

Parental Nutrition Style and Quality of Life in Obese and Underweight Boys and Girls in Zahedan City

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Abstract

Background: The influence of parents, including feeding style, through changing food consumption habits, can play an important role in the prevention or occurrence of diseases in children, and generally affects their quality of life. Therefore, the aim of this study is assessing the relationship between parental nutrition style and quality of life in children.

Methods: In this descriptive cross-sectional study, 246 parents along with their children were selected by multi-stage cluster sampling from primary schools in Zahedan. Parental Feeding Styles Questionnaire (PFSQ) and Pediatrics' Quality of Life Questionnaire (PedsQL) were used to collect data. The validities of the questionnaires were 0.74 and 0.84, respectively. Data were analyzed by SPSS V.22 software. Spearman correlation test, Independent-Samples T-test, and One-Way ANOVA were used to analyze data.

Results: Among the different levels of parental nutrition style, the mean of encouragement to eat (30.10 ± 4.20) was the highest and the mean of instrumental feeding was the lowest (15.4 ± 2.88). Moreover, the total mean of children's quality of life was 78.13 ± 9.45 which shows a high quality of life in children. A significant relationship was also found between children's quality of life and two nutritional styles of parents, such as emotional feeding ($r=0.168$, $p<0.05$) and instrumental feeding ($r=0.194$, $p<0.05$).

Conclusion: Based on the findings, children's quality of life had positive relationships with parental nutrition style, especially emotional and instrumental feeding. Accordingly, all families are encouraged to choose an appropriate eating style, promote healthy food consumption among children, and improve their quality of life.

Key Words: Body Weight, Children, Life Quality, Parental nutrition style.

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1- INTRODUCTION

Childhood is a life stage where habits, established for the whole life, begin to develop. Definitely, parents play a vital role in the development of children's health. Dependence on the adult caregiver causes children's eating patterns to be influenced by the foods that are prepared by parents. Feeding style is an important factor that describes the influence of parents on children's diet and even on the child's weight (1).

Parental feeding style refers to the specific behaviors or techniques that influence children's quality of life (2). They can be categorized as emotional feeding, instrumental feeding, encouragement to eat and eating control (3).

Emotional feeding style is the parents' use of various foods to minimize their child's negative emotional states and experiences. Instrumental feeding style is the use of food as a reward to increase desirable parental behavior or eliminate undesirable behavior. And the desire of parents to monitor the child's eating, and to adjust and prepare the child's food is considered eating control. Encouragement to eat is to stimulate and encourage the child to eat (1).

Since the majority of dietary patterns are formed in childhood, many chronic diseases in adulthood are rooted in childhood nutrition (4). Children's obesity is usually caused by severe nutritional disorders and is a threat to children's health (5). On the other hand, low-quality diets (reduced consumption of nutrient-rich vegetables, fruits and animal foods) lead to malnutrition risks (6). According to the World Health Organization, more than 39 million children in the world are obese and more than 30 million children in the 15 worst-affected countries suffer from acute malnutrition or wasting (7). Globally, in 2010, about 104 million children were under-weight, the majority

of whom lived in South Asia and sub-Saharan Africa (8).

However, parents' eating patterns seem to affect children more because parents are the ones who provide food and influence how children think about food; and, accordingly, shape food preferences and eating behaviors. They adopt feeding styles that determine the emotional climate related to feeding (9). Evidence shows that social factors have profound effects on health, so understanding the environment in which a child is born and grows up in is essential to gain insight into the nature of social influences on health (10, 11).

From studies conducted, instrumental feeding in mothers was positively associated with eating initiated by smell and appearance, and children's consumption of snacks. Emotional feeding was also related to more frequent snacking behavior in children, while 'Prompting and Encouragement to eat' was negatively associated with children's snack intake (2). Parenting practices for instance pressure and restriction to eat enhance children's risk for developing adverse unhealthy weight outcomes (12).

Quality of life is a multidimensional concept. It can be defined as mental well-being and perceived satisfaction from the emotional, physical, social, mental, and behavioral components of performance (13). Early lifestyle behaviors are affected by home conditions and family. Based on some research, children's diet and physical activity patterns are influenced by their parents' lifestyles. In these investigations on the factors affecting children's obesity, it was found that parents play a role in the incidence of childhood obesity (3, 14, 15).

Moreover, results of another study have suggested that positive parenting practices in structure were significantly associated with children's healthier intakes and less unhealthy food intakes. In addition, children with authoritarian parents and

indulgent parents consumed less fruits compared to children with authoritative parents (16). Considering the importance of the role of nutrition in children's development and the effect of the family on children's nutrition and quality of life, this research study aimed to investigate the relationship between parents' nutrition style and quality of life among elementary school boys and girls in Zahedan.

2- MATERIALS AND METHODS

2-1.Participants

The present study is a cross-sectional study conducted on primary school children and their parents and in Zahedan, Iran, October to December, 2022.

After taking the ethics committee code, data were collected in primary schools of Zahedan.

The multi-stage cluster sampling method was employed in this research. Schools were selected from 4 regions of North, South, East and West. A total of 3 girls' primary schools and 3 boys' primary schools were selected. Finally, 246 children and their parents were chosen as the study's sample, using the sample size formula for mean estimation with the 95% confidence interval

($\alpha = 0.05$), $\rho = 0/2$ and $d = 0/05$.

$$n = \frac{(Z_{1-\frac{\alpha}{2}})^2 \times \rho(1-\rho)}{d^2} = \frac{3.84 \times 0.2(0.8)}{0.0025} = 246$$

$$\alpha = 0/05$$

$$Z_{1-\frac{\alpha}{2}} = 1/96$$

$$p = 0.2$$

2-2. Measures

Two standard questionnaires were used for data collection.

a) Parental Feeding Styles Questionnaire (PFSQ):

This scale was developed by Chen and Boore (2010) and has 25 questions (17). Its purpose is to evaluate parents' feeding styles: emotional feeding (5 items), instrumental feeding (4 items), encouragement to eat (8 items), and eating control (8 items). The scoring of the questionnaire is on a Likert scale. Completely disagree = 1, disagree = 2, have no opinion = 3, agree = 4, and completely agree = 5. The highest average score on each scale shows that the parents are supportive of that feeding style. Validity of this scale was confirmed. Cronbach's alpha reliability coefficient was obtained to be above 0.74 for all dimensions (1).

b) Pediatrics' Quality of Life Questionnaire (PedsQL):

Children's Quality of Life was assessed using the Pediatrics Quality of Life standard Questionnaire (PedsQL Version 4) designed by Varney (2003). In this study, Cronbach's alpha of the children's version was calculated as 0.88 and parents' version as 0.90 (18). It consists of 23 items according to a Likert scale from 0 (never) to 4 (almost always) with 4 subscales: emotional, school, physical and social functioning. The score obtained for each subscale can be between 0 and 100. Never: score 100, very little: 75, sometimes: 50, often: 25, always: 0. The validity and reliability of this questionnaire was reported as good and appropriate in Iran by Mohammadian et al. (2013). Content validity of the questionnaire in the whole instrument was obtained to be 0.84 (19).

2-2.1. Covariates

In the present study, some Covariates such as the head of the household, gender and sleep quality of the child, parents' occupation and education, and the income status of the household were also considered. Students' weight was measured using a Seca digital scale with an accuracy of 0.1 kg, with minimal clothing and

without shoes. Height was measured using a fixed tape measure in a normal standing position with shoulders and without shoes. Then the BMI of each child was calculated and grouped according to the CDC growth charts.

2-3. Data collection

In order to collect information, the researchers coordinated with the general educational organization and the principals of the selected school. Questionnaires were distributed by the researchers (BSc Students in Nutrition) to collect the students' and their parents' information at the parent-teacher meeting. The duration of answering the questionnaires was 15- 20 minutes.

2-4. Data analysis

Data analysis was done using SPSS v.22 software. After assessing the normality status of the data by the use of Kolmogorov-Smirnov test, analyzes were performed using the Spearman correlation coefficient to determine the relationship between parental nutrition style and quality of life. Independent-Samples T-test, One-Way ANOVA analysis were used to compare the means. P-values < 0.05 were considered significant. Descriptive analyses were used to determine the means (SDs) and frequency of demographic variables.

3- RESULTS

A total of 246 parents along with their children participated in this study. 54.1% of the children were girls and 45.9% were boys. Means \pm SDs of age, weight, height of them were 9.13 ± 1.42 , 32.15 ± 12.43 , 133.4 ± 13.1 , respectively. 44.7% of children were underweight and 71.1% of them had good sleep quality. Furthermore, most of the parents were at university educational levels, and medium level of financial status. Demographic characteristics of the studied sample are presented in **Table 1**.

The findings revealed that among different levels of parental nutrition style, the mean of encouragement to eat (30.10 ± 4.20) was higher than other levels, and the mean of instrumental feeding was lower than other levels (15.4 ± 2.88) (**Table 2**). In addition, instrumental feeding was significantly correlated with gender and father's and mother's education, all levels of parental nutrition style with BMI, emotional feeding with household income, and father's and mother's education, eating control with mother's education ($p<0.05$) (**Table 3**).

Results also indicated that the highest average level of children's quality of life is related to physical functioning and the lowest level is related to emotional functioning. Moreover, the total mean score of children's quality of life was 78.13 ± 9.45 , which shows a high quality of life among them (**Table 2**).

According to **Table 3**, children's quality of life was significantly correlated with the variables of child's gender, child's sleep quality and father's education ($p<0.05$).

Table 4 and **Fig. 1** show the correlations between parental nutrition style and children's quality of life. Children's quality of life had positive relationships with emotional feeding ($r=0.168$, $p<0.05$) and instrumental feeding ($r=0.194$, $p<0.05$).

4- DISCUSSION

Many studies have investigated the quality of life in children (20-22). However, there are few studies specifically investigating the relationship between parental nutrition styles and children's quality of life. Therefore, the purpose of this research was to investigate the relationship between parental nutrition style and primary school children's life quality. In general, our findings revealed that all four parental feeding styles were significantly correlated with BMI, emotional feeding was correlated with

household income and instrumental feeding with parent's education.

The average score of eating control and encouragement to eat was higher than the other styles in children with normal BMI. Also, the average score of encouragement to eat was higher in overweight and obese children. These results are in agreement with those of previous studies (23-25).

On the other hand, parents' preferred monitoring of a child's food intake was

associated with eating control. Choosing healthy food to encourage children or using healthy food for nutrition is not considered an obstacle; the problem arises when unhealthy foods are used in such nutritional styles. A similar study showed that encouraging children to eat a variety of foods is related to healthier eating behaviors such as meal frequency, better food choices, and more fruits and vegetables.

Table-1: Demographic characteristics of study participants

Variable		N (%)
Household	Father	234(95.1)
	Mother	12(4.9)
Gender	Girl	133(54)
	Boy	113(46)
BMI(Child)	Underweight	110(44.7)
	Normal	22(9)
	Overweight	61(24.8)
	Obesity	53(21.5)
Sleep quality	<7 hours	24(9.8)
	7-8 hours	175(71)
	>8 hours	47(19)
Father's job	Employee	91(37)
	Manual worker	51(20.7)
	Free job	96(39)
	Unemployed	8(3.3)
Mother's job	Housewife	192(78)
	Employee	41(16.7)
	Manual worker	2(0.8)
	Free job	11(4.5)
Household income	Cost>Income	93(37.8)
	Cost=Income	104(42.3)
	Cost<Income	49(19.9)
Father's education	Illiterate	8(3.3)
	Under high school	98(39.8)
	Diploma	35(14.2)
	University	105(42.7)
Mother's education	Illiterate	9(3.7)
	Under high school	106(43)
	Diploma	24(9.8)
	University	107(43.5)

Table-2: Descriptive findings

Scales		Mean ± Std. deviation
Parental feeding style Subscales	Eating control	26.78±3.24
	Encouragement to eat	30.10±4.20
	Emotional feeding	16.7±4.52
	Instrumental feeding	15.4±2.88
Children's quality of life Subscales	Emotional functioning	16.39±2.93
	Social functioning	18.12±2.53
	School functioning	16.82±2.84
	Physical functioning	26.79±4.05
	Total score	78.13±9.45

Table-3: The demographic characteristics of the participants in correlation to Subscales of Parental feeding style and children's quality of life

Variable		Eating control	Encourage ment to eat	Emotional feeding	Instrumenta l feeding	Children's quality of life
		*M ± SD (p-value)	M ± SD (p-value)	M ± SD (p-value)	M ± SD (p-value)	M ± SD (p-value)
Gender	Boy	26.57±3.33	30.33±3.97	16.27±4.71	14.81±3.15	76.65±10.23
	Girl	26.96±3.18 (0.342)	29.91±4.38 (0.438)	17.09±4.34 (0.155)	15.90±2.54 (0.003**)	79.47±8.55 (0.016**)
BMI (Child)	Underweight	26.38±3.12	30.27±3.67	15.84±4.64	14.69±3.2	78.42±9.74
	Normal	29.41±2.44	32.18±5.38	16.77±4.69	15.86±2.23	80.36±7.84
	Overweight	27.34±3.1	29.8±3.89	17.62±4.36	15.64±2.56	78.54±7.8
	Obesity	25.87±3.36 (<0.001**)	29.23±4.55 (0.041**)	17.45±4.17 (0.045**)	16.40±2.41 (0.003**)	75.98±10.96 (0.237)
Household income	Cost>Income	26.93±3.11	30.06±4.13	16.54±4.07	15.46±2.54	77.89±8.24
	Cost=Income	26.94±3.48	30.23±4.13	17.29±4.86	15.65±3.11	78.14±10.24
	Cost<Income	26.35±2.99 (0.164)	29.9±4.53 (0.86)	15.82±4.51 (0.04**)	14.73±2.92 (0.177)	78.54±10.03 (0.926)
Father's education	Illiterate	27.12±3.27	27.88±3.9	15.88±4.45	14.88±3.48	79.88±8.59
	Under high school	26.41±2.79	30.29±4.38	15.59±4.11	14.39±2.89	76.13±9.54
	Diploma	26.2±3.42	28.89±4.9	18.51±4.23	16.29±2.32	80.34±8.13
	University	27.3±3.53 (0.162)	30.50±3.73 (0.096)	17.22±4.76 (0.004**)	16.09±2.72 (<0.001**)	79.32±9.6 (0.041**)
Mother's education	Illiterate	25.78±2.58	29.67±4.97	13.67±3.46	14.9±3.18	70.33±13.73
	Under high school	26.29±2.97	29.69±4.14	15.85±4.06	14.36±2.97	77.98±9.13
	Diploma	25.38±2.9	29.17±3.40	18.62±4.50	16.46±2.4	77.12±8.67
	University	27.66±3.42 (0.001**)	30.76±4.31 (0.178)	17.29±4.77 (0.002**)	16.20±2.48 (<0.001**)	79.16±9.32 (0.052)

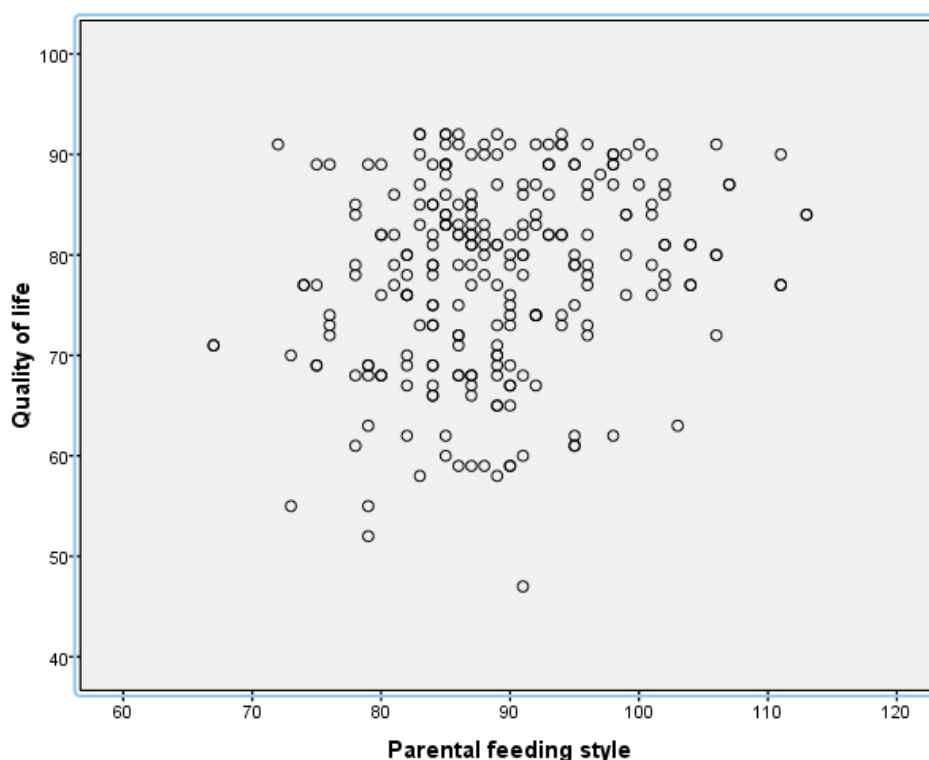
* M ± SD: Mean ± Std. deviation

** p-value <0.05 based on Independent-Samples T Test and One-Way ANOVA

Table-4: Pearson's correlation between children's quality of life and parental feeding style subscales

Variable	P-value	The correlation coefficient
Eating control	0.233	0.076
Encouragement to eat	0.301	0.066
Emotional feeding	0.008*	0.168
Instrumental feeding	0.002*	0.194

*Correlation is significant at the 0.05 level

**Fig. 1:** scatter plot of the correlation between life quality and parental feeding style

While using foods as rewards can increase the child's preferences for these foods. Therefore, the use of junk food as a reward may increase the consumption of unhealthy and energy-dense foods, leading to weight increase in children (2). Though several trials have found a correlation between emotional eating and BMI, one study has not (26). It may be due to the difference in the instruments used for the measurement and the difference in the study group.

Moreover, consistent with the findings of this study, in some studies (27-29), there

was a significant association between emotional feeding and household income.

In addition, the educational level of parents has an effect on children's nutritional intake and health. Most of the studies (30, 31), like ours, have shown that mother's education is a more important determinant for children's health, while one conflicting study (32) expressed that it was due to the less clear role of fathers in child care and there are fewer studies which have focused on the determinant role of fathers' education on children's health. Anyhow, mothers may be more

involved in day-to-day decisions about public health and children's nutrition.

Families with working mothers eat out more than housewives mothers which can lead to problems such as obesity (33). For parents, who may find themselves in work situations that combine remote work and office, changing snacking behaviors may be more challenging. Perhaps a comprehensive and integrated approach that includes health care professionals, schools, and parents working together can be effective in helping families get back on track by resuming healthy habits and losing excess weight (34).

Our results also demonstrated that children's quality of life is related to their gender, sleep quality and father's education. In this study, as in two previous studies (35, 36), the mean quality of life in girls was higher than that in boys. This difference can be attributed to culture and individual differences between the two sexes, along with economic and family status.

In line with our findings, other studies (37-39) have shown that quality of children's sleep is positively correlated with life satisfaction, self-confidence and in general, the quality of life.

Similar to our study, it has been found in other studies (32, 40) that fathers' education has a more stable effect on children's quality of life compared to mothers' education. However, another study (30) shows the opposite, which can be due to the difference in the role of each parent in the child's life in different cultures.

As observed in this study and other mentioned studies (41-43), there was a positive and significant relationship between children's quality of life and parenteral nutrition styles such as emotional and instrumental feeding. As the findings show, the quality of life plays an essential role in the parents' choice of

feeding styles during childhood, which in turn can play a role in reducing many diseases, including mental and physical diseases, especially obesity.

In addition, the quality of the diet chosen by parents has significant effects on several domains of life quality, including school performance, emotional performance, mental performance, and physical performance.

4-1. Limitations of the study

Among the limitations of this research is the poor cooperation of teachers and some school officials. Moreover, children and their parents in the poor reputation area were less willing to fill in the questionnaires. This study was performed in Zahedan, therefore, care should be taken in generalizing its findings; and it is recommended to carry out the present study on the same community in other cities to confirm the results of this study.

5- CONCLUSION

Based on the findings, children's quality of life is related to parental choices of nutrition styles. Since parents play an important role in controlling children's food intake and food choices, they should avoid instrumental and emotional eating and use control and encouragement to promote healthy food consumption. Parents' encouragement of healthy eating patterns mediates the relationship between parents' eating style and the life quality of children. Therefore, all families are encouraged to participate in educational programs to prevent unbalanced eating behaviors in children.

6- CONFLICT OF INTEREST

None.

7- ACKNOWLEDGMENTS

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8- ETHICAL CONSIDERATIONS

All participants entered the study with informed consent and they were assured about the confidentiality of their personal information. Also, Financial support was provided by the student research committee of Zahedan University of Medical Sciences with the ethics code of 10710 (IR.ZAUMS.REC.1401.259).

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