International Journal of Community Medicine and Public Health
Kulothungan K et al. Int J Community Med Public Health. 2018 Dec;5(12):5219-5223
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20184793

Original Research Article

Dietary preferences for food items among children of age 5-10 years in a rural area of Perambalur district, South India

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Received: 06 September 2018
Revised: 23 October 2018
Accepted: 26 October 2018

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ABSTRACT

Background: Appropriate nutrition in early childhood plays an important role in normal growth and development, as well as on the long-term health of individuals. There is increasing recognition that dietary pattern better reflects the overall quality of the diet. The dietary pattern has been shown to be associated with nutrient intakes and linked to chronic diseases including obesity, diabetes and metabolic syndrome in children. The aim of the study was to assess the dietary preferences for food items (vegetables, fruits, meat, milk products, snacks and starch) among children of age 5-10 years in the rural area of Perambalur district, South India.
Methods: Six food categories (vegetables, fruits, meat, milk products, snacks and starch) were included in the questionnaire to study the dietary preferences of the child. Data were entered into a Microsoft Excel worksheet and analysed for frequencies and percentages. Mean score and its standard deviation were calculated for individual food items.
Results: The study shows that most of the children prefer milk/milk products with a highest mean score of 3.94 followed by a preference for snacks. Most avoided food were vegetables, followed by meat and meat products. The overall score was found to be low for all the categories of food among children who prefer mobile compared to TV and outdoor group. But this difference was not statistically significant. This difference was close to 0.05 only in vegetable group category.
Conclusions: The results will help in planning the nutritional counselling programmes for children. These findings have to be further correlated with the nutritional status of the individual children and deficiencies if any.

Keywords: Food preference, Diet pattern, Nutritional preferences. Mobile phone use, TV use

INTRODUCTION

Appropriate nutrition in early childhood plays an important role in normal growth and development, as well as on the long-term health of individuals. There is increasing recognition that dietary pattern better reflects the overall quality of the diet. The dietary pattern has been shown to be associated with nutrient intakes and linked to chronic diseases including obesity, diabetes and metabolic syndrome in children.

The global estimate indicates that 43 million children were overweight and obese in the year 2010. More than 1/5th of overweight and obese children were from developing countries. Globally, the prevalence of overweight is expected to increase from 6.7% in 2010 to more than 9% in 2020.[1] In India, the pooled data after 2010 estimated a prevalence of 19.3% for childhood overweight and obesity.[2]

Even for people at a healthy weight, a poor diet is associated with major health risks that can cause illness

and even death. These include heart disease, hypertension (high blood pressure), type 2 diabetes, osteoporosis, and certain types of cancer. The risk factors for adult chronic diseases, like hypertension and type 2 diabetes, are increasingly seen in younger ages, often as a result of unhealthy eating habits and increased weight gain. Dietary habits established in childhood often carry into adulthood, so teaching children how to eat healthy at a young age will help them stay healthy throughout their life.[3]

Although many factors contribute to developing obesity, unhealthy eating habits and sedentary lifestyle, this study was to designed to assess only the dietary patterns and preferences among the children of 5-10 years age.

Objectives

1. To assess the dietary preferences for food items (vegetables, fruits, meat, milk products, snacks and starch) among children of age 5-10 years in the rural area of Perambalur district, South India.
2. To assess the relationship between the dietary preference for food items and leisure activity (Mobile, Television and Outdoor) among the above-mentioned population.

METHODS

This was a community-based cross-sectional study done among 100 children of 5–10 years age residing in the Senjeri village (Rural field practice area of Department of Community Medicine, Dhanalakhsmi Srinivasan Medical College, Perambalur) over two months (December 2017 to January 2018).

Six food categories (vegetables, fruits, meat, milk products, snacks and starch) were included in the questionnaire to study the dietary preferences of the child. Likert's scale was framed and included the following categories: 1– Never like to eat, 2- Dislikes a lot, 3- Neither Like nor dislike, 4– Like and 5- Like a lot. Preferences for spending time during leisurely hours were asked for Television, Mobile and outdoor activities.

Inclusion criteria

Children in the age group of 5-10 years and their parents who were willing to participate in the study were included.

Exclusion criteria

The subjects who were absent from the house at the interview and where untraceable even after 3 repeated visits and also the subjects who were unwilling to participate were excluded from the study.

Ethical clearance was obtained from the Institutional Ethics Committee prior to the study. Informed written consent was obtained from the parents after explaining about the purpose and procedure of the study in their own native language. The collected data were analysed and the results were segregated and represented in the form of pie charts and bar diagram which are included below. Data were entered into a Microsoft Excel worksheet and analysed for frequencies and percentages. Mean score and its standard deviation were calculated for individual food items.

RESULTS

The results of this study have been discussed under the following headings:

- Preferences for individual food items:
- Mean score of the Food items:
- Preferences for Leisure activity:
- The relationship between the dietary preference for food items and leisure activity (mobile, television and outdoor):

Preferences for individual food items

Preferences were indicated in green colour and avoidance has been indicated in red colour in the Figure 1. Major Preference was present for milk/milk products (milk, chocolates, sweets, ice cream) followed by snacks (bun, biscuit, chips, cake, savory snacks). Most avoided food were vegetables (raw carrot, salad leaves, cooked carrot, beetroot, beans, potato, sweet potato, cucumber, tomato, and cauliflower), followed by meat and meat products.

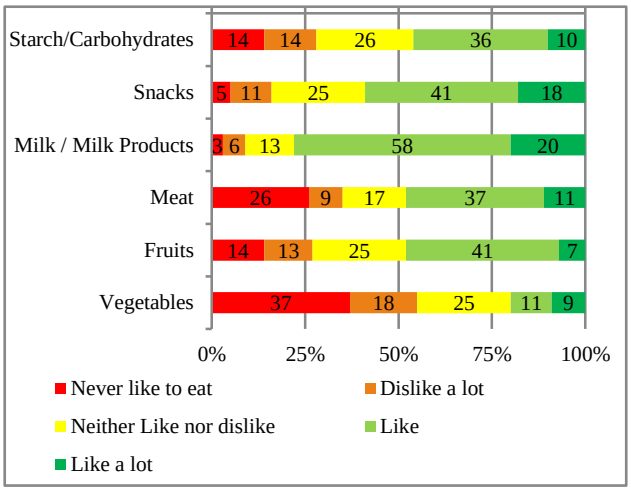

Figure 1: Preferences for individual food items.

Mean score of the food items

Food preference scale scores for the six food categories are obtained by summing the single food preference item scores within each food category and dividing this sum by the number of items. The mean score on a scale of 1 - 5 for the total samples included in the study was taken and is represented for the six food categories. The study

shows that most of the children prefer milk/milk products with a highest mean score of 3.94 and the least preference for meat and meat products as shown in Figure 2.

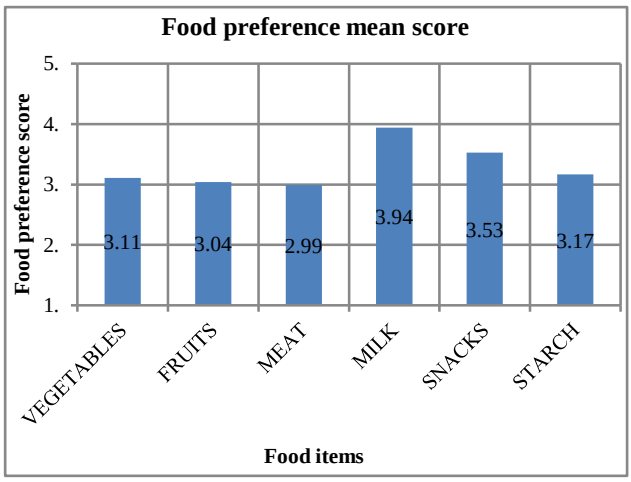

Figure 2: Mean score of the food items.

Preferences for leisure activity

Out of the Study Population, only 13 children preferred to play out door during their leisure time. 49 children preferred to use mobile phone and 38 for television. This is represented in the Figure 3.

The relationship between the dietary preference for food items and leisure activity (mobile, television and outdoor)

The mean and standard deviation of the overall score for the individual food categories were compared with children of different leisurely activities. The Overall score was found to low for all the categories of food among children who prefer mobile compared to TV and outdoor group. But this difference was not statistically significant using ANOVA test (P value less than 0.05 was considered statistically significant) The difference was close to 0.05 only in vegetable group category.

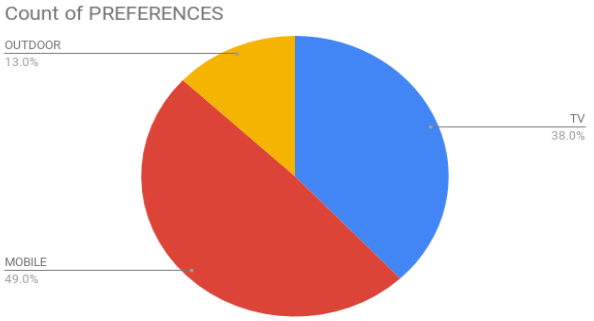

Figure 3: Preferences for leisure activity.

Table 1: The relationship between the dietary preference for food items and leisure activity (mobile, television and outdoor).

Preference during leisure time		Vegetables	Fruits	Meat	Milk	Snacks	Starch
Mobile (N=49)	Mean	29.75	29.91	17.44	15.89	17.46	15.57
	Std. Deviation	7.30	7.07	6.60	3.27	3.16	3.93
Outdoor (N=13)	Mean	32.84	31.84	18.92	15.38	17.92	16.00
	Std. Deviation	8.12	4.947	4.32	3.88	4.09	3.08
TV (N=38)	Mean	32.26	30.60	18.23	15.78	17.78	16.18
	Std. Deviation	6.29	6.140	5.80	2.18	3.80	3.67
Total (N=100)	Mean	31.11	30.43	17.94	15.79	17.65	15.86
	Std. Deviation	7.10	6.46	6.02	2.97	3.51	3.71
ANOVA test	F- Value	1.809	0.475	0.377	0.151	0.132	0.298
	P- value	0.169	0.624	0.687	0.860	0.837	0.743

DISCUSSION

From a cross-sectional study about dietary patterns and obesity in school children done in Australia, the inference was that the dietary pattern was not associated with obesity in children.[4] In a study done in New York to examine the food patterns and diet quality of elementary schoolchildren, results showed that 40% of students did not eat vegetables, except for potatoes or tomato sauce; 20% did not eat fruit.[5] Nutritional preferences among 132 children of pre-school age from Poland showed that there is a preference for fast-food type products, sweets, fruits vegetables and meat products. This preference was significantly different among different gender.[6] A study among 49 children from London to modify the children's food preferences and the effects of exposure and reward on acceptance of an unfamiliar vegetable, repeated exposure to the taste of unfamiliar foods is a promising strategy for promoting liking of previously rejected foods in children.[7] In this study, we found a preference for milk and milk products followed by snacks and least preference for vegetables followed by meat and meat products. The preference for snacks and milk based sweets could be partly attributed to the increase in marketing of these unhealthy food items in Television and Mobile apps. Limited access to meat and meat products because of the high cost of these food items could be one of the reasons behind less preference for these food items among children. The increasing dislike for fibre rich food items such as vegetables is a

detrimental factor which could indirectly contribute to childhood obesity. These findings have to be further correlated with the nutritional status of the individual children and deficiencies if any. Further studies are needed to understand the regional variation in the children food preferences across India.

Food preferences develop from genetically determined predispositions to dislike bitter and sour tastes and to like sweet and salty flavours. Repeated exposure to initially disliked foods can break down resistance and restricting access to particular foods increases rather than decreases preference.[8] In a study to assess the relationship among television watching, physical activity, and body composition of young children, Television watching was weakly negatively correlated with physical activity levels, and physical activity was lower during television-watching than non-television-watching time in this sample of children. Television viewing behaviour was not associated with body composition.[9] In a study to examine the relationship between television watching, energy intake, physical activity, and obesity status in US boys and girls, aged 8 to 16 years, it was found that the prevalence of overweight increases, the need to reduce sedentary behaviours and to promote a more active lifestyle becomes essential.[10] In this study, we found the overall score was found too low for all the categories of food among children who prefer mobile compared to TV and outdoor group. But this difference was not statistically significant. The exposure of children to TV and mobile phone could be limited because of the rural location of our study population. Also the physical activity pattern is much higher among rural children compared to urban children. Limited availability of space and relatively restricted access to neighbourhood among urban children compared to rural children could be a contributory factor for increased physical activity pattern among the study population. However the temporal association between mobile phone use and dislike for foods needs to be further explored.

Limitations

This study aimed at measuring food preferences only. Actual consumption pattern may not be reflected based on these results. The study focus is on what the children desire to eat rather than what they ate.

Recommendation

Impact of unbalanced diet over the children's health should be clearly educated to people through the mass campaign and mass media. Parents should be educated to encourage their children to make them eat healthier diet especially among the children who use a mobile phone during their leisure time. Nutritional counselling programmes for the children could be conducted periodically. Helping the children in determining their healthy food choices could be imparted as one of the strategies in primary health care. Further the scarcity of Indian studies on childhood nutritional choices has to be addressed. Multicenteric studies on childhood nutrition pattern could be conducted to explore further knowledge in this area of research.

CONCLUSION

The study shows that most of the children prefer milk/milk products with a highest mean score of 3.94 followed by a preference for snacks. Most avoided food were vegetables, followed by meat and meat products. The overall score was found to low for all the categories of food among children who prefer mobile compared to TV and outdoor group. The results will help in planning the nutritional counselling programmes for children.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee, Dhanalakshmi Srinivasan Medical College, Perambalur

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Cite this article as: Kulothungan K, Ranganathan TS, Britto DR, Deepak SG, Dhinesh K, Raj MD, et al. Dietary preferences for food items among children of age 5-10 years in a rural area of Perambalur district, South India. Int J Community Med Public Health 2018;5:5219-23.