

Parenting Styles and Family Contributors to the Development of Dietary Behaviors in Arab Children Ages 6-10 Years Old Living in the US

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Abstract: Parenting styles and family contributors are the main determinants of obesity risk in children. To date, no research has been reported on parenting styles/practices and family contributors to the development of dietary behaviors in Arab children living in the US. The objectives of this exploratory mixed-method study were to collect data on parenting feeding styles (Caregiver's Feeding Style Questionnaire- CFSQ) of Arab mothers and family contributors (Family Nutrition Physical Activity- FNPA) to the development of dietary behaviors in their children; and to collect data on Arab mothers' challenges and strategies to promote healthier dietary behaviors in their children. Although all Arab mothers (n=23) self-assessed that they were authoritative, only seven mothers were categorized as having an authoritative feeding style based on their CFSQ scores. The FNPA overall mean was 3.15, indicating less obesogenic family environment and behaviors. Across focus groups, barriers to desirable dietary intake included low vegetable intake and child being distracted by sweets, junk foods, and technology. All mothers wanted their children to have healthier dietary habits and used positive and negative approaches to achieve that. Positive approaches included no pressure to eat and providing healthier alternative foods. Negative approaches included pressuring the child to eat and rewarding with sweets and technology. In correlation analyses, the mother's BMI was significantly correlated with the child's BMI z-scores ($r = 0.325$, $p = 0.005$). This study can guide future efforts in assessing parenting style and assessing the home environment regarding the dietary behaviors of Arab families.

Keywords: Arab mothers, childhood obesity, parenting styles, dietary behaviors, focus groups, mixed methods.

BACKGROUND

According to the World Health Organization, over 340 million children and adolescents ages 5-19 were overweight or obese worldwide in 2016 [1]. Although the etiology of childhood obesity is multifactorial, child behaviors that can contribute to excess weight gain include eating high-calorie and low nutrient foods and beverages [2]. Although the home environment can be a positive factor in the prevention of childhood overweight, it can promote increased consumption of less healthy foods [3, 4].

Within the home environment, parenting styles and practices are the main determinants of obesity risk in children [5, 6]. Based on two aspects (control and love) of parenting behaviors, different parenting styles have been identified [7, 8]. In parental control (demandingness), parents manage their children's behaviors, set rules and demands, and expect their children to follow the rules [9]. In parental warmth (responsiveness), parents accept their children's behaviors and express their love and concern to them. When these parenting behaviors are combined in

different ways, four main parenting styles (authoritative parents, authoritarian parents, permissive parents, and neglectful/uninvolved parents) emerge. Authoritative parents are attentive, forgiving, teach their offspring proper behavior, and have a set of rules. If the child fails to follow, there is punishment, and if followed, there is reward/reinforcement [9, 10]. Authoritarian parents have high expectations but little communication between children and parents. Parents do not provide logical reasoning for rules and limits and are prone to harsh punishments. Permissive parents take on the role of "friends" rather than parents, do not have any expectations of the child, and allow them to make their own decisions. Neglectful/uninvolved parents put their own life before the children. They do provide for the child's basic needs, but they show little interaction with the child. In contrast to parenting styles, parenting practices are goal-directed behaviors used by parents to get children to do something specific (such as eating their food) and can be accepted or rejected by the child [11].

Since parents' attitudes of child-rearing are guided by cultural norms and sociocultural issues, parenting practices may differ across ethnic groups [12]. Among Arab populations, the family is much valued as the cornerstone of the Arabic culture, and children are raised to preserve the traditions and customs of the

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culture and family [13]. The parenting style of Arab ancestries tends to be authoritarian [14].

Acculturation may also affect parenting styles and practices related to food intake [15, 16]. A study by Tami, Reed, Boylan, and Zvonkovic [17] concluded that Arab mothers living in the US might experience complex modification of new dietary and lifestyle behaviors (positive and negative) due to acculturation. Immigrant parents who are exposed to different acculturative stressors also are more likely to be at high risk for parenting stress [18, 19].

To date, no research has been reported on parenting styles/practices and family contributors to the development of obesity in Arab children living in the US, and factors influencing their dietary behaviors. Also, no studies have reported the relationship between Arab mothers' weight and their children's weight. To address the health education needs of persons with Arab ancestry, it is important to have more information about parental styles/practices and family contributors that influence children's dietary behaviors and to identify gaps in parents' knowledge and challenges to healthier behaviors.

Thus, this mixed-methods study of Arab mothers and their children in the US collected exploratory data on mothers' feeding styles and family contributors to the development of childhood obesity and mothers' challenges and successful strategies to promote healthier eating habits in their children. It also determined the relationship between children's weight status to their mothers' parenting feeding style and their obesogenic/non-obesogenic family environment.

METHODS

Study Design, Measures, and Sample

The mixed-method design included the quantitative Caregiver's Feeding Styles Questionnaire (CFSQ) [20] and Family Nutrition and Physical Activity [FNPA] survey [21] and qualitative focus group discussions (FGD) that collected data on parenting feeding styles of Arab mothers and family contributors to the development of dietary behaviors in their children. The convergent parallel design of the quantitative and qualitative strands was of equal priority and applied independently at the same time for cross-validation (triangulation) [22].

The CFSQ categorized participants into four different parenting feeding styles: Authoritative, Authoritarian, Indulgent, and Uninvolved [20]. The

FNPA assessed ten risk factors (breakfast and family meal, modeling of nutrition, nutrient-dense foods, high-calorie beverages, restriction and reward, TV/video game/computer screen time, TV in the bedroom, parent modeling physical activity, child's physical activity, and sleep schedule) found to be associated with obesity in children. The FNPA tool used a Likert type scale of four possible responses to each question (1 represents a negative or more obesogenic family environment, and 4 represents positive or less obesogenic family environment) [21]. The CFSQ and FNPA surveys have been tested for validity and reliability with Arab mothers [23].

The FGD was conducted by first author Tami, who is bilingual in Arabic and English. The open-ended questions were guided by the Social Cognitive Theory (SCT) with its six constructs (reciprocal determinism, behavioral capability, expectations, self-efficacy, observational learning, and reinforcement) that suggest that individuals learn behaviors from the surrounding environment and through observation [24, 25]. The questions focused on the mothers' challenges related to food preparation/mealtimes, changes they desired in food habits, strategies they used to encourage their child to eat, and additional information/resources that would be helpful.

The Participant Background Survey (PBS), previously used to collect demographic and acculturation data in Arab women [17], was used to collect additional information on the child's age, gender, height, and weight and mothers' self-assessed parenting style. Before starting the FGD, mothers completed the PBS, CFSQ, and FNPA surveys and were weighed privately using a Tanita scale (model SC-331S Tanita, Toyoko, Japan).

The sample included Arab mothers of children, ages 6-10 years old, who lived in the Dallas, TX area. They were recruited to participate in the study via flyers and word of mouth at local Islamic schools and centers. As incentives, all participants were entered into a drawing for a \$20 gift card, served a light meal, and received nutrition education materials after data collection. The study was conducted at a local Islamic Center. Texas Tech University's Institutional Review Board for the protection of human subjects approved the study protocol.

Data Analysis

Quantitative Data Analysis

Quantitative data obtained from the PBS were analyzed using the Statistical Package for Social

Sciences software (SPSS, v. 23, 2014) Each child's BMI-for-age percentile was calculated using the CDC's BMI-for-age growth chart calculator, and BMI z-scores (measures of relative weight adjusted for child age and sex) were calculated using a specialized CDC SAS program [26].

For scoring the CFSQ, two scores were derived – demandingness and responsiveness [20]. The mothers were categorized into high and low categories on demandingness and responsiveness and into feeding styles based on their scores on demandingness and responsiveness:

Authoritative Feeding Style: high demandingness/high responsiveness

Authoritarian Feeding Style: high demandingness/low responsiveness

Indulgent Feeding Style: low demandingness/high responsiveness

Uninvolved Feeding Style: low demandingness/low responsiveness

As for reported obesogenic family environments and behaviors measured by the FNPA, the mean of each participant's responses to all FNPA questions was calculated, and the overall mean across all participants was also calculated. Kendall's tau correlation analyses were used to determine the relationships between the child's BMI z-scores and mother's weight, between the child's BMI z-scores and the parenting feeding style (CFSQ), and between the child's BMI z-scores and the home environment behaviors (FNPA).

Qualitative Data Analysis

Each FGD was audio-recorded, transcribed, and translated to English. A code list for the transcripts was developed, and the transcripts were coded separately by two coders. Once the coding structure was completed, inter-coder reliability was determined by percentage agreement for coding statements into the themes, using the Holsti formula [27, 28]. The coding agreement was 81%, which is considered reliable [29]. The transcripts were imported into a software program for qualitative data analysis, ATLAS.ti (Version 7, 2014, ATLAS.ti Ink). ATLAS.ti helped organize the data and assisted in identifying the codes most frequently used. Themes were derived based on the codes and concepts that trended across the FGD.

RESULTS

Characteristics of Participants

Twenty-three Arab mothers of 37 children aged 6-10 years old participated in this study (Table 1). Most mothers were ages 30-35, had a bachelor's degree, and had a family income of \$40,000 – 59,999. In total,

Table 1: Characteristics of the Arab Mother Participants (n = 23) and their Children (n = 37)

Characteristics	Frequency (%)	Mean (SD)
<i>Mother's age (years)</i>		
30 – 35	10 (43.5)	
36 – 40	6 (26.1)	
41 – 45	4 (17.4)	
46 – 50	3 (13.0)	
<i>Level of education</i>		
Less than high school	0 (0.00)	
High school or equivalent	3 (13.0)	
Some college	5 (21.7)	
Bachelor's degree	13 (56.5)	
Master's degree	1 (4.3)	
Professional degree (MD)	1 (4.3)	
<i>Household income</i>		
Under \$19,000	1 (4.3)	
\$20,000- \$39,999	3 (13.0)	
\$40,000-\$59,999	10 (43.5)	
\$60,000-\$79,999	3 (13.0)	
\$80,000 and more	6 (26.1)	
<i>Mother's length of time in the original country (years)</i>		16.14 (11.21)
<i>Mother's length of time in the United States (years)</i>		15.78 (9.30)
<i>Mother's body mass index (BMI)</i>		
< 18.5 (Underweight)	1 (4.3)	
18.5 – 24.9 (Normal weight)	5 (21.7)	
25 – 29.9 (Overweight)	7 (30.4)	
≥ 30 (Obese)	10 (43.5)	
<i>Children at home</i>		
<i>Child's age (years)</i>		8.04 (1.54)
6-8	20 (52.60)	
9-10	17 (44.80)	
<i>Child's body mass index (BMI)-for-age-and-sex percentile</i>		
Underweight (< 5th percentile)	1 (3%)	
Normal BMI (5th - 85th percentile)	27 (73%)	
Overweight or obese (≥ 85th percentile)	6 (16%)	
Obese (≥ 95th percentile)	3 (8%)	

the participants had 37 children (19 males and 18 females) (data not shown) who were mostly 6 -10 years old. Seventeen mothers were overweight or obese, and six children were overweight or obese.

The mothers' mean length of time in their original country was almost equal to their length of time in the US (approximately 16 years for each). The Arabic language was the most used language for speaking, reading, writing, at home, and with friends for 16 mothers (69.6%) (data not shown). The Arabic language was also the preferred language for speaking, reading, and writing for 18 mothers (78.3%).

Assessment of Parenting Style

Based on PBS, all mothers reported using the authoritative parenting style (data not shown). Twelve mothers (52.2%) reported that the source of their parenting style was themselves, while eleven mothers (47.8%) reported their parents as the source of their parenting style. Fifteen mothers (65.2%) reported that they changed their parenting style after coming to the US.

Based on their responses to the CFSQ, mothers' parenting feeding styles were categorized as: *eleven Authoritarian, ten Indulgent, nine Uninvolved, and seven Authoritative* (Figure 1). In Kendall's tau

correlation analyses, the child's BMI z-scores were significantly correlated with the mother's BMI ($r = 0.325$, $p = 0.005$). As for CFSQ, no significant associations were found between assessed parenting feeding styles (authoritative, authoritarian, indulgent, and uninvolved) and child's BMI z-scores ($r = -0.152$, $p = 0.232$).

The FNPA scores varied between 1.90 and 3.80, indicating a range of high-risk family environments and behaviors (obesogenic) and favorable family environment and behaviors (non-obesogenic). The overall mean across all participants was 3.15, a relatively high score that indicated desirable practices and environments. However, no significant associations were found between the means of reported obesogenic family environments and behaviors (FNPA) and child's BMI z-scores ($r = -0.083$, $p = 0.478$) (data not shown).

Focus Group Discussion Findings

Barriers/Challenges During Meal Preparation and Mealtime

Mothers were asked about the challenges they have in food preparation and mealtimes for their families, especially for their children aged 6-10 years. Overall themes included picky eaters, concern about low

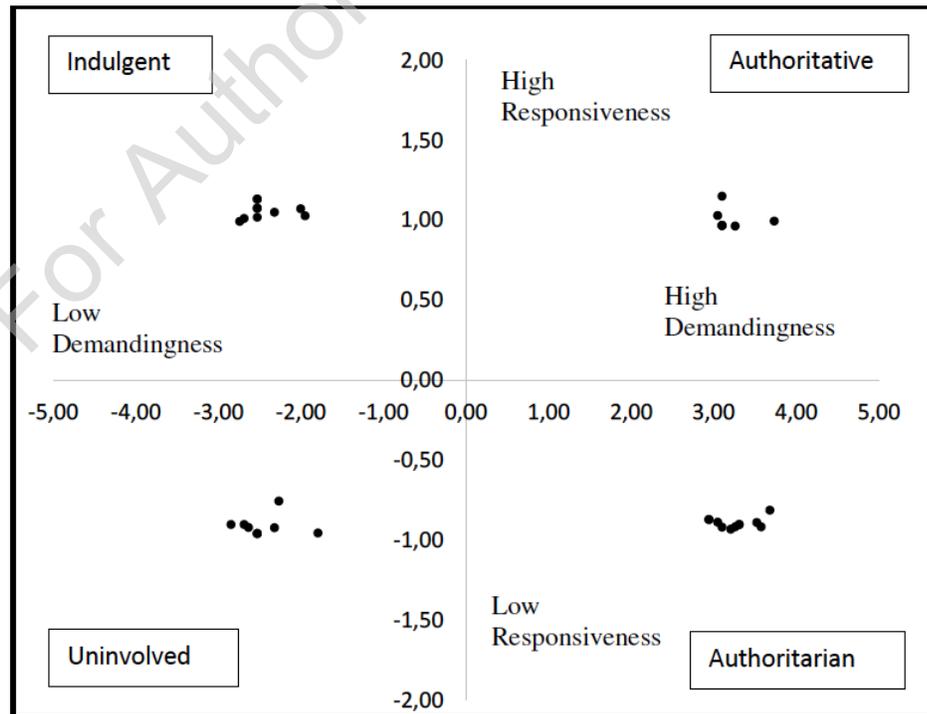


Figure 1: Participants' Parenting Feeding Styles Based on their Caregiver's Feeding Styles Questionnaire (CFSQ) Scores (n = 23).

vegetable intake, distractions related to foods with low nutrient value, distractions related to technology, and lack of time for food preparation.

Picky Eaters and Low Vegetable Intake

Some mothers said that they felt frustrated when they prepared food for the day, and their children then would say that they did not like it or refused to eat it. A mother stated, "My son is very challenging. Every time I cook food, I wonder if he's going to eat it." Overall, almost all mothers prepare dishes that their children liked/requested to avoid any struggles with their children during mealtime. The mothers reported that having a picky eater child also limited the options they might prepare for their families, as a mother said, "I can't cook a variety of food. They (her children) like certain foods, like peas and Mulukhiyah (a green soup that is very popular in the Middle East and North Africa countries), and that is what I cook for them." The mothers emphasized that having different ages of children with different tastes and food preferences made it challenging for them to find one dish that everyone liked. Most mothers expressed concerns regarding their children refusing or not eating enough vegetables. "They like raw vegetables found in a salad, not the cooked ones... A lot of Arabic dishes contain okra, green peas, cauliflower, and eggplant, and my kids don't eat them."

The Child Being Distracted by Sweets, Junk Foods, and Technology

Even if their child's favorite Arabic/traditional dish was prepared, some mothers felt challenged by the outside environment and/or their child's friend's influence, especially for non-healthy/junk foods. A mother said, "My kids are not real Egyptians. Their diet is like Americans. They want to eat pizza and McDonald's." Another mother added, "I try my best to eliminate that (junk foods) even though it's difficult when my kids see their friends eating such foods. I try to buy the least non-healthy foods as much as I can so my kids won't feel less than their peers." Children may be distracted by "sweets" when eating, as a mother stated, "Sometimes, he (her 7-year-old son) puts a cookie beside his rice plate, and he would eat a piece of the cookie after each mouthful of rice." She allowed him to do that so he would eat. In addition, a couple of mothers reported that their children got distracted from eating when they watched TV.

Limited Time for Meal Preparation

Lack of time resulted in some families eating more fast food. Limited time was an issue also to prepare a

child's favorite dish; for example, a mother stated, "He (her 7-year-old son) likes to eat Shish Barak, but I can't make it for him every day. It takes time." A mother expressed her willingness to learn more time management skills saying, "I hope there are workshops on time management and organization...I also heard about 'Meal Planner,' but I don't know how to apply it."

Mothers' Practices for Child's Healthier Dietary Behaviors

Across the FGDs, the mothers shared a variety of practices they used to encourage their children to eat. Some stated that they would force or put some pressure on their children to eat the foods prepared. A few mothers also said that their children had to eat what was served, whether they liked it or not. In addition, a couple of mothers reported spoon-feeding their children and said that it would sometimes be "the only way" to make their children eat and finish their foods. Three mothers stated that they would serve food on a big plate and ask their children to get what they felt they could eat with a set rule of "No Leftovers," meaning they could not leave food on their plate (i.e., waste food).

Most of these Arab mothers reported using practices like rewarding, bribing, warning, and tricks (based on the child's age and interests) to make their children eat food. In order to eat their food, children might even ask for a reward/bribe as a mother said, "My little daughter (6 years old) would ask me for a bribe. She would tell me, 'would you let me eat ice cream if I finish my food?'" If their children refused to eat their food, some mothers reported threatening/warning them that they would not be able to have sweets/dessert, play video games, or get something they liked. These mothers also said they would threaten or warn their children that they would take something (such as money, sports practice, or going to the park) they liked away from them. In addition, a few mothers reported using some tricks to encourage their children to eat their food by asking them to add ranch dressing, ketchup, lemon zest, or some spice. A mother said that her 8-year-old daughter does not like to eat chicken. Therefore, the mother would cut it into tiny pieces and mix it with rice and salad, and the daughter would eat it without knowing it is in the food.

On the other hand, several mothers reported that they would not push their children to eat the food prepared. A couple of mothers stated that they would try to find healthy alternatives for their picky-eater

children. A mother said, "If the kid doesn't like the dish at all, I make him a sandwich, like a turkey, labneh, cheese, or beef sandwich, something considered reasonable and healthy." A mother reported allowing her children to switch nutritionally similar foods. In addition, several mothers reported that they would give their children the option to choose what to eat from the food prepared or avoid something from the plate. To encourage her 7-year-old son, a mother said that she would let her son prepare his own meals since he likes to help her, especially with preparing the foods he likes.

Most participants expressed that they would do their best to make sure that their children ate healthy meals and snacks by preparing balanced meals, adding vegetables to dishes, and minimizing junk food consumption, or choosing "healthier junk foods." A mother said, "Junk foods are available in the house. But, they are healthy junk foods. For example, I bring chips, but made of whole grain, contain seeds, made of beans, ...etc. I also try to focus on organic foods."

Additionally, a mother mentioned that since her 10-year-old son liked to eat ranch dressing with vegetables, she would buy low-fat ranch dressing. Another mother said, "I encourage them to eat vegetables by telling them about the importance of vegetables in building their bodies." To encourage their children to eat, some mothers decorated dishes with mint and sumac (red salt).

Mothers' Perceptions about Parenting Style

Authoritative Style

Most mothers stated that they were authoritative parents indicating their willingness to listen to their children's needs and discuss issues. A mother said, "Being authoritative parents is important in raising children through discussions and giving choices." She added, "Even my so picky eater kid (her 7-year-old son) sometimes brings toasted bread. I tell him, 'just bread? You know, you have to have a full, healthy meal that contains protein, fruits...' so, he would say, 'we can add honey. It's healthy, along with slices of tomatoes and cucumbers. So, we have vegetables.'"

Authoritarian and Indulgent Styles

A few mothers stated that they were firm and strict (authoritarian parents) with their children by giving no opportunity to their children to choose the food they wanted to eat and mostly giving orders and enforced them. A mother stated, "I'm considered a dictator regarding choosing and preparing foods. And, maybe,

that is correct." These mothers also said that that they would not prepare several dishes or provide different food alternatives within the meal served, as a mother said, "I prepare one dish. And there is no other option. I tell them, 'If you like it, eat. If not, don't eat.'" Another mother stated, "My kids don't like some kinds of vegetables, like peas. However, they eat them even though they don't like them. They have to eat what is served." Conversely, three mothers indicated that they are indulgent (permissive) with their children. A mother said, "I try to be soft with them because I don't want to alienate them from my food (from my country) or make them hate what I cook for them."

Changing Between Parenting Styles

Several mothers stated that they would not follow a particular parenting style all the time. Based on the time, situation, and other factors, the parenting style used might be different, as one mother said, "If I'm busy, I would be firm with the kids (authoritarian). If I have time, we discuss things together (authoritative)." A few mothers said that generally they would discuss and negotiate, and even compromise, with their children, but they would be strict with them in certain matters related to culture and religion.

Spouse's Different Parenting Style

Having a husband (father) who uses a different parenting style than the mother's parenting style was also mentioned by some mothers as a factor impacting their children's food choices. One mother mentioned that having a parenting style that was opposite to her husband's parenting style was desired to have a balance. She said that her husband was strict with their sons, but she was not; however, she was firm with their daughters, and he was not.

Other Factors Related to the Parenting Styles Used

Several mothers stated that living abroad (in a Western country) and raising children was a challenging task. They said that their children had not chosen the current living environment (in the US), and the parents, themselves, were the ones who brought them to this environment. As a result, the parents tend to be soft with them. A mother said, "We spoil them because we are living abroad and don't have anyone but them."

Additional Information Requested by the Arab Mothers

Almost all mothers agreed that they needed different effective strategies and resources regarding parenting styles, in general, and to develop healthier

eating habits, specifically. A mother said, “We are a generation raising a different generation. We need modern ways of parenting styles regarding developing healthier eating habits, whether these ways would be articles, videos, or websites.” A mother said that she wanted to learn different ways to make her children eat healthier rather than rewarding them with candies and sweets.

DISCUSSION

Although childhood obesity is a multifactorial issue, home environment, and parenting styles and practices play a significant role in the child's eating behaviors [3-6, 30, 31]. This study sought to explore parenting styles/practices and family contributors to the development of dietary behaviors in Arab children living in the US using a mixed-methods design.

The correlation analyses showed that the mother's BMI was significantly correlated with the child's BMI z-scores. This relationship has been supported by several cross-sectional and longitudinal studies [32-35], with maternal BMI being a particularly significant predictor of BMI z-scores in children ages 6-13 years old [36].

Parenting styles that are related to the feeding context are consistently associated with child BMI [37]. However, since obesity emerges over time, associations between parenting style and child BMI have been strongest and most consistent in longitudinal studies. Uninvolved, indulgent, or authoritarian parenting has been associated with higher child BMI, whereas authoritative parenting has been associated with a healthy BMI [38-40]. In the current study, no significant associations were found between children's BMI z-scores and reported parenting feeding styles (authoritative, authoritarian, indulgent, and uninvolved) assessed by the CFSQ or the family

environment assessed by the FNPA. Future research needs to examine these relationships with a larger sample size and possibly have parents complete the FNPA survey at intervals as this may allow for a more accurate assessment of the home environment and the child's BMI status [21, 41].

Based on the CFSQ's dimensions of demandingness and responsiveness [42, 43], the mothers' median demandingness score was 2.84, while the median responsiveness was 0.96. Comparing these results with other populations, Whites, African Americans, Hispanics, and Latin Americans [3, 42, 44-46], the Arab mothers showed high demandingness and somewhat lower responsiveness (Table 2). Generally, it is believed that the parenting style of Arab ancestries tends to be authoritarian [14]. In the current study, even though all the Arab mothers assessed themselves in the PBS as authoritative, and mostly assessed themselves in the FGD as authoritative, the CFSQ indicated that these mothers' parenting styles encompass all four categories.

During the FGD, the mothers reported mostly using an authoritative parenting feeding style as they allowed their children to choose or avoid what to eat from the foods served during the mealtime. Following an authoritative parenting feeding style may promote healthier dietary intake and better a child's ability to eat self-regulations [5, 47-49]. However, a few mothers reported using an authoritarian feeding style with their children, as they would not provide different food options within the meal served. Children of these authoritarian mothers did not have the option to choose what to eat, and they ate what was served for them, regardless of their preferences. Children of authoritarian parents are more likely to be obese [50], as the authoritarian feeding style may promote inflexible feeding practices and decrease the ability of

Table 2: Caregiver's Feeding Styles Questionnaire (CFSQ) Median Scores on Demandingness and Responsiveness Across Different Populations

	N	Ethnicity	Child's age (years)	Demandingness*	Responsiveness*
Tami & Reed, 2020	23	Arab	6-10	2.84	0.96
Hughes <i>et al.</i> , 2005	231	African American, Hispanic	3-5	2.79	1.16
Hughes <i>et al.</i> , 2008	718	African American, Hispanic, White	3-5	2.79	1.17
Hennessy <i>et al.</i> , 2010	99	African American, Hispanic, White	6-11	2.63	1.21
Hughes <i>et al.</i> , 2011	177	African American, Hispanic	3-5	3.00	1.14
Tovar <i>et al.</i> , 2013	140	Haitian, Brazilian, Latin American	3-12	2.89	1.12

*Demandingness: refers to how much the mother controls and encourages a child's eating (the total mean of the 19 items); responsiveness: refers to how much the mother accommodates and acquiesces to child's hunger and satiety cues (the mean of 7 items -child-centered: 3+4+6+8+9+15+17- over the total mean score).

the child to respond to feelings of satiety and hunger [51].

Research suggests that too little control (indulgent feeding style) may be just as problematic for children as too much control (authoritarian feeding style) and is associated with childhood obesity [52]. A few mothers in this study admitted that they tended to use an indulgent feeding style with their children because they did not want their child to dislike or refuse the food they prepared. A permissive approach could be harmful since the child might not learn guidance in self-regulation [53]. Even though none of the Arab mothers in this study stated in the FGDs that they used an uninvolved feeding style with their children, nine of them were considered uninvolved based on their responses on the CFSQ. Children of uninvolved parents may develop issues with self-regulation and may be involved in undesirable behaviors since their cues of hunger and satiety are ignored by their neglectful parents [9, 10, 54].

However, during the FGD, the mothers revealed that their parenting styles were inconsistent, based on the situation they were dealing with and whether they had the time or not for a discussion and reasoning with their child. The other factor of inconsistent parenting style was having a spouse (husband) with a different parenting style. The role of both parents' involvement in their children's eating behaviors needs to be explored further.

The FNPA mean total scores in this study varied between 1.90 and 3.80, indicating scores that ranged from obesogenic to non-obesogenic. However, the overall mean across all participants was 3.15, which indicated favorable family practices/behaviors and environments. In other research, higher or more favorable scores were reported in higher-income families (when scores were stratified by income) and in Caucasian families (when scores were stratified by ethnicity) [21].

Arab Mothers' Barriers and Practices Related to Dietary Behaviors

During the FGDs, the mothers revealed numerous barriers they had with their children regarding dietary behaviors. The most frequently expressed frustration in preparing meals and at mealtimes had a child who was a picky eater. This barrier reduced the healthy food options that the mother could prepare for her children and could contribute to an overwhelming and stressful

family mealtime [55]. The time barrier in the current study led the families to use take-out foods, which the mothers considered as mostly unhealthy food choices. Distractions, such as watching television while eating, were mentioned as barriers to dietary behaviors during mealtime.

Parents can use mealtimes to model healthy food choices for improving children's dietary habits [56] and use their reasoning and discussion skills to teach their children about the nutritional benefits of the food they are eating together. Furthermore, the child can be taught during mealtimes to self-regulate food intake. A few mothers, however, limited this learning opportunity when they set the "No Leftovers" rule. Barriers to promoting healthy dietary behaviors need to be considered when providing nutrition education to parents.

To promote healthier dietary behaviors in their children, the mothers in this study reported using positive and negative strategies/practices. Positive feeding practices, such as not pressuring the child to eat, providing healthier alternative foods, providing information about the nutritional benefits of the food served, and involving the child in food preparation, may help the child develop positive attitudes and behaviors towards foods. These practices should be encouraged, as they can have a long-term positive impact on the child's dietary behaviors and patterns [57]. Negative feeding practices, such as pressuring the child to eat, spoon-feeding, and using rewards, warnings, and bribes, including sweets, technology, or money, should be discouraged. These practices may result in poor dietary behaviors in children, such as higher consumption of energy-dense food, lower consumption of fruits and vegetables, and lower self-regulation of food intake, and in turn, weight gain in children [58-61]. Additionally, the feeding practices of rewarding eating behavior using unhealthy foods, such as sweets and ice cream, bribing with foods or non-food items, and threatening to take away food and non-food privileges were consistent with the literature on controlling feeding practices often used by parents [62, 63]. Table 3 shows the application of the SCT to selected Arab mothers' parenting styles/practices related to dietary behaviors and provides educational strategies that may be used to address needs.

The findings of the three survey assessments and FGD of this study should be interpreted within the context of the study limitations. Even though the study sample included a diverse group of Arab mothers,

Table 3: Social Cognitive Theory and Selected Arab Mothers' Parenting Styles/Practices Related to their Children's Dietary Behaviors and Possible Educational Strategies

Social Cognitive Theory Constructs (24, 25)	Parenting Style	Illustrative Quotes	Educational Strategies
<i>Reciprocal Determinism:</i> The dynamic interaction of the person, behavior, and the environment in which the behavior is performed	Authoritarian Indulgent/permissive	"My kids don't like some kinds of vegetables, like peas. However, they eat them even though they don't like them. They have to eat what is served." "Sometimes, he (her 7-year-old son) puts a cookie beside his rice plate, and he would eat a piece of the cookie after each mouthful of rice. I let him do that because I want him to eat."	Parents need the education to maintain a division of responsibility of creating healthy mealtime environments, introducing their children to a variety of healthy food choices, and being role models during the mealtime. Children enjoy eating favorite healthy foods with their parents and learn to eat new healthy dishes considering their cues of hunger and satiety with the amount of foods they need/want to eat.
<i>Behavioral Capability:</i> Knowledge and skill to perform a given behavior	Authoritative Authoritarian	"If the kid doesn't like the dish at all, I make him a sandwich, like a turkey, labneh, cheese, or beef sandwich, something considered reasonable and healthy." "My kids don't like some kinds of vegetables, like peas. However, they eat them even though they don't like them. They have to eat what is served."	Parents need to learn how to provide their children with healthy food alternatives and educate them about the nutritional benefits of healthy foods.
<i>Expectations:</i> Anticipated outcomes of a behavior	Authoritative Authoritarian	"I try to buy the least non-healthy foods as much as I can so my kids won't feel less than their peers." "I have a rule of "No Leftovers" at all since I would be the one who would eat the leftovers."	Educational messages to parents should include how to help their children deal with peer pressure that encourages them to engage in less healthy behaviors. Also, information on meal planning to reduce/manage leftovers may be helpful.
<i>Self-Efficacy:</i> Confidence in one's ability to take action and overcome barriers	Authoritative	"Being authoritative parents is important in raising children through discussions and giving choices. Even my so picky eater kid (her 7-year-old son), sometimes brings toasted bread. I tell him, 'just bread? You know, you have to have a full, healthy meal that contains protein, fruits...' so, he would say, 'we can add honey. It's healthy, along with slices of tomatoes and cucumbers. So, we have vegetables.'"	Parents need to feel confident in their abilities to manage children's dietary behaviors by providing healthy options to accommodate their children's food preferences in reasonable ways and to use that moment to educate their children about what healthy food choices are. Culturally appropriate examples (stories, case studies, videos) about how other parents overcame barriers to healthy food choices may be helpful.
<i>Observational Learning:</i> Behavioral acquisition that occurs by watching the actions and outcomes of others' behavior	Authoritative	"We have a 'Friday Fun-Day,' where I decorate pancakes and meals, like making a Mickey Mouse face."	Educational messages for parents should include an explanation of the power (positive and negative) of key influencers on their children's health behaviors (parents, siblings, and peers).
<i>Reinforcement:</i> Responses to a person's behavior that increase or decrease the likelihood of behavior reoccurrence	Authoritative Indulgent/permissive	"I encourage them to eat vegetables by telling them about the importance of vegetables in building their bodies." "My little daughter (6 years old) would ask me for a bribe. She would tell me, 'would you let me eat ice cream if I finish my food?'"	Research should be shared with parents that show that bribes do not have a long-term desired effect (58, 60). Parents need to learn that through repeated exposure to different healthy foods, the preference of these foods may occur among their children.

results cannot be generalized to all Arab mothers living in Texas or the US. The surveys used in this study did not include a question regarding how the mothers perceived their child's weight status in terms of favorable or unfavorable. This might impact the study

results since the mothers' perceptions of their children's weight might influence their willingness to make changes in the children's diet [64, 65]. Furthermore, children's heights and weights were not measured directly by the study investigators but were self-

provided by the mothers. Many factors can influence a child's weight, but the cross-sectional nature of the study data did not allow for an investigation of changes over time.

Despite these study limitations, using both qualitative and quantitative approaches can provide a complete understanding of how the family environment needs to be addressed by nutrition education programs [66]. The FGD identified positive and negative approaches being used by Arab mothers. Positive approaches should be supported, and authoritarian parents could be taught to use less controlling practices to help their children learn to have more effective experiences with food. Technology exerts negative effects on desirable dietary behaviors through distractions for children and parental use as bribes. These practices should be addressed through educational messages. Understanding these parenting styles/practices and other family environment contributors to excessive weight in Arab children may assist in developing effective family-based interventions for preventing obesity among Arab children and families in the US. Culturally appropriate education on meal planning and well-designed parent education programs about healthy food choices are needed for Arab families.

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