

Consumer Attitude Towards Snacking Among Adolescence

Dayanand Peter, P. Xavier, Reny Susan Philip

Abstract: Globally, snacking is now so tangled in the fabric of our daily food and beverage culture that it sometimes makes up almost half of our food intake in a day. Given that snacking has gained such a prominence, a survey was conducted among the undergraduate and postgraduate students of Karunya Institute of Technology and Sciences in order to identify the category of snack foods preferred by students residing in its residential campus. A sample size of 200 students which included female undergraduate students in their 2,3 or 4th year of studies and all female postgraduate students on campus was taken for the research. Cross-tabulation and ANOVA methods of statistical analysis, concluded that, fruit- based snack was the most preferred snack group among the students across all age groups under study, which represents 57 out of 138 respondents.

Index Terms: Snacking, Consumer Attitude, Eating Pattern, Snack Foods.

I. INTRODUCTION

According to SNAC International (formerly Snack Food Association) one of the leading international trade associations of global snack industry, the amount of snacking among consumers are much higher today than a few years ago given the reality that consumers have become more conservative in their food preferences. Snacking is an occasional intake of any kind of food that cannot be categorized as either a main meal, light meal/breakfast or a drink [1]. It is primarily aimed at meeting the energy needs for increased physical activity that often is not met with the recommended consumption of only three meals per day as a source of nutritional intake [2]. A consumer's choice of snack is mostly based on practical considerations such as lack of preparation time, convenience or even irregular access to proper meals thereby prompting eat on the go snack. However, it has also been observed that certain genetic factors can also be at work. Recently reported scientific disclosures point to the fact that our eating behaviors such as, the amount of food and beverage consumed at any one time or how hungry we are before eating, are influenced by genetic

factors [3]. There are also alarming scientific data that indicate a steep increase since 2009 in the number of consumer snacking per day and that consumers are snacking even more as they get older. The data suggest a three or more times increase in daily number of consumers snacking. Though nearly 90% of the modern consumers are trying to eat healthier foods, many of them view snacks as a part of their overall dietary plan. 'Snack-foods' or 'snacks' are popular food items which are easily consumed, readily available and varied sizes especially in small portions, in liquid or solid form, requiring sometimes just a little or no preparation time at all before consumption [4]. Consumers seek snacks that act as mini-meals to keep them satiated throughout the day. Governmental health agencies have been concerned about aspects such as diet, weight control and general health and have recommended healthier and natural snack foods. They also have recommended that consumers should make a conscious effort to eat healthier and natural snack alternates that have high-calorie and nutrient value as opposed to junk foods. The present market study was conducted within the residential premises of Karunya Institute of Technology and Sciences (KITS), India with the sole objective of identifying the food groups that are most preferred by on-campus, residential students as a snack. This was fulfilled by conducting a survey titled "What sells in the Karunya Hostel?". The authors hypothesized that the survey would shed some light on consumer preference (especially among teens) towards snacking and the nutritional awareness among teens about snacking.

II. METHODOLOGY

A. Choice of Research Design

One of the major challenges for the authors was the selection of the most appropriate research design for the identification of the snack group desired by residential students at KITS. A research design should serve as a road map of methodologies used to collect and analyze data from a specific sample size. The researchers should not only be able to envision the kind of data they would be handling but also how it is going to be collected and from which sample group it needs to be collected [5]. Therefore, one is confronted between the choice of the following three research designs: exploratory, descriptive and causal. Exploratory research forms one of the most commonly used form of research for unstructured and informal research. It generally is undertaken to procure background information of a more general nature to any research problem with the objective of identifying boundaries within an environment in which the problem exists.

Manuscript published on 30 April 2019.

* Correspondence Author (s)

Dayanand Peter, Assistant Professor, Department of Food Processing Technology, Karunya Institute of Technology & Sciences, Coimbatore, India.

P. Xavier, Assistant Professor, Department of Mathematics, Karunya Institute of Technology & Sciences, Coimbatore, India.

Reny Susan Philip, Department of Food Processing Technology, Karunya Institute of Technology & Sciences, Coimbatore, India.

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an [open access](https://creativecommons.org/licenses/by-nc-nd/4.0/) article under the CC-BY-NC-ND license <http://creativecommons.org/licenses/by-nc-nd/4.0/>

Consumer Attitude towards Snacking among Adolescence

These kind of research techniques also identifies the salient factors or variables that might be found within the defined environment which may be of relevance to the research undertaken [6]. The descriptive research on the other hand are well structured techniques used to find answers to certain market behaviors. These type of research enables the researcher to learn certain unique characteristics of a defined market group [7]. The third form of research i.e the causal research design is used to collect raw data on variables and their specific effect on other variables and the mode in which they affect primary variables in the environment of research. This type of research has been identified and a very useful business tool however, can be very expensive to perform and consumes a lot of time [5].

The authors narrowed their choice of research design on to conducting a survey. Survey is a research technique that identifies specific category of people of groups to collect information from some to gain insight into what the entire group does or thinks [8]. Submit your manuscript electronically for review.

B. Statistical Analysis

The SPSS (Statistical Package for Social Science) tool was used to comprehensively analyse the data procures from the field survey. The SPSS package is a researcher friendly package that can obtain data from various file types and can generate tabulated reports, charts and plots of distributions and trends, descriptive statistics, and complex statistical analysis [9].

C. Casual Research Design

A sample size of 200 students which is approximately 15% of the actual strength of residential students at KITS was identified. The sample included female undergraduate students in their 2,3 or 4th year of studies and all female postgraduate students on campus. A questionnaire was designed, as shown in Table 1 and circulated to the respondents. The data collected from the respondents, were subjected to inferential statistical analysis by Analysis of Variance technique, which was interpreted using the IBM SPSS statistics software. The interpretation led to the identification of the right food group on “what sells in the Karunya Hostel?”

. A study to assess the most preferred snack at Karunya Ladies Hostels

Tick the appropriate boxes corresponding to your choice

S. no	Questions	Respo nse
Category I (Personal Information)		
1.	Age <ul style="list-style-type: none"> • 17-19 • 20-23 • 24-27 • 27-30 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2.	Education <ul style="list-style-type: none"> • Undergraduate second year • Undergraduate third year • Postgraduate first year • Postgraduate second year 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

		<input type="checkbox"/>
3.	Region <ul style="list-style-type: none"> • Tamil Nadu • Kerala • Andhra Pradesh • Others 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Category II (Eating Habits)		
4.	How often do you eat between meals? <ul style="list-style-type: none"> • Once • Twice • Three or more times • Never 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
5.	How often do you eat after dinner time? <ul style="list-style-type: none"> • Once • Twice • Three or more times • Never 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6.	How much impact does the following have on your decision to buy foods? (Grade from 1-4, where 1- Less impact and 4- Great impact) <ul style="list-style-type: none"> • Taste • Price • Package • Healthfulness 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
7.	When purchasing snacks, in what quantities do you tend to buy? <ul style="list-style-type: none"> • In bulk (of the same type) • In bulk (of different type) • A snack- A time • Quantities vary each time 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Category III (Awareness on Nutrition and Food Safety)		
8.	Which of the following are you concerned about, while purchasing processed food? (Grade from 1-4, where 1- Less concerned and 4- More concerned) <ul style="list-style-type: none"> • Chemicals in food • Pesticides • Food colors • Undeclared food allergens 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
9.	Which of the following ingredients do you consider when you buy a food product? <ul style="list-style-type: none"> • Fats • Sugars • Carbohydrates • None of the above 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

10.	How much does the health aspect of a snack product matter to you? <ul style="list-style-type: none"> • Strongly • Sometimes • Occasionally • Rarely 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
11.	Which 'ONE' of the following do you give the most importance to, when you buy a snack product? <ul style="list-style-type: none"> • Nutrition label on the package • Attractiveness of the package • Freshness of the product • Packaging of the product 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Category IV (Most preferred food group)		
12.	Which of the following do you prefer to snack between meals? <ul style="list-style-type: none"> • Extruded Snack • Fruit Based Snack • Potato Based Textured Snack • Health Food Snack 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

13. Name (Optional):

14. Signature with date:

Table 1 : Questionnaire on "What sells in Karunya?"

III. RESULTS AND DISCUSSION

A. Analysis of Survey Results

Results from the survey and its analysis is shown in Table 2 and Cross-tabulated in Table 3. It highlights the following trends:

1. In the age category of 17-19 years, 26 out of 62 respondents opted for Potato-based snack food. This may be due to the fact that teens are often influenced by factors other than nutrition while choosing their snacks. A similar trend was reported by Clifford et al [10] from his focus group discussions that indicated that whilst teenagers have a good knowledge on healthy and nutritional foods, their central motivation for food choice is not always based on this knowledge.

Extruded snack was opted for by 11 respondents, 13 respondents opted for fruit-based snack and 12 respondents favoured health food snack.

2. In the age category of 20-30 years, 57 out of 138 respondents, opted for fruit-based snack food, which may be due to the fact that, adults give importance towards healthy food choices because they value their health more.

3. In this category, 20 respondents opted for Extruded snack, 34 respondents opted for Potato based snack and 27 respondents opted for Health food snack.

Parameter	Score			
1. Age (Yrs.)				
➤ 17-19	62			
➤ 20-23	127			
➤ 24-27	10			
➤ 27-30	1			
2. Education				
➤ UG (2 nd Year)	47			
➤ UG (3 rd Year)	48			
➤ PG (1 st Year)	50			
➤ PG (2 nd Year)	55			
3. Region				
➤ Tamil Nadu	78			
➤ Kerala	57			
➤ Andra Pradesh	21			
➤ Others	44			
4. How often do you eat between meals?				
➤ Once	115			
➤ Twice	50			
➤ Three or more	17			
➤ Never	18			
5. How often do you eat after dinner meals?				
➤ Once	108			
➤ Twice	19			
➤ Three or more times	5			
➤ Never	68			
6. Impact on the decision to buy foods (1-Less Impact to 4-Great Impact)				
	1	2	3	4
➤ Taste	14	16	46	124
➤ Price	25	46	78	51
➤ Package	25	41	72	62
➤ Healthfulness	20	33	42	105
7. Quantities you tend to buy				
➤ In bulk (of same type)	7			
➤ In bulk (of different type)	36			
➤ A Snack – A time	49			
➤ Quantities vary each time	108			
8. Concerns while purchasing food (1-Less concern to 4-More concern)				
	1	2	3	4
➤ Chemicals in Food	31	32	47	90
➤ Pesticides	18	37	48	97
➤ Food Colors	19	57	67	57
➤ Undeclared Food Allergens	32	35	44	89
9. Ingredients that you consider when you buy food				
➤ Fats	63			
➤ Sugar	12			
➤ Carbohydrates	42			
➤ None of the above	83			



Consumer Attitude towards Snacking among Adolescence

10. Does the health aspect matter to you?	
➤ Strongly	39
➤ Sometimes	99
➤ Occasionally	34
➤ Rarely	28
11. Most Important when buying snack	
➤ Nutrition label on the pack	41
➤ Attractiveness of the pack	20
➤ Freshness of the product	128
➤ Packaging of the product	11
12. Preferred snack between meals	
➤ Extruded Snack	30
➤ Fruit based snack	70
➤ Potato based extruded snack	60
➤ Healthy food snack	40

Table 2 : Consolidated report of the survey “What sells in Karunya”

Age (Years)	Preferred snack				Total
	Extruded snack	Fruit based snack	Potato based textured snack	Health food snack	
17-19	11	13	26	12	62
20-23	18	52	33	24	127
24-27	2	4	1	3	10
27-30	0	1	0	0	1
Total	31	70	60	39	200

Table 3: Cross- tabulation of Age Vs. Preferred snack

B. Statistical analysis by ANOVA method

The statistical analysis by ANOVA method yielded the following observations

- In Table 4, the differences in Age factor is significant with taste, price, package & healthfulness. It is also observed that the respondents considered ingredients while buying foods and the preferred snacks between meals, differs from age to age.
- In Table 5, the educational point of view, it is observed that, irrespective of the Educational background, more importance was given to taste, price and package when buying foods, and no concern was given to healthfulness and the ingredients considered when buying foods. The preferred snacks between meals differed according to the educational background.
- In Table 6, there is a significant difference between Region and the taste, price, package and health factors, which implies that, irrespective of the region, the importance was given to these factors. There is a concern on the ingredients considered while buying foods, and the preferred snack between meals differed from region to region.

Table 4: One- way ANOVA with respect to Age between the groups

Source of Variations	Sum of Squares	d.f.	Mean Square	F	Significance
Taste	1.3	3	0.433	0.54	Significant
Price	4.024	3	1.341	1.438	Significant

Package	1.837	3	0.612	0.611	Significant
Healthfulness	7.163	3	2.388	2.275	Significant
Ingredients	6.627	3	2.209	1.336	Significant
Preferred snack	1.039	3	0.346	0.36	Significant

Table 5: One- way ANOVA with respect to Education between the groups

Source of Variations	Sum of Squares	d.f.	Mean Square	F	Significance
Taste	3.8	3	1.267	1.604	Significant
Price	4.035	3	1.345	1.442	Significant
Package	6.292	3	2.097	2.142	Significant
Healthfulness	17.592	3	5.864	5.885	Non
					Significant
Ingredients	22.766	3	7.589	4.829	Non
					Significant
Preferred snack	1.782	3	0.594	0.62	Significant

Table 6: One- way ANOVA with respect to Region between the groups

Source of Variations	Sum of Squares	d.f.	Mean Square	F	Significance
Taste	2.607	3	0.869	1.092	Significant
Price	3.978	3	1.326	1.421	Significant
Package	2.015	3	0.672	0.671	Significant
Healthfulness	4.733	3	1.578	1.486	Significant
Ingredients	1.816	3	0.605	0.361	Significant
Preferred snack	4.279	3	1.426	1.507	Significant

IV. CONCLUSIONS

The survey conducted among the undergraduate and postgraduate students at KITS in order to identify the category of snack food preferred by the students brought forth the following results that can be collaborated with results of both Cross-tabulation and ANOVA used to decipher the data from the survey.

- Fruit- based snack was the most preferred snack group among the students across all age groups under study, which represents 57 out of 138 respondents.
- While price and package had a great impact on the respondent’s decision to purchase a snack, the majority of the respondents (124 out of 200) conveyed that taste of the snack was the key selling point of the snack followed by healthfulness (105 out of 200).

REFERENCES

- Berteus H. F, Torgerson J. S, Sjostrom L. and Lindroos A. K. (2005). Snacking frequency in relation to energy intake and food choices in obese men and women compared to a reference population, International Journal of Obesity, 29: pp.711–719.
- Kerver J.M., Yang E.J., Obayashi S, Bianchi L., Song W.O. (2006), Meal and snack patterns are associated with dietary intake of energy and nutrients in US adults, Journal of the American Dietetic Association; 106: pp.46–53.

3. De Castro J.M. (2002). Independence of heritable influences on the food intake of free- living humans, *Nutrition* 18: pp.11-16.
4. Esteve. A. M., Escobar B., Vasque Z.,Castillo M., Araya E., and Zacarias I. (1995). Cereal and nut bars, nutritional quality and storage stability, *Cereal and Plant Foods for Human Nutrition*, 47: pp. 309-317.
5. Hair, Bush, Ortinau. (2006). *Marketing research within a changing environment*, McGraw-Hill/Irwin Publications, New York, USA, 3rd edition, ISBN-13: 978-0072830873 pp. 69.
6. Alvin C. B, Ronald F. B. (2013), *Marketing Research*, Prentice Hall Publications, 7th edition, ISBN-13: 978-0133074673, pp. 122-126.
7. Singer J. D., and Willett J. B. (2003). *Applied longitudinal data analysis: Modelling change and event occurrence*. New York, Oxford University Press Publications, ISBN9780195152968, pp.1-4.
8. Evelina S., Ramon F. (2004). *Manual of fisheries sampling surveys: Methodologies for estimations of socio-economic indicators in the Mediterranean Sea*, General Fisheries Commission for the Mediterranean, Food and Agriculture Organization of the United Nations,73: pp. 4-12.
9. Sabine L. and Brian Everitt S. (2004). *A Handbook of Statistical Analyses using SPSS*, Taylor & Francis Publishers, ISBN: 9781584883692.
10. Clifford S., Glenda D., Julie B., Orla, Muldoona T., Karen T. (2007). Adolescents' views of food and eating: Identifying barriers to healthy eating, *Journal of Adolescence* 30: pp.417-434.

AUTHORS PROFILE



Dayanand Peter, M.Tech (Agricultural Process & Food Engineering) works in the key research areas of Minimal Processing Technologies at the Department of Food Processing Technology, Karunya Institute of Technology & Sciences, Coimbatore.



P. Xavier, is a researcher working in the field of fuzzy topology and mathematical modeling in the areas of food and health sciences. Currently he is working as a Assistant Professor in the Department of Mathematics, Karunya Institute of Technology & Sciences, Coimbatore.



Reny Susan Philip, is a Post Graduate student of Food Processing Engineering at the Department of Food Processing Technology, Karunya Institute of Technology & Sciences, Coimbatore working on developing nutritional snacks.