

Parental perceptions of child's healthy diet: Evidence from a rapidly developing country

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ABSTRACT

Background: There are no studies in Qatar or in the Middle East to investigate parental perception of healthy diet in childhood. **Purpose:** To investigate parental perception of childhood healthy diet in the State of Qatar. **Methods:** Cross-sectional prospective study at Hamad Medical Corporation, State of Qatar. Parents of children <14 years old were invited to complete a questionnaire. **Results:** A total of 398 parents agreed to participate, while 22 parents refused (response rate 94%). About 80% of parents were between 20 and 39 years of age, and 77% were females. Around 230 (58%) parents had ≥1 housemaid to help with housework, including food preparation. Whilst 151 children (37%) fell into the overweight and obese category, only 68 parents (17%) perceived that their child was in this category. Less than half the participants ($n = 179$, 45%) stated that childhood weight should be monitored prior to 5 years of age, while around 35% stated the same, but for children ages 5–14 years. Most participants ($n = 324$, 81%) agreed that parental eating habits could influence childhood weight. In terms of food preparation at home, mothers cooked almost 50% of the times, housemaids 30%, followed by grandmothers (16.6%), and fathers (3.4%). When asked about the frequency of school meals being prepared at home, 237 parents (60%) prepared their children's lunch box only 1-2 times per week. Moreover, 63% of parents chose the quality of food based on nutritional values, while 44% and 35% chose it based on safety and taste, respectively. When queried about whether the child's pediatrician or the primary care physician counsel families regarding childhood healthy diet, 187 families (47%) had not received counseling by their children's health care providers. Most families agreed that healthy diets lead to better school performance ($n = 372$, 94%) and better physical activity quality ($n = 379$, 96%). Compared to families living in the rural areas, parents living in the capital Doha had better insights that healthy diets result in better in school performance ($p = 0.032$). **Conclusion:** Parental perception is an important target for public health interventions. Within the current sample, families were aware of the positive impact of healthy diet on overall wellbeing. Qatar is a well-resourced country and it would be cost effective to train and professionally develop pediatricians and primary care physicians to be more proactive in tackling childhood obesity.

Keywords: Children, healthy diet, parental perception, Qatar

Introduction

The childhood obesity epidemic has significant public health concern as obesity is linked to many chronic and life-threatening physical and psychological health conditions.^[1,2] Obesity is defined as weight to height of >3 standard deviations above the

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Received: 28-12-2019

Revised: 06-03-2020

Accepted: 03-08-2020

Published: 30-09-2020

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_1252_19

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How to cite this article: Hendaus MA, El Ansari W, Magboul S, AlHalabi O, Sati M, Kamal H, *et al.* Parental perceptions of child's healthy diet: Evidence from a rapidly developing country. J Family Med Prim Care 2020;9:4949-55.

WHO Child Growth Standards median for children <5 years of age, and >2 standard deviations above the same reference in children 5–19 years.^[3] More than 41 million children aged <5 years and ≈ 340 million children and adolescents aged 5–19 are overweight or obese.^[4]

The State of Qatar is a rapidly developing nation in the Arabian Gulf, comprising about 22 urban and semi urban districts with almost no rural population.^[5] Childhood obesity has increased in Qatar. In 2006, 16% of total Qatari children had increased body mass index (BMI) as per WHO guidelines.^[5,6] Recently a report from the ministry of public health in Qatar has indicated that the rate of obesity might be 33% in school children.^[7] A range of factors contribute to childhood obesity. Qatar's rapid economic success has led to the adoption of some unhealthy lifestyles including poor dietary habits.^[8] Children of both genders enjoy highly advertised and easily affordable high caloric diets comprising mainly fast food, soft drinks, sugar snacks, and sweet beverages.^[8-10] More than 60% of children in Qatar eat fast food ≥2 times a week, and ≈90% of children consume non nutritious snacks between meals.^[11] Sedentary lifestyles, minimal physical activity, and rising technological advancements and urbanization augment the childhood overweight and obesity challenge.^[9]

High childhood obesity rates have repercussions. Obesity leads to detrimental overall well-being and quality of life,^[12-15] and adverse health outcomes that can manifest later in life include insulin resistance, type 2 diabetes mellitus (DM), cardiovascular disease, hypertension, obstructive sleep apnea, nonalcoholic steatohepatitis, musculoskeletal disorders, and some neoplasms.^[16-19] Obese children are at higher risk of being bullied and teased than their normal weight peers, and are more prone to depression, social isolation, and lower self-esteem.^[20-22] Furthermore, the medical costs of obesity are significant,^[23] where the projected annual medical cost of obesity in the USA was \$147 billion, with obese people encountering \$1,429 more annual medical costs compared to individuals with normal BMI.^[24] The global impact of obesity is ≈\$2 trillion, almost 3% of the worldwide gross domestic product.^[25]

Permissive parenting is associated with increased obesity.^[26] Parents may use food to pacify or manage behavior,^[27,28] and parents may attend a crying infant with food, even though many young children and infants cry for motives that are not appetite related. Nutriment are also considered efficient rewards used to control behaviors through associative behaviors, causing children to like those foods.^[29]

This study examined parental perceptions of child's healthy diet in Qatar. The specific objectives were to assess parental views on: healthy diet; quality of food provided and parental concerns about obesity; and, sources of information about healthy diet. To the best of our knowledge, this is the first in Qatar and the Middle East to investigate parental perception of healthy diet in childhood. The results of this study can be incorporated into

future interventions that aim to improve healthy eating patterns in children.

Materials and Methods

Study design, ethics and setting

This cross-sectional prospective study was approved by the Medical Research Centre at Hamad Medical Corporation (HMC, Equivalent to the Ministry of Health) (IRB, protocol no. 17106). The study was conducted at HMC outpatient pediatric department between June 1, 2017 and May 30, 2018.

Research tool

The questionnaire was adopted from published sources,^[30-35] and was validated by a panel of experts at HMC. Translation and back translation of the questionnaire from English to Arabic was conducted by the translation office of HMC. Parents were offered questionnaires in both Arabic and English languages subject to their preference. The self-administered questionnaire comprised 29 items that included parent and children demographics, parental knowledge of healthy diet in childhood, healthy diet questions, quality of food provided, and parental concerns about obesity.

Procedure and participants

We piloted 25 questionnaires followed by Cronbach alpha to check for internal consistency of the questionnaire. No changes were required after the piloting. As there were no similar studies investigating the specific topics of our questionnaire within the context of healthy diet, we could not extrapolate or calculate the needed sample size. We then chose a convenient sample of 400 participants. The inclusion criteria were perceived healthy children under the age of 14 years accompanied by caregiver; the exclusion criteria comprised parents of children with conditions such as eating disorders, diabetes, cerebral palsy, and metabolic disorders. Parents were contacted during their visits to our pediatric outpatient department, checked for eligibility and if eligible were invited to participate in the study.

After clarifying the aims and objectives of the study, verbal consent was taken and participants were informed of why the data was being collected and how it would be used in future for interventions to prevent childhood obesity. Families were advised that their participation is voluntary and that their responses were confidential and anonymous. There was no compensation for participating.

Statistical analysis

Statistical analyses were undertaken using statistical package SPSS, version 21.0 (IBM corporation, Armonk, NY), a two-sided *P* value < 0.05 was statistically significant. Qualitative and quantitative data values were presented as percentages. Descriptive statistics described the demographics and other characteristics of parents and children. Associations between two or more categorical variables were assessed using Chi-square test. For small cell frequencies, Chi-square test with continuity

correction factor or Fisher's exact test was used. Missing data were not accounted in the analysis.

Results

A total of 398 parents agreed to participate (94% response rate), while 22 parents (6%) refused. Table 1 summarizes the demographic characteristics of participants. About 80% of parents were between 20 and 39 years of age, and 77% were females.

Table 2 depicts parental responses to the healthy diet questions. The majority (81%) of parents agreed that parental eating habits could influence childhood weight. Slightly less than two-thirds (59.5%) of participants stated that their children's school advocates toward healthy diet. Most parents believed that healthy diet promotes better school performance and physical activity (94.4% and 96.2%, respectively).

Tables 3 and 4 summarize participants' responses to quality of food and parental concerns about obesity. Whilst 151 (37%) of children fell into the overweight and obese category, only 68 (17%) of parents perceived that their child was in this category. In terms

Table 1: Demographic characteristics of participants

	n (%)
Parents age (years)	
<20	8 (2)
20-29	97 (24.4)
30-39	216 (54.4)
>40	76 (19.1)
Gender	
Female	88 (22.1)
Male	310 (77.9)
Employment status	
Not working	166 (41.8)
Working part-time	28 (7.1)
Working full-time	186 (46.9)
Student part-time	6 (1.5)
Student full-time	11 (2.8)
Location	
Doha (capital)	353 (89.1)
Al Wakra (city in the south)	26 (6.6)
Al Khor (city in the north)	7 (1.8)
Other (rural)	10 (2.5)
Level of education	
Less than high school	67 (16.8)
High school	87 (21.9)
College	77 (19.3)
College graduate	117 (29.4)
Higher degree	50 (12.6)
Nationality	
Qatari	109 (27.6)
Non-Qatari	286 (72.4)
Home assistant	
House maid	167 (42.2)
No housemaid	229 (57.8)

of children's physical activity, 209 (53.4%) of the parents reported their children had regular physical exercises and 262 (67.1%) of them were satisfied with their children's physical activities. Moreover, 297 (76.3%) reported that their children spend less than 2 hours of smart screen media while having their meals.

Figure 1 shows that the majority of parents (59.5%) acquired their sources of information about healthy diet from the Internet.

Less than half the participants ($n = 179$, 45%) stated that childhood weight should be monitored prior to 5 years of age, while around 35% stated the same, but for children ages 5–14 years. In terms of food preparation at home, mothers cooked almost 50% of the times, housemaids 30%, followed by grandmothers (16.6%), and fathers (3.4%). When asked about the frequency of school meals being prepared at home, 237 (60%) of parents prepared their children's lunch box only 1–2 times per week. Moreover, 63% of parents chose the quality of food based on nutritional values, while 44% and 35% chose it based on safety and taste, respectively. Approximately 50% of parents stated that fast food and soda drinks were unhealthy. When queried about whether the child's pediatrician or the primary care physician counsel families regarding childhood healthy diet, 187 (47%) of families had not received counseling by their children's health care providers. Interestingly, mothers were more concerned about their children overweight compared to fathers 92.5% vs. 7.5% ($P = 0.009$).

In terms of demographics, parents with degrees higher than college were more aware that children's weight should be monitored in

Table 2: Parental answers to healthy diet questions

	n (%)
Influence of parents eating behavior	
Strongly disagree	15 (3.8)
Disagree	27 (6.8)
Neutral	29 (7.3)
Agree	190 (48.1)
Strongly agree	134 (33.9)
Influence of School	
Strongly disagree	7 (1.8)
Disagree	62 (15.7)
Neutral	91 (23)
Agree	185 (46.8)
Strongly disagree	50 (12.7)
Healthy diet improves school performance	
Strongly disagree	4 (1)
Disagree	5 (1.3)
Neutral	13 (3.3)
Agree	182 (46.2)
Strongly agree	190 (48.2)
Healthy diet improves physical activity	
Strongly disagree	4 (1)
Disagree	4 (1)
Neutral	7 (1.8)
Agree	173 (43.9)
Strongly agree	206 (52.3)

Table 3: Quality of food provided

	n (%)
Parents reward child with food	
Always	19 (4.8)
Sometimes	128 (32.2)
Frequently	80 (20.3)
Never	14 (35.8)
Not sure	26 (6.6)
School meal prepared at home	
Always	237 (61.2)
Sometimes	47 (12.1)
Frequently	52 (13.4)
Never	18 (4.7)
Not sure	33 (8.5)
Fruits and vegetables provided in lunch box	
Always	151 (39.5)
Sometimes	77 (20.2)
Frequent	27 (7.1)
Never	125 (32.7)
Not sure	2 (0.5)

Table 4: Parental concern about obesity

	n (%)
Parents concerned about obesity/overweight	
Concerned	27 (7.1)
Very concerned	164 (42.9)
Neutral	65 (17)
Not concerned	86 (22.5)
Don't know	40 (10.5)
Concern about community obesity	
Concerned	5 (1.3)
Very concerned	15 (3.8)
Not concerned	46 (11.7)
Neutral	191 (48.5)
Don't know	137 (34.8)

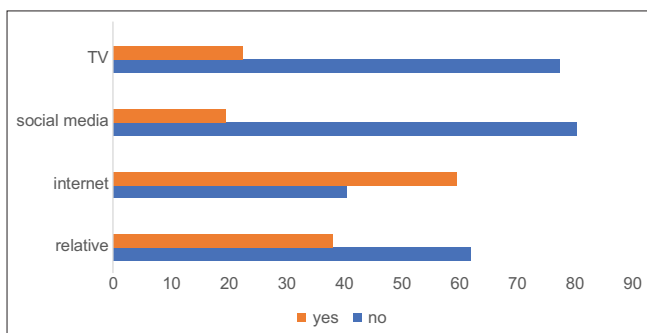


Figure 1: Sources of information about healthy diet

the first 5 years of life ($P = 0.004$). Moreover, older parents (30–39 years) agreed that fast food is unhealthy ($P = 0.001$). No other associations were statistically significant.

Discussion

The findings of the current study show that parents in Qatar are aware that healthy diet has a positive impact on mental and

physical status of children. However, the overweight and obesity rate of children residing in Qatar does not match parental attitude of healthy diet. The reasons might be attributed to the lack of control by parents to their children’s diet and the deficiency in proper counseling by primary care physicians.

As for the healthy diet domain, the majority of our participants (>81%) agreed that parental eating habits could influence childhood weight. This finding supports the significance of parental role modeling and the level of control that parents exercise over the children’s diet quality, and we agree with reports that highlighted the necessity to focus on the need for parents to consume a healthy diet.^[36-38]

Slightly less than two-thirds (59.5%) of our sample indicated that their children’s school advocates toward healthy diet. These levels of school reinforcements toward healthy diet are discouraging, despite the mounting evidence of the positive effects of school wellness guidelines. Exempli gratia, augmenting students’ access to healthy school lunch enhanced students’ nourishing dietary intakes,^[39] including fruit consumption.^[40]

Most parents in the current study agreed that healthy diet promotes better school performance. These findings concur with the published associations between dietary behaviors and advanced academic achievement.^[41]

In terms of the two domains of the quality of food and parental concerns about obesity, the current study observed that although 37% of children were overweight/obese, only 17% of parents perceived that their child fell in such category. Parental awareness of the child’s overweight as such may not be enough for ensuing weight management by the parents, suggesting that parents who identify their child’s overweight may not be able or willing to sufficiently control the overweight.^[42]

Over half the parents (59.5%) acquired their sources of information about healthy diet from the internet, concurring with the literature that parents are increasingly counting on the internet and social media as a source of information on all phases of parenting.^[43]

Eating behaviors have changed throughout history and nowadays, especially in developed countries, the nutritional transition has resulted in the introduction of low nutrient, energy condensed foods such as nutritionally unbalanced snacks, easily accessible and fast foods,^[44] leading to high caloric unhealthy diets. Such nutrition transition has been adopted by many individuals in developing nations,^[45] and is a public health issue as it has resulted in an increase in “diseases of affluence” in children.^[46]

Too much advertising of nutrient-poor, high-sugar foods directed at children, such as cereals,^[47] and the cheaper cost of calorically dense, less nutritionally snacks such potato chips and sodas,^[47,48] are postulated to be major causes of unhealthy eating.

Parental awareness about proper size, growth, and nourishing patterns play a crucial role in the development of childhood obesity.^[49] A study of maternal feeding patterns and attitudes used feeding questionnaires for children 11–23 months and children 2–5 years old^[50] showed distinctive feeding behaviors between high and low income mothers. Low income mothers described larger concern about their child's desire to eat, a lower predisposition to use food to soothe and greater struggle in feeding their children. They also described driving their child to eat more and participating in more age-inappropriate feeding. In Qatar, citizens do not face poverty issues, and expatriates receive reasonable packages well above poverty lines. Therefore, the level of income does not affect quality of food in Qatar.

Parents are usually the primary people responsible for food purchasing, and meal preparation, while simultaneously wanting to provide their children with the required kits to guarantee healthy growth and development. In the current study, mothers cooked almost 50% of the times, housemaids 30%, followed by grandmothers (16.6%) and fathers (3.4%) and only 60% of parents prepared their children's lunch box only 1–2 times per week. We are in agreement that parents are influential “proxies of change” for nutrition in children and their approaches and personal behaviors intensely impact behavior choices.

Timely application of healthy eating behaviors is crucial for children, as early food choice development during childhood plays an important role in the maintenance of eating habits into adulthood. Therefore, an unhealthy diet must be recognized on time, so that appropriate changes can be made to ameliorate the child's diet and prevent future disease risk. This is where parental perception plays a role, and therefore parents must initially be able to identify when a child's diet is sub-optimal, and be aware of the timely required changes.^[51] Whilst the current study observed that less than half the participants (45%) stated that childhood weight should be monitored prior to 5 years of age, nevertheless, around 35% stated the same, but for children ages 5–14 years.

Parents often sense the urge to restrict children's access to desired foods, which are typically rich in fat, sugar, and salt.^[52] Utilizing such coercive control approach to restrict access to preferred foods leads to a rise in a child's interest in and alertness to his/her desired foods, which eventually encourages disinhibited overeating in the absence of appetite.^[53] Such approach can have unfavorable consequences on the development of children's eating behavior, which might lead to obesity and unhealthy dietary practices.^[54]

Approximately 50% of our participating families had not received counseling from their children's health care providers. Whilst this is concerning, it is in agreement with a body of literature on the subject. A review that included a sample of 2,025 participants^[55] mapped data about counselling of parents of children aged 0–2 years on the child's healthy diet. The study showed parents' perceptions of inconsistency, misconceptions and doubt associated with recommendations on child feeding

from the authorities. Hence, the role of pediatricians is crucial in obesity prevention as they are in an exceptional position to collaborate with families and to inspire factors of the larger strategy of developing community support, especially if it is adaptive advice. Pediatricians have a family-centered viewpoint and are seen by families as a trustworthy source of health guidance and as specialists in developmentally suitable methods to prevention.^[56]

This study has limitations. There might be a probability that other features related to parental preferences in this subject were not assessed in this study. In addition, parental assessment of their children's diet may not mirror reality since children may have weight concerns not identified by parents. This current study also has significant strengths. The findings will be used to benchmark parental perception of child's healthy diet, especially that the study included several domains within the context of healthy diet. Moreover, the present study will contribute to creating a better framework of childhood obesity prevention programs in Qatar.

Conclusions

Parental perception is considered an important target for public health interventions. Our families are aware of the positive impact of healthy diet on overall wellbeing. The State of Qatar is a very well-resourced country, including the medical field and it would be cost effective to train and professionally develop our pediatricians and primary care physicians to be more experts in tackling obesity by providing family counseling.

Acknowledgment

The authors thank the parents that participated in this study and thank the Medical Research Center at Hamad Medical Corporation for their support.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Ethical approval

Hamad Medical Corporation-Ethics Committee (Ref # 17106/17) June 1, 2017.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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