



A Study on Analyzing the Consumption of Snacks Pattern among School Children

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Abstract: All parents want their kids to be happy and healthy, but their health can be greatly reduced when the kids fill up on junk food. Junk food includes some of the obvious culprits, such as cookies and candy, but can also include things that charade as nutritional choices when they are really not. The worst foods for kids are those that are high in calories and meaningless additives but low on nutrition. Some of the biggest offenders may be on the menu every day.

The right time for healthy snacks is often the time after school, in the evenings, when kids are hungry and the body demands energy and nutrition. But if you indulge in preparing exhaustive and tedious varieties, that consume time to prepare, your kid will look for other simpler options like biscuits and wafers. Hence, just like it is important to prepare nutritious snacks, it is also important to do it quickly.

The data are collected from parents through questionnaires which is the primary data collection method used in this research. The study is analyzed by applying statistical tools such as interval estimation, chi-square, weighted average etc. The findings of this study have thrown startling insights.

1. INTRODUCTION

Snacking does not have a concrete definition. A study taken by Katherine Chaplin and Andrew Smith from the journal Appetite says, "Participants defined snacking as food or drink eaten between main meals". As told in the textbook Nutrition: Concepts and Controversies by Frances Sienkiewicz Sizer and Ellie Whitney, sedentary men have a recommended daily calorie intake of about 2400 kcal. For sedentary women the intake is about 2000 kcal. The average calorie intake during a meal is about 500 kilocalories leaving a range of 300-800 kilocalories for those snacks between meals. Overdoing this daily allowance can cause weight gain no matter if the snack is healthy or unhealthy.

Childhood obesity continues to be a major issue not only in the United States, but also globally. Currently, 31.9% of children and adolescents in the United States are either overweight or obese.



In other parts of the world, the prevalence is 23.5% among Eastern Mediterranean children, 25.5% among European children, and 10.6% among Southeast Asian children (Ogden, Carroll, & Flegal, 2008; Kosti & Panagiotakos, 2006). Obesity is an associated risk factor for many chronic diseases, including Type 2 diabetes. Harris, Pomeranz, Lobstein, and Brownell (2009) projected that in the next 25 years, the prevalence of Type 2 diabetes will rise by 36.5% in the United States, 75.5% in China, and 134% in India. Between 2001 and 2005, the annual costs in the United States associated with the hospitalization of children with a diagnosis related to obesity nearly doubled from \$125.9 million to \$237.6 million (Trasande, Liu, Fryer, & Weitzman, 2009). Medicaid alone paid for \$118.1 million of these expenses in 2005, which was up from \$53.6 million in 2001 (Trasande et al., 2009).

Obesity has been recognized as being multicausative in nature, with elements of the home environment (e.g., authoritarian feeding styles), school environment (e.g., low access to and participation in physical education classes), and community environment (e.g., fewer large supermarkets) all contributing to its development (Harper, 2006; Kumanyika & Grier, 2006; Patrick & Nicklas, 2005). Characteristics of individuals' lifestyles, such as physical inactivity and unbalanced eating patterns, have also been identified as common risk factors. In a cross-sectional study evaluating physical activity patterns among children in Grade 6, Trost, Kerr, Ward, and Pate (2001) found that the overweight children participated in significantly fewer moderate and vigorous physical activities and engaged in fewer continuous 5-, 10-, and 20-minute bouts of such activities.

A healthy snack is one that leaves a feeling of satiation and satiety. Satiation occurs when the brain acknowledges that enough food has been eaten. There are triggers in the body that send these signals to the brain.Sizer and Whitney say a, "Greater exposure of the mouth to food triggers increased satiation. When the stomach stretches to accommodate a meal, nerve receptors in the stomach fire, sending a signal to the brain that the stomach is full". Healthy snacks are ones that leave the body feeling filled so that it does not continue to signal to the brain that it still wants food. Satiety occurs after a snack, suppressing hunger or regulating how often the body desires food. Choosing snacks that have high water content, are airy, high in fiber and protein causes stronger satiety signals making the time between meals longer. Fat triggers a hormone that increases satiety as well.

A pan-India study on snacking by AC Nielsen showed that pre-dinner snacking is most prominent amongst Chennai's children. Not just snacks, but unhealthy snacks that impact on the appetite for dinner as well

Analysis and Interpretation

1.

Table showing the gender of respondent.

GENDER	NO OF RESPONDENT	PERCENTAGE
MALE	33	27.5
FEMALE	87	72.5
TOTAL	120	100

The above table shows that, out of 120 respondents 27.5% was Male and 72.5% was

2. Table showing the age wise distribution

AGE	NO OF RESPONDENT	PERCENTAGE
15-25	16	13.33
26-35	58	48.33
36-45	17	14.16
45-55	25	20.83
Above 56	4	3.3

From the above table it was found that 13.33% of the respondent belongs to 15-25 Age category, 48.33% belongs to 26-35, 14.16% belongs to 36-45, 20.83% belongs to 45-35 and 3.3% belongs to above 56.

3. Table showing the Occupation of the respondent

OCCUPATION	NO OF RESPONDENT	PERCENTAGE
SALARIED	44	36.6
SELF EMPLOYED	39	32.5
BUSINESS	23	19.16
HOUSE WIFE	14	11.66
TOTAL	120	100

From the above table it was found that 36.6% of the respondent belongs to Salaried ,32.5% belongs to Self Employed ,19.16% belongs to business and 11.66% belongs to House Wife

4. Table showing the monthly income of respondent

INCOME	NO OF RESPONDENT	PERCENTAGE
LESS THAN	5	4.16
15000-20000	39	32.5
20001-25000	53	44.16
25001-35000	16	13.33
ABOVE 35000	7	5.83
TOTAL	120	100

From the above table it was found that 4.16% of the respondent belongs to Below 15000, 32.5% belongs to 15001-20000, 44.16% belongs to 20001-25000, 13.33% belongs to 25001-35000 and 5.83% belongs to Above 35000.

Correlation of Table 4 & 5

X	5	39	53	16	7
Y	36	18	12	47	7
X	Y	X²	Y²	XY	
5	36	25	625	180	
39	18	1521	324	702	
53	12	2809	144	636	
16	47	256	2209	752	
7	7	49	49	49	
ΣX120	ΣY120	Σ X² 4660	Σ Y²3351	Σ XY2319	

r= 0.3934

5. Table showing the respondent giving snack to kids

ACCEPTANCE	NO OF RESPONDENT	PERCENTAGE
YES	120	100
NO	0	NIL
TOTAL	120	100

From the above table it was found that 100% of the respondent are preferred to give snack to their children .

6. Table showing the reason for giving snack to kids

REASON	NO OF RESPONDENT	PERCENTAGE
BALANCED CALORIE	17	14.16
CHILDREN'S INTEREST	53	44.16
LESS FAT	11	9.16
QUICK TO SERVE	39	32.15
OTHER	0	NIL
TOTAL	120	100

From the above table it was found that 14.16% of the respondent are preferred Balanced calorie, 44.16% preferred to the Children interest , 9.16% preferred for Less Fat , 32.5% preferred for Quick to serve .

Applying Chi square for table 6

Oij	Eij	(Oij-Eij)	(O _i -E _i) ²	(O _i -E _i) ² /Eij
17	24	-7	49	2.041
53	24	29	841	35.04
11	24	-13	169	7.04
39	24	15	225	9.37
0	24	-24	576	24
				77.43

$$\chi^2_c = (O_i - E_i)^2 / E_i = 77.43$$

$\chi^2_{0.05}$ with {5-1} df = 9.49

$\chi^2 > \chi^2_{0.05}$, calculated value > table value

7. Table showing the acceptance of healthy grow due to snack foods

ACCEPTANCE	NO OF RESPONDENT	PERCENTAGE
STRONGLY AGREE	9	7.5
AGREE	53	44.16
NEUTRAL	32	26.6
DISAGREE	19	15.8
STRONGLY DISAGREE	7	5.83
TOTAL	120	100

From the above table it was found that 7.5% of the respondent are Strongly agreed, 44.16% are Agreed ,26.6% are Neutral , 15.8% are Disagreed and 5.83% are Strongly agreed .

8. Table showing the time of giving snack to childrens

TIME	NO OF RESPONDENT	PERCENTAGE
MORNING	12	10
NOON	0	NIL
EVENING BREAK TIME	65	54.16
BASED ON CHILDREN INTEREST	43	35.83
TOTAL	120	100

From the above table it was found that 10% of the respondent are preferred at Morning, 54.16% are preferred at Evening Break time and 35.83% are preferred on Children Interest .

9. Table showing the rank given by respondent for choosing the snack

RANK	1	2	3	4	5	TOTAL
PACKING PATTERN	11	21	22	34	32	120
TASTE	40	46	20	12	2	120
NUTRITION	58	22	20	11	9	120
PRICE	13	20	29	28	30	120
LIKING TOWARDS SNACKS	12	13	14	33	48	120

Applied weighted average method

RANK	1	2	3	4	5
WEIGHT	5	4	3	2	1



Weighted for column X No of respondents

$$\text{Net Score} = \frac{\text{Total}}{\text{Total}}$$

RANK	1	2	3	4	5	TOTAL	AVERAGE	RANK
PACKAGING PATTERN	55	84	66	68	32	305	20.33	4
TASTE	200	184	60	24	2	470	31.33	1
NUTRITION	290	88	60	22	9	469	31.26	2
PRICE	65	80	87	56	30	318	21.2	3
LIKING TOWARDS SNACK	60	52	42	66	48	268	17.86	5

From the above table it was found that regarding the rating of snack 20.33% revealed Packaging Pattern ,31.33% revealed Taste , 31.26 %revealed Nutrition, 21.2 %revealed Price and 17.86% revealed Liking towards the snack.

10.

Table showing the snack that suit for childrens

ITEMS	NO OF RESPONDENT	PERCENTAGE
BAKED ITEMS	36	30
FRIED ITEMS	18	15
BOILED ITEMS	12	10
JUICE ITEMS	47	39.16
OTHER	7	5.83
TOTAL	120	100

From the above table it was found that 30% of the respondent revealed Baked items ,15% revealed fried items ,10% revealed boiled items ,39.16% revealed juice items and 5.83% revealed other snack.

11. Table showing the respondent consideration of nutrition factor in snack before giving to children.

	NO OF RESPONDENT	PERCENTAGE
YES	117	97.5
NO	0	NIL
NO OPINION	3	2.5
TOTAL	120	100

From the above table it was found that 97.5% of the respondent considered the Nutrition factor in snack and 2.5% are No opinion.

Table showing the rate given by the respondent

CHARACTERISTICS	VERY GOOD	GOOD	NEUTRAL	POOR	VERY POOR
CHIPS	29	46	12	28	5
PUFFS	7	19	56	27	11
CAKES AND COOKIES	27	62	12	11	8
CHOCOLATE	7	15	8	63	27
ICE CREAM	23	41	37	14	5

Applied Weight Average

ITEMS	VERY GOOD	GOOD	NEUT	POOR	VERY GOOD	TOTAL	AVG	RANK
CHIPS	145	184	36	56	5	426	28.4	2
PUFFS	35	76	168	54	11	344	22.933	4
CAKES AND COOKIES	135	248	36	22	8	449	29.933	1
CHOCOLATE	35	60	24	126	27	272	18.133	5
ICE CREAM	115	164	111	28	5	423	28.2	3

From the above table it was found that 28.4 of the respondent revealed Chips , 22.933 revealed Puffs , 29.933 revealed Cakes and Cookies , 18.13 revealed Chocolate and 28.2 revealed Ice cream.

12.

Table showing the children consuming of snacks per day.

PER DAY	NO OF RESPONDENT	PERCENTAGE
ONCE	27	22.5
TWICE	64	53.33333
THRICE	23	19.16667
MORE THAN THRICE	6	5
NEVER EAT SNACKS	0	0
TOTAL	120	100



From the above table it was found that 22.5% of the respondent consuming snack per day, 53.33% consuming Twice ,19.6% consuming Thrice ,5% consuming More than thrice .

Table showing that rank given by respondent

RANK	1	2	3	4	5
BISCUITS	49	38	33	0	0
COOKIES	31	52	37	0	0
BURGER	0	3	17	67	33
CHIPS	0	0	28	53	39
PIZZA	0	17	9	24	70

Applied Weighted Average

RANK	1	2	3	4	5	TOTAL	AVERAGE	RANK
BISCUITS	245	152	99	0	0	496	33.06	1
COOKIES	155	208	111	0	0	474	31.6	2
BURGER	0	12	51	134	33	230	15.33	3
CHIPS	0	0	84	106	39	229	15.26	4
PIZZA	0	0	27	48	70	145	9.66	5

From the above table it was found that 33.06 of the respondent revealed Biscuit, 31.6revealed Cookies, 15.33 revealed Burger, 15.26 revealed Chips and 9.66 revealed Pizza.

13. Table showing the involvement of choosing their snack items

ALLOW	NO OF RESPONDENT	PERCENTAGE
YES	120	100
NO	0	NIL
TOTAL	120	100

From the above table it was found that 100% of the respondent allow their children for choosing the snack.

16 Table showing the variety of salty snack preferred by children's

SALTY SNACK	NO OF RESPONDENT	PERCENTAGE
50-50	69	57.6
BINGO	11	9.16
KURKURE	27	22.5
POTATO CHIPS	13	10.83
TOTAL	120	100

From the above table it was found that 57.6% of the respondent preferred 50-50, 9.16% preferred Bingo , 22.5% preferred Kurkure and 10.83% preferred Potato chips.



17. Table showing that giving chocolate and ice creams to their children is or not .

GOOD	NO OF RESPONDENT	PERCENTAGE
YES	23	19.16
NO	97	80.83
TOTAL	120	100

From the above table it was found that 9.16% of the respondent are accepted and 80.83% of the respondent are not accepted.

Interval Estimation

$n = 120$

$p = 23/120 = 0.19$

$q = 97/120 = 0.81$ $\{q = 1-p\} Z_{\alpha/2} = 1.96$

$[(0.19 \pm 1.96 \sqrt{0.19 \cdot 0.81/120})]$

$[(0.19 - 1.96 \sqrt{0.19 \cdot 0.81/120}), (0.19 + 1.96 \sqrt{0.19 \cdot 0.81/120})]$

$[(0.19 - 0.07), (0.19 + 0.07)]$

$[0.12, 0.26]$

Therefore it can be concluded that respondents giving chocolate and ice cream to the children lie between 12% and 26% at 95% confidence interval.

2. FINDINGS & CONCLUSION

Out of 120 respondents 27.5% was Male and 72.5% was Female. It was found that 13.33% of the respondent belongs to 15-25 Age category, 48.33% belongs to 26-35, 14.16% belongs to 36-45, 20.83% belongs to 45-55 and 3.3% belongs to above 56.

36.6% of the respondent belongs to Salaried, 32.5% belongs to Self Employed, 19.16% belongs to business and 11.66% belongs to House Wife. 4.16% of the respondent belongs to Below 15000, 32.5% belongs to 15001-20000, 44.16% belongs to 20001-25000, 13.33% belongs to 25001-35000 and 5.83% belongs to Above 35000.

100% of the respondent are preferred to give snack to their children. 14.16% of the respondent are preferred Balanced calorie, 44.16% preferred to the Children interest, 9.16% preferred for Less Fat, 32.5% preferred for Quick to serve. 7.5% of the respondent are Strongly agreed, 44.16% are Agreed, 26.6% are Neutral, 15.8% are Disagreed and 5.83% are Strongly agreed.

10% of the respondent are preferred at Morning, 54.16% are preferred at Evening Break time and 35.83% are preferred on Children Interest. 20.33% revealed Packaging Pattern, 31.33% revealed Taste, 31.26% revealed Nutrition, 21.2% revealed Price and 17.86% revealed Liking towards the snack. 30% of the respondent revealed Baked items, 15% revealed fried items, 10% revealed boiled items, 39.16% revealed juice items and 5.83% revealed other snack. 97.5% of the respondent considered the Nutrition factor in snack and 2.5% are No opinion.

28.4 of the respondent revealed Chips, 22.933 revealed Puffs, 29.933 revealed Cakes and Cookies, 18.13 revealed Chocolate and 28.2 revealed Ice cream. 22.5% of the respondent consuming snack per day, 53.33% consuming Twice, 19.6% consuming Thrice, 5% consuming More than thrice. 33.06 of the respondent revealed Biscuit, 31.6 revealed Cookies, 15.33



revealed Burger, 15.26 revealed Chips and 9.66 revealed Pizza. 100% of the respondent allow their children for choosing the snack. 57.6% of the respondent preferred 50-50, 9.16% preferred Bingo , 22.5% preferred Kurkure and 10.83% preferred Potato chips.

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