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ORIGINAL ARTICLE

Picky eating behaviour and its impact on growth among Pre-school children attending outpatient department of tertiary health care centre, Hyderabad : A Cross-Sectional study

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ABSTRACT

Background: Picky eating is very common problem encountered by parents which does not require much intervention until other problems like micronutrients deficiency, stunting, wasting and malnutrition. Picky eating is mostly seen in preschool children and gradually withers away as age progresses but nevertheless parents need to take guard and observe the child and report any abnormality. The study was undertaken to understand the impact of picky eating on weight and height for age. **Methods**: The cross-sectional observational study was conducted among children attending outpatient department of tertiary health care centre in Hyderabad. A total of 200 children were included between the age 2 and 6 years. The anthropometric measurements were taken, tabulated and placed appropriately for weight for age, height for age and weight for height. **Results:** Among 200 Pre-school children Picky eating behaviour was observed in 54% children. The study showed among the picky eaters group the height and weight for age was lower when compared to non- picky eaters. When both picky and non- picky eaters, anthropometry were measured for association, Significance was observed for weight for age (p=0.001), height for age (p=0.001) and weight for height (p=0.01) depicting picky eating behaviour had an impact on growth of the child. **Conclusion**: Picky eating behaviour was observed in majority of preschool children. The height, weight and BMI is lowered compared to non-picky eaters. Interventions like parent counseling is needed and if needed medical intervention will be required.

Keywords: Picky, Eating, Growth, Children

Introduction

Children with staunch preference for food points out picky eating which is a result of inadequate consumption of various foods, minimizing consumption of specific food and refrain to try new food items. Picky eating is common during childhood and early years of life, although there is no specified definition for picky eater.[1,2] Picky eating causes substantial stress to parents and caregivers which is usually resolved with minimal intervention.[3]

Picky eating is usually seen more in developed countries but never the less an increasing trend is seen in developing countries.[4] The prevalence of picky eating behaviour differs from country to country. One kind of study done in India reported the prevalence of picky eating behaviour as 50.7%.[5] In China, parents reported picky eating was seen in 54%.[6] Another study suggested the prevalence was 39% in children between the age group 2- 11 years.[7] Picky eating usually is reason for reduced growth for age. Children below 5 years usually showcase food favours using body language and non- lingual ways.[8,9] Picky eaters usually consume a very limited variety of vegetables, fruits and non- vegetarian items. This commonly causes micronutrient deficiency. Furthermore, intake of fibre rich food, fats, sweets and protein is reduced when compared to non- picky eaters.[10]

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With limited studies in India, it is still obscure whether height and weight is impacted with picky eating. Hence this study is undertaken to find out whether there is difference in height and weight between picky and non- picky eaters and their behavioural changes.

Objective: To determine the association between picky eating behaviour and growth among pre-school children

Methodology

Study Area: The study was conducted among children attending paediatric outpatient department, tertiary health care centre, Hyderabad.

Study Design: Cross sectional study

Study Period: Two Months

Study Population: Children between the age 2- 6 years

Sample Size: Considering the prevalence of picky eating as 50.7% in a study by Pavan Kumar et al.[6] the sample size was calculated for our study using the formula

$N = Zpq/L^2$:

- p= 50.7%
- q= 49.3% (100-p)
- L=14% (relative error)

Sample size works out to 191 subjects with the above formula and was rounded off to 200.

Inclusion Criteria : Children between the age 2- 6 years

Exclusion Criteria:

1. Children below 2 years and above 6 years
2. Children with systemic disorders
3. Children with developmental disorders
4. Children with bleeding disorders

Study Tools: Pre-designed pre-tested questionnaire, Stadiometer, Calibrated digital weighing scale

Data collection:

- Institutional ethical committee approval was obtained prior to the initiation of the study
- The subjects were included in the study after the consent from parents/care-givers
- History was taken from the child and parents/caregivers.
- The questionnaire was used to collect details with regard to food habits and consumption and divided into picky and non- picky eater.
- Anthropometry measurements was taken according to the standard guidelines and methods and accordingly placed using Z- score.

Data analysis: The collected data was collected, coded, entered into Microsoft excel work sheet and exported to SPSS. Data was analysed using SPSS version 21. Data is presented as percentage in categories and then presented as tables and diagrams. Chi-square test and paired t-test were used for test of significance.

Results

Of 200 study subjects, majority (35%) were above 5 years. Mean age of the study subjects was 4.36 ± 1.23 years. 51.5% were Males and 48.5% were females. Majority (76.5%) of the study subjects were from urban area and 23.5% from rural area (Table-1).

Table 2 shows the anthropometric measurement among both the groups. The mean weight of picky eaters was 13.45±1.74kgs, mean height was 94.53± 5.67 and mean weight for height was 15.05±1.45. Among non- picky eaters the mean weight was 17.73±2.77, mean height was 103.87± 6.60 and the mean weight for height was 16.36± 1.19.

Table-1: Distribution of Study Subjects according to age and sex

Variables		No.	%
Age (yrs)	2- 3	40	20.0
	3- 4	42	21.0
	4- 5	48	24.0
	5- 6	70	35.0
Total		200	100.0
Mean age: 4.36 ± 1.23 years			
Sex	Males	103	51.5
	Females	97	48.5

Table 2: Distribution of subjects according to anthropometric measurements

Anthropometric measurements	Picky eater	Non-picky eaters
	Mean ± SD	Mean ± SD
Mean weight for age	13.45 ± 1.74	17.73 ± 2.77
Mean height for age	94.53 ± 5.67	103.87 ± 6.60
Mean weight for height	15.05 ± 1.45	16.36 ± 1.19

Table 3 shows the study consisted of 54% picky eaters and the remaining 46% were non- picky eaters. The prevalence rate of picky eating was 54%.

The weight for age using Z score showed among picky eaters 11/108 were between -2SD to -3 SD and 12/108 were ≤3 SD whereas among the non-picky eaters al the 92 had normal weight for age (table 4).

Table -3: Distribution of subjects according to eating habits

Eating habits	No.	%
Picky eaters	108	54.0
Non- picky eaters	92	46.0
Total	**200**	**100.0**

Table- 4: Association between weight for age among picky and non- picky eaters using Z score

Weight for age	Picky eaters	Non- picky eaters	p-value
Normal	85	92	<0.001
-2 SD to -3 SD	11	0	
-3 SD	12	0	
Total	108	92	

The weight for age using Z score showed among picky eaters 18/108 were between -2 SD to -3 SD and 20/108 were ≤3SD whereas among the non- picky eaters all the 92 had normal height for age (Table- 5).

The weight for age using Z score showed among picky eaters 4/108 were between -2 SD to -3 SD and 3/108 were ≤3 SD whereas among the non- picky eaters all the 92 had normal weight for height (table- 6).

Table 7 shows the significant association between picky eating behaviour and Growth. Significance was observed for weight for age(p value 0.001), height for age(p value 0.001) and weight for height (p=0.01) meaning picky eating had effect on growth of the child.

Table- 5: Association between heights for age among picky and non- picky eaters using Z score

Height for age	Picky eaters	Non- picky eaters	p-value
Normal	70	92	<0.001
-2 SD to -3 SD	18	0	
-3 SD	20	0	
Total	108	92	

Table -6: Association between weights for height among picky and non- picky eaters using Z score

Weight for height	Picky eaters	Non- picky eaters	p-value
Normal	101	92	<0.001
-2 SD to -3 SD	04	0	
-3 SD	03	0	
Total	108	92	

Table -7: Association of anthropometric measurements between picky eaters and non- picky eaters

Association	Mean ± SD	95% CI		p-value
		Lower	Upper	
Weight for age in picky eaters	13.30 ± 1.66	5.16	3.69	**<0.001***
Weight for age in non- picky eaters	17.73 ± 2.77			
Height for age in picky eaters	95.15 ± 5.41	10.59	6.83	**<0.001***
Height for age in non- picky eaters	103.87 ± 6.60			
Weight for height in picky eaters	14.67 ± 1.07	2.02	1.36	**0.01***
Weight for height in non- picky eaters	16.36 ± 1.19			

***Level of significance: <0.05**

Discussion

Picky eating is of composite actions which has short term and long-term consequences. Picky eating at times leads to stunting, wasting and also at times malnutrition. Usually, picky eating reduces as age increases and does not require much medical intervention until any particular consequence sets in.

The Present study consisted of 103 males and 97 females with the mean age being 4.36± 1.23 years. In the present study the picky eating behaviour was observed in 54%, a similarity was also reported in the studies by Yong et al. [11] (59%) and an increasing trend from 32.2% to 69.2% in the study by K. Pavan et al. [12] another European survey reported a mean prevalence of 43.4%. [13] There was a significant decrease in anthropometric measurements among picky eaters when compared with non- picky eaters. Vollmer R and Mobley A also reported lower anthropometric measurements and low BMI for age in picky eaters. [14] K. Pavan et al. also reported lower anthropometric measurements in picky eaters. [12] Further studies have reported picky eaters are most likely underweight for age. [15]

In the present study weight and height for age percentiles of picky eaters was below the 50th percentile. This similarity was also reported by Qazaryan K et al. [16] The present study found a change in behaviour in 16.7% picky eaters

and 3.3% in non- picky eaters. Qazaryan K et al. also reported behavioural changes among picky eaters. [16] The intervention done in the present study was parent counselling as many of them did not need medical intervention. The parents were advised, by using distraction methods and rich nutritious food required for the day at least.

Conclusion

This study was undertaken to study the anthropometric measurements and its impact on picky eaters. The study concludes picky eating behaviour was observed among 54% children and showed a significant association between Picky eating behaviour and growth of the children. The weight for age and height for age was lower among the picky eaters. This is common encounter by parents and needs to be handled amicably and medical intervention if needed.

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