

Original Research Article

Prevalence of picky eating behavior and its impact on growth in preschool children

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ABSTRACT

Background: Almost two-thirds of parents report one or more problems with their children's eating. Although knowledge of the health-related outcomes of picky eating is limited due to a lack of longitudinal studies, research suggests that picky eating is associated with nutrient deficiency, underweight, behavioral problems and symptoms of anxiety and depression. Aim of present study was to assess the Parental perception and maternal strategies in solving feeding difficulties in relation with parenting style.

Methods: The present cross sectional study conducted on 1652 parents of preschool children of 1-6 yrs age group. A structured parental questionnaire was administered to parents by Pediatricians based on Stanford feeding Questionnaire on Child- parent feeding.

Results: About 58.9% of the children were found to be picky eaters. The prevalence is increasing with age and higher at 6 years age. The mean height and weight are seen affected significantly in picky eaters. Infantile Anorexia is the commonest type of Feeding difficulties, followed by Highly selective intake category. Commonest Parenting style is Authoritarian type, followed by Permissive parenting.

Conclusions: As the prevalence of picky eating behaviour is increasing with age, causing parental anxiety and conflict in the family, disrupting parent child bonding, Paediatricians should be thoroughly equipped with knowledge of different Feeding difficulties and their specific management and help parents in doing their best by correcting their parenting style.

Keywords: Behavior, Parents, Picky eating, Prevalence

INTRODUCTION

"My child won't eat" is the most frequent complaint of every mother in Paediatric Office Practice, yet often neglected.

Picky eating behavior is a common childhood disorder often causing breakdown in parent-child interaction and may be precursors or warning signs to maladaptive eating

later in life.¹ It was found that mental developmental index (MDI) scores of infantile anorexia and picky eaters were 11 and 14 points below Healthy eaters.² Picky eating behaviors are frequently observed in childhood, leading to concern that an unbalanced and inadequate diet will result in unfavorable growth outcomes.³ However, the association between picky eating behaviors and nutritional status has not been investigated in detail.⁴

There is no single widely accepted definition of picky eating, and therefore there is little consensus on an appropriate assessment measure and a wide range of estimates of prevalence. Some review articles examine common definitions of picky eating used in research studies; they found different methods that have been used to assess picky eating. These methods include the use of subscales in validated questionnaires, such as the children's eating behaviour questionnaire and the child feeding questionnaire as well as study-specific question(s).^{4,5}

Through literature survey indicates that several studies found in worldwide, but limited studies are available in India. The current study was undertaken, to study the Prevalence of picky eating behavior in preschoolers (1- 6 yrs) and also to assess the parental perception and maternal strategies in solving feeding difficulties in relation with parenting style.

METHODS

A Cross-sectional study done in 1652 parents of Preschool children of MNR schools of Excellence and those attending well baby clinics in the age group of 1- 6 yrs during June to December 2015.

A structured parental questionnaire was administered to parents by Pediatricians based on Stanford feeding Questionnaire on Child- parent feeding behavior and Dr Kerzner and Dr Chatoor's Classification of feeding difficulties in children.

Parent responses are noted as per 5 point Likert psychometric scale. (1. Never 2. Rarely 3. Sometimes 4. Often 5. Always). Based on the Responses, Poor Appetite was classified as;

Parental misperception

- Parent believes that child's appetite is limited, but it is appropriate.
- child is achieving satisfactory growth based on mid parental height.
- Excessive parental concern may lead to coercive feeding methods.

High selective intake

- Negative reactions to specific foods due to taste, texture, smell, appearance.
- Anxious with aversive reactions: grimacing, gagging and vomiting.
- Fearful of new foods and additional sensory difficulties.

Infantile Anorexia –

- Alert, active and inquisitive and more interested in playing and talking than feeding.

- Easily distracted from feeding.
- If weight gain slows, the child is defined as having "Infantile Anorexia"

Fear of feeding

- Cries at the sight of the food or high chair.
- Resists feeding by crying, arching or refusing to open mouth.
- Occurs post choking, vomiting, intubation and force feeding.

In withdrawn child-

- Apathetic child with poor appetite who appears withdrawn.
- Limited verbal and non verbal communication between child and caregiver.
- Possible evidence of neglect and/or signs of abuse.

To assess the relationship of Picky eating behavior with Parenting styles, parents were classified into four categories based on Diana Baumrind's Self-assessment checklist.

- Responsive or authoritative parenting: Characterized by a balanced parental style with moderate demandingness and moderate responsiveness. The parent sets limits, is responsive but not indulgent.
- Authoritarian or controlling parenting: Characterized by high demandingness and low responsiveness. Rigid, harsh, coercive and demanding parenting including physical punishment and verbal wounding of the child.
- Permissive or indulgent parenting: Characterized by low demandingness and high responsiveness; seldom enforces consistent rules and responds to all the needs and demands by the child, proffers unconditional love (the spoiled child).

Neglectful parenting: Characterized by low demandingness, low responsiveness and low autonomy supportive parenting.

- Definition Criteria to decide whether child was picky eater or not (who satisfied 2 or more of below)
- Eats only limited number of foods.
- Is unwilling to try new foods.
- Refuses to eat vegetables and/or foods from other foods group.
- Shows strong food likes and dislikes.
- Has behaviours that disrupts mealtime.

Exclusion criteria

Symptoms suggestive of Organic pathology

- Chocking or pain with swallowing
- Weight loss

- Recurrent vomiting and diarrhea and blood in the stools
- Frequent infections
- Delayed development

RESULTS

As the age increases, the prevalence of picky eating behaviour increases from 32.2% to 69.2% with highest prevalence in 6 years age group children (69.2%) followed by 68% in 5 yrs age group, 64.7% in 4 yrs age group, 66.1% in 3 yrs age, 53.2% in 2 yrs age and 32.2% in 1 yr age (Figure 1).

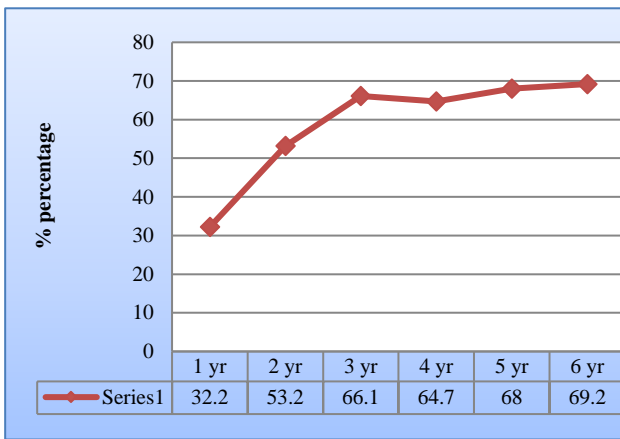


Figure 1: Prevalence of Picky eating behavior increasing with age.

To define a child as Picky eater, two or more criteria to be satisfied but in our study all the criteria as listed in Table 1 were met, characterized by eating limited variety of foods (94%) with strong likes (93%) and dislikes (100%), not accepting new foods readily (0%) and strong opinions about Preparation of food (68%).

Table 1: Parent reported child behaviors related to picky eating.

Child behavior	Non picky eaters	Picky eaters
Limited variety of foods	12%	94%
Food prepared in specific ways	14%	68%
Accepts new foods readily	63%	0%
Has strong likes	66%	93%
Has strong dislikes	45%	100%
Child has tantrums when parents Say no to food	9%	38%

In our study, the mean weight of the children is considerably lower in picky eaters when compared with non- picky eaters (Figure 2) and mean height of the picky eaters is much lesser than the non-picky eaters (Figure 3).

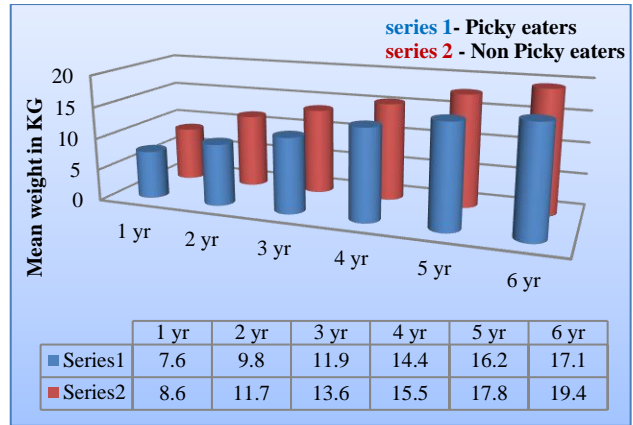


Figure 2: Mean weight is significantly lower in picky eaters.

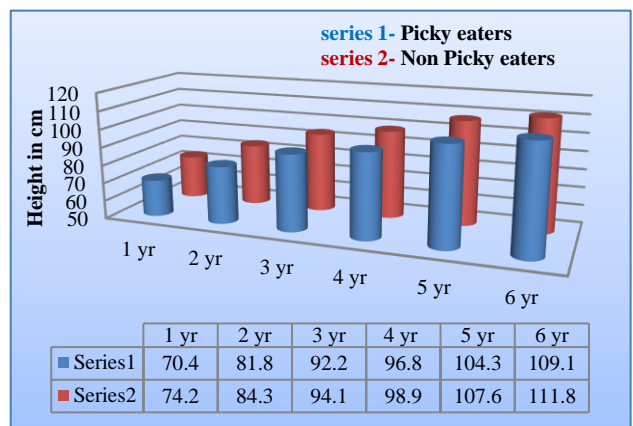


Figure 3: Mean height of the picky eaters is lesser than the non-picky eaters.

Most Parents of picky eaters confessed that they struggles over food frequently, worried because child eats too little and over the type of food he prefers and also need to Prepare a separate meal for the child (Table 2).

Table 2: Parent reports of their behaviors relevant to child’s eating.

Parental behavior	Not picky	Picky eaters
Frequent struggles over food	17%	65%
Struggle because child eats too little	9%	79%
Struggle over the types of foods he prefers	8%	62%
Prepare separate meal for a child	14%	59%

In order to analyse parental sources for information related to their children’s picky eating behaviour, most parents said they either go to Parents of other children or Paediatrician to seek information regarding picky eating, but 60% declared that they value the paediatrician’s opinion most, ahead of their friends, much ahead of newspaper, magazines and network forums (Table 3).

Table 3: Parental sources-information on picky eating and its reliability.

Sources	Go for information	Thought reliable
Parents of other children	48%	44%
Paediatricians	46%	60%
Professional magazines and news papers	25%	36%
Network Forums	23.00%	29%

Maternal strategies to solve feeding problems listed below in table 4, 81 % mothers said that they induce the child to eat (81%) using distraction methods like Watching TV while eating, Telling Stories etc., and other ways are Offering nutrients including supplements and 25% mothers confessed they resort to Force feeding.

Table 4: Maternal strategies to solve picky eating.

Maternal strategies	
Induce the child to eat	81%
Watching Tv while eating	48%
Telling Stories	40%
using Toys	37%
Walking around while eating	20%
Give Sweet food as encouragement	20%
Others	10%
Offer other nutrients	20%
Force feeding	25%

The types of feeding difficulties were classified according to Dr Kerzner’s classification.

In our study, Infantile Anorexia or fundamentally vigorous child (56.7%) is the commonest type of feeding difficulty followed by highly selective Intake (48.5%) and Parental Misperception (32.1%) Fear of feeding was noted in 4.5% and apathetic and withdrawn noted in 1.8% (Table 5).

Table 5: Maternal strategies to solve picky eating.

Type of feeding difficulty	%
Infantile anorexia or fundamentally vigorous child	56.70%
Highly selective intake	48.50%
Parental misperception	32.10%
Fear of feeding	4.50%
Apathetic and withdrawn child	1.80%

Table 6: Parenting styles-Diana Baumrind-self assessment checklist.

Parenting styles	%
Authoritarian or Controlling parenting	62%
Authoritative or Responsive parenting	40%
Permissive or indulgent parenting	48%
Disengaged or Neglectful parenting	11%

The most common parenting style identified was Controlling or Authoritarian type (62%) in our study, followed by Permissive or Indulgent parenting (48%). The most desirable form of parenting i.e., Responsive or Authoritarian type was only 40%. Few parents (11%) resort to Disengaged or Neglectful parenting (Table 6).

DISCUSSION

Picky eating is a complex behaviour which is difficult to define accurately in childhood and it still a matter of debate whether it can significantly affect their growth. The short term consequences could be they consume a less nutritious diet, impaired macro and micronutrient intake resulting in undernourished (stunting, wasting) and micronutrient malnutrition, impaired mental development and Immunity. Long term consequences are increased stress for the child, increased risk of eating disorders and increased health care costs for the family.

Nutrition and family studies researchers at the University of Illinois have collaborated for the last 10 years to understand the characteristics of picky eaters and to identify possible correlations of the behaviour.^{5,6} For most children, picky eating is a normal part of development,” says Natasha Cole, a doctoral student in the Division of Nutritional Sciences at U of I and lead author of the study. “But for some children, the behavior is more worrisome.” hopes the research can help identify the determinants of picky eating behavior in early childhood.^{6,7} The majority of the inappropriate parental interactions and interventions were significantly more common in the picky eaters than in non-picky eaters.^{8,9}

As the Picky eating behaviour starts early in life and continues into adolescent period, the current study is a cross sectional study in the age group of 1 -6 years to find out the prevalence of picky eating behaviour and parental perception and maternal strategies to deal with it with respect to their parenting styles.

In our study, the prevalence increases with age from 32.2% to 69.2% with mean of 58.9% with similar prevalence 59 % of picky eating behaviour in the study done by Yong xue et al (2014) in china.¹⁰ Other studies done by Carruth et al in US clinical study (2004) shows mean prevalence as 34 % with increasing trend of picky eating behaviour from 19 % (4mon) to 50 % (24mon).¹¹ European online research survey (2006) shows mean prevalence of 43.4 % ranging from 28 % at 1 year of age to 54 % at 5 years of age.¹² Children’s eating behaviour survey, Shangai (shows prevalence of picky eating to be 40% with increasing trend with age, 12.2 % at 1 year to 49.2 % at 6 years.¹³

The children in the Picky eating group had significantly lower anthropometric measures, both mean weight (Figure 2) and mean height (Figure 3) compared with the non-picky eating group in our study. A longitudinal study reported that children who are picky eaters are more likely to have a low BMI-for-age.¹⁴

The mothers can be part of the Feeding problem and they struggle over food frequently and have to prepare separate meal etc causing parental conflict and anxiety (Table 3). when asked through Face to face interview, how worried they are, 50 to 60% said they were very much worried with their child's feeding issue, less than 10% are quite indifferent; they don't care one way or another; 20 % don't worry much.

But when asked where do they go for help to seek information? They either go to Parents of other children or Paediatrician, but when you look to see whose opinion they value most, 60% declared that they value the paediatrician's opinion most, ahead of their friends, much ahead of newspaper, magazines and network forums (Table 4). Similar observations were noted in shanghai study.¹³

Of the Maternal strategies to solve feeding problems listed above (table 5), most mothers said that they induce the child to eat (81%) with distraction methods like Watching TV while eating, Telling Stories, using Toys, Walking around while eating, Give Sweet food as encouragement etc., other ways are Offering nutrients including supplements and 25 % mothers confessed they resort to Force feeding, a sort of shovelling in food promoting unhealthy eating habits. Similar observations were noted in shanghai study.¹³

A structured parental questionnaire based on Stanford feeding Questionnaire on Child- parent feeding behaviour and Dr Kerzner and Dr Chatoor's Classification of feeding difficulties in children was administered. In our study, the commonest type of feeding difficulty was found to be Infantile Anorexia or fundamentally vigorous child (56.7%) is followed by highly selective Intake (48.5%) and Parental Misperception (32.1%) Fear of feeding was noted in 4.5% and apathetic and withdrawn noted in 1.8 % (Table 5).

In our study, the most common parenting style was Controlling or Authoritarian type (62%), where parents uses controlling feeding practices such as restriction or pressurising, ignoring behaviour cues. This is followed by Permissive or Indulgent parenting (48%), where parents set few limits or expectations for child and over responding to child needs and wants. The most desirable form of parenting i.e., Responsive or Authoritarian type (40%) where parents sets limits with clear expectations, responding to child's needs and interpreting behaviour cues well. Few parents (11%) resort to Disengaged or Neglectful parenting where few limits are set, ignoring behaviour cues and needs (Table 6).

In some studies, food neophobia and food rejection were related with limited preference for all food groups- especially vegetables and fruits.^{3,7,9,15} In the present study, picky eaters with behaviors related to choosing a limited variety of foods had a lower quality of diet for some micronutrients, but not energy.¹⁶ Birch and Marlin found

that as the number of exposures to a food increased, the child's preference for that food increased.¹⁷

CONCLUSION

As the prevalence of picky eating behavior is increasing with age, causing parental anxiety and conflict in the family, disrupting Parent child bonding. Paediatricians should be thoroughly equipped with knowledge of different Feeding difficulties and their specific management and help parents in doing their best by correcting their parenting style.

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