

Clinical Article

Eating and Mealtime Problems in Children in USA and UK: A Cross-Cultural Study

N D Mehta; H R Shah; R Patel; J Glutting; U Blecker; D I Mehta

Abstract

Objective. Prevalence of passive feeding in USA and UK White families with USA and UK Gujarati first generation immigrant families was compared to see if the practice correlates with eating and mealtime stress. Gujarati families traditionally practice passive feeding. **Design.** One-hundred twelve healthy White and Gujarati children aged 2 to 6 years (mean 47.6 months, 12.9 SD) had levels of parental stress during mealtime, use of passive feeding, demographic data and The Children's Eating Behavior Inventory (CEBI) recorded the information. USA Gujarati community migration occurred more recently than in UK. **Setting.** Suburban primary care well child clinics in New Jersey, USA and London, UK. **Main Outcome Measures.** Passive feeding was significantly associated with parental high stress, with a relative risk of 2.6 (1.3-4.2 95%CI). USA and UK White children had significantly lower prevalence of passive feeding than USA and UK Gujaratis (14.3% vs. 46.0%), in keeping with traditional practices, but also proportionally lower parental high stress (7.1% vs. 26.8% respectively). Gujaratis in both countries had similar rates of passive feeding, even though migrations to USA were more recent. **Conclusion.** Parental high stress with children during mealtime is common in White families, though less so than in Gujarati families. Passive feeding was associated with increased parental stress in all groups. *Int Pediatr.* 2003;18(4):217-222.

Key words: Eating and mealtime problems, Children's Eating Behavior Inventory (CEBI), Passive feeding

Abbreviations: CEBI, The Children's Eating Behavior Inventory; SES, socioeconomic status; EPS, eating perception score; PPS, parent perception score

Introduction

Feeding is one of many important ways that parents nurture their infants and children. The child's behavior during meals, the regularity of mealtime and the quantity, quality and variety of foods consumed are all major areas of concern to parents.¹

Problems in these areas often result in parents questioning the adequacy of their parenting skills and on occasion can lead to reduced nutritional intake^{2,3} and poor parent child interaction.^{4,5} Eating and mealtime problems can be exacerbated as the child grows.^{6,7} Unfortunately, feeding problems generally are only a concern to the practitioner when they impact growth.⁸ While these problems may stem from organic causes, inappropriate food selection and inappropriate dynamics around feeding may be more common, resulting in high parental stress.^{9,10} It has been estimated that 25-30% of feeding interactions may be perceived as problematic ranging from minor problems such as messy, noisy and disruptive mealtime behaviors to major total food refusal.^{1,11}

Children's eating behaviors during mealtime in this age group can be classified as passive, where parents or caregivers feed, active where eating is independent, and supportive, where eating pattern is independent but encouraged.¹² Though passive patterns are thought to be high risk for development of subsequent problems during mealtime, and are commonly discouraged,^{7,9} there have been no studies to suggest this. Such feeding practices however are traditional in many societies, including Gujarati Indians, with passive feeding beyond five years age commonplace (authors' unpublished observations).

A few previous studies document cultural variations that exist in the eating/feeding behaviors of the young child during mealtime.¹²⁻¹⁵ Migratory studies have been shown to increase understanding of multifactorial disease processes, particularly by selecting high-risk populations.^{16,17} Gujaratis originate from Western India, with merchant communities making up sizable homogeneous and stable immigration populations in

From the Children's Seashore House of the Children's Hospital of Philadelphia, Philadelphia, PA (N D Mehta), Barnet Regional Health Authority Family Practice, Barnet, London, UK (H R Shah), Department of Psychology, Rutgers University, NJ (R Patel), Department of Pediatrics, Tucson Medical Center, Tucson, AZ (U Blecker), and the Alfred I duPont Hospital for Children, Wilmington, DE (J Glutting, D I Mehta).

Address correspondence to Uwe Blecker, MD, PhD, FAAP, Director, Pediatric Gastroenterology, 5225 E. Knight Drive #101, Tucson, AZ 85712.

both USA and UK. The migrations have occurred within the last 10 to 20 years in the USA, and 40 years in the UK, and while both have many families that are first generation immigrants, the community is larger and more established in the UK.¹⁸ We reasoned that passive feeding would continue to be more prevalent in first generation Gujarati immigrants, and thus enable study of the association of passive feeding on parental stress during mealtime when compared with indigenous peers. Consistent findings in both countries would strengthen any associations seen. Equally, differences in passive feeding practices between groups, as might occur from influences from acculturated older immigrant community to the first generation immigrants in the UK for example, would allow better understanding of strength of association of passive feeding and mealtime stress.

We used the Children's Eating Behavior Inventory (CEBI) as the measure of mealtime problems. This is an instrument completed by parents, developed to screen for eating and mealtime problems by providing an objective assessment of the reported type and severity of the problem, called the Eating Problem Score (EPS) and a measure of the degree of stress to the caretaker, the Parent Perception Score (PPS). It is suitable for use across a broad age-span and in a wide variety of medical and developmental disorders. The reliability and validity has been tested and confirmed in a predominantly White American population in both clinic and non-clinic samples in a study carried out by Archer et al.¹⁹

Subjects and Method

The study population comprised of children aged two to six years, attending well child clinic at suburban Primary Care Offices. The ethnic group chosen consisted of Gujarati children residing in suburban USA and UK. White children from the same offices were controls. Table 1 lists the demographic characteristics. Inclusion criteria consisted of selecting the oldest qualifying child in a given family with parents of the same ethnic background. Any child with a diagnosed feeding disorder, poor growth as determined by weight for height below 2 SD or weight for age below 2 SD, or chronic medical or surgical condition was excluded.

A small pilot survey of ten Gujarati families residing in the USA, attending a community gathering was

performed. The CEBI was administered to a parent. In addition, the grandmothers were asked about their practice of passive feeding when child-rearing in India, and if recorded as 'often' or 'always' on the CEBI item, the duration was recorded. Based on these results, the estimated sample size for this study population and controls was 30. In addition 9 out of 10 families had one grandmother available; all reported practicing passive feeding methods as the norm when child rearing in India. This practice commonly continued up to the ages of 4 or 5 years (unpublished observations).

The parents of all children fulfilling the selection criteria were invited by their physician to participate in the study. IRB approved informed consent was obtained. The following questionnaires were administered in USA: (1) General Demographic Data²⁰ to assess socioeconomic status (SES), and (2) The Children's Eating Behavior Inventory (CEBI) for Eating Problem Score (EPS) and the Parent Perception Score (PPS). Height, weight, and hence weight-for-height and weight-for-age were recorded on standard National Center for Health Statistics growth charts to confirm eligibility. This was repeated in the UK.

Statistics

The groups were compared on their eating behavior as measured by the EPS and PPS in the Child Eating Behavior Inventory (CEBI) using an analysis of covariance (ANCOVA). Comparisons between the two groups on gender, age, growth parameters and SES as determined by General Demographic Data were performed and included as potential covariates. Post Hoc comparisons were completed using adjusted group means and Bonferroni correction.²¹ Practice of frequent passive feeding, recorded as 'often' or 'always' on the CEBI, was compared in the combined USA and UK Gujarati and USA and UK Whites groups. High parental stress during mealtime recorded as 'often' or 'always' on the CEBI was also compared in the same combined groups. The Chi-Square test was used for these comparisons. A statistical significance level of 95% ($p < 0.05$) was chosen.

Results

The mean age for the USA group was 51 months, slightly higher than the mean age of 43 months for

the UK group ($P < 0.01$), probably reflecting differences in routine health visits. Only three (2 Whites, 1 Gujarati) were not enrolled because of refusal to participate; none attending the well-baby clinics met the exclusion criteria. Table 1 presents adjusted means, by group, for age and SES. Rate of mothers working was similar for groups from the same country.

Analysis of covariance (ANCOVA) was used to compare groups on the dependent variables. The independent variable was ethnicity (USA Whites, USA Gujaratis, UK Whites, and UK Gujaratis). Dependent variables were the (EPS) and (PPS). A covariance procedure was necessary because preliminary one-way analyses of variance showed that the four groups differed significantly on the variables of age ($P < 0.005$) and SES ($P < 0.001$). Therefore, age and SES were employed as covariates in order to remove their effects prior to comparing groups on the dependent variables.

Results from the first ANCOVA showed a significant group difference on EPS ($F = 7.20$, $df[3, 111]$, $P < 0.001$). Post hoc comparisons indicated that USA Whites obtained significantly lower mean ratings than both USA Gujaratis ($P < 0.001$) and UK Gujaratis

($P < 0.02$). Likewise, UK Whites obtained lower mean ratings than USA Gujaratis ($P < 0.01$) and UK Gujaratis ($P < 0.05$). There were no differences between USA and UK Whites or between USA and UK Gujaratis.

ANCOVA results for PPS were statistically significant ($F = 17.94$, $df[3, 111]$, $P < 0.001$). Post hoc analyses showed the same general results as that for EPS. Specifically, group comparisons on PPS demonstrated that USA Whites obtained significantly lower average ratings than both USA Gujaratis ($P < 0.001$) and UK Gujaratis ($P < 0.01$) (Table 2). Likewise, UK Whites obtained lower mean ratings than USA Gujaratis ($P < 0.001$) and U.K Gujaratis ($P < 0.004$). There were no differences between USA and UK Whites. However, unlike that for the EPS contrasts, USA Gujaratis obtained significantly higher PPS results than UK Gujaratis ($P < 0.05$).

Frequent Passive feeding was reported in 26/56 (46%) of UK and USA Gujaratis compared with 8/56 (14.3%) of UK and USA Whites ($P < 0.001$ Chi test). High parental stress was reported in 15/56 (26.8%) UK and US Gujaratis compared with 4/56 (7.1%) of UK and USA Whites ($p < 0.01$ Chi Test, Yates

Table 1 - Demographics

		N	Mean (months)	SD
Age	USA Indian	30	51.3	13.0
	USA Anglo	30	51.4	12.6
	UK Indian	26	42.3	11.5
	UK Anglo	26	44.3	12.4
	Total	112	47.6	12.9
SES	USA Indian	30	50.5	8.2
	USA Anglo	30	48.2	10.5
	UK Indian	26	46.8	16.8
	UK Anglo	26	36.7	13.2
	Total	112	45.8	13.3

SES: Socioeconomic status; N: Number of subjects; SD: Standard deviation

Table 2 - Parental Perception Scores

(I) Grouping Variable	(J) Grouping Variable	Mean Difference (I-J)	S.E.	p-value ^a	95% Confidence Interval for Differences	
					Lower	Upper
USA Indian	USA Anglo	14.31	3.677	0.001	4.43	24.20
USA Indian	UK Indian	2.523	3.957	1.00	-1.16	13.16
USA Anglo	UK Anglo	-1.085	4.097	1.00	-12.1	9.93
UK Indian	UK Anglo	10.708	4.098	0.05	-0.31	21.72

^aThe mean difference is significant at the 0.05 level

S.E.: Standard Error

p-value, significance

correction). When looking at the whole group, passive feeding was found to be significantly associated with parental stress ($p < 0.005$ Chi test), with a relative risk of 2.6, 95% confidence interval 1.3 – 4.2.

In sum, the general trend across the EPS and PPS, analyses was for Whites from the USA and UK to obtain statistically significant differences compared to Gujaratis from the USA and UK Whites from the USA and UK showed no, true differences on the two dependent variables. For Gujaratis, no differences were found between individuals from the USA and UK on the EPS. However, on the PPS dependent variable, Gujaratis from the USA scored much higher. Passive feeding was significantly higher in both populations, as was parental stress.

Discussion

Passive feeding for the entire group was significantly associated with parents reporting high stresses during mealtime, with the relative risk of high parental stress with passive feeding of 2.6. Passive feeding was indeed practiced more commonly in Gujaratis (46%) than Whites (14.3%). In both countries, the CEBI scores remained remarkably constant for Whites. The level of high parental stress during mealtime at 7.1% underscores the magnitude of the problem in Whites, reported by others in case studies,²² and is a significant health concern. These complaints are considered minor by health care providers, especially when the height and weight for the child falls within the normal percentile.^{23,24}

Both groups of Gujaratis also had similar scores. Gujarati from both the USA and UK were found to have significantly higher scores on eating problems compared with the Whites from both these countries. In addition, the parents perception of these behaviors as being a problem was also found to be significantly higher in the Gujarati population as compared to the Whites, though interestingly enough, the Gujarati parents in USA perceived greater problems than those in the UK.

Differences seen between Whites and Gujaratis could conceivably reflect inappropriate use of the CEBI in culturally diverse groups. However the high level of reported parental stress during mealtime in Gujaratis (26.8%) suggests the differences seen on the CEBI have significance. The likely explanation is the Gujarati population living in both USA and UK has

an inherent problem with feeding in this age group of children. One explanation is that when the parents move from their home country and settle in the USA or UK, they have to overcome many differences in lifestyle and culture and learn to assimilate into the mainstream culture.^{25,26} Anticipation of need to change feeding practices during mealtime without the extended family and home help resources common in India may not occur, but instead reluctantly enforced by the changing environment and trial and error. Indeed without this family support the parent may be experiencing more stress in all areas, the mealtime being just one of them. Furthermore, the foods the child is being served will undergo adaptation and the child will also begin to acquire new tastes for different foods. Some of these foods, typically fast foods may be desirable to the child, but perceived as inappropriate by the parent.²⁷⁻³⁰ Other factors, though minimized by the inclusion criteria, such as family size, nutritional state, and indeed the recommendations of grandparents, when present, are also likely to be important.

Though eating and mealtime behaviors may lead to high parental stress, such stress itself may lead to aberrant mealtime behaviors. However, it is likely that the higher prevalence of passive feeding in the Gujaratis is a result of tradition, as suggested by our pilot study. Thus the higher prevalence of stress is likely to be a consequence of such mealtime practices in a new environment. Similarly, passive feeding could also be a risk factor for high parental stress in Whites. The general perception is that this feeding behavior is abnormal.^{7,9} Passive feeding may lead to coercive feeding, taking away the child's control during mealtime, and eventually lead to food refusal, pocketing of food, or even hiding food.^{31,32} In addition, the child is unable to learn the value of satiety or hunger and may not appreciate the value of learning new tastes.³³ The high level of stress during every mealtime threatens to become a traumatic experience for the child and a never-ending battle for the parent, instead of being a pleasurable occasion.^{34,35}

Cross-cultural variations in Eating Disorders in older children and adolescents, such as anorexia nervosa and bulimia³⁶ have been studied, and suggest a dramatic increase among all social classes and ethnic groups in the USA and UK.³⁷ The degree with which the individual assimilates to the mainstream culture has been proposed as an important factor.³⁸⁻⁴⁰ Similar

mechanisms may well lead to the high prevalence of eating and mealtime problems reported. Acculturation studies in the Gujarati group with a larger sample size, as well as on other ethnic groups with several generations involved may allow eating and mealtime problems in general, and effect of passive feeding in particular to be further studied.

In conclusion, eating and mealtime behaviors commonly lead to high parental stress during mealtime. Passive feeding was found to be significantly associated with high parental stress. The migratory approach used in the study suggests that, in the Gujarati families, the high rate of passive feeding, though the norm in Western India, is a risk factor leading to parental stress in the UK and USA, and probably should be discouraged. Passive feeding is also practiced in the indigenous populations in the UK and USA, and may also be a causative factor in the significant rate of high parental stress reported. The CEBI appears to be a consistent, valid tool for such studies across cultures within and between countries. Further studies in this field, possibly looking at other ethnic groups and varying levels of acculturation, are needed to better understand factors leading to the high rates of eating and mealtime problems reported, and methods to diminish this unnecessary stress in the parent-child interaction.

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