

## Dietary patterns among students and their socio demographic variables in Dakshina Kannada: A Cross Sectional study

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### Abstract

**Introduction:** The Indian subcontinent seems to be at a particular risk for NCDs due to the regularisation of unhealthy habits and sedentary lifestyle which is exposed quite early in life and becomes exaggerated and fixed with the adolescence period. Dietary habits are also useful in the sustainability of the ecosystem, with the human-food environment very much linked. Hence a good analysis of dietary patterns has become of consideration now.

**Methodology:** It is a cross sectional study, conducted between a three month period, January to March 2024. It is a self-administered questionnaire based study. A total of 214 students participated. Data was collected and analysed in Excel through SPSS.

**Results:** The mean age of the participants was 20.35 years. 65.38% of the population had meals 3 times a day. 30.8% of the population never ate fruits in their diet. 44% of the students had vegetables every day and 36% had veggies 3-6 times a day. 56% had dairy products every day. 33.6% of them consumed fast/ processed food 1-2 times a week. 40.6% of the students consume sugary beverages once a week.

**Discussion:** 34% consume fruits only 1-2 times a week, another study by Cunningham SA et al shows that there is an average consumption of 15 times per week among the participants. Items like chocolate, packaged food, bakery food, fried food, Italian food, Chinese food and carbonated drinks are the most preferred food among adolescents.

**Conclusion:** Dietary patterns has always been volatile and mores in the adolescent age group. Like our study has shown, adolescents have uncertain behaviour and erratic eating patterns. It is also seen that they have fast food or processed food a few times a week, though they also eat vegetables and protein rich food regularly.

**Keywords:** Dietary patterns, adolescents, students, nutrition, India

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## Introduction

We all know that adolescence is the mark of an age which is in between childhood and adulthood. It is a transition period, both mentally and physically. It is usually considered to be between 10-19 years of age. This phase categorises problems as academic, physical development and nutrition.<sup>[1]</sup> Physical and sexual development, social and economic autonomy, identity formation, the learning of life skills necessary for adult interactions and duties and the ability to reason abstractly are all characteristics of adolescence. Second only to that of infancy, adolescence is distinctive of a rapid growth phase. Nutrition and the transition in adolescence are closely interconnected. This is since dietary patterns, mannerisms and habits are influenced by many elements. These factors include influencing by peers, accessibility of food, dietary preferences, imitation of parental patterns, cultural traditions, personal and societal beliefs, body image and influence by mass media. Inadequate nutrition can result in slowed and hindered linear growth as well as poor organ remodelling.<sup>[2-4]</sup> Early childhood health promotion, which includes encouraging a balanced diet and frequent exercise, may have a significant influence on children's health and wellbeing as they grow older. The availability of appropriate time and intensity for the intervention, family engagement, especially for younger children, and the inclusion of self-assessment and feedback in therapies for older children are other elements that enhance efficacy.<sup>[5]</sup>

The Indian subcontinent seems to be at a particularly high risk for NCDs, with the regularisation of unhealthy habits and sedentary lifestyle, which is exposed quite early in life and becomes exaggerated and fixed with the adolescence period. Obesity in specific seems to be on the rise, with the prevalence rising among the youth. Influenced by television advertisements and peer pressure, they seem to prefer junk food with less nutritional values. This has become like a slow poisoning in terms of public health and is leading to physical abnormalities. Obesity in turns becomes a risk for diabetes, hypertension and stroke. Adolescents are at a higher risk of these disorders.<sup>[6-8]</sup>

In another tangent, dietary habits also are useful in the sustainability of the ecosystem, with the human-food environment very much linked. Hence a good analysis of dietary patterns has become of consideration now. The logistics, in food wastage, health and malnutrition all of them require the data of dietary patterns and recommendations for sustainability.<sup>[9-10]</sup>

Over the years, there has been a decline in the adoption of these sustainable eating practices on a global scale. A nutritious dietary pattern is one that follows the requirements of dietary guidelines for the consumption of different food groups. Following a healthy diet plan indicates meeting all of your needs for energy and nutrients. Because eating habits and behaviours developed in childhood and adolescence tend to track into adulthood and can predict adults' diet-related diseases, it is crucial to assess children and adolescents' healthy dietary patterns and to recognise the main modifiable determinants of these patterns.<sup>[11]</sup>

Hence with this study we are trying to determine the dietary patterns among the students in dakshina kannada.

## Methodology

Study design: Cross-sectional study.

Study duration: 3 months: January- March 2024

Sample Size: 214 students

Sampling technique: Convenient sampling

Study instruments: Questionnaire method

Study setting and method of collection of data: The study was done amongst The study was started after obtaining the necessary permission from the ethics committee. After obtaining permission, consent from students was obtained regarding age, dietary patterns and other socio-demographic data. Information regarding their employment and health was obtained through a structured questionnaire validated by experts. A total of two visits or phone contact was done for collecting the information. The medical students were asked to fill the questionnaire by themselves.

Study population: Students studying various postgraduates courses across medical, dental, engineering, physiotherapy, nursing, management, law and commerce.

Inclusion criteria: Students willing to participate.

No exclusion criteria as such

Topography: The study was done with the online forms sent to every colleges.

Statistical analysis: Data obtained was entered in an MS Excel spreadsheet followed by analysis using SPSS version 22 (licensed to JSS Medical College). The demographic characteristics such as age, gender, occupation etc. were represented using the arithmetic mean, standard deviation and percentages. The possible associations between the selected demographic variables (age, gender, education) were found using t-test/ chi-square.

## Results

**Table 1: Demographic details of study population**

Particulars	Total (N=214)(%)
Male	96 (44.85981)
Female	117 (54.6729)
trans	1 (0.46729)
<b>Age</b>	
15-18	32(14.95327)
19-22	158(73.83178)
23-26	24(11.21495)

**Table 5: Dietary patterns of the students.**

Dietary patterns	Every day N (%)	1-2 times a week	3-6 times a week	Rarely (once a week)	Never
How often do you eat fruits?	24 (11.21495)	74 (34.57944)	43 (20.09346)	7 (3.271028)	66 (30.84112)
How often do you eat vegetables?	95(44.39252)	29(13.5514)	77(35.98131)	11(5.140187)	2(0.934579)
How often do you eat dairy products (milk, yogurt, cheese)?	120 (56.07477)	37 (17.28972)	42 (19.62617)	5 (2.336449)	10 (4.67289)
How often do you eat protein-rich foods (meat, poultry, fish, legumes)?	43 (20.09346)	58 (27.1028)	85 (39.71963)	19 (8.878505)	9 (4.205607)

Mean age .	20.35047 years .
Median age .	20 years .

Majority of the participants belonged to age group 19-22, with the mean age being 20.35 years.

**Table 2: Frequency of meals per day**

On average, how many meals do you have in a day?	
1 time	1 (0.4629%)
2 times	45 (21.02804%)
3 times	141 (65.88785%)
4 times	26 (12.14953%)
5 times	1 (0.46729%)

65.88% of the population have 3 meals per day.

**Table 3: Frequency of water per day.**

How much water do you drink in a day?	
A little (1-3 glasses)	17 (7.9439)
Moderately (4-8 glasses)	143 (66.8224)
A lot (more than 8 glasses)	54 (25.2336)

66.8% of the population drank 4-8 glasses per day.

**Table 4: Effect of Culture on eating habits.**

Do your cultural or traditional practices affect your eating habits?	
Yes	55 (25.70093)
No	159 (74.29907)

<b>How often do you eat fast food or processed snacks?</b>	27 (12.61682)	72 (33.64486)	58 (27.1028)	57 (26.63551)	0
How often do you drink sugary beverages (sodas, energy drinks, sweetened juices)?	12 (5.60745)	60 (28.03738)	41 (19.15888)	87 (40.65421)	14 (6.54206)
How often do you eat meals outside (restaurants, street food, etc.) in a week?	12 (5.60477)	73 (34.11215)	29 (13.5514)	87 (40.65421)	13 (6.07477)

When it comes to the dietary patterns of the students, 30.8% of the population never ate fruits in their diet. 44% of the students had vegetables every day and 36% had veggies 3-6 times a day. 56% had dairy products every day. When it came to protein rich foods, 39.7% of the students consumed it 3-6 times a week. 33.6% of them consumed fast/ processed food 1-2 times a week, and 27% 3-6 times a week. 40.6% of the students consume sugary beverages once a week.

### Discussion

Our study shows that 30% of the participants never consume fruits, while 34% consume fruits only 1-2 times a week, another study by Cunningham SA et al shows that there is an average consumption of 15 times per week among the participants and with the lowest at 5 times a week. This is a study on a rural district and it contradicts the hypothesis that urban people consume more fruits.<sup>[12]</sup>

Our study showed that a majority of the participants consumed vegetables and dairy every day, while another study by Sharma S et al shows that low mixed diet had a daily consumption of green vegetables, this had a prevalence of 76.5%. while the high mixed diet had more consumption of chicken, meat, egg and milk/curd which had a 23.5% prevalence. Here also adolescent boys had a 3.6 times higher odd of consuming low mixed diet than the girls<sup>[13-14]</sup>.

Our study also shows that a significant number of participants (34.1%) had habits of consuming meals outside their homes 1-2 times a week and 13.5% consuming meals outside 3-6 times a week. Several studies have linked food away from home to poor nutrition and dietary quality. <sup>[15]</sup> Another study by Watts AW et al shows that a large number of the teenagers seeking treatment for obesity reported

buying snacks and consuming meals cooked outside the home.<sup>[16]</sup> The food that is typically consumed while dining out has a high energy level, which can lead to an excessive calorie intake and possibly eventually obesity.<sup>[17]</sup>

It was seen in our study that only around a quarter (25.2%) of the study population was drinking the recommended amount of water in a day. For adolescent girls and boys, the European Food Safety Authority (EFSA) recommends a water consumption of 2.0 L and 2.5 L per day, respectively. Since 60-70% of the body is made up of water, consuming enough of it can be beneficial to one's health, wellbeing, and ability to function both mentally and physically. Water is a vital nutrient for both life and wellness. Reduced body temperature physical activity capacity, weariness, focus, alertness and cognitive function can all be negatively impacted by even slight losses of it in the body.<sup>[18]</sup>

The most attractive food choices for adolescents which the majority consume 2 times or more per week, which is in line with a study by Jena S et al are items like chocolate, packaged food, bakery food, fried food, Italian food, Chinese food and carbonated drinks. These are the most preferred foods among adolescents. IT was also seen that skipping meals was very common according to the studies referred above, though our study showed that a majority number (65%) of students consumed 3 meals per day. Culture also does not seem to play an important role in the dietary habits of the students in the district, this may be due to the fact that in college there is an amalgamation of many cultures and this leads to changing of dietary patterns along the way.<sup>[19-20]</sup>

## Conclusion

Dietary patterns have always been volatile especially with the adolescent age group. Like our study has shown, adolescents have uncertain behaviour and erratic eating patterns and therefore consume fast food or processed food a few times a week. Though it was seen that they also eat vegetables and protein rich food regularly. Adolescents have an increased appetite and this also might be a factor to include more diet patterns in their routine. College means an amalgamation of cultures and traditions, so in this environment there could be a break and change in their regular food patterns along with trying new foods and patterns due to the influence of their friends. In terms of public health, adolescents represent a vital population for economic and health prosperity, therefore interventions could be more focused to this age group. Educational campaigns through social media regarding the locally available farm fresh foods along with a regulation on the pesticide sales would be the next step forward to better health.

**Recommendation:** Regular and periodic awareness and education should be provided for students regarding the importance of a healthy diet and its implications in daily life as well as in the future. This will help them to make the right choices as well as build a more sustainable economy. Future studies should include a larger sample population, from different states and more different backgrounds. Dietary patterns do change as we get older, with a shift to vegetables and lighter meals as we grow older, though there are no concrete studies on this. On the interventions, digital awareness campaigns with influential people at the helm, who the adolescents regularly consume through social media need to participate to educate the public<sup>(21)</sup>. Government programmes like mid-day meals have been highly effective and beneficial in this regard. Further more, they could provide more awareness about the food grown in the locality by their own farmers and market them effectively for consumption purposes. This would decrease the processing ingredients which are added and help in better nutrition for the public.

**Limitation:** Sample size is not adequate to represent the whole district. A more qualitative approach might be helpful.

## Conflict of Interest: Nil

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