



## The effect of parents on the hedonic responses to fruits by children

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### Abstract

The aim of the current study was to investigate the relation between hedonic responses of families and preschool children given to fruit. Two hundred parents who had a child attending to a kindergarten in the districts of Kecioren and Mamak, in Ankara, Turkey were included in the research. The data were collected through a questionnaire. The ages of the children varied from 5 to 7. More than half of the mothers (55.5 %) were in their normal BMI (Body Mass Index), while more than half of the fathers (63.0 %) were overweight. Children and parents were found to like fruit in general sense. It was also found that as the score of liking fruit and the amount of consumed portion of parents increased, so did their children's. There was a positive relation between parents and their children ( $p < 0.001$ ). The score of liking fruit for girls was higher than that of boys ( $p = 0.006$ ). It is likely to say that girls like fruit more than boys.

**Keywords:** Pre-schoolers fruit consumption; parent effect; hedonic response, nutrition.

### 1. Introduction

It is aimed in the preschool period that children have an adequate and balanced nutrition and attain a good nutrition habit. In particular, fruit and vegetables not consumed in the preschool period would decrease micronutrients and pulp intake and increase total fat and saturated fat intake, so increasing the risk of a metabolic disease. The arrangement that would be made in the diets of children in their early ages in terms of vegetables and fruit could make a good contribution (Dennison, Rockwell, and Baker, 1998; Niklas et al., 2001; Fisher, et al., 2002). Parents have big responsibilities in this issue. Parents are an important role models not only in their choosing foods, preparing diets, informing about nutrition, but also in developing eating habits, attitudes and preferences of their children with their nutrition styles (Klesges et al., 1991; Birch and Davison, 2001; Benton, 2004; Golan and Crow, 2004). It is believed that the positive attitudes of parents towards fruits are of great importance in making children accepting fruits and liking them. For this reason this study investigates the relationship between the hedonic response of parents to fruits and the hedonic response of their children to same fruits. The data provided here, will be useful for future studies on this subject.

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## 2. Method

Parents having a child attending to a kindergarten in the central towns of Kecioren and Mamak in Ankara, Turkey were included in the research. The initial questionnaire form was applied to 20 parents in order to verify whether it is appropriate for them, and necessary corrections were made. The modified questionnaire form was given to parents coming to pick up their children. The questionnaire was applied between the dates 3<sup>rd</sup> April and 24<sup>th</sup> May 2012. Almost 50% of the questionnaire forms were delivered back. Due to such reasons as leaving some questionnaires blank, not completing them full, the number of the valid results was decreased to 200.

Body weight and heights from the anthropometric measurements were included in the research. Using the data of body weights and heights, the BMI (Body Mass Index) ( $\text{kg}/\text{m}^2$ ) values of parent were calculated. Depending on BMI,  $<18.5$  were taken as underweight, 18.5-24.9 as normal and  $\geq 25$  as overweight (Lee and Nieman, 2003).

The numbers of fruit portions consumed daily and weekly were converted into month. According to the status of liking fruit, those disliking fruit were given 1, the ones neither liking nor disliking were given 2 and those liking fruit were given 3 points. While accounting total score of liking fruit, the children who never tasted some fruit were excluded. In order to calculate the relation between the scores obtained, Pearson correlation analysis was used and t-test was used for dual comparisons. The data obtained in the current study were analyzed in the statistical software program of SPSS and statistical processes were made. As the results of these processes statistical values such as percentage, mean (M), and standard deviation of the relevant data is provided here.

## 3. Results

In this part, the demographic information of the participants, the hedonic responses given to fruit and the relation between the scores obtained from these responses are presented.

**Table 1. Demographic Characteristics (n:200).**

Variables	Mother		Father	
	n	%	n	%
<b>Parents Age (years)</b>				
22-30	63	31.5	12	6.0
31-35	66	33.0	62	31.0
36-40	48	24.0	61	30.5
41↑	23	11.5	65	32.5
M±SD	33.68±5.40		37.72±5.23	
<b>BKI (<math>\text{kg}/\text{m}^2</math>)</b>	n	%	n	%
Underweight ( $<18.5$ )	5	2.5	-	-
Normal (18.5-24.9)	111	55.5	74	37.0
Overweight ( $\geq 25$ )	84	42.0	126	63.0
M±SD	24.47±3.49		26.49±3.53	
<b>Education Level</b>	n	%	n	%
Primary education	70	35.0	49	24.5
High school	82	41.0	77	38.5
University and higher	48	24.0	74	37.0
<b>*Family Income (TL) (n:183)</b>	M±SD 2069.02±1308.37			
<b>Children Age (years)</b>	<b>Girls (n:93)</b>		<b>Boys (n:107)</b>	
	n	%	n	%
5	7	7.5	10	9.3
6	81	87.1	95	88.8
7	5	5.4	2	1.9

\*17 participants did not mark their income

The mean age of the mothers included in the research was 33.68±5.40 while that of fathers were 37.72±5.23. More than half of the mothers (55.5 %) were in their normal BMI, while more than half of the fathers (63.0 %) were overweight. The majority of parents are high school graduates (Mother 41.0 %, Father 38.5 %). The majority of children are 6 years old (Table 1).

**Table 2. Hedonic responses of children and families towards fruits [%].**

Fruits	Mother			Father			Children			NT
	L	L/D	D	L	L/D	D	L	L/D	D	
Orange	90.0	7.5	2.5	94.5	4.5	1.0	90.0	7.5	1.5	1.0
Mandarin	91.5	7.0	1.5	90.5	8.5	1.0	93.5	5.0	1.0	0.5
Apple	94.0	6.0	0.0	90.0	7.5	2.5	90.5	4.5	3.0	2.0
Quincy	62.0	31.5	6.5	89.0	10.5	0.5	51.0	31.5	15.0	2.5
Pear	83.0	14.0	3.0	89.0	10.5	0.5	81.5	15.5	2.5	0.5
Peach	91.5	7.0	1.5	92.5	4.5	3.0	93.0	5.5	1.0	0.5
Apricot	86.5	13.0	0.5	87.0	9.0	4.0	83.5	14.0	2.0	0.5
Banana	86.0	12.5	1.5	88.0	10.5	1.5	92.5	7.5	0.0	0.0
Figs	73.5	18.5	8.0	73.0	19.5	7.5	51.0	22.5	21.0	5.5
Pomegranate	71.5	22.5	6.0	78.0	18.5	3.5	79.0	13.5	7.0	0.5
Plum	81.5	14.5	4.0	78.5	17.5	4.0	81.5	12.0	5.5	1.0
Strawberry	91.5	7.0	1.5	88.5	10.0	1.5	95.0	3.0	1.5	0.5
Mulberry	72.0	23.0	5.0	74.0	21.0	5.0	72.0	17.5	7.5	3.0
Cherry	91.5	8.0	0.5	88.0	9.0	3.0	91.5	7.0	1.0	0.5
Sour cherry	60.0	26.5	13.5	62.5	26.5	11.0	57.5	27.0	15.5	0.0
Melon	87.5	10.0	2.5	94.5	3.5	2.0	89.0	6.0	4.0	1.0
Watermelon	91.0	5.0	4.0	95.5	2.0	2.5	93.0	3.0	2.0	2.0
Grapes	88.5	10.0	1.5	92.0	6.5	1.5	90.0	7.5	1.5	1.0

L:Like      L/D: Neither Like Nor Dislike      D:Dislike      NT: I've never tasted

The fruit mothers liked the most were apple, mandarin, peach, strawberry, cherry and watermelon while those fathers liked were watermelon, orange, melon, peach and grapes. As for children, they were strawberry, mandarin, peach, watermelon, banana, cherry and apple (Table 2).

**Table 3. The Relationship between Portion Numbers and Liking Scores of Fruit Consumed Monthly by Mothers, Fathers and Child <sup>a</sup>(n:176).**

Variables	MPN	FPN	CSLF	MSLF	FSLF
CPN	0.660**	0.690**	0.054	-0.075	0.040
MPN		0.581**	-0.071	0.025	-0.001
FPN			-0.045	-0.057	0.158*
CSLF				0.270**	0.480**
MSLF					0.329**

\* p<0.05 \*\* P< 0.001

<sup>a</sup> It was found that 27 children did not taste some fruit. These children and their parents were excluded in this part.

MPN: Mother Portion Number

MSLF: Mother Score of Liking Fruit

FPN: Father Portion Number

FSLF: Father Score of Liking Fruit

CPN: Child Portion Number

CSLF: Child Score of Liking Fruit

It was found that as the scores of liking fruit of parents increased, those of their children also increased (p<0.001). Similarly, as the portion of fruit consumed by parents monthly increased, that

of the child increased as well. It is believed that parents have an impact on liking fruit by their children and the amounts of consumption (Table 3).

**Table 4. The Comparison of the Scores of Liking Fruit by Children in Terms of Gender**

Gender	n	M	SD	t	p
Girl	85	50.98	2.94	2.765	0.006
Boy	91	49.36	4.67		

It was found that the scores of liking fruit for girls were quite higher compared to those of boys ( $p=0.006$ ). It is likely to say that girls like fruit more than boys (Table 4).

#### 4. Discussion

Parents have a selective and supervisory role on the preference/choice of their children's nutrition. In addition, they become role models for their children with their behaviors. The responses of both families and children towards new foods are similar. While the smell and the appearance of the fruits are effective in accepting them by children, taste will become a significant factor after tasting it. Liking the taste of fruit by children is an important factor in the consumption of some foods (Hursti and Sjoden, 1997; Zeinstra et al., 2007; Brug et al., 2008). It is known that children like the taste of the food which they like/consume the most besides other factors. The experience and frequency of fruit in the first two years will increase the acceptability of them by children (Skinner et al., 2002). Exposition to the disliked food many times will break the resistance to them. While banning on some food has an adverse effect, forcing them to eat could decrease their intake (Benton, 2004). What is more important than controlling the food the child eats is the positive role of the parents. The positive attitude of the families is seen to be reducing the childrens problems with consuming fruits. (Scaglioni, Salvioni and Galimberti, 2008; Hughes and Shewchuk 2012). The socio-economic status of the family, the meal samples, the supporting attitude for a healthy nutrition, mother's education, presentation of fruit in different styles, its availability at home and easy accessibility increase the consumption of fruit (Cullen et al., 2001; Cullen et al., 2003; Yeh et al., 2008; Haire-Joshu et al., 2008).

In addition, family, home environment and caregivers (parents and child – care providers) and the practices of making the child eat have an effect on fruit consumption. Also, food choice at home, menu planning, participating into food preparation, nutritional intervention increases fruit consumption (Niklas et al., 2001; Gross, Pollock and Braun, 2010; De Boc, Breitenstein and Fischer, 2012). In another study it was found that parental food involvement was strongly correlated with consumption of fruits and vegetables (amount and diversity) for both parents and children (Ohly et al., 2013). Parents have an effect on food and beverage choice/preference, the status of liking and eating habits have an impact on the food choices and eating behaviors of children (Grimm, Harnack and Story, 2004; Scaglioni, Salvioni and Galimberti, 2008; Sutherland, 2008). In the current study, it was found that the liking scores of parents and the amount of portions they consumed had a significant relation between their children. As the liking scores of parents and the amount of portions they consume increased, so did their children's.

Lakkakula et al., (2008) found in a study that a great majority of children (70%) liked fruit. The fruit liked the most were grapes, apple, oranges, strawberry, watermelon, pineapple, pear, banana and plum. Another similar study listed orange, cherry, strawberry, watermelon, banana, peach, apple, mandarin, and grapes as the fruits that the children like the most (Ucar and Cakiroglu, 2012). In the current study, it was found that a great many of the children liked fruit and they liked similar fruit. The status of liking/consuming fruit could also vary. Lorson, Melgar-Quinonez and Taylor (2009), found in a study that boys consumed more fruit juice than girls. However, no significant difference was found between the gender and fruit intake. In a different study, it was found that

girls liked fruit more than boys (Cooke and Wardle, 2005). In the current study, it was also found that girls liked more fruit types than boys in terms of total score of liking fruit.

### 5. Conclusions and recommendations

In conclusion, a great many of the children like fruit. One of the reasons of this might be that children are exposed to fruit so often, as a lot of fruit is grown in Turkey. In Turkish nutrition culture, fruit is consumed as dried/fresh, fruit compote, dried layers of pulp, marmalade and so on. Some fruit are used in meals with meat and vegetables. In this study, it was found that the fruit liked most was strawberry, mandarin, peach, watermelon, banana, cherry and apple. There was a positive relation between the scores of liking fruit of parents and their children's scores. In addition, it is likely to say that girls liked more types of fruit compared to boys. There is a need for more detailed studies investigating different kinds of consumption at different age groups considering it in different socio-economic-status. It will be useful for future studies to focus the combination of parent effect and other factors that affect parents and children's hedonic responses to the fruits, or to focus on parents' effect on children's hedonic response to other kinds of foods and compare it to this study.

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