

Parental Restriction and Children's Appetitive Traits: A Study among Children Aged 5-11 Years Old in Dubai Private Schools

Hajar Aman Key Yekani, Yusra Mushtaq, Behnaz Farahani, Hamed Abdi

Abstract—This study explores associations between parental restriction and children's appetitive traits, putting to test the hypothesis that parental "restriction" is associated with having a child with stronger food approach tendencies (food enjoyment (FE) and food over responsiveness (FR)). The participants, from 55 nationalities, targeting 1081 parents of 5- to 11-year-old children from 7 private schools in Dubai, UAE, who completed self-reported questionnaires over the 2011-2012 school year. The questionnaire has been a tailored amalgamation of CEBQ and CFQ in order to measure the children's appetitive traits and parental restriction, respectively. The findings of this quantitative, descriptive, cross-sectional analysis confirmed the hypothesis in that "parental restriction" was positively associated with child food responsiveness ($r, 0.183$), food enjoyment ($r, 0.102$). To conclude, as far as the figures depict, the parents controlling their children's food intake would seemingly a reverse impact on their eating behavior in the short term.

Keywords—Parental Restriction, Children Eating Behavior, Approach Tendency, Avoidance Tendency.

I. INTRODUCTION

CONSTANT accessibility to cheap, palatable food high in energy content but low in nutrient density and sedentary life style which have crucial impact on modern daily life, are obvious defects in the whole population of a community [2] which may cause change in people's eating routines and habits. Nowadays, children's eating behaviors have changed drastically and turned into a predicament both for the parents and, at times, the children themselves. Children usually do not pay attention to their internal cues for hunger and satiety. Parents' feeding practices have been a much neglected factor and usually the index finger has been pointed to children themselves, while recent studies reflect a twist towards the parents and their own feeding practices. Parents' pivotal role in this field is clearly put by the other research where it has been said: "Parents can filter, buffer, and interpret macro-environmental influence on the children... Parental feeding practices as an effective role may determine the type of foods and portion sizes that children are offered, the frequency of

eating occasions and the social contexts in which eating occurs" [2]. She further argues that it may have substantial effects on the weight, growth, and development of their children in the early ages of their lives. As it has been argued, dietary habits gained in childhood persist through adulthood [6]. In the same vein, the other study confirms that the major part of child's food preferences and energy intake are developed in the family environment under the parent supervision [11]. That is why the present study aims to find out the impact of parental restriction on their children's appetitive traits. "Restriction" as a direct feeding strategy is very popular among parents; although parents apply this feeding practice to control their children's eating, but it might backfire. In fact, children choose their approach toward eating in order to deal with their parents' restriction feeding practice. In this survey, food responsiveness and food enjoyment have been studied accordingly. Enhancing restriction would increase the child's passion and preference toward some limited types of food. In an experiment, there were two groups of snacks, one freely accessible and the other with some limitations. When they were both freely available, children ate more of the restricted snacks in comparison with the unrestricted ones [17], [8]. Attractiveness toward the restricted things in life is, in fact, in the nature of human being. Children are not an exception in this regard. So, children who do not have permission to access to some food are made to be magnetized more to those. Hence, availability of the restricted items, make children out of control and even if they are not hungry, they still draw toward that type of food and mislead them to overconsumption. So by this mechanism children will follow the external cues instead of their internal signals [8], [3]. In fact, it causes children to eat in absence of hunger, which has been shown to be more common in girls than boys [1]. Another longitudinal study confirms this issue by examining it among a sample of 5 years old girls, when they get nine, girls whose mothers exert high levels of restriction showed more eating in absence of hunger in comparison with those whose mothers used lower levels of restriction [3]. In addition, the other study explains that parental restriction and food responsiveness in children may have a positive link while they do not find the same relation with food enjoyment [17]. Another outcome of this strategy might be "food neo-phobia" in children. One recent study which has been conducted on 85 mothers having 3-12 years old children shows that mothers whose children were diagnosed as high food neo-phobia, exerted more restriction as a feeding practice [13]. Focus on

Hajar Aman Key Yekani is master of psychology student, Islamic Azad University, Dubai, P.O. Box: 114778, UAE, (corresponding author to phone: +971505544650; fax: +97144552052; e-mail: hajar.amani@yahoo.com).

A, Yusra Mushtaq Assistance Professor, is with the Department of Psychology, Islamic Azad University, Dubai, P.O. Box: 502321, UAE.

B, Behnaz Farahani is paediatric nursing head, Tehran Medical Branch, Islamic Azad University, Dubai, P.O. Box: 50232, UAE.

Hamed Abdi is MTESOL Department Head, Islamic Azad University, Dubai, P.O. Box: 502321, UAE.

the bidirectional relationship of parents-child feeding is of the utmost importance. It means that, this relationship is not only influenced by parents' feeding strategies on their children's eating behavior and habits, but also children eating traits make parents to employ a particular feeding practice as well. Confirming this issue, some researchers found out parents whose children are fussy, picky, slow in eating, having less food enjoyment or any kinds of problematic eating behavior, use "pressure" more during their children's feeding, [18], [14], [7]. Furthermore, studies have shown that children, who were more food responsive, had mothers who were more likely to restrict their intake of unhealthy foods [16].

II. METHODS

A. Study Design

After receiving approval from the Islamic Azad University Research Committee of Dubai branch, the researcher was provided with an introduction letter for schools to be a part of the study. Seven schools were randomly chosen and they accepted sincerely to be part of this survey. During April and June 2012, schools received packets including 4000 nameless questionnaires. Participants were parents whose children were between 5 and 11 years old attending in these seven schools. 1135 questionnaires returned to schools. 54 questionnaires were removed from the statistical investigation for bearing deficient information on a number of subscales; thus there were only 1081 questionnaires included in the statistical analysis. Each questionnaire was supposed to be filled out by one of the parents concerning one particular child which inquired about that child's eating traits and the parents' feeding practices. These schools are scattered throughout different areas of Dubai and there is a wide ethnic diversity since Dubai is an international community. Data collecting lasted for almost one month (April to June).

B. Measures

1. Demographic Characteristics

The demographic part of this questionnaire included questions about the age, nationality, level of parent's education along with the target child's gender, age, position in the birth order and the number of siblings in the family.

2. Children's Eating Behavior

The Children's Eating Behavior Questionnaire (CEBQ) is an analytical pattern which used as a part of current study data accumulating instrument [12]. From subscales of this questionnaire 5 factors have been drawn to be used in this study which includes two main aspects of child eating behavior: "Approach toward eating" (Food responsiveness (FR), Enjoyment of food (EF)) and "Avoidance of eating" (Satiety responsiveness (SR), Slowness in eating (SE), Food fussiness, (FF)). 5 questions were assessing "Food Responsiveness" (e.g., "If allowed to, my child would eat too much"), 4 questions that were measuring "Enjoyment of Food" (e.g., "My child loves food"), 5 questions were for "Satiety Responsiveness" (e.g., "My child gets full before

his/her meal is finished"), 4 questions were for "Slowness in Eating" (e.g., "My child takes more than 30 minutes to finish a meal") and 6 questions were used for assessing "food fussiness" (e.g., "My child is difficult to please with meals"). Parents were asked to evaluate how frequently their children reveal particular eating-related behavior on 5-point Likert scales ranging from "agree" (5) to "disagree" (1) through the current survey. The internal reliability values (Cronbach's alpha coefficient) of each factor in this study are shown in Table I.

3. Parental Feeding Practices

The present study employed one subscale (restriction) from CFQ (Child Feeding Questionnaire) to measure parental feeding practices [4]. Restriction subscale consists of 8 questions (e.g., "If I did not guide or regulate my child's eating, he/she would eat too much of his/her favorite foods") addressing parents' tendency to restrict the amount and type of food for children. Therefore 8 questions out of 31 from the original questionnaire have been used in this study. Participants responded on a 5-point scale ranging from "never" (1) to "always" (5). The internal reliability values (Cronbach's alpha coefficient) of each factor in this study are shown in Table I.

C. Statistical Analysis

The statistical analysis which were employed in this research are; "Chi squared Test", "The Independent Sample T-Test", "Tukey Test" and "MANOVA". They were used to examine possible relationship between PFP (Parents feeding practice) and CEB (Child eating behavior) as well as the frequency of parental restriction and children's eating behaviors.

III. RESULTS

A. Demographics

Data were obtained from self administered questionnaires, completed by 1083 parents of students' age between 5-11 years old and 27.1% response rate. Child demographic characteristics are shown in Table II. Children's demographic data shows that the mean age of the children was 4.8 years (*SD*: 0.8), facts and figures, show that half of the children (47.9%, *n*=519) were female, while almost 40% (40.3%, *n*=436) were male, however 11.8% (*n*=128) of parents didn't mention their children's gender. Parents mostly fill the questionnaires with regard to their first child (38.8%, *n*=417). Almost a quarter of these children (23.3%, *n*=252) were second child in their families. Mothers who participated in this study were between 25 and 55 years old; and the common age for mothers were between 31-40 years of age (70.9%, *n*=704). Information with regards to Mothers' education shows 817(75.6%) out of 1083 mothers enjoyed their academic degrees (associate or higher). Asian mothers (84.49%, *n*=908) were the majority of the participants while Europe, Africa and America have almost same proportion (approximately 4%). The lowest percentage belongs to Australia which is less than one percent. The age range of the fathers was between 30 and

66. The majority of fathers (63.06%) were between 36-45 years old. The educational trends for fathers and fathers' nationality show a similar pattern as with mothers.

B. Descriptive Statistics for Children's Appetites and Parental Feeding Practices

The descriptive statistics for all questions and the data on feeding practices were initially analyzed to confirm that the scales had adequate reliability for the present sample. The mean scores were as follows: The results show that all variables are well and above the 0.7 threshold. It indicates that there is a high level of internal consistency in each measure. The total variance explained is 0.851 demonstrating that these eight dimensions account for a significant amount of the variance. For EF (Cronbach's $\alpha = 0.813$) for FR ($\alpha = 0.764$) for SE (Cronbach's $\alpha = 0.750$), for FF (Cronbach's $\alpha = 0.801$), for SR (Cronbach's $\alpha = 0.711$) and for restriction (Cronbach's $\alpha = 0.751$).

C. Children's Appetite Traits

According to the collected data majority of children had less or moderate food approach and only 2.9% (n=31) had extremely food approach. For avoidance tendency, almost three quarter of children moderately had this trait while 11.9% had less and 16.9% had it extremely (Tables III & IV).

D. Parental Feeding Practices

Data regarding parents' feeding practices shows that implementing restriction as a feeding strategy is very popular among parents and around 90% of them use it moderately or extremely and only 10 percent hardly ever use it (Table V).

E. Association between Parental Restriction and Children's Appetite Traits

The statistical examination for parental restriction and children's appetitive traits shows that "parental restriction" was positively associated with child "food responsiveness" (r, 0.183) and "food enjoyment" (r, 0.102) while there was not any correlation between restriction and any of food avoidance tendencies (Table VI).

IV. DISCUSSION

The present study examined associations between children's eating behavior and parental restriction. The children's eating behavior was classified as "approach tendency and "avoidance tendency". The results of this study illustrate that it is likely that children whose parents use restriction for controlling their food intake may have food approach tendencies. Alternatively, it is also likely that children whose parents use more restriction may be interested to the restricted food and they overeat when it is freely available [3] (Fig. 1). However, a bidirectional relationship is possible [14].

A. Children's Appetite Traits and Parental Feeding Practices

Various eating behavior could be the consequence of different feeding practices, and alternatively parental different feeding practices could be the result of their children's various

eating behavior or children's characteristics such as age, birth order, physical appearance, specific abilities, gender and weight [1]. Due to new life style which is largely attributed to broad-scale modifications in food and physical activity environment, parents tend to restrict their children's access to junk food or even the amount of that. Parents who have overweight children in the family or perceive their children are at risk of being overweight, usually utilize this practice more. [9], [8] and [5]. It seems parents use greater restriction for their overweight girls in compare with the overweight boys [15]. In fact, it may be useful to take an interactional perspective that children both influence and are influenced by their parents' feeding practices. This will allow the development of targeted interventions and better parental guidance on managing obesogenic eating behaviors in young children [16].

B. Limitations and Strengths

This research had a number of limitations. It's reliance on parental self report is one of the main limitations. The other is inability to demonstrate causal relationships; the data obtained via questionnaires allowed conclusions only about relationships between children's appetites and parental feeding practices and did not address the question of whether decreased appetites among children increased parental pressure to eat or if the reverse were the case. Further this study was cross-sectional in design, longitudinal research is needed to recognize the causal direction of the relationships between children's eating behavior and parental feeding practices. Future research is necessary to build on this study's results and address its limitations. In spite of the limitations, this study is strengthened by having a wide range of ethnic diversity (55 different nationalities) which may give the opportunity to generalize the result to different nations.

V. CONCLUSIONS

In conclusion, the study results suggest that restriction has counterproductive effect on children eating behavior. The outcome of restriction does not seem pleasing; it has been set forth when parents make limitation to access palatable foods for their children, they assume they are controlling their children's junk foods intake but in reality they increase the intake of those foods [8]. Finally, parents have a very significant role in making good eating habits in their children since it will be with them for the rest of their life and determine children health trend (physically and psychologically). Having at least one Family meal daily can work as a chance for parents to be a role model for children which in turn affect their food preference, attitudes and eating patterns. Family meals together can raise children's healthy eating habits [10]. Parents cannot merely force their children to eat something and not to eat others. They should review whatever they have done because children follow what parents did, not what they say.

TABLE I
CRONBACH'S ALPHA FOR EACH FACTOR IN THE QUESTIONNAIRE

Factor	Variable number	Alpha
Enjoyment of Food	0.813	4
Slowness in Eating	0.750	4
Food Fussiness	0.801	6
Food Responsiveness	0.764	4
Satiety Responsiveness	0.711	5
Restriction	0.751	8

TABLE II
CHILDREN'S DEMOGRAPHIC INFORMATION

Child's age	Frequency	Percentage
Invalid	54	5.0
5	103	9.5
6	195	18.0
7	212	19.6
8	224	20.7
9	136	12.6
10	93	8.6
11	66	6.1
Child's gender		
Invalid	128	11.8
Male	436	40.3
Female	519	47.9
Child's birth order		
Invalid	303	28.0
1	417	38.5
2	252	23.3
3	71	6.6
4	19	1.8
5	10	.9
6	4	.4
Number of children's in the family		
Invalid	234	21.6
1	123	11.4
2	357	33.0
3	236	21.8
4	82	7.6
5	37	3.4
6	8	.7
7	5	.5

TABLE III
CHILDREN EATING BEHAVIOR (APPROACH TENDENCY)

Rate of food responsiveness	Frequency	Percentage
Less (5-11)	744	68.7
Moderate (12-18)	320	29.5
Extremely (19-25)	19	18
Rate of enjoyment of food		
Less (4-9)	164	15.1
Moderate (10-14)	637	58.8
Extremely (15-20)	282	26
Rate of food approach		
Less (9-20)	517	47.7
Moderate (21-32)	535	49.4
Extremely (33-45)	31	29

TABLE IV
CHILDREN EATING BEHAVIOR (AVOIDANCE TENDENCY)

Rate of food fussiness	Frequency	Percentage
Less (6-14)	226	20.9
Moderate (15-22)	636	58.7
Extremely (23-30)	221	20.4
Rate of satiety responsiveness		
Less (4-9)	334	30.8
Moderate (10-14)	503	46.4
Extremely (15-20)	246	22.7
Rate of slowness in eating		
Less (5-11)	83	7.7
Moderate (12-18)	733	67.7
Extremely (19-25)	267	24.7
Rate of food avoidance		
Less (15-34)	129	11.9
Moderate (35-55)	771	71.2
Extremely (56-75)	183	16.9

TABLE V
PARENTAL FEEDING PRACTICES

Implementing of restriction	Frequency	Percentage
Less (8-18)	111	10.2
Moderate (19-29)	598	55.2
Extremely (30-40)	374	34.5

TABLE VI
CORRELATION BETWEEN RST AND CEB VARIABLES

Variables	Restriction (RST)		
	Correlation	n	Sig.
Food responsiveness	.183(**)	1081	.000
Enjoyment of food	.102(**)	1081	.001
Satiety responsiveness	.054	1081	.076
Slowness in eating	.021	1081	.488
Food fussiness	.046	1081	.129

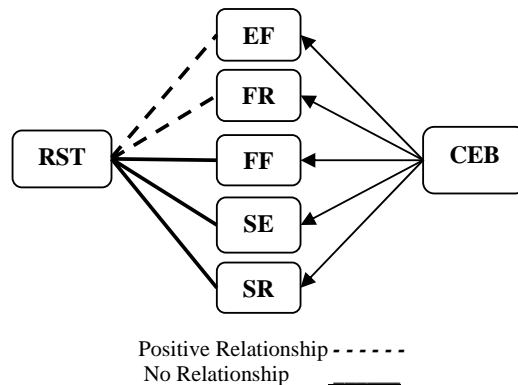


Fig. 1 Relationship between RST (Restriction) and CEB (child eating behavior)

REFERENCES

- [1] Birch, L. L. & Fisher, J. O. (2000). Mothers' child-feeding practices influence daughters' eating and weight. *Am J Clin Nutr*, 71(5):1054-61.
- [2] Birch, L. L. (2006). Child Feeding Practices and the Etiology of Obesity. *Obesity (Silver Spring)*, 14(3), 343-344 doi: 10.1038/oby.2006.45
- [3] Birch, L. L., Fisher, J. O. & Davison, K. K. (2003). Learning to overeat: maternal use of restrictive feeding practices promotes girls' eating in the

- absence of hunger. *Am J Clin Nutr*, 78(2):215-20.
- [4] Birch, L. L., Fisher, J. O., Grimm-Thomas, K., Markey, C. N., Sawyer, R. & Johnson, S.L. (2001). Confirmatory factor analysis of the Child Feeding Questionnaire: a measure of parental attitudes, beliefs and practices about child feeding and obesity proneness, *Appetite*, 36(3) , 201-210
 - [5] Braet, C., Soetens, B., Moens, E., Goossens, S. M. & Vlierberghe L. V. (2007). Are two informants better than one? Parent-child agreement on the eating styles of children who are overweight. *Eur Eat Disord Rev*, 15(6):410-7.
 - [6] Brown, R. & Ogden, J. (2004). Children's eating attitudes and behaviour: a study of the modeling and control theories of parental influence. *Oxford Journals*, 19 (3), 261-271.
 - [7] Farrow, C., Galloway, A. T. & Fraser, K. (2009). Sibling eating behaviours and differential child feeding practices reported by parents. *Appetite*, 52,307-312.
 - [8] Fisher, J. O. & Birch, L. L. (1999). Restricting access to palatable foods affects children's behavioral response, food selection, and intake. *American Society for Clinical Nutrition*, 69, 1,264-1,272
 - [9] Francis, L. A., Hofer, S. M. & Birch, L. L. (2001). Predictors of maternal child-feeding style: maternal and child characteristics, *Appetite*, 37(3):231-43
 - [10] Fulkerson, J. A., Neumark-Sztainer, D. & Story, M. (2006). Adolescent and parent views of family meals. *Journal of American Dietetic Association*, 106(4), 526-532.
 - [11] Scaglioni, S., Salvioni, M. & Galimberti, C. (2008). Influence of parental attitudes in the development of children eating behaviour. *British Journal of Nutrition*, 99 (1). S22-S25
 - [12] Sliddens, F.C. E., Kremers, P.J. S. & Thijs, C. (2008). The Children's Eating Behaviour Questionnaire: factorial validity and association with Body Mass Index in Dutch children aged 6-7, *International Journal of Behavioral Nutrition and Physical Activity*, 5:49 doi:10.1186/1479-5868-5-49
 - [13] Tan, C. C., Holub, S. C., (2012). Maternal feeding practices associated with food neophobia. *Appetite*, P: 483-487
 - [14] Ventura, A. K., & Birch, L. L. (2008). Does parenting affect children's eating and weight status? *International Journal of Behavioral Nutrition and Physical Activity*, 5:15 doi: 10.1186/1479-5868-5-15
 - [15] Wardle, J., Sanderson, S., Guthrie, C.A., Rapoport, L. & Plomin, R. (2002). Parental feeding style and the intergenerational transmission of obesity risk. *Obesity research*, 10 (6), 453-462
 - [16] Webber, L., Cooke, L., Hill, C. & Wardle, J. (2010). Adiposity and maternal feeding practices: a longitudinal analysis. *American Journal of Clinical Nutrition*, 92(6),1423-8. DOI:10.3945/ajcn.2010.30112.
 - [17] Webber, L., Cooke, L., Hill, C. & Wardle, J. (2010). Associations between Children's Appetitive Traits and Maternal Feeding Practices. *Journal of the American Dietetic Association*, 110(11), 1718-1722,
 - [18] Webber, L., Hill, C., Cooke, L., Carnell, S. & Wardle, J. (2010). Associations between child weight and maternal feeding styles are mediated by maternal perceptions and concerns, *Eur J Clin Nutr*, 64(3), 259-65.