Original Article

Feeding Behavioral Assessment in Children with Cleft Lip and/or Palate and Parental Responses to Behavior Problems

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Abstract

Background: Children with cleft lip and/or palate frequently experience feeding difficulties that may place them at risk of malnutrition. Parents' negative response to these problems is associated with development of problematic behaviors in the child. This study aimed to investigate feeding behavior in children with cleft lip and/or palate and parental responses to these problems. **Materials and Methods:** A total of 120 parents of children (aged 6 months to 6 years) with cleft lip and/or palate were recruited from the Cleft Lip and Palate Clinic in Isfahan University of Medical Sciences, Isfahan, Iran, who gave consent and completed a two-part questionnaire through interviews. Part A of the questionnaire consisted of 25 items that evaluate children's feeding behavior during mealtimes and part B consists of 18 items that assess parental response (strategies, feelings, and anxiety) to these problems. **Results:** Independent *t*-test showed a significant difference in the mean score of feeding behavior in mothers ($P = 0.020$) and parental responses in fathers ($P = 0.030$). The Pearson correlation coefficient showed an inverse correlation between behavioral feeding score and children's interval ($P = 0.008$, $r = -0.381$) and direct correlation between parental response and feeding behavioral difficulties ($P = 0.003$, $r = 0.428$). **Conclusions:** With regards to the results representing appropriate feeding behaviors in children with cleft lip and/or palate, it is suggested that feeding behavioral assessment is an essential nursing and nonmedical intervention for all children.

Keywords: *Cleft lip, Cleft Palate, Feeding Behavior, Iran, Parent*

Introduction

Cleft lip or cleft palate is the most common birth defect in the United States, with an occurrence rate of one case per 600 live births. The prevalence of cleft palate alone is one in every 2500 live births.[1] Studies have reported the prevalence of cleft lip and/or palate between 0.78 to 1.65 cases per 1000 births.[2,3] Despite studies on the prevalence of oral clefts in cities across Iran, the prevalence of cleft lip and palate has not been studied in Isfahan, Iran. Overall, 1500 people with facial anomalies are under the care and treatment of the cleft lip and palate team.

Children with cleft lip and/or palate have numerous problems including nutritional deficiencies, modified front teeth, delay or change in speech development, and otitis media.[4] Feeding infants with cleft lip and/or palate is a challenging care process and educating parents to establish successful feeding is one of the important tasks of nursing.[5] The complexity of feeding infants with cleft lip and/or palate depends on the type of deformity and the severity. Nutritional problems can affect weight gain during infancy and can have different effects based on the gender of the child.[6,7] When children are facing a serious problem, they cannot normally adapt to their surroundings, and therefore, they become powerless in obtaining acceptable social behaviors and develop behavioral problems. One of the most common behavioral problems in children is nutritional problems,[8] which are observed in 25–50% of healthy infants. This reflects the significance and importance of this problem in this age group. Although some nutritional problems are normal and transient, 3–10% of children showed severe problems, which if untreated, placed them at risk of developmental and behavioral problems, as well as growth retardation.[9]

Response is the act or deed performed in reaction to the action of others. Parents' responses in the available studies have been evaluated in different ways. Some of the studies have considered responses

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as parents' strategies for and solutions to their children's problems. Some other researches have assessed responses as parents' mental responses toward stress. Parents' negative responses and negative interactions are associated with the development of children's behavioral problems.[10] Parents' negative responses to their children's eating and nutritional problems may actually lead to the formation of behavior problems in their children.[11] Therefore, to improve these interactions and for the formation of positive actions in parents, it is important that these responses be identified.

Given the importance of evaluating feeding behaviors in children, the lack of studies in the field of nutritional behaviors in children with cleft lip and/or palate, and evaluations of the responses of parents to feeding behavior problems in these children, the researchers designed this descriptive study to determine the eating behaviors of children with cleft lip and/or palate and the responses of their parents to these problems in selected health centers of Isfahan.

Materials and Methods

In this descriptive study, nutritional behaviors of children and parents' responses to their nutritional behavior problems were investigated. The study population included children of 1–6 years of age with cleft lip and/or palate who referred to the Cleft Lip and Palate Clinic of Isfahan University of Medical Sciences, Isfahan, and their parents. The inclusion criteria included children with cleft lip and/or palate, who underwent their first reconstructive surgery and recovered, and absence of other congenital abnormalities, systemic diseases, and Pierre Robin sequence. The exclusion criteria included unwillingness to continue to cooperate and respond to the researchers' questions. After receiving permission from the Ethics Committee of Isfahan University of Medical Sciences, convenient sampling was performed over a period of 4.5 months from 1/09/2014 to 7/01/2015.

Data were collected through interviews and using a researcher-made questionnaire. This researcher-made questionnaire was designed based on the Montreal Children's Hospital (MCH) Feeding Scale and Behavioral Pediatrics Feeding Assessment Scale (BPFAS). The MCH-Feeding Scale includes 14 items of parent report rated on a 5-point Likert scale. This scale was designed to identify nutritional problems in children of 6 months to 6 years of age. Higher scores indicate more severe nutritional problems in children. The BPFAS includes 25 items that assess nutritional behaviors in children, and 10 items that determine the strategies used by the parents; the sum of scores in BPFAS is 100. This questionnaire is completed through interviews or by the parents and each item is answered with yes or no. The final researcher-made questionnaire consisted of three parts. The first part included demographic and underlying information of the parents and child. The second part of the questionnaire assessed the nutritional behaviors of children with cleft lip and/or palate while eating. It consisted of 25 descriptive phrases scored from 0 to 4. The minimum and maximum total scores obtained from this questionnaire were 0 and 100, respectively. Higher scores indicated better conditions of children's nutritional behaviors from parents' perspective. The third part of the questionnaire evaluated the responses of parents toward the nutritional behaviors of children with cleft lip and/or palate. It consisted of 18 phrases associated with the responses of parents (feelings, concerns, and strategies), and each phrase was scored from 0 to 4. The minimum and maximum scores obtained from this questionnaire were 0 and 100, respectively. Lower scores indicated more positive response of parents to the nutritional behavior problems of the children. In the second and third parts of the questionnaire, the positively charged semantic phrases were scored from 0 to 4 and negatively charged phrases were scored from 4 to 0. In order to obtain a better interpretation, the scores of the second and third parts of the questionnaire were calculated on the basis of 100.

To determine the validity of the questionnaire, content validity was used, and its reliability was determined through internal consistency. Cronbach's alpha for part A of the questionnaire (evaluation of nutritional behaviors of children with cleft lip and/or palate) was 0.79 and for part B of the questionnaire (evaluation of parental responses to feeding behavior problems of children with cleft lip and/or palate) was 0.08. One of the strengths of this researcher-made questionnaire was its ability to evaluate the responses of parents (concerns, feelings, and strategies) to feeding behavior problems of children. If any of the behaviors was considered to be problematic by the parents, the response to that problem was simultaneously assessed. The required sample size in this study was 120, which was calculated based on a confidence interval of 0.95, power factor of 80%, and the minimum estimated correlation coefficient between the nutritional problems of children and the parents response score (0.25). The questionnaires were completed by the researcher through interviews after explaining the purpose of the study and obtaining written consent forms from the participants. Data analysis was performed using the Statistical Package for the Social Sciences software (version 16, SPSS Inc., Chicago, IL, USA). In order to determine the relationship between the feeding behavior of children and parents' responses, the Pearson correlation and regression analysis were used. To examine the relationship of the scores of children's nutritional behavior and parents' responses with some background and demographic characteristics of children and parents, the Pearson correlation coefficient, Spearman's correlation coefficient, independent *t*-test, and analysis of variance (ANOVA) were used.

Ethical considerations

Participation of all the participants in this study was completely voluntary. Before data gathering, the researcher introduced herself, explained the aim of the study to the participants, and asked them to review and if desired sign the informed consent. Confidentiality of information were taken in to consideration too.

Results

The majority of the participants were mothers (87.5%). The mean and standard deviation of parents' age was 31.56 (5.80) years. Mean number of family members was 3.76 (0.75), and mean number of children was 1.77 (0.75). Most participants had a diploma (35.8%) and were housewives (75%). The income of the families was between 170 to 280 USD (47.5%). The mean and standard deviation of the children's age was 3.48 (2.65) years, birth weight was 2988.08 (445.58) g, gestational age was 39.21 (1.18) weeks, the age difference with the previous child was 6.20 (2.65) years, the current weight was 16.35 (4.20) Kg, the current height was 97.53 (13.39) cm, and the current head circumference was 47.84 (1.58) cm. The numbers of male and female participants were equal (each 50%). The majority of children (58.3%) were the first child of the family. The cleft palate (45.8%) had the highest prevalence among facial anomalies in the children. In addition, the percentage of the number of (one or more times) lip reconstructive surgery alone was 53.3%, corrective palate surgeries alone was 84.2%, and combined reconstructive surgery of the lip and palate was 38.3%.

Regarding the distribution of nutritional behavior, results showed that the most frequent responses in nutritional behavior with a positive charge included enjoyment of eating (often in 56.7% of cases), the desire to eat (often in 59.2% of cases), and eating vegetables (sometimes in 35.8% of cases). The most frequent nutritional behaviors that had a negative charge included refusing to eat new food (sometimes in 27.5% of cases) and getting up from the table (sometimes in 40% of cases). The results of the frequency distribution of parents' responses to nutritional problems of children with cleft lip and/or palate showed that the positive responses of parents included patience and protection of children (always in 90.8% of cases), assistance of support groups (always in 88.9% of cases), assistance of family members (always in 75% cases), using food substitutes (always in 82.5% of cases), using distractions (always in 92.5% of cases), referring to a dietician (always in 92.5% of cases), and neglecting children's excuses (always in 93.3% of cases). The responses of parents who had a negative charge included concern (never in 63.3% of cases), despair (never in 80.8% of cases), anxiety (never in 85% of cases), imposing stress (never in 74.1% of cases), the use of force (never in 69.1% of cases), the use of corporal punishment (never in 94.2% of cases), becoming angry and fighting with the child (never in 80.9% of cases), fatigue (never in 66.8% of cases), using antinausea and vomiting medication (never in 96.7% of cases), use of verbal threats and scaring the children (never in 88.3% of cases), and giving prizes for eating (never in 84.2% cases). The mean and standard deviation of children's nutritional behaviors was 81.9 (9) and the parental responses was 8.5 (4.9).

The Pearson correlation coefficient showed that there was an inverse correlation between the children's nutritional behavior score and the parents' response to the problems ($P = 0.001$, $r = -0.72$). In children with better nutritional behaviors, parents also reported lower nutritional problems and gave lower scores to the problem. Independent *t*-test showed that the mean nutritional behavior of the child from the mother's perspective was significantly lower ($P = 0.020$) than that from the father's perspective. Moreover, mean parental responses to children's feeding behavior problems was significantly lower in the fathers compared to the mothers ($P = 0.030$) [Table 1].

The Pearson correlation coefficient showed a negative relationship between the age difference of the child with the previous child and the nutritional behaviors scores ($P = 0.008$, $r = -0.381$). However, it had a direct relationship with the parents' response to nutritional problems ($P = 0.003$, $r = 0.428$). Nevertheless, the scores of nutritional behaviors of children and the parents' response to problems had no significant relationships with other variables. One-way ANOVA showed that the nutritional behavior of children had a significant relationship with the type of problem (type of cleft) ($P = 0.040$). The nutritional behavior in children with both the problems (cleft lip and palate) was lower than the other two groups.

Discussion

The mean scores of nutritional behaviors of children with cleft lip and/or palate while eating (81.1) and parents' responses to nutritional behavior problems of their children (8.5) showed that, from the parents' view, these children had appropriate nutritional behavior. Therefore, parents reported less nutritional problems. Powers *et al*. assessed parents reports on the eating behaviors of children with type I diabetes and compared them with healthy

Table 1: Comparison between feeding behavioral score (A) and parental response to feeding behavioral difficulties score (B) in mothers and fathers groups

	Mothers		Fathers		Independent *t*-test	
	Mean	SD	Mean	SD	*t*	*P*
A	80.4	9.2	85.6	5.9	2.12	0.02
B	9.2	5.2	4	3.3	2.01	0.03

SD: Standard deviation

children.[12] They showed that parents of these children, in comparison with the control group, reported more nutritional behavior problems.[12] Schreck *et al*. compared the nutritional behaviors of children with and without autism.[13] They showed that nutritional behaviors with negative charges, including refusing to eat, the need to use special containers, special offering of food, eating softer food, and lower consumption of food, were more common in the study group.[13] Drewett *et al*. studied the nutritional behaviors of children with growth failure and compared them with a control group.[14] Their findings were also consistent with that of the present study.

An inverse relationship existed between the scores of nutritional behaviors of children with cleft lip and/or palate with the scores of parental responses to problems. In other words, parents showed mostly positive responses toward children with nutritional deficiencies. This result was consistent with that of the study by Chan *et al*., which showed that the mean (SD) of positive and negative responses of parents toward nutritional behaviors were 29.0 (4.1) and 47.8 (4.3), respectively, and the negative nutritional actions of parents were less frequent compared to their positive actions.[15]

One of the strengths of this study was the assessment of parental responses (concerns, feelings, and strategies) to nutritional behavior problems, and if parents reported a problem, the response to that problem was simultaneously assessed. Ramsay *et al*. conducted a study with the aim to prepare a new tool with psychological characteristics to identify nutritional problems in children of 6 months to 6 years and 11 months of age according to parental reports.[16] They studied the parents' responses as two separate items, i.e., impact of the child's nutrition on the parent–child relationship and the relationship between family members. They showed that the parents of children in the intervention group achieved a higher mean score than the control group, which showed the negative affect on the relationship between the parent and child as well as family members.[16]

There were some differences between the present study and previous studies on nutritional behaviors which included the lack of a control group that did not allow the researchers to compare their findings between a study group and healthy group. In addition, lack of access to studies on nutritional behaviors of children with cleft lip and/or palate and parental responses did not allow the researchers to compare the study results with similar studies. However, studying the relationship of nutritional behaviors and parental responses with other underlying and demographic variables is an important aspect of this study. This showed significant relationships in some cases such as the child's birth rate, type of cleft (lip and/or palate), and parents (father or mother). These aspects were not investigated in other related studies.

Conclusion

Studying the nutritional behavior of children can affect the quality of health assessment and provision of preventive and therapeutic care for healthy and ill children and improve the health of children who are the future of the society. Based on the findings of the present study, it is suggested that steps be taken to help these children and their parents through targeted investigation regarding nutrition, assessment of nutritional behaviors of children with cleft lip and/or palate and children with different health conditions, and consideration of measures taken by the families in relation to children's nutrition.

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Conflicts of interest

There are no conflicts of interest.

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