

# Relationship between Socioeconomic Status and Parental Feeding Practices for Children 3-5 years old

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## Abstract

**Introduction:** Parental feeding practices have an integral role on children's dietary intake, and thus on their long-term health outcomes. Research examining the relationship between socioeconomic status (SES) and these practices is still limited and remains inconclusive.

**Aim of the study:** Exploring the relationship between the SES and the parental feeding practices will identify target groups who may benefit from interventions aimed at modifying unhelpful parental feeding practices.

**Methodology:** This was a cross-sectional study done over 1 year. Participants were recruited from Clinical Nutrition Clinics at AbouElrish children hospital, Cairo University. A total of 712 eligible parents of children aged 3-5 years were asked to fill in El-Gilany socio-economic status (SES) scale and the Arabic version of the child feeding practices questionnaire (CFPQ), then the individual domains and the total scores were calculated.

**Results:** The mean children's age was  $3.75 \pm 1.73$ . Low social class represented 69.9% of the sample. The most common feeding practice adopted by the parents was encourage balance and variety (Mean  $\pm$  SD  $17.63 \pm 2.88$ ) while the least used feeding practice was emotional regulation (Mean  $\pm$  SD  $5.26 \pm 3.36$ ). There was statistical significance between the three levels of social classes and the following feeding practices: child control ( $P=0.002$ ), encourage balance and variety ( $P= 0.004$ ), restriction for weight ( $P= 0.005$ ) and teaching nutrition ( $P < 0.001$ ).

**Conclusion:** The parental feeding practices are changing according to the SES. These practices can be promoted to improve dietary choices and prevent nutritional problems in children.

**Key words:** SES, parental feeding practices, preschool children

## Introduction

Developing a child's ability to make healthy dietary choices is vital for their growth and development, maintaining a healthy weight trajectory and preventing the development of chronic disorders. Children feeding practices are affected by a myriad of factors including biological, environmental and social factors (1). One set of factors that have an integral impact on children's dietary intake and choices is parental feeding practices. These are content-specific, goal-directed actions adopted by parents to control or modify their child's dietary intake (the 'how, what and when') (2).

Parental feeding practices are categorized into three senior-level models: coercive control, structure, and autonomy support. 'Coercive control' includes a set of behaviors used by parents to exert intrusive pressure over their child's will. These include practices such as restriction, pressure, warnings or incentives, and using food to manage the child's negative emotions (3&4). These behaviors are usually parent-centered and impair the child's ability to self-regulate their dietary intake (5)5). In contrast, 'structure' is a form of non-coercive parental control which includes parental enforcement of rules and limits, and the organization of the home environment to facilitate or limit a child's specific eating behaviors (6). 'Autonomy support' entails developing the child's sense of autonomy and ability to make informed decisions by providing them with age-appropriate nutrition education, giving them the opportunity to engage in discussions on rules and boundaries, and allowing them to share in the food decision-making process (3). Evidence from both laboratory-based and longitudinal studies supports the negative impact of early parental feeding restrictive practices and pressure to eat practices on children's dietary habits with these children consuming more tasty, high caloric foods than children exposed to less food control (7).

Due to their modifiable nature, parental feeding practices have been interesting and attractive to researchers as well as clinicians as they could act as intervention targets for indirectly modifying children's eating behavior (5). However, to tailor these interventions to those who need them the most, we need to identify families at higher risk of endorsing the less helpful parental feeding practices. Interestingly, research examining the relation between socioeconomic status (SES) and parental feeding practices is still limited and remains inconclusive, with most of these studies focusing on the role of parental education (8,9,10). Determining the association between SES and parental feeding practices is essential in identifying target populations for interventions aimed at enhancing children feeding practices.

**Aim of the study:** The study aimed to probe the association between the adopted parental feeding practices for children aged 3-5 years and their socioeconomic status.

**Study design & setting:** This was a cross-sectional study conducted over 1 year. Participants were recruited from the Clinical Nutrition Clinics at AbouElrish children hospital which although being in an urban area, serves for mothers coming from rural areas as well.

**Study subjects:** All the mothers of children 3-5 years old, attending AbouElrish Clinical Nutrition clinics willing to share in the study and not having any of the exclusion criteria were approached. Children with chronic or congenital diseases and mothers with mental or psychiatric diseases were excluded.

**Sample size calculation:** The sample size was calculated using Epi sample size calculator, under  $\alpha$  error of 5% and at least a power of 80%, considering a workload of three days per week and on average 25 patients visiting the clinics per day, over a period of 1 year. Based on previous reported findings where 50% (with  $\pm 5\%$  precision) of the preschool children don't meet the healthy eating practices and dietary recommendation (11) and after adding 15% for the potential non response, the minimal sample size of 712 mother-child pairs were included to achieve the study objectives. Mothers were selected using a systematic random technique along the working days of the week.

**Data Collection Tools:** Two structured anonymous questionnaires were used to obtain the data from the clinic's attendees.

### 1. El-Gilany et al. (2012) Socio-Economic Status (SES) scale (12):

This scale was used to assess participants' SES. The scale includes 7 domains (education and cultural, family, economic, occupational, family possessions, home sanitation, and health care domains) with a total score of 84. SES scores were classified into 3 subsets: low ( $\leq 42$ ), middle (43-63) and high (64-84) levels.

### 2. The Arabic version (13) of Child Feeding Practices Questionnaire (14):

This questionnaire assesses maternal feeding practices. It consists of 49 questions grouped into 12 subscales that represent 12 different feeding practices. Questions are answered on a five-point scale. The final scores were added for each one of the 12 subscales and means of each subscale were used for comparison and data analysis.

**Study field work-up:** The actual working period to collect the data was 3 days per week for a period of 12 months, (June 2017 - June 2018), during the working hours of AbouElrish Clinical Nutrition outpatient clinics from (8-2pm), with an average of 7 mothers per day. After taking oral consent from the mothers the content of the questionnaires was explained then the personal interview with the mothers was performed in the waiting area of the clinic for 15 to 20 minutes for completing the questionnaires.

**Data analysis:** All completed questionnaires were revised. Coded data was entered using the Microsoft Office Excel Program for Windows. All statistical calculations were done using computer program statistical package of social science software program, SPSS version 21. Data

were statistically described in terms of mean  $\pm$  standard deviation ( $\pm$  SD), minimum and maximum for quantitative variables. Number and percent for qualitative variables. Comparison between quantitative variables with more than two categories was done using nonparametric Kruskal-Wallis test which were not normally distributed. Comparison between qualitative variables was done using chi-square test. P value less than 0.05 was considered of statistical significance.

### Ethical consideration

The study protocol was revised and approved by the members of the Family Medicine department at Kasr-Alainy Cairo University and approved by the research committee of the faculty. The approval for using the questionnaires was obtained from the authors via E-mail. Approval of the Head of AbouElrish Pediatric Nutrition Clinics was also obtained. A detailed consent was obtained from all the mothers before participation in the study according to Helsinki declarations of biomedical ethics. The participating mothers were reassured about the strict confidentiality of their data and that the study results would be used only for research purposes.

## Results

The current study revealed that most of the parents are trying to make healthy balanced food intake at home. The mean age of the participating children was  $3.75 \pm 1.73$  ranging from 2 to 14 years while, the mean mother's age was  $28.90 \pm 5.55$  ranging from 20 to 52 years.

As represented in Table 1 most of the children were females 370 (52%). First or second order children represented 502 (70.5%) of the studied sample. Around 88% of mothers and 84% of fathers received education less than university. Of the participating mothers 623 (87.5%) were not working while, 709 (99.6%) of the fathers were working. Almost half of the studied participants 332 (46.6%) were of urban slum residence. Low social class represented 498 (69.9%) of the sample.

Table 2 represents the mean (SD) of all CFPQ domains. According to the results; the most common feeding practice adopted by the parents was Encourage balance and variety with mean (SD)  $17.63 \pm 2.88$  where most of the participants (67.1%) encouraged healthy eating, 57.6% encouraged their child to try new foods, 61.5% encouraged to eat a variety of foods and 66.2% tell their child that healthy food tastes good.

The second most common feeding practice was Modeling with mean (SD)  $15.97 \pm 5.77$  which means that parents eat healthy foods for the child's sake. More than half of parents (65.6%) agreed to model healthy eating for the child by eating healthy foods themselves, 59% of parents tried to eat healthy foods in front of their child even if they are not their favorite, 68% tried to show enthusiasm about eating healthy foods and 66.4% showed their child how much they enjoy eating healthy foods.

The third common adopted feeding practice was Environment with mean (SD)  $15.93 \pm 3.79$  which means that parents make their homes healthy foods friendly. 64.5% agreed to keep healthy food in the house, 57.9% of parents kept different healthy foods available to the child at each served meal at home and 57% agreed to keep a lot of snack food and sweets in the house.

The least used feeding practice was emotional regulation with mean (SD)  $5.26 \pm 3.36$  which means that parents use food to improve the child's emotional states. Most of the parents stated that they never offered the fussy (60.3%), bored (67.1%) and upset (67.3%) child something to eat or drink if they think s/he is not hungry.

Pressure, Restriction for health and Teaching nutrition practices were nearly used at a similar rate with mean (SD)  $12.15 \pm 5.21$ ,  $12.42 \pm 4.26$  and  $12.14 \pm 4.01$  respectively. Pressure as a feeding practice, describes parents who pressure the child to eat more food. 28.4% disagree that the child should always finish his/her plate, 39.5% disagree to try to get the child to eat whether the child is hungry or not, 35.4% agree to try to get child to eat more and 39.9% agree to try to get child to eat one more bite of food when he/she says he/she is finished eating. Restriction for health describes parents who decide the child's food intake for limiting unhealthy foods and sweets. 38.9%, 31.9% and 64.5% of parents disagree that they have to be sure that their child does not eat too much of his/her favorite foods, too many sweets and too many high-fat foods respectively.

With regards to teaching nutrition practice, most parents agreed to share information with their children about the importance of healthy foods (64.9%) and the nutritional value of foods (64.5%) while 61% of parents told children what to eat and what not to eat without explanation.

As demonstrated in Table 3, there were highly statistically significant differences ( $p$ -value=0.002) regarding child control and the three levels of social classes with the highest score reported in the low social class which means that they give their children whatever they want. There were highly statistically significant differences regarding Encourage balance ( $p$ -value=0.004) between the three levels of social classes with the highest score reported in the low social class which can be explained by that high social parent may encourage well-balanced food intake, with the variety of healthy food choices. There were highly statistically significant differences regarding restriction of weight ( $p$ -value=0.005) and the three levels of social classes with the highest score reported in the high social class which means that parents decide the child's food intake for decreasing or maintaining the child's weight. There were highly statistically significant differences regarding teaching nutrition and social level as  $p$ -value<0.001. There was no significant relation between the socioeconomic status and Emotion regulation, Environment, Food reward, Involvement, Modeling, Monitoring, Pressure and Restriction health.

**Table 1: Sociodemographic data of the studied group**

Characteristic	Category	Study group (n=712)	
		No.	%
Gender	Male	342	48
	Female	370	52
Child order	First	285	40
	Second	217	30.5
	Third	127	17.8
	Fourth or more	83	11.6
Mother's Education	Illiterate	113	15.9
	Read and write	39	5.5
	Any level of education	475	66.7
	University/Post graduate	85	11.9
Father's Education	Illiterate	93	13
	Read and write	55	7.7
	Any level of education	452	63.5
	University/Post graduate	112	15.7
Mother's Occupation	Not working	623	87.5
	Manual worker	31	4.3
	Professional	58	8.1
Father's Occupation	Not working	3	0.4
	Manual worker	428	60.1
	Professional	281	39.4
Residence	Urban slum	332	46.6
	Rural	162	22.8
	Urban	218	30.6
No of earning family members	0 member	1	0.1
	One member	628	88.2
	Two	77	10.8
	More than three	6	0.8
Socioeconomic status score (SES)	Low	498	69.9
	Medium	28.9	28.9
	High	8	1.1

**Table 2: Mean & Standard deviation of the CFPQ domains**

CFPQ domains	(Mean $\pm$ SD)	Minimum	Maximum
Child control	14.65 $\pm$ 3.39	5	20
Emotion regulation	5.26 $\pm$ 3.36	3	15
Encourage balance	17.63 $\pm$ 2.88	4	20
Environment	15.93 $\pm$ 3.79	4	20
Food reward	9.17 $\pm$ 4.15	3	15
Involvement	10.19 $\pm$ 4.28	3	15
Modeling	15.97 $\pm$ 5.77	4	20
Monitoring	11.42 $\pm$ 4.86	4	20
Pressure	12.15 $\pm$ 5.21	4	20
Restriction health	12.42 $\pm$ 4.26	4	20
Restriction weight	13.41 $\pm$ 8.85	3	15
Teaching nutrition	12.14 $\pm$ 4.01	3	15

**Table 3: Relation between Comprehensive Feeding Practices Questionnaire and the Socioeconomic Status**

Variables	Low (n=498)	Medium (n=206)	High (n=8)	Test		Post Hoc
	(Mean±SD) range	(Mean±SD) range	(Mean±SD) range	f	P value	
Child control	14.95±3.45 5-20	13.95±3.17 7-20	14.12±2.23 11-18	6.508	0.002	P1=0.001 P2=0.771 P3=0.989
Emotion regulation	5.37±3.57 3-15	4.93±2.70 3-13	7.25±4.86 3-15	2.695	0.068	P1=0.245 P2=0.261 P3=0.134
Encourage balance	17.41±3.02 4-20	18.18±2.48 4-20	18.13±2.23 15-20	5.480	0.004	P1=0.003 P2=0.762 P3=0.998
Environment	16.04±3.75 4-20	15.63±3.91 5-20	17.25±2.43 13-20	1.365	0.256	P1=0.382 P2=0.644 P3=0.460
Food reward	9.07±4.21 3-15	9.42±4.01 3-15	8.87±3.94 3-13	0.538	0.584	P1=0.566 P2=0.990 P3=0.929
Involvement	9.91±4.36 3-15	10.86±4.04 3-15	11.12±4.64 3-15	3.829	0.022	P1=0.020 P2=0.704 P3=0.984
Modeling	15.98 ±5.73 4-20	16.06±5.78 4-20	14±8.28 4-20	0.489	0.613	P1=0.985 P2=0.602 P3=0.584
Monitoring	11.21±4.85 4-20	11.90±4.85 4-20	12.25±5.23 6-19	1.567	0.209	P1=0.205 P2=0.822 P3=0.979
Pressure	11.95±5.29 4-20	12.74±4.89 4-20	9.5±7.19 4-20	2.752	0.064	P1=0.156 P2=0.384 P3=0.195
Restriction health	12.22±4.26 4-20	12.82±4.20 4-20	14.5±5.01 5-20	2.398	0.092	P1=0.208 P2=0.291 P3=0.518
Restriction weight	12.72±8.13 3-15	15.02±10.18 3-15	15.75±10.75 3-15	5.270	0.005	P1=0.005 P2=0.598 P3=0.971
Teaching nutrition	11.74±4.19 3-15	13.16±3.27 3-15	10.87±5.13 3-15	9.717	0.000	P1=0.000 P2=0.813 P3=0.247

## Discussion

Parental feeding patterns and socioeconomic level (SES) are both important predictors of child growth. The family living environment, which includes parental attitudes and feeding patterns, has been proven to have a key influence in determining their eating habits (15).

The current study explored a complete range of feeding practices adopted by the mothers while feeding their children. In terms of frequency of the maternal feeding practices the most commonly used practices were Encourage Balance and Variety in their children's diet (mean (SD)  $17.63 \pm 2.88$ ) followed by Modeling with mean (SD)  $15.97 \pm 5.77$ , while the least commonly used feeding practice was Emotional Regulation (mean (SD)  $5.26 \pm 3.36$ ). Our results are consistent with a study carried out in Iran that involved 208 mother-child pairs to study the relation between the social factors and the feeding practices used with children from 3- to 6-year-old, Kalantari & Doaei, 2014 (16) found that the most commonly used approaches were creating a healthy environment during feeding, encouragement of balance and variety in diet, role modeling and teaching about nutrition and similarly the least commonly used practice was emotional regulation. What goes against our results in the Iranian study is that about a half of the sample reported using food as a reward and restriction for weight control which were among the least common practices in our study. It is possible that similarities in the feeding practices could be related to the same cultural background while differences could be related to specific maternal or child characteristics associated within the feeding process.

The results of the current study showed a significant relation between some feeding practices with the socioeconomic factors. There was highly statistically significant difference ( $p$ -value=0.002) regarding child control and the three levels of social classes with the highest score reported in the low social class. These findings are consistent with a study done by Cardel et al, 2012 (17) who found that, in comparison to children from better socioeconomic backgrounds, controlling child - feeding behaviours were more common in lower socioeconomic households.

There were highly statistically significant differences regarding Encourage balance ( $p$ -value=0.004) between the three levels of social classes with the highest score reported in the low social class. This is consistent with Entin et al, 2014 (18) who examined the association between parental feeding practices, diet quality, and weight among low-socioeconomic status pre-school children and found that among the healthy feeding practices, in the low SES, encouraging balance and food variety and modeling were mostly used and were associated with more vegetable eating and better weight.

There were highly statistically significant differences regarding restriction of weight ( $p$ -value=0.005) and the three levels of social classes with the highest score reported in the high social class. According to a research conducted by Fisher & Birch in 1999 (19), lower SES is

attributed to more restriction and eating pressure. This restriction may decrease a child's ability to self-regulate food intake and limit choices focus on specific meals, leading to overconsumption when the restricted items become freely accessible. Parental food pressure, on the other hand, has been linked to decreased choice and intake of the pressured item, as well as reduced vegetables and fruits intake, fussy eating, and poorer weight in children.

## Conclusion

Poor feeding practices in under-five children is a serious public health issue in Egypt. Apart from poverty, there are a number of additional factors that have a direct or indirect impact on children' nutritional condition. The parental feeding practices are changing according to the SES. These practices may be enhanced to improve diet quality and prevent nutritional problems in children.

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