

Assessment of Nutritional Knowledge and Practices Regarding Canteen Snacks among Youth in Maharashtra

Kanishka Singh^{1*}, Maseera Khan² and Mayuri Gaikwad³

¹Assistant Professor, Department of Food, Nutrition and Dietetics, IBT, MGM University, Aurangabad, Maharashtra, India

²UG Research Scholar, Department of Food, Nutrition and Dietetics, IBT, MGM University, Chhatrapati Sambhajnagar, Maharashtra, India

³UG Research Scholar, Department of Food, Nutrition and Dietetics, IBT, MGM University, Chhatrapati Sambhajnagar, Maharashtra, India

*Corresponding Author: Kanishka Singh

Received: 01-08-2024

Revised: 19-08-2024

Accepted: 13-09-2024

ABSTRACT

Introduction- 1/5th Indian population is adolescents & 66% are U5, making India a young country. Due to increasing urbanization & industrialization the reproductive young population in India is undergoing dramatic physical, financial, social, food behavior and cultural transitions which dramatically are impacting the general & nutritional health and well-being of individuals. In latest studies, non-nutritious institutional food supply, food menu and deficient food choices of youth are the top causative factors for making LSDs epidemic along with other DD. NCDs in India will cost national loss ~3.6 trillion and heart wrenching 63% preventable NCDs deaths by 2030. All this makes the present study an exigency towards food serving & health care sector.

Methodology- For present study single sample, pre-test and non-experimental developmental research design was adapted to select sample size of 50 of 15 – 45 yrs. (male & female) based on inclusion & exclusion criteria through purposive random sampling from the study area at Aurangabad. For data collection structured interview schedule which consisted of 3 sections namely – Sociodemographic profile, assessment of knowledge and assessment of practices was developed & validated from experts before field administration. Data was tabulated in MS-Excel 2007 version and statistical analysis was done using IBM SPSS advanced statistics 29.0 (5725-A54) version.

Objectives- 1. To assess the nutritional knowledge regarding canteen snacks of college students.
2. To assess the practices regarding canteen snacks of college students.

Results & Discussion- The overall assessment of respondent's nutritional knowledge on category basis shows, 30% had knowledge of food groups, 34% knows about nutrients, 64% had knowledge related to cooking methods, 76% had food choices knowledge, 95% had knowledge of my plate, and 80% had knowledge of food menu.

It shows that in 14% prefer eating in canteen daily, 14% prefer alternately, 32% weekly and 40% sometimes/ never; in type of snacks preferred most 64% prefer fried foods, 24% prefer packed foods, and 10% prefer drinks like cola, etc.; 20% consume millets daily in meals, 8% alternately, 26% weekly and 46% sometimes/never; 26% consumes vegetables daily in snack items, 6% alternately, 18% weekly, 50% sometimes/ never; 38% were consuming fruits daily, 26% alternately, 32% weekly and 4% some/never; 48% preferred eating sprouts daily and 52% did not preferred eating sprouts on daily basis; 24% consume packed fruit juices, 54% consume fresh fruit juices, 14% aerated drinks and 8% consume flavored; 46% always smell food for food spoilage, 34% smell sometimes, 14% never and 6% can't say; 32% eat fast food 1 time/day, 20% eat 2 times/day, 4% eat 3 times/day & 44% responded none; and regarding the taste 18% prefer sweet taste, 47% prefer sour and 78% prefer spicy.

Keywords: nutrition, knowledge, practices, college students, canteen, snacks

Abbreviations: U35: Under 35 years, Yr.: Year, CAGR: Compound Annual Growth Rate, LSDs: Lifestyle Diseases, DD: Disorders & Diseases, PMM: Premature Mortality, NPCDCS: National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke, RDz: Respiratory Diseases, CKD: Chronic Kidney Disease, NAFLD: Non-alcoholic Fatty Liver Disease, WHO: World Health Organization, NFSI – Nutrition Friendly School Initiative, FSSAI – Food Safety and Standards Authority of India, IAP – Indian Academics of Pediatrics, MNDs – Micro Nutrient Deficiencies

I. INTRODUCTION

Adolescents and young adults are the linchpin of growth & development for any nation. By 2023, 1/5th of India’s population is of adolescents and U35 were sharing 66%, i.e. 808 million, making India world’s most young democracy (Santhaya, K. G., 2023; Mishra, I. K., 2023). Being the most populas nation India is holding the current population status of ~1, 437, 584, 100 by March 2024 which is estimated to increase by 1, 567, 802, 259 by 2035 (www.worldometers.info). Hands along with rising populas the country is alongside undergoing rapid urbanization with the expected surge of 2.3 % per yr. and with the surmise of 75% national income flow from urban areas by 2031 (www.urbanet.info). Urbanization’s accompanying physical, financial, social, food behavior and cultural transitions which dramatically are impacting the general & nutritional health and well-being of individuals were not much effectively subsumed in earlier urbanization demographic investigations (Pandey, B. et al., 2020).

The Indian foodservice market has 3 major segments: foodservice type (cloud kitchen, quick service restaurants, casual dining establishments, full service restaurants), outlet type (independent, chained, and lodging), and location (travel, leisure, lodging, retail, standalone, and standalone). According to recent reports, by 2022 CAGR of quick food service centers rose by 0.20%, with specification of institutional foodservice market driven by youth (specifically college students & professionals) of 18 – 35 yrs. and teens expensing hefty 24% on food outlets. Among all types café and drinks bar segment occupied a choking 48% by 2022 besides becoming the centers for easy and quick socializing for children and young adults everywhere (Sharma, S. et al., 2023; www.mordorintelligence.com).

Studies have also reported that non-nutritious institutional food supply, food menu and deficient food choices of youth are the top causative factors for making LSDs epidemic along with other DD (Kumar, G. S. et al., 2022). Latest reports reflect that, in India NCDs will cost national loss ~3.6 trillion and heart wrenching 63% were preventable NCDs deaths by 2030. Nation is targeting the reduction of PMM up to 1/3rd by 2030, focusing on NPCDCS, RDz, CKD and NAFLD in young Indian population (Sharma, P., 2023).

All this pushes the connotation and exigency of studies focusing on institutional foodservice menus, and development of other strategies in India. The present investigation is a pilot study of assessment of nutritional knowledge and practices regarding canteen snacks among youth in Maharashtra, with further focused on the development of effective and nutritious institutional foodservice strategies.

II. OBJECTIVES

1. To assess the nutritional knowledge regarding canteen snacks of college students.
2. To assess the practices regarding canteen snacks of college students.

Study Period: January 2024 to April 2024

Data Collection Period: 8 January – 7 March 2024

Research Methodology:

Study Design: For the present pilot study single sample, pre-test and non-experimental developmental research design was adopted.

TEST SAMPLE	BASELINE ASSESSMENT PHASE (Pre Test)
A	B

Figure 1: Diagrammatic Representation of Research Design for Study

A – Test Sample

B – Baseline Assessment Phase

Note: This is the research design of the pilot study of the research project. In this paper, the results of the pilot study of this project have been presented.

Study Area and Population: The investigations of the present study were done in the Maulana Azad College of Aurangabad (Maharashtra). The college students 15 – 45 years of age (Male & Female) were the targeted population for investigation purposes.

Sample Size and Technique: The sample size for the present study was 50 and a purposive simple random sampling method was adopted to select the sample for the investigation purposes.

Inclusion Criteria:

- a) Males and females of 15-45 years of age available at the time of study.
- b) Individuals who were studying and/or working at the area under study and were available at the time of data collection.

c) Food service center who signed the consent form to participate till the successful completion of the project study.

Exclusion Criteria:

- a) Males and females below 15 and above 45 years of age are available at the time of study.
- b) Individuals who were not studying and/or working at the area under study and were not available at the time of data collection.
- c) Food service centers who have not signed the consent form to participate till the successful completion of the project study.

Variables:

- **Independent Variables** – Age, gender, food habits, religion and educational background
- **Dependent Variables** – Nutritional knowledge and dietary practices

Data Collection Method: The study was conducted in the Aurangabad city of Maharashtra. Maulana Azad College was randomly selected from the study area for data collection. The college authorities were pre-informed for the day of data collection. Students of 15- 45 years age were judgmentally and randomly selected based on the inclusion and exclusion criteria and the availability of individuals during the time of data collection of the study. All the concerned authorities and the sample under investigation were briefed regarding the study objectives and purpose. A structured and validated interview scheduled questionnaire was administered to collect the data from the sample. The complete sample was investigated once in the complete data collection process, as the study was a pilot study.

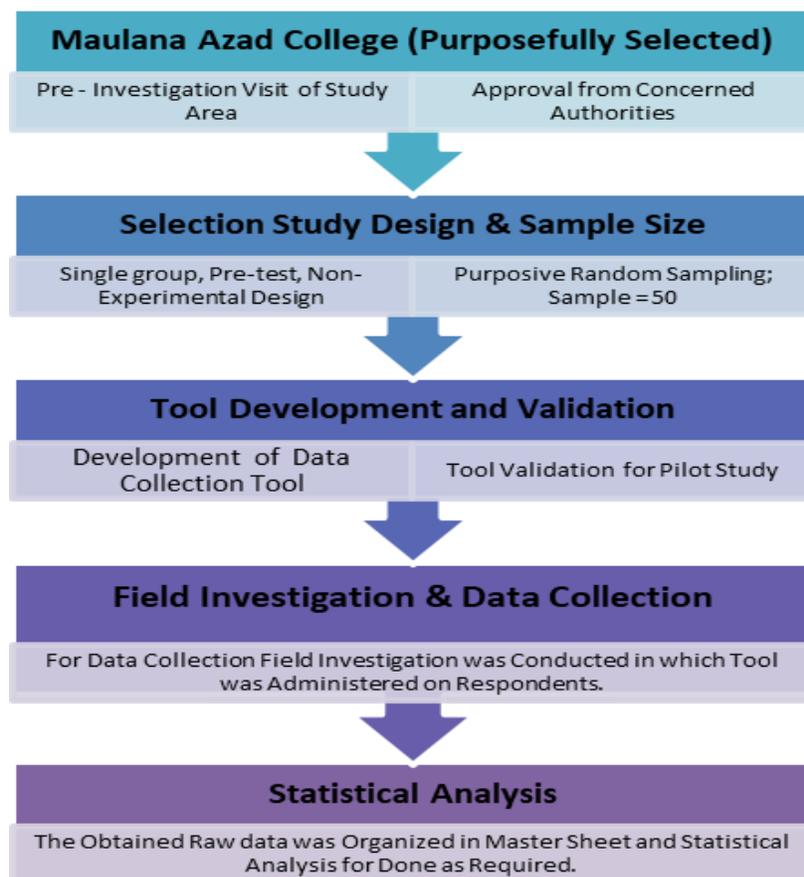


Figure 2: Diagrammatic Representation of Tool Development and Data Collection Procedure

III. DATA ANALYSIS

The tabulation of the data was done to prepare the master sheet in MS Excel - 2007 version. The statistical analysis of the data was done using IBM SPSS advanced statistics 29.0 (5725-A54) version. In descriptive statistics – frequencies, percentage, mean & SD was analyzed.

IV. RESULT AND DISCUSSION:

Table No. 1: Description of Socio-demographic Profile of Respondents

Variables Analysed	%
Age	
15 – 25 yrs.	92%
25.1 – 35 yrs.	4%
35.1 45 yrs.	4%
Gender	
Male	46%
Female	54%
Religion	
Hindu	12%
Muslim	88%
Others	0%
Variables Analysed	%
Educational Background	
Higher Secondary (11 th / 12 th)	22%
Graduate	66%
Post Graduate	12%
Residential Area	
Rural	2%
Urban	98%
Type of Family	
Nuclear Family	56%
Joint Family	44%
Food Habit	
Vegetarian	16%
Non – Vegetarian	80%
Eggitarian	4%

Table no. 1 presents the description of socio-demographic profile of respondents. It shows that the investigated sample population constituted of 92% of 15 – 25 yrs., 4% of 25.1 – 35 yrs. and 4% of 35.1 – 45 yrs.; 46% were males and 54% were females; 12% were Hindu and 88% were Muslim; 22% were higher secondary educated, 66% were graduates and 12% were post-graduates. 2% sample population was living in rural areas while 98% were from urban residential areas, and among them all 56% were from nuclear family and 44% were having joint family; 16% were vegetarian, 80% were non-vegetarian and 4% were eggitarian.

Table No. 2: Overall Assessment of Respondent's Nutritional Knowledge on Category Basis

S. No.	Knowledge Category Analysed	No. of Question Per Category	Percentage (%)
1	Food Groups	1	30%
2	Nutrients	3	34%
3	Cooking Methods	2	64%
4	Food Choices	1	76%
5	My Plate	2	95%
6	Food Menu	1	80%

Note: Only correct/ yes answers were considered for this analysis.

Table no.2 presents the results of overall assessment of respondent's nutritional knowledge on category basis. The results shows that among respondent nutritional knowledge is as follows - food groups category 30%, nutrients category 34%, cooking methods category 64%, food choices category 76%, my plate category 95%, and food menu category 80%.

Table No. 3: Assessment of Practices of Respondents

Questions Analysed	Response Obtained (%)			
	(A)	(B)	(C)	(D)
How much do you prefer eating in canteen?	14% (Daily)	14% (Alternately)	32% (Weekly)	40% (Sometimes/never)
Which type of snack do you prefer most?	64% (fried food)	24% (Packed food)	10% (drinks like cola etc)	N/A
How frequently do you consume millets in meals?	20% (daily)	8% (alternately)	26% (weekly)	46% (sometimes/never)
How frequently do you consume vegetables in snack items?	26% (Daily)	6% (Alternately)	18% (Weekly)	50% (Sometimes/never)
How frequently do you consume fruits?	38% (Daily)	26% (alternately)	32% (weekly)	4% (Sometimes/never)
Do you prefer to eat sprouts daily?	48% (yes)	52% (no)	N/A	N/A
Which of the following beverages you consume most?	24% (Packed fruits juices)	54% (Fresh fruit juices)	14% (Aerated drinks like red bull, cola etc)	8% (Flavored milk)
Do you smell the food for food spoilage?	46% (Always)	34% (Sometimes)	14% (Never)	6% (Can't say)
How much time do you eat fast food in a day?	32% (1)	20% (2)	4% (3)	44% (None)
What type of taste do you mostly prefer in snacks?	18% (Sweet)	47% (Sour)	78% (spicy)	0% (Tangy)

Table no. 3 presents the results of assessment of practices of respondents. It shows that 14% prefer eating in canteen daily, 14% prefer alternately, 32% weekly and 40% sometimes/ never; in type of snacks preferred most 64% prefer fried foods, 24% prefer packed foods, and 10% prefer drinks like cola, etc.; 20% consume millets daily in meals, 8% alternately, 26% weekly and 46% sometimes/never; 26% consumes vegetables daily in snack items, 6% alternately, 18% weekly, 50% sometimes/ never; 38% were consuming fruits daily, 26% alternately, 32% weekly and 4% some/never; 48% preferred eating sprouts daily and 52% did not preferred eating sprouts on daily basis; 24% consume packed fruit juices, 54% consume fresh fruit juices, 14% aerated drinks and 8% consume flavored; 46% always smell food for food spoilage, 34% smell

sometimes, 14% never and 6% can't say; 32% eat fast food 1 time/day, 20% eat 2 times/day, 4% eat 3 times/day & 44% responded none; and regarding the taste 18% prefer sweet taste, 47% prefer sour and 78% prefer spicy.

Matela, H. et al. (2022) has critically studied and evaluated the guidelines of WHO-NFSI, FSSAI & IAP along with full-text research papers available at Science direct, PubMed, WoS, SCOPUS databases from 2007 – 2021. Their study concluded that if the above mentioned guidelines on food & nutrition are systematically implemented can be greatly beneficial in combating triple burden of malnourishment in Indian population. Moriyani, V. et al. (2022) has conducted their study on 120 adolescent students of 13 – 16 yrs. at randomly selected 4 schools of Udaipur. The data of self developed questionnaire was analyzed using mean, SD, and T-test. The study showed that only 38.3% had good knowledge and 3.3% had excellent knowledge regarding health food. The study also reflected that nutritional intake of investigated genders & age groups were deficient and were much poorer than Indian RDAs. Jeinie, M. H. B. et al. (2021), had also conducted the study on 994 school students (15 – 19 yrs.) adopting multi-stage sampling in which data was collected using KAP questionnaire. Their study also showed that there were significant gaps between nutritional KAP and real time dietary knowledge and practices among the investigated population. Hassan, M. R. et al. (2015), who have investigated 300 young individuals (18 – 25 yrs.) using simple random sampling, anthropometric assessment and questionnaire also found in their results that healthy dietary practices by students were only 22%. They also found that KAP associated factors were mainly, gender, educational level and awareness regarding dietary guidelines.

All the results and above discussion clearly indicates that food, whether served at institutional food service outlets like school & college canteens affects young population health dramatically and are also the major culprit of major lifestyle diseases and increasing burden of malnutrition and MNDs in young population in India.

V. CONCLUSION & RECOMMENDATION

1. More studies should be conducted involving youth as being major food consumers.
2. Interventional studies should be promoted on ground level to enhance sustainable consumption, health and better nutrition.
3. To achieve the goals of green consumption, reduction of carbon & water footprints and combat climate change more studies should be done on food menus and food recipes.

Conflict of interest: There is no conflict of interest among all the authors of this paper.

Funding: The research work was not funded by any agency/institution for this study.

Acknowledgments: Authors of this paper deliver thanks to Dept. of Food, Nutrition and Dietetics for allowing the conducting of this research project, the Institute of Biosciences and Technology for funding this research project, authorities of Maulana Azad College for permitting the field operations and data collection of the project, and last but not least all the respondents for being cooperative and supportive throughout the research study investigations to record the data properly and in a well-managed manner.

REFERENCES

1. Santhaya, K. G. (2023). How far we come in promoting sexual and reproductive health and rights for adolescents?. *The Indian Forum – A Journal Magazine on Contemporary Issues*. <https://www.theindiaforum.in/health/how-far-have-we-come-promoting-sexual-and-reproductive-health-and-rights-adolescents#:~:text=The%20sexual%20and%20reproductive%20health,sub-population%20differences%20still%20exist>.
2. Pandey, B. et al. (2020). Urbanization and food consumption in India. *Scientific Reports*, 10, 17241. <https://doi.org/10.1038/s41598-020-73313-8>. <https://www.nature.com/articles/s41598-020-73313-8>.
3. Sharma, S. et al. (2023). Study on consumption of fast food and its association with BMI among medical students in a tertiary care center of eastern India. *International Journal of Nutrition, Pharmacology and Neurological Diseases*, 13(3), 140–144. doi:10.4103/ijnpnd.ijnpnd_2_23.
4. Mishra, I. K (2023, August 02). National youth policy – Will it help India reap the promised demographic dividend?. *Expert Speak, Young Voices – Observer Research Foundation*. <https://www.orfonline.org/expert-speak/national-youth-policy#:~:text=Published%20on%20Aug%2002%2C%202023&text=With%2066%20percent%20of%20its,the%20world's%20largest%20youth%20population>.

5. Sharma, P. (2023, May 17). Non-communicable diseases to cost India around \$ 3.6 trillion by 2030. *Mint*. <https://www.livemint.com/news/india/noncommunicable-diseases-to-cost-india-around-3-6-trillion-by-2030-11684321146414.html>.
6. Kumar, G. S. et al. (2022). Evolving food choices among the urban Indian middle – class: A qualitative Study. *Front. Nutr*, 9. <https://doi.org/10.3389/fnut.2022.844413>. <https://www.frontiersin.org/articles/10.3389/fnut.2022.844413/full>.
7. Moriyani, V. et al. (2022). Assessment knowledge regarding healthy food and actual eating habits of adolescent students (13 – 16 years). *The Pharma Innovation Journal*, 11(10), 1294–1298.
8. Matela, H. et al. (2022). A critical comparison of Indian school food and nutritional guidelines with the WHO-nutrition friendly school initiative and the review of existing implementation scenario. *Nutrition and Health*, 1–13. doi:10.1177/02601060221105734.
9. Jeinie, M. H. B. et al. (2021). Comparison of nutritional knowledge, attitudes and practices between urban and rural secondary school students: A cross-sectional study in Sabah, East Malaysia. *Foods*, 10(9), 2037. doi:<https://doi.org/10.3390/foods10092037>.
10. Hassan, M. R. et al. (2015). Knowledge, attitude and practices of healthy eating and associated factors among university students in Selangor, Malaysia. *Pakistan Journal of Nutrition*, 14(12), 892–897.
11. <https://www.worldometers.info/world-population/india-population/>.
12. <https://www.urbanet.info/urbanisation-in-india-infographics/>.
13. <https://www.mordorintelligence.com/industry-reports/india-foodservice-market>.