children (n=200). It is observed that most of the girls defined snacks as the consumed instead of a meal whereas most of the boys defined snacks as something that is consumed in between the meals.

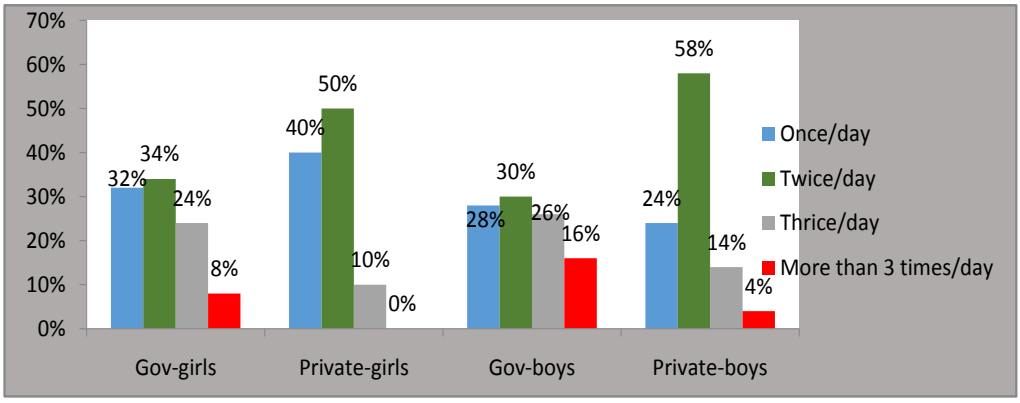


**FIGURE 2: Frequency of snacking among school children per day**

FIGURE 2, Represents the frequency of snacking among school children per day (n=200). The results have shown that most of the students from Government and Private school snack twice a day followed by once a day, only 8% of Government school girls and 4% of Private school boys snack more than 3times in a day.

**TABLE 3: Comparison of BMI vs Frequency of Snacking/day**

| Frequency of snacking/day | Mean BMI(kg/m$^2$) | | | |
|---|---|---|---|---|
| | Government school | | Private school | |
| | Girls (n=50) | Boys (n=50) | Girls (n=50) | Boys (n=50) |
| Once | 17.7 | 17.7 | 22.8 | 19.6 |
| Twice | 18.6 | 18.9 | 20.4 | 24 |
| Thrice | 18.8 | 16.1 | 19.8 | 21 |
| More than 3 times | - | 16.3 | - | - |

Similar findings were conducted by Savige.G et al., (2007), [7] the results reported that the most common contexts for snacking among adolescents were after school (4.6 times per week), while watching TV (3.5 times per week) and while hanging out with friends (2.4 times per week). Adolescents were least likely to snack all day long (0.8 times per week) or in the middle of the night (0.4 times per week).

TABLE 3, Represents the comparison of Mean BMI and frequency of snacking per day (n=200). The mean BMI of children is compared to their snacking pattern. It is observed that the BMI of boys studying in Private school and consuming snacks twice a day was greatest (24kg/m$^2$), and BMI of girls studying in Private school and consuming snacks once in a day was greatest (22.8kg/m$^2$). BMI of girls and boys studying in Government school consuming snacks once in a day or twice in a day are similar.

Similar findings were reported by Boon T.Y et al., (2012), [8] that there is no significant association between snacking patterns and BMI.

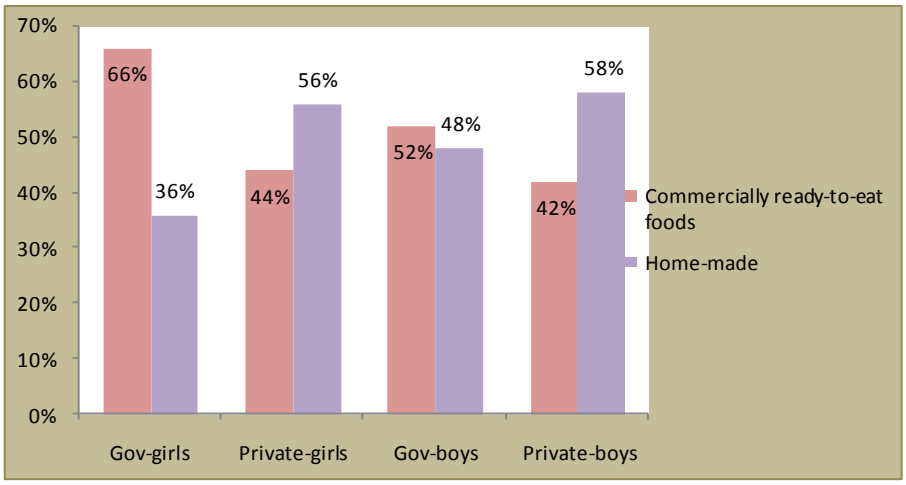


**FIGURE 3: Type of snacks consumed**

FIGURE 3, Represents the type of snacks consumed by school children (n=200). It is observed that most of the girls and boys studying in Government school consume commercial ready-to-eat foods than Home-made snacks compared to girls and boys studying in private school, 56% and 58% of girls and boys respectively from Private school consume Homemade snacks.

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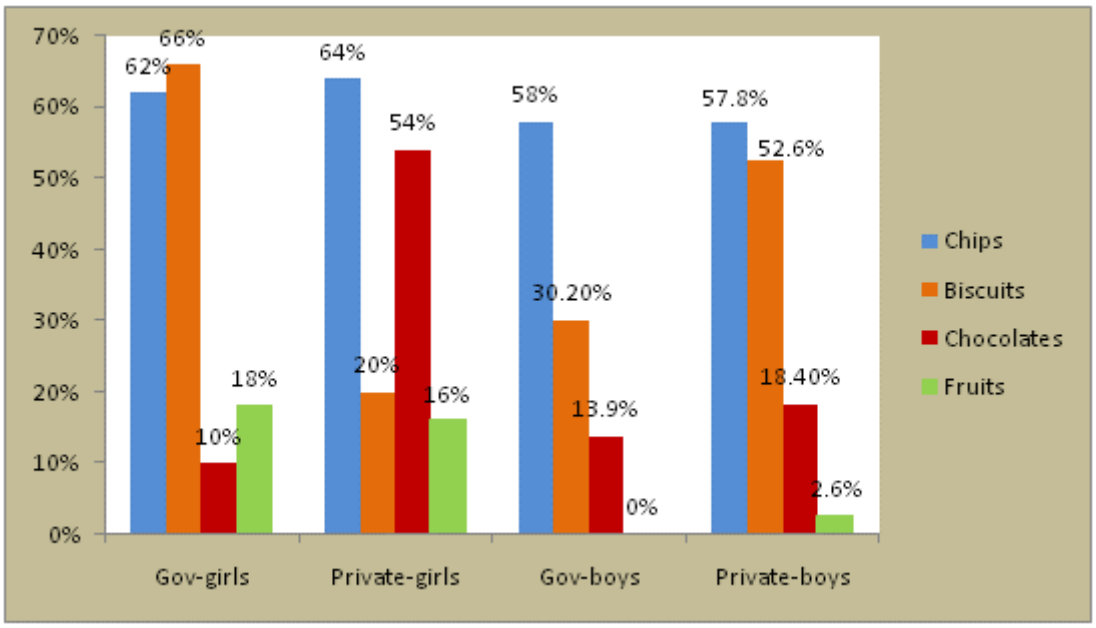


**FIGURE 4: Commonly purchased snacks among school going children**

FIGURE 4, Represents the commonly consumed snacks among school children (n=200). The results reveal that the most commonly consumed snack in both the Private and Government school going children are chips, biscuits, chocolates and fruits. It is observed that consumption of fruits as a snack is observed very less, 18% and 16% of girls studying in Government and Private school respectively are consuming fruits in their snacks when compared to boys.

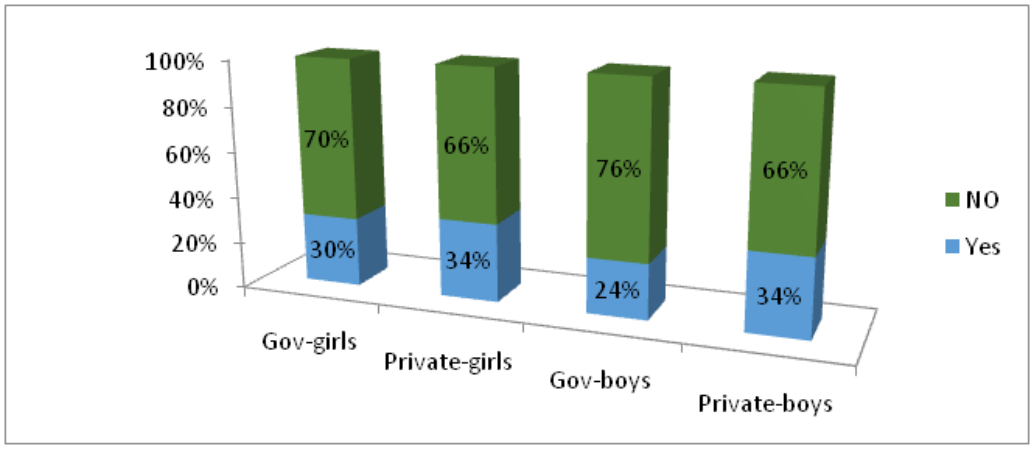


**FIGURE 5: Replacing a meal with snacks**

FIGURE 5, Represents the Replacing a meal with snacks (n=200). It is observed that most of the children from both the schools don't replace their meal with snacks. Only 30% and 34% of girls from Government and Private school respectively replace their meal with snacks whereas 24% and 34% of boys from Government and Private school respectively replace the meal with snacks.

**According to children are snacks healthy or unhealthy (n=200):**

Chi square-test was applied and results have shown that in girls the calculated value (2.666) is less than the table value (3.84); hence there is no significant difference ((p<0.05) between the girls of Government and Private school and in boys the calculated value (1.476) is less than the table value (3.84); hence there is no significant difference (p<0.05) between the

boys of Government and Private school. Majority of them consider that snacks are unhealthy.

**Awareness of Nutrition label of the product (n=200):**

Chi square-test was applied and the results have shown that in girls the calculated value (0.038) is less than the table value (3.84) both studying in Private and Government school, hence there is no significance difference ($p<0.05$) between Government and Private school girls whereas in boys the calculated value (4.99) is greater than the table value (3.84); hence there is significance difference ($p<0.05$) between Private and Government school boys. It is observed that most of the girls read nutritional label when compared to boys.

**Consumption of food when they are stressed (n=200):**

Chi square- test was applied and results have shown that in girls the calculated value (13.4) is more than the table value (3.84), hence there is significant difference ($p<0.05$) between the girls of Government and Private school in boys the calculated value (23.5) is more than the table value (3.84), hence there is significant difference ($p<0.05$) between the boys of Government and Private school It was observed that most of the Private school children consume food when they are at stress/anxious when compared to children studying in Government school. And the most commonly consumed food when they feel stressed are snacks (chips, baked times, fried foods) and followed by meals.

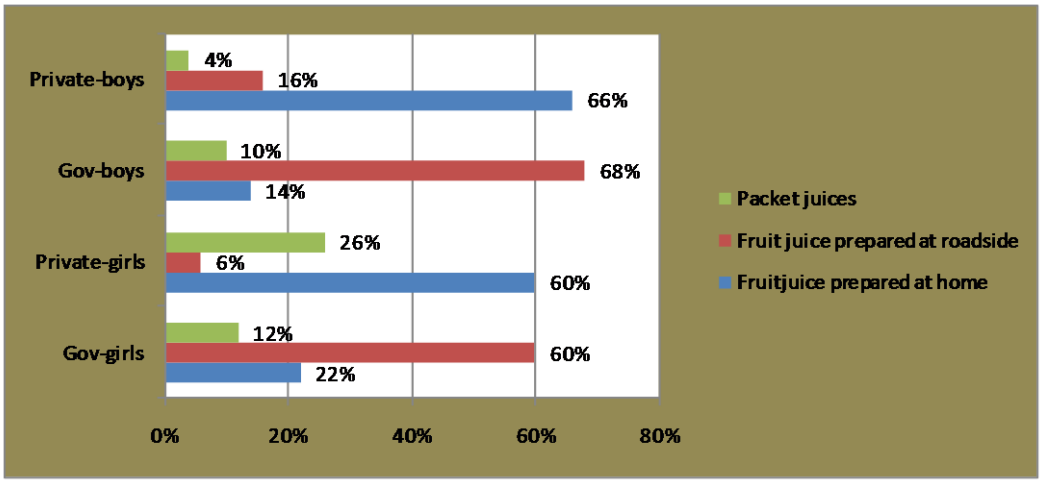


**FIGURE 6:Type of fruit juices consumed.**

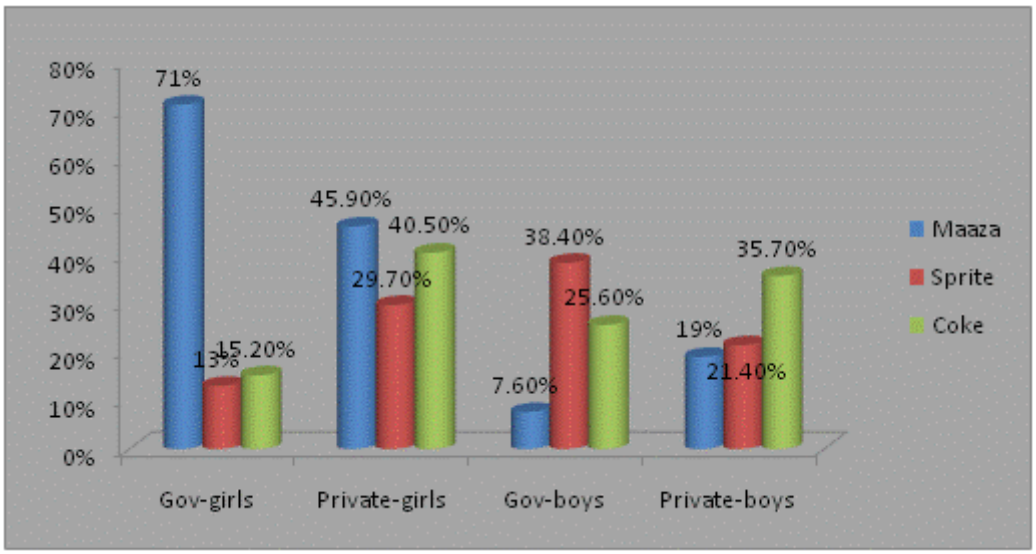


**FIGURE 7: Commonly consumed carbonated beverages.**

FIGURE 6, Represents the type of fruit juices consumed (n=200). It was observed that consumption of packet juices is less when compared to home-made and roadside juices, most of the girls and boys from Private school consume juices prepared at home only 16% and 6% of them consume roadside prepared juices and an average of 8-8.5g of extra sugar is added in their juice whereas Girls and boys from Government school consume more of juices prepared at roadside than freshly home-made and an average of 10g extra sugar was added in their juice.

FIGURE 7, Represents the commonly consumed carbonated beverages (n=200). The results have shown that most commonly consumed beverages are maaza, sprite, and coke. It was observed that most of the girls from both the schools preferred maaza in majority followed by coke and sprite, among boys majority preferred sprite then followed by coke and maaza.

**Consumption of food when they are stressed (n=200):**

Chi square- test was applied and results have shown that in girls the calculated value (13.4) is more than the table value (3.84), hence there is significant difference ($p<0.05$) between the girls of Government and Private school in boys the calculated value (23.5) is more than the table value (3.84), hence there is significant difference ($p<0.05$) between the boys of Government and Private school It was observed that most of the Private school children consume food when they are at stress/anxious when compared to children studying in Government school. And the most commonly consumed food when they feel stressed are snacks (chips, baked times, fried foods) and followed by meals.

**Influence of media:**

**Consumption of food while watching T.V (n=200):**

Chi square- test was applied and results have shown that in girls the calculated value (0.002) is less than the table value (3.84), hence there is no significant difference ($p<0.05$) between the girls of government and privates and in boys the calculated value (0.004) is less than the table value (3.84), hence there is no significant difference ($p<0.05$) between the boys of government and privates. It was observed that most of the children eat while watching T.V.

Similar findings were conducted by Mithra et al., (2018), [9] the results has reported that 51.1% of the students had the habit of snacking while watching T.V and 31.9% of them snacked while studying.

**Influence of food advertisements while purchasing snacks (n=200):**

Chi square- test was applied and results show that the calculated value (7.63) is more than the table value (3.84) in girls both from Government and Private School; hence there is a significant difference ($p<0.05$) in between girls from Government vs Private school whereas in boys the calculated value (0.571) is less than the table value (3.84); hence there is a significant difference ($p<0.05$) between boys of Private and Government school. It was observed that majority of the students are influenced by food advertisements while purchasing snacks. The probable reason behind this is due to the attractive food packaging and manufacture lure children with small toys inside the packets.

**Physical activity:**

**Playing outdoor games after going home (n=200):**

Chi square- test was applied and results have shown that in girls the calculated value (4.381) is more than the table value (3.84), hence there is significance difference ($p<0.05$) between Government and Private school whereas in boys the calculated value (0.215) is less than the table value (3.84), hence there is no significance difference ($p<0.05$) between the Government and Private school boys. It was observed that girls studying in Private school play outdoor games after going home when compared to

girls studying in Government school and the average time spent on playing games is 1 hour/day.

**TABLE 4: Comparison of mean BMI vs Physical activity performed by students:**

| Mean BMI $kg/m^2$ | | | | |
|---|---|---|---|---|
| Physical activity | Government school | | Private school | |
| | Girls (n=50) | Boys (n=50) | Girls (n=50) | Boys (n=50) |
| Physical activity performed | 19 | 17.06 | 20.7 | 19.4 |
| Do not perform any physical activity | 18 | 18.5 | 22.1 | 19.5 |

TABLE 4, Represents the Comparison of mean BMI vs Physical activity performed by students (n=200), Chi square- test was applied and results show that in girls the calculated value (0.07) is less than the table value (3.84), hence there is no significance difference ($p<0.05$) between the girls of Government and Private school children and in boys the calculated value (0.012) is less than the table value (3.84), hence there is no significance difference ($p<0.05$) between the boys of Government and Private school children.

**TABLE 5: Contribution of Nutrients from Snacks to the RDA in Private school girls**

| Private school girls | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE (years) | Energy(kcal) | Protein(g) | Fat (g) | CHO(g) | Vitamin A(µg) | Iron(mg) | Calcium (mg) | Sodium (mg) |
| 10 | 9.6% | 7.2% | 12.9% | 9.01% | 0.008% | 0.48% | 0.5% | 13.7% |
| 11 | 16.2% | 4.1% | 47.1% | 10.4% | 0.9% | 9.1% | 1.9% | 15.2% |
| 12 | 9.5% | 10% | 20.4% | 9.3% | 0.30% | 2.2% | 29% | 10% |
| 13 | 7.5% | 5.29% | 19.6% | 5.7% | 0.17% | 2.07% | 3.1% | 6.7% |
| 14 | 4.9% | 3.06% | 5.8% | 4.7% | 0.008% | 0.6% | 1.05% | 8.8% |

**TABLE 6: Contribution of Nutrients from Snacks to the RDA in Government school girls**

| Government school girls | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE (years) | Energy(kcal) | Protein(g) | Fat(g) | CHO(g) | Vitamin A(µg) | Iron(mg) | Calcium (mg) | Sodium (mg) |
| 10 | 9.5% | 6.88% | 20.7% | 7.36% | 0.008% | 1.48% | 1.3% | 9.6% |
| 11 | 11.4% | 8.11% | 30.5% | 7.7% | 0.11% | 1.1% | 0.8% | 5.6% |
| 12 | 8.5% | 6.06% | 34% | 5.1% | 0.09% | 0.9% | 0.98% | 6.1% |
| 13 | 10.9% | 8.2% | 26% | 8.9% | 0.004% | 2.40% | 2.8% | 12.03% |
| 14 | 8.24% | 5.08% | 24.5% | 5.4% | 0.17% | 0.88% | 4.9% | 8.8% |
| 15 | 6.5% | 4.02% | 17.2% | 4.5% | 0.26% | 0.59% | 2.4% | 7.3% |

**TABLE 7: Contribution of Nutrients from Snacks to the RDA in Private school boys**

| Private school boys | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE (years) | Energy(kcal) | Protein(g) | Fat(g) | CHO(g) | Vitamin A(µg) | Iron(mg) | Calcium (mg) | Sodium (mg) |
| 11 | 11.2% | 3.6% | 31.4% | 7.7% | 0.009% | 8.3% | 1.5% | 10.1% |
| 12 | 9.2% | 14.8% | 21.05% | 7.3% | 0.18% | 5.5% | 4.02% | 12% |
| 13 | 6.3% | 5.1% | 16.6% | 4.8% | 0.14% | 2.9% | 2.6% | 5.7% |
| 14 | 7.1% | 6.1% | 16.9% | 5.8% | 0.15% | 3.9% | 3.01% | 9.2% |

**TABLE 8: Contribution of Nutrients from Snacks to the RDA in Government school boys**

| Government school boys | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE (years) | Energy(kcal) | Protein(g) | Fat(g) | CHO(g) | Vitamin A(µg) | Iron(mg) | Calcium (mg) | Sodium (mg) |
| 11 | 12.1% | 8.6% | 46.5% | 5.9% | 0.2% | 2.1% | 1.7% | 9.7% |
| 12 | 8.3% | 6.2% | 30.5% | 4.2% | 0.17% | 1.9% | 4.08% | 4% |
| 13 | 3.9% | 3.3% | 7.1% | 3.8% | 0.34% | 0.7% | 9.2% | 3.1% |
| 14 | 7.3% | 5.08% | 25.3% | 4.3% | 0.001% | 0.9% | 4.7% | 11.2% |
| 15 | 6.17% | 5.1% | 16.08% | 5.04% | 0.13% | 2.57% | 2.5% | 7.7% |
| 16 | 5.9% | 4.3% | 14.6% | 4.3% | 0.52% | 0.32% | 3.3% | 9.13% |
| 17 | 3.26% | 2.1% | 6.2% | 2.8% | _ | 0.006% | 3.1% | 0.7% |

TABLE 5,6,7,8, Represents the nutrients contributed from snacks consumption to the daily requirement (RDA). It was observed that the snacks consumed by the children are high in fat followed by Sodium, Energy,

and Protein is contributing fewer amounts of micro nutrients to the diet.

Similar findings were reported by Singh et al., (2015), [10] reveal that the median energy and fat intake were adequate, micro nutrients intake was found to be inadequate for vitamin A, riboflavin, calcium and folate.

## DISCUSSION

A cross-sectional study was conducted at Zilla-Parishad High School (ZPHS) and Oxford High School in Hyderabad, to assess the nutritional status and compare the snacking pattern in school going children aged (10-17) years, (n=200) in Government vs Private school. It was reported from study that undernutrition is mostly observed in Government school children and obesity in Private school children and majority of the students snack twice in a day, similar findings were conducted by Savige.G et al., (2007), [7] The results reported that the most common contexts for snacking among adolescents were after school (4.6 times per week), and healthy snacking was not observed in children and consumption of fruits as snacks is less and most of the students define snack as which is eaten instead of a meal and they think that it is unhealthy and boys consume more of meals and fewer snacks in the diet especially observed in Government boys. More of the commercial ready-to-eat foods and road side fruit juices are consumed by Government school children may be due to employed mothers and may be lack of awareness. Consuming food when they feel stressed /anxious was observed more in Private school children when compared to Government school children. And there was no much difference observed between BMI and frequency of snacking in a day, similar findings were reported by Boon T.Y et al., (2012), [8] that there was no significant association between snacking patterns and BMI.

## CONCLUSION

The present study which was conducted to compare the snacking pattern and nutritional status between the government and private school going children concluded that unhealthy snacking pattern was observed in both the private and government school going children and the snacks consumed by the children contribute to excess fat and followed by sodium, energy and inadequate amounts of micro nutrients. Healthy snacking should be encouraged and consumption of high fat and sodium containing foods like packaged foods, fried foods should be minimized in their diet and snacks should be consumed in between the regular meals and not replace a meal.

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## REFERENCES

1. Choudhury P, Gogia S. Nutrition issues in adolescence. In: Bhave SY, editor. Bhave's textbook of Adolescent medicine. New Delhi: Jaypee Brothers Medical Publications, 2006: 18-9.
2. S. M. Nickols-Richardson, K. E. Piehowski, C. J. Metzgar, D. L. Miller, and A. G. Preston, "Changes in body weight, blood pressure and selected metabolic biomarkers with an energy-restricted diet including twice daily sweet snacks and once daily sugar-free beverage," Nutrition Research and Practice, vol. 8, no. 6, pp. 695–704, 2014
3. Roxie Rodgers Dinstel, 2015 Choosing Healthy Snacks for Children. University of Alaska Fairbanks. www.uaf.edu/ces or 1-877-520-5211.
4. Nicola J Wiles, Kate Northstone, Pauline Emmett, and Glyn Lewis. "Junk food" diet and childhood behavioural problems: Results from the ALSPAC cohort. Eur J ClinNutr. 2009. Available Fom: PMC2664919. 63(4): 491–498.

5. Marie –Pierre St-Onge, Kathleen L Keller and Steven B Heymsfield. The American journal of Clinical Nutrition. 2003; 78(6):1068-1073.
6. Nitin Joseph, Maria Nelliyanil, Sharada Rai, RaghavendraBabu Y.P., Shashidhar M. Kotian, Tanima Ghosh, Manisha Singh, 2015, Fast Food Consumption Pattern and Its Association with Overweight Among High School Boys in Mangalore City of Southern India, Journal of Clinical and Diagnostic Research, 9:(5):13-17.
7. Gayle Savige, Abbie MacFarlane, Kylie Ball, Anthony Worsley and David Crawford, 2007, Snacking behaviours of adolescents and their association with skipping meals, International Journal of Behavioral Nutrition and Physical Activity, 4:36.
8. Teo Yee Boon, RazaleeSedek and Zalifah Mohd Kasim, 2012, Association between snacking patterns, energy and nutrient intakes, and body mass index among school adolescents in Kuala Lumpur, American Journal of Food and Nutrition, 2: (3): 69-77.
9. Prasanna Mithra, BhaskaranUnnikrishnan , Rekh aThapar, Nithin Kumar, Sharana Hegde, Anjali MangaldasKamat, Vaman Kulkarni, Ramesh Holla, B. B. Darshan, Kanchan Tanuj, VasudevGuddattu, and Avinash Kumar, 2018, Snacking Behaviour and Its Determinants among College-Going Students in Coastal South India, Journal of Nutrition and Metabolism.
10. Archna Singh, Vidhu Gupta, Arpita Ghosh, Karen Lock and Suparna Ghosh-Jerath, 2015, Quantitative estimates of dietary intake with special emphasis on snacking pattern and nutritional status of free living adults in urban slums of Delhi: impact of nutrition transition, Bio-Med Central Nutrition, 1:22.

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