Child Feeding Practices Reported by Saudi Arabian Mothers with Two to Six Year Old Children and their Association with Negative Reactions to Food and Mothers' Autonomy

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Authorization to Submit Thesis

This thesis of Iman Almarhoon, submitted for the degree of Master of Science with a major in Family and Consumer Sciences and titled "Child Feeding Practices Reported by Saudi Arabian Mothers with Two to Six Year Old Children and their Association with Negative Reactions to Food and Mothers' Autonomy," has been reviewed in final form. Permission, as indicated by the signatures and dates given below, is now granted to submit final copies to the College of Graduate Studies for approval.

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Abstract

Childhood obesity is a health concern in Saudi Arabia. The purpose of the study was to: 1) identify internal consistency for Child Feeding Questionnaire (CFQ) scales, Children Negative Reactions to Food Scale, and Autonomy Scales in Saudi Arabian mother's with young children who live in the United States;2) identify Saudi mothers' Child-Feeding Practices and Autonomy; 3) determine whether there is an association between CFQ scales, Negative Reactions to Food, and Autonomy to demographic factors; 4) determine whether there is an association between CFQ scales and Negative Reactions to Food to Autonomy. A convenience sample of 108 mothers from Saudi Arabia living in the US, with children between ages 2-6 years old was surveyed. The CFQ, questions on the Negative Reactions to Food, and questions on a decision making domain of autonomy were administered in an online questionnaire. Internal consistencies were computed using Cronbach's α, and Spearman's correlation coefficient was used to test the association among independent and dependent variables. Weak associations were identified for income and concern about weight (r = -0.20, p = .04), negative reactions to food and concern (r = .19, p = .05), and restriction (r = .20, p = .04). Feeding autonomy was positively associated with perceived responsibility (r = .20, p = .04). Saudi Arabian mothers reported use of restrictive and pressuring feeding practices, however further research is needed with mothers living in Saudi Arabia.

Keywords: Saudi Arabia, parental practices, child weight, mothers' perceptions of feeding practices

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Chapter I

Introduction

Obesity is a health concern, and a risk factor for many chronic diseases (World Health Organization, 2013). Obesity is a risk factor for health complications such as sleeping disorders and breathing problems in children and adolescents (Redline et al., 1999), cardiovascular diseases, type II diabetes mellitus, elevated blood pressure (Itagi & Patil, 2011; Raj, 2012), metabolic syndrome, atherosclerosis, dyslipidemia, and atherosclerosis (Raj, 2012; Raj & Krishna, 2010). Individuals who are obese increase their rate of morbidity and mortality, and they have increased health care costs as a result of the obesity-related diseases (Raj, 2012; Raj & Krishna, 2010). Childhood obesity is of particular concern because children who are overweight or obese are more likely to be obese in adulthood (World Health Organization, 2013).

Childhood overweight and/or underweight status is a concern for parents (Pagnini, Wilkenfeld, King, Booth, & Booth, 2007). Parents are concerned about the health of their children which can result in increased attention toward their children's eating (Rhee, 2008). Their concerns can influence parental feeding practices they use with their children.

Appropriate feeding practices are supportive of children's growth and development while inappropriate practices can be disruptive (Rhee, 2008). Parental feeding practices and attitudes influence children's eating habits, which can impact a child's weight status (De Lauzon-Guillain, Musher-Eizenman, Leporc, Holub, & Charles, 2009). Parents may have good intentions to feed their children, however, manipulative, coercive, and forcing feeding practices may negatively affect the children's eating habits (Fisher & Birch, 1999, 2002). Parental feeding practices such as restrictive feeding, monitoring, and pressuring influence

children's food intake (Campbell, Crawford, & Ball, 2006). When these practices are used, the outcome is opposite of the intended outcome. For instance, restrictive feeding practices to keep children from eating energy-dense foods like candy, may increase children's liking of those energy-dense foods as well as increase the likelihood that children will overeat those foods (Fisher & Birch, 1999, 2002). Parents pressure their children to eat food that they think is good for them (Galloway, Fiorito, Lee, & Birch, 2005). However, pressuring feeding practice is associated with negative reactions to food in children and may decrease fruit and vegetable intake (Galloway et al., 2005). Pressuring children to eat can have a negative effect on children's liking of specific foods, and may impact the developing controls of food intake that affect a child's weight status (Galloway et al., 2005).

As in many other countries, parental concerns with children's weight status are prevalent in Saudi Arabia (Hashemi, 2009). Meal patterns changed in some Arabic nations as a result of the increased income from oil (Long, 2005). As Saudi Arabia became a global supplier of oil, western practices have been adopted (Heyer, 2012). A greater amount of food of minimal nutritional value merged into the Saudi Arabian culture (Heyer, 2012). Consequently, childhood obesity and overweight occur in all regions in Saudi Arabia (El-Hazmi, & Warsy, 2002), though the flux of western practices is the highest in the Eastern Province, while the lowest is in the Southern Province (El-Hazmi, & Warsy, 2002; El Mouzan et al., 2012).

Even with the increased incidence of obesity in Saudi Arabia, few studies have been conducted with individuals from Saudi Arabia regarding parental concerns about children's weight. Al-Othman, Reilly, & Belton (2006) examined parental feeding styles and child weight and found not a significant relationship between parental feeding styles and children's

food intake or growth However, differences between parenting styles and the age and gender of a child were identified (Al-Othman et al., 2006). Further research is needed to gain a deeper understanding of the type, frequency and influence of feeding practices used by parents from Saudi Arabia (Al-Othman et al., 2006).

Statement of Purpose

The purpose of this study was to examine the relationship between Saudi mothers' feeding practices, children negative reactions to food, and mothers' autonomy. The four objectives of the study were to: 1) identify internal consistency for Child Feeding Questionnaire (CFQ) (Birch et al. 2001), Negative Reactions to Food Scale (Rowe & Plomin, 1977), and Autonomy Scales (Shroff et al., 2009) in Saudi Arabian mother's with young children, 2) identify Saudi mothers' child-feeding practices and attitudes using the CFQ (Birch et al. 2001), their Negative Reactions to Food, and Autonomy; 3) determine whether there is an association between CFQ scales, Negative Reactions to Food, and Autonomy to demographics factors; 4) determine whether there is an association between CFQ scales and Negative Reactions to Food to Autonomy.

Research Question to Be Examined:

Are Saudi Maternal feeding Practices and Concern about Child's Weight Associated With their Children's Negative Reactions to Food and Women's Autonomy?

Definition of Terms

Saudis:

Citizen of Saudi Arabia (About Saudi Arabia, "n.d.").

Muslim:

People who follow Islam religion (About Saudi Arabia, "n.d.").

Feeding Style:

The distribution of control in the interactions between the parent and child in the feeding setting (Fletcher, Branen, & Lawrence, 1997).

Adult-controlled feeding style or authoritarian/demanding:

A feeding style where parents determine what, when, and how much children can eat (Fletcher et al., 1997).

Cooperative feeding style or authoritative:

A feeding style where parents decide what foods to offer, and the child chooses how much and whether to eat (Fletcher et al., 1997).

Child-controlled feeding style or permissive/indulgent feeing style:

A feeding style where the child determines what and how much to eat (Children control their feeding environment) (Fletcher et al., 1997).

Feeding Practices:

Feeding practices are those routines, strategies, and habits used by adults at mealtime with children (Fletcher et al., 1997).

Pressuring:

Attempting to increase a child's consumption of food (Birch et al., 2001; Kaur et al., 2006).

Restricting:

Limiting a child's access to and intake of foods, particularly high- calorie and high-fat foods (Francis & Birch, 2005).

Rewarding with food:

Using food based contingencies to modify a child's behavior (Birch, Marlin, & Rotter, 1984).

Monitoring:

Observing and tracking what a child is eating (Birch et al., 2001).

Limitations

A non-probability sampling technique was used in this study. The participant sample was a convenience sample of Saudi mothers who are living in the US. The sample is not representative of all Saudi mothers living in the United States. The limitation of the convenience sampling restricts the comparison of this group in replication studies.

Summary

Feeding practices influence children's eating habits and could lead to obesity (Campbell et al., 2006; Cardel et al., 2011; De lauzon-guillain et al., 2009; Faith et al., 2004; Jansen et al., 2012). Childhood obesity and overweight are a concern for many parents (Hashemi, 2009; Pagnini et al., 2007).

An increasing number of overweight and obese children have been identified in Saudi Arabia (El-Hazmi & Warsy, 2002; Hashemi, 2009), and parental feeding practices may impact children's weight. Research on parental feeding practices and styles is emerging, but additional research is needed regarding parental perception of children's weight status, and feeding practices parents use with their young children. Therefore, the purpose of this study is to examine the relationship between Saudi mothers' feeding practices and attitudes, children's negative reactions to food, and mothers' autonomy. The results of this study can provide information for health care professionals who educate parents regarding the practices they use with their children to encourage healthy eating.

Chapter Two includes a review of studies of childhood obesity, Saudi Arabian culture, and parental feeding practices. Chapter Three is in form and style for the journal of the Annals of Saudi Medicine.

Chapter II

Literature Review

Obesity and overweight are concerns in regards to children, adolescents, and adults (Guo & Chumlea, 1999; Hesketh, Wake, & Waters, 2004; Sullivan, 2010; Sawyer, Harchak, Wake, & Lynch, 2011). Obesity prevalence has increased across the spectra of age, gender, and race (Guo & Chumlea, 1999; Hesketh et al., 2004; Sullivan, 2010; Sawyer et al., 2011). Physical, psychological, social, emotional and behavioral well-being are at increased risk when obesity and overweight exist (Guo & Chumlea, 1999; Hesketh et al., 2004; Sullivan, 2010; Sawyer et al., 2011).

Concerns for childhood obesity extend to Saudi Arabia (Heyer, 2012), with the existence of obesity in all regions in Saudi Arabia (El-Hazmi & Warsy, 2002; El Mouzan et al., 2012). The existence of obesity may influence parental feeding practices (Jansen et al., 2012). Thus, the purpose of this study was to examine the relationship between Saudi mothers' feeding practices, children negative reactions to food, and mothers' autonomy.

The literature review begins with a description of Saudi culture and Saudis in the U.S. Following this introduction, a brief description of family structure in Saudi Arabia and woman's autonomy will be discussed. Then, an overview of Islamic dietary laws, Saudi meal patterns, and modernization and change in Saudi cuisine is provided. An overview of childhood obesity is discussed, which includes the health consequences of obesity and the factors influencing obesity. Specific information is provided on childhood obesity in Saudi Arabia including family influence on obesity in Saudi Arabia, dietary intake and obesity in Saudi Arabia, and the influence of geographical location on obesity in Saudi Arabia. Following the review of obesity in Saudi Arabia, information about parenting styles and

parenting feeding styles is reported, with information about culture, ethnicity, and gender in parenting styles. Then, a discussion on how parental feeding practices influence the development of children's eating behaviors and food preferences that impact weight status is presented. This includes restriction, monitoring, and pressuring, and rewarding feeding practices. The role of parental modeling is discussed, followed by a discussion of children's weight, parental weight, and parental feeding practices. The impact of children's age on parental feeding practices and the influence of family socioeconomic status/availability of food and food intake are described. The literature review ends with a description of the recommendations for appropriate feeding practices.

Background of Saudi Arabia

Saudi Arabia became one of the most influential countries in the world with the discovery of petroleum in the Eastern province of Saudi Arabia in 1938. It is home to the two holiest cities in Islam: Makkah (Mecca) and Al-Madinah (Long, 2005). Saudi Arabia has embraced an Islamic culture, which is the basis of the legal system and the government (About Saudi Arabia, "n.d."). In addition, Saudi Arabia is considered the most conservative authoritarian collective Arab society, and it is the only Arab country whose political system does not use a democracy (Dwairy et al., 2006).

Saudi Arabia is located in Southwest Asia, at the crossroads of Europe, Asia and Africa. The five regions of Saudi Arabia are: Najd, in central Arabia; Hijaz, in the west; the south, which includes Asir, Albaha, and Jizan; the gulf coast region known as the Eastern province; and the north, which includes Al-Jouf and the northern frontier (Long, 2005). Since the petroleum industry is located almost entirely in the Eastern Province, and Aramco (Saudi Arabian Oil Company) was originally established and owned by Americans, American

culture, including cuisine, has been present since the 1930s (Long, 2005). The introduction of Western cuisine came much later to other parts of the Kingdom (Long, 2005), but has influenced the culture in all regions of Saudi Arabia. With Western acculturation, childhood obesity has increased, especially in the Eastern providences of Saudi Arabia (Long, 2005).

Saudis in the U.S.

The number of Saudis in the U.S. has increased in the last ten years (Study abroad, "n.d."). This increase is largely due to the desire for Saudi individuals to obtain an education (Study Abroad, 2013). An estimated, 108,000 Saudis attend a University in the United States, with 5,500 expected to be in the US in 2014 (Saudiusa, 2013).

Family Structure in Saudi Arabia

Saudi traditional family dynamic includes defined and divided roles and responsibilities by gender (Dwairy et al., 2006; Long, 2005). For the most part, the father or male is usually the head of the family, and he is considered the provider for all of the family's needs, whereas the mother or female is recognized as the individual who is responsible for rearing children (Long, 2005). Saudi families tend to be large and the extended family is relatively close, and women are controlled more by men (Long, 2005). Gender roles remained in Saudi Arabia until the oil boom and the rapid modernization that followed (Long, 2005). As a result, current family structure has both the father and the mother working, while household duties are taken care of by foreign maids and servants (Long, 2005). While acceptance for women to work outside the home has increased, a strong male resistance still exists (Elamin & Omair, 2010; Long, 2005), and distinct gender expectations continue (Elamin & Omair, 2010).

Woman's Autonomy

Ramakrishnan, Ndiaye, & Haddad (2003) define women's autonomy as the ability of women to take hold of events in their lives despite the fact that some other people, whether men and women, oppose it. Women's empowerment has been explained as the expansion in the ability of women and their freedom, which results in greater autonomy and enables them to plan and implement their life according to their own choices (UNDP, 2006). Shroff, et al. (2009) define maternal as women's self-reliance and control of the resources in their households that impact the child's health outcomes (Shroff et al., 2009).

Culture, Gender, and Autonomy

Culture affects women's decision-making and autonomy (UNDP, 2006; Metcalfe, 2008). Women in a patriarchal society or Arab countries had less freedom and autonomy, and generally they could not obtain an education and make their own life choices (UNDP, 2006). Usually, the fathers, brothers, and husbands were responsible for decisions about women's education, and marriage (Long, 2005). Today, the Saudi government is dealing with unequal status of women in Arab society (Metcalfe, 2008).

Autonomy differs between genders (UNDP, 2006). In developing countries, women are deprived of their basic rights such as the right to vote, the right to education, and the right to build a professional career. For decades, Arab society showed a greater preference for men in contrast to women (UNDP, 2006; Metcalfe, 2008). Women in Arab cultures were not represented as fairly as men when it came to a professional career. Women's roles were presented only as housewives and child caregivers. They were not represented as decision-makers, as men often were. In a study of male attitudes toward working females in Saudi Arabia, men participants embraced the traditional sight of the cultural opinion about women

(Elamin & Omair, 2010; Metcalfe, 2008). Saudi men who were married and less educated showed a strong belief that males' roles are providers and protectors of the family, and women's roles are managing the household and mothering (Elamin & Omair, 2010; Metcalfe, 2008). However, the political and social contexts today have directly influenced the quality of the demand put forward by the women's movements and have changed the traditional view of women's role. Growing demands by groups of Arab women and increasing response from governments for quotas to help women reach decision-making positions, have led to some positive changes (UNDP, 2006).

Although there is a great movement toward Arab women's equal rights and empowerment, some countries laws restrict women's mobility. Saudi Arabia for example does not allow women to travel without a guardian. The restrictive laws created sex-segregation in many work places and in the society (Metcalfe, 2008). On the other hand, the movement of women and gender equality in Arab society has given women some rights, such as getting education in different fields and participating in public and social life, and political roles (UNDP, 2006).

Relationship of Mothers' Autonomy with Children

Children's health is related to women's autonomy. According to Engle, Bentley, & Pelto, (2000), women's autonomy can have a substantial role in ensuring healthy child outcomes. Empirical evidence from three regions of the world, Latin America, Asia and Sub-Saharan Africa, has shown that higher autonomy in women positively impacts nutritional health of children (Smith et al., 2003). Less autonomy among women is associated with a decline in fertility, child growth and child mortality (Smith et al., 2003).

Shroff, Griffiths, Adair, Suchindran, & Bentley, (2009) measured the different dimensions of women's autonomy by using the variables of decision making, permission, financial autonomy, and attitude towards domestic violence. The surveyed women had low levels of financial autonomy which was significantly related to child stunting. A few women mentioned that they were against any domestic violence, but there was no significant difference found for child stunting between those women who approved or disapproved of domestic violence. Financial independence of women represented a high level of autonomy and those women who had lower financial independence had a higher probability of child stunting. Shroff et al., (2008) stated that mothers' education may improve their level of autonomy and child stunting. The status of women in the society might lead to good health and development of the child (Shroff et al., 2009).

Islamic Dietary Laws, Saudi Meal Patterns and Traditional Saudi Cuisine

Islamic dietary laws are reflective of historic Arabian and Jewish dietary laws that were based on the foods that were available at that time (Long, 2005). All food is categorized as pure (Tayib) or impure (Najis), or as lawful (Halal) or unlawful (Haram) (Long, 2005). Muslim parents are required to educate their children about Halal and Haram. Any food parents choose to purchase for their children must meet the criteria of Halal and Haram (Long, 2005). Food producers in most developed countries are required by law to identify Halal and Haram (Bari, 2002).

Modernization and Change in Saudi Cuisine

With the discovery of petroleum, Saudi Arabians were exposed to western culture foods (Long, 2005). Two factors that influence the introduction of western cuisine and cooking ingredients to Saudi Arabia are the presence of modern supermarkets, and the

presence of commercial restaurants (Long, 2005). Since the petroleum industry is located predominately in the Eastern Province, and the corporation, Aramco™ was originally established and owned by Americans, American cuisine has been more prevalent in that area. The introduction of Western cuisine into other parts of the Saudi Arabian Kingdom came later (Long, 2005). Over the last 20 years, foreign food products, such as Pepsi® and Nestle®, which were previously unavailable, have become available in Saudi Arabia, (Heyer, 2012). In addition, global food advertising has affected food consumption in Saudi Arabia (Heyer, 2012).

With the rapid change in the economy, the urbanization of Saudi society, and the introduction of western culture, food habits in Saudi Arabia are changing (Long, 2005; Heyer, 2013). School-aged children tend to consume fewer fruits, vegetables, and dairy products; they are more likely to consume high calorie products such as soft drinks, candy, and fast food; and they are more likely to skip breakfast (Amin, Al-Sultan, & Ali, 2008). These changes in lifestyle and eating habits are suggested as factors in the increase in obesity among children in Saudi Arabia (Amin et al., 2008).

Global Epidemic of Childhood Obesity

Childhood obesity increases the risk of having multiple health consequences, use of long-term medication, and can result in hospitalization (Dietz, 2004; Guo & Chumlea, 1999; Sullivan, 2010). Childhood obesity is a global epidemic and health concern (Raj & Krishna, 2010; World Health Organization, 2013). The number of overweight children who are below five years of age was estimated to be above 40 million in 2011 (World Health Organization, 2013). By 2020, an estimated 60 million preschool aged children will be overweight or obese in developing and developed countries (de, Blössner, & Borghi, 2010).

Health Consequences of Obesity

Regardless of the cause of obesity, i.e. genetic or socioeconomic factors, the condition impacts the health of an individual. The consequences of obesity and overweight have long term and short term health implications (Dietz, 2004; Guo & Chumlea, 1999; Sullivan, 2010). Raj (2012) states that "obesity impacts all the major organ systems of the body and is well known to result in significant morbidity and mortality" (Raj, 2012, p.1), and the severity of this impact becomes more dangerous when obesity is observed in children (Raj, 2012). Childhood obesity has physical consequences that can eventually lead to illness and death. Childhood obesity is likely to lead to adult obesity and an increased risk for chronic conditions: cardiovascular diseases, orthopedic problems, metabolic syndrome, hyper- and organism, respiratory disorders, gall-bladder diseases, sleep disorders like sleep apnea, hypertension, and diabetes (Dietz, 2004; Guo & Chumlea, 1999; Sullivan, 2010).

Childhood obesity has non-physical consequences such as an individual's social, psychological, emotional, and behavioral aspects (Sawyer et al., 2011). Obese children are often subject to harassment (Sullivan, 2010). They are victims of weight-based teasing, not only from their peers and friends but also from family members (Sullivan, 2010). The consequences of teasing are low body satisfaction, low self-esteem, high depressive symptoms, and attempts at suicide. These can affect emotional well-being of an individual (Eisenberg, Neumark-Sztainer, & Story, 2003). Children with a high BMI at 4 to 5 years are prone to internalize their insecurities, but when they reach eight and nine years, they begin to express their acts, which may lead to issues such as peer problems, social problems and emotional problems (Sawyer et al., 2011). Obese children may have lower self-esteem, though a lower self-esteem does not lead to obesity (Hesketh et al., 2004).

Obese children are subject to early weight control and restrictive dietary practices. They tend to participate less in physical activities that affects their physical health and their emotional and social vigor (Davison & Birch, 2001). Overweight females were less likely to marry, fell in higher poverty range and have less formal schooling (Sullivan, 2010).Obese girls are 50% less likely to attend high school and college as compared to slimmer girls. Obese males are found to be less likely to be married, as well.

Factors Influencing Obesity

Obesity is related to many factors such as age (Al-Dossary, Sarkis, Hassan, Ezz, & Fouda, 2009; McCormick, Sarpong, Jordan, Ray, & Jain, 2010), gender (Al-Dossary et al., 2009; Farghaly et al., 2007), limited physical activity (Navalpotro et al., 2012; Sullivan, 2010), environment, and socio-economic status (Navalpotro et al., 2012; Sullivan, 2010). Each of the factors will be discussed below.

Childhood obesity can start at a very early age (Al-Dossary et al., 2009; McCormick et al., 2010). Mothers with a higher pre-pregnancy body mass index (BMI) have a greater amount of body fat and the excess body fat extends to the infant in the womb (Modi, 2011). Obesity can occur in children as early as 6 months of age (McCormick et al., 2010) and can continue throughout adolescences (Al-Dossary et al., 2009; Itagi & Patil, 2011). Identification of obesity has occurred in children ages 5 to 11 years (Itagi & Patil, 2011) and it may increase with age (Alam, 2008; Al-Dossary et al., 2009; El Mouzan et al., 2012).

Unhealthy weight status differs between male and female children and adolescents in Saudi Arabia (Al-Dossary et al., 2009; Farghaly et al., 2007). Male adolescents showed a higher prevalence of obesity and overweight than female adolescents (Al-Dossary et al., 2009; Farghaly et al., 2007). Weight differences between genders have been attributed to female

students greater likelihood to care about their shapes and weight in this period of time. A second reason may be that adolescent male students are able to drive, making it easier for them to access unhealthful foods (Al-Dossary et al., 2009).

Children are more inclined towards fast food either because of working parents or the social and partying trend (Sullivan, 2010). Access to supermarkets and price of healthy products such as fruits and vegetables might be factors that may impact obesity rate among children in low socioeconomic status (Navalpotro et al., 2012; Oliver & Hayes, 2005). The type of breakfast and whether children eat breakfast may be another factor that impacts weight status (Navalpotro et al., 2012).

From a very young age, children are involved in technology such as games, television, computers, and mobile phones which may deter them from being involved in physically healthy activities including outdoor and indoor sports (Sullivan, 2010). Lack of physical activity significantly contributed to the increased obesity among children (Navalpotro et al., 2012).

Socioeconomic factors influencing obesity including income and living area dynamics, have received attention as obeseogenic factors (Navalpotro et al., 2012). Research has identified both high income and low income status associated with obesity. In one study, overweight and obesity in children and adolescents were more frequent among high income families than low income families (Oliver & Hayes, 2005). However, in another study the rate of obesity and overweight was twice as high among low income families as compared to higher income families (Navalpotro et al., 2012). While it has been proposed that high income families are more likely to provide healthy food for their children than low income

families (Kröller & Warschburger, 2009), but high income families may have access to greater amounts of high caloric foods.

Childhood obesity is a common health problem that may increase future related health problem (Dietz, 2004; Guo & Chumlea, 1999; Sullivan, 2010). Environmental factors influence obesity in children and healthy lifestyle such as physical activity and healthy eating can decrease the rate of obesity among children (Sullivan, 2010).

Obesity in Saudi Arabia

Saudi Arabia has experienced a change in eating habits and activities in the last three decades which may influence the prevalence of overweight and obesity among Saudi children (El-Hazmi & Warsy, 2002). El Mouzan et al., (2012) report that the prevalence of overweight and obesity among Saudi children is almost double the prevalence reported ten years ago by El Hazmi and Warsy (2002). Many factors influence children's eating habits and weight (Hashemi, 2009). These factors are a result of environment and genes (Al-Saeed, Al-Dawood, Bukhari, & Bahnassy, 2006; El-Hazmi & Warsy, 2002), hot weather limiting physical activities outdoors, high calorie diets, or a combination of all these factors (Al-Saeed et al., 2006; Al-Dossary et al., 2009). Among the many factors that influence childhood obesity are family and parents who impact children's eating habits weight (Hashemi, 2009).

Family Influence on Obesity in Saudi Arabia

Parents' occupation and education can impact children's weight status (Hashemi, 2009). Obesity is higher among school-aged children with fathers who worked in the private sector, and when the parents were highly educated (Al-Saeed et al., 2006). It was suggested that highly educated mothers may engage less with their children (Al-Saeed et al., 2006). Fathers and mothers who held bachelor degrees or graduate degrees were more likely to have

children with low BMI scores than those who had a high school degree or no degree (Hashemi, 2009). Hashemi (2009) stated that parents' education can positively or negatively influence children's BMI and food consumptions, and the more the parents are educated, the less likely they are to have overweight children in Saudi Arabia. Lack of knowledge and educational level of parents may contribute to unhealthy choices by children (Alam, 2008).

Dietary Intake and Obesity in Saudi Arabia

Dietary food intake among school-aged children may be associated with the child's weight (Amin et al., 2008; Alam, 2008; Hashemi, 2009; Farghaly et al., 2007). Overweight and obese school-aged children in Saudi Arabia were found to consume a greater amount of energy-dense food such as fast food, soft drinks, sweets and candy, cakes/cookies/doughnuts potato chips, popcorn, and other packaged foods than those who were of normal weight (Alam, 2008; Hashemi, 2009). Parents of 640 children ages 7-12 years from Jeddah, Saudi Arabia, parents were asked about their children's food consumption (Hashemi, 2009). Sixty-four percent of parents reported that their children consumed fried food one to two times a week, and 73% reported that their children consumed fast food one to two times a week. Overweight children were more likely to eat meat and less likely to consume milk products. Irregular intake of breakfast at home, regular intake of junk food, low meals per day of fruits, vegetables, and milk products, with regular intake of sweets/candy and fizzy drinks were all predictors of being overweight and obese among the school-age children in Saudi Arabia (Amin et al., 2008).

Geographical Location Influences Obesity in Saudi Arabia

The geographical location of Saudi Arabia may have an impact on the lifestyle and food consumption among children and adolescents (Amin et al., 2008; El-Hazmi & Warsy,

2002). Children who live in urban areas or a particular region in Saudi Arabia are at a greater risk to develop obesity and adopt a western lifestyle (El Mouzan et al., 2012; Wang & Lobstein, 2006). In a study of 1,139 male primary school children between the ages of 10 to 14 years, a greater number of overweight and obese children were in urban schools than other areas (Amin et al., 2008). The lowest prevalence of overweight/obesity was found in Southern Saudi, and the higher prevalence of obesity among school aged children and adolescents was in the Central and Eastern regions of Saudi Arabia (El Mouzan et al., 2012; El Hazmi & Warsy, 2002). Children living in those regions of Saudi Arabia consumed more fatty food and high-calorie food (Al-Dossary et al., 2009; Hashemi, 2009; Farghaly et al., 2007). The highest prevalence of overweight and obesity was found in the Eastern province (Al-Dossary et al., 2009; El-Hazmi & Warsy, 2002).

Parenting Styles and Feeding Styles

A child's weight influences parenting style and the food a child consumes (Rhee, 2008). The types of parenting styles include authoritative, authoritarian, indulgent, and uninvolved parenting (Baumrind, 1991). Feeding style is the distribution of control in the interactions between the parent and child in the feeding setting (Fletcher et al., 1997). According to Fletcher et al., (1997), there are three feeding styles: adult-controlled feeding styles, which can also refer to authoritarian parenting styles; child-controlled, which can refer to permissive parenting styles; and cooperative feeding styles, which refers to authoritative parenting styles. Adult-controlled feeding styles are defined when the caregiver determines what and how much food the child should eat. The child-controlled feeding styles are defined when the child decides what and how much to eat (Fletcher et al., 1997). On the other hand, the cooperative feeding practice is defined when a division of responsibility is followed; the

caregiver decides what and when food is offered and the child decides how much or whether to eat (Fletcher et al., 1997).

Vereecken, Rovner & Maes, (2010) evaluated the intake of fruits and vegetables with the traits of children and their parent's intake. A positive relationship was identified between children's food intake and the intake of the parents. The feeding practices that were parent centered were negatively associated with vegetable intake of the children, whereas the feeding practices that were child centered were positively associated with fruit and vegetable intake of children.

Authoritarian parents are known to be highly restrictive, and they expect their children to obey their roles without providing any explanation of their decision (Baumrind, 1991). Authoritarian parents were more inconsistent and lower on reasoning, nurturing, and reminding compared to high responsive feeding styles (Fletcher et al., 1997). In addition, they were more likely to use a high level of restrictive and pressure feeding practices (authoritative and indulgent) (Fletcher et al., 1997; Hughes, Power, Orlet, Mueller, & Nicklas, 2005). Parents who use an authoritarian parenting style are seen to use more power and demand with their children, and they are more likely to depend on physical punishment, aggression, and intimidation (McKinney & Renk, 2008).

Authoritative parents deliver clear standards to their children based on monitoring and imparting their behaviors (Baumrind, 1991). Generally, they use disciplinary methods which are supportive, not punitive. These rules help children be more confident and socially responsible as well as more cooperative (Baumrind, 1991). Authoritative parents are known to be less controlling and highly responsive (Baumrind, 1991). Authoritative parents were found to be more nurturing, supporting, involving, and provided more structure for healthy

eating habits with their children than those who were less responsive such as authoritarian and uninvolved parents (Fletcher et al., 1997; Hughes et al., 2005; O'Connor et al., 2009).

Uninvolved parents are those parents who do not engage with their children's activities and do not monitor them (Baumrind, 1991). Uninvolved parents were less likely to follow through on discipline relative to high responsive parents, they were lower on organization when compared to all other feeding styles, and they used less restrictive and controlling feeding strategies (Hughes et al., 2005).

The indulgent parenting style is described when children are allowed to eat anything, any time, and anywhere. This style avoids conflicts and the children eat based on self-maintaining habits (Conrade & Ho, 2001). Indulgent parents on the other hand, were less likely to use physical punishment than low responsive parents (Hughes et al., 2005). Authoritative and permissive parents are known to be less restrictive and provide an explanation for their decisions to their children (Baumrind, 1991).

Different parenting styles may influence child's development (Rhee, 2008). Parental feeding styles might impact children's food consumption, energy intake, and weight status. The type of feeding style parents use may be a risk factor for childhood obesity (Alison et al., 2012). Parents' attitudes toward childrearing are influenced by cultural rules and other background factors (Alison et al., 2012).

Culture, Ethnicity and Gender in Parenting Styles

Parenting styles differ among parents from various cultures and ethnicities (Hughes et al., 2005). Culture impacts parenting beliefs, goals, and values, which influence parenting practices and styles (Hennessy, Hughes, Goldberg, Hyatt, & Economos, 2010). Hispanic parents are more likely to embrace indulgent parenting styles than African-Americans, and

African-Americans are more likely to embrace uninvolved parenting styles than Hispanic parents (Hughes et al., 2005). In a study with African-American, Hispanic and Caucasian participants, permissive feeding styles like indulgent or uninvolved were found to be associated with lower intakes of nutrient-rich foods like fruit, 100% juice, vegetables and dairy (Heorr et al., 2009).

In Arab societies, authoritarian, authoritative, and permissive parenting styles were examined via a written survey (Dwairy et al., 2006). Adolescent boys and girls were asked questions to identify the parenting style used by their parents (Dwairy et al., 2006). Jordanian, Algerian, and Lebanese parents were perceived to use authoritative or permissive styles. Palestinians, Saudis and Yemeni parents were perceived by their children as using authoritarian or permissive styles. Saudi parents were found to be more controlling and Saudi society was considered the most conservative authoritarian and collective Arab country (Dwairy et al., 2006). Generally, parenting patterns are very much associated with the sociopolitical system in the country (Dwairy et al., 2006), therefore the likelihood that Saudi parents use authoritarian and controlling styles is high.

Parenting Styles Differ Between Gender

Different parenting styles exist between mothers and fathers (Conrade & Ho, 2001; McKinney & Renk, 2008). Mothers were perceived by their college students to be more likely to use authoritative parenting styles than fathers (Conrade & Ho, 2001; McKinney & Renk, 2008). Parenting style differed depending on the gender of the child as well i.e. father-son, father-daughter, mother-son, mother-daughter (Conrade & Ho, 2001; McKinney & Renk, 2008). Mothers also were perceived to be more likely to use a permissive parenting style than fathers (Conrade & Ho, 2001; McKinney & Renk, 2008). While boys may receive more

physical punishment than girls, male and female late-adolescents seemed to have the same patterns of emotional adjustment with different parenting styles (McKinney & Renk, 2008).

Mothers are more likely to be more supportive of their children's feelings and clarify their decisions for their children than fathers (Conrade & Ho, 2001; McKinney & Renk, 2008). When mothers are compared with fathers, the mothers show more responsibility toward the feeding of the children as compared to their fathers (Conrade & Ho, 2001). Consequently, feeding practices are different, where mothers are more permissive to the children, which can result in more open choices for their feeding practices that can result in increased weight (Rhee, 2008).

Parental Feeding Practices

Feeding practices are those routines and habits used by adults at mealtime with children (Fletcher et al., 1997). Appropriate eating behaviors are necessary for supporting children's growth and development (Rhee, 2008). Parental feeding practices such as restrictive, pressuring, monitoring, rewarding, and modeling are associated with children's eating behaviors (Webber, Cooke, Hill, & Wardle, 2010). Parents are concerned about their children's health and as a result, parents have an increased attention toward their child's eating (Rhee, 2008). Parental concern about children becoming overweight may negatively impact children's reactions toward food (Faith et al., 2004; May et al., 2007). Various feeding practices will be described below.

Restriction Feeding Practices

Restrictive feeding practices occur when adults limit a child's access to and intake of foods, particularly high calorie and high fat foods (Francis & Brich, 2005). Restrictive feeding practices are often used by mothers who are concerned about their child's weight

(Gray et al., 2007; May et al., 2007; Pagnini et al., 2007; Spruijt-Metz, Lindquist, Birch, Fisher, & Goran, 2002). Restricting energy-dense foods is incorrectly used to increase children's consumption of more nutrient-dense foods; however when restrictive feeding practices are used, children's desire to consume those foods is enhanced and children might develop eating in absence of hunger (Fisher & Birch, 1999). Adults who restrict their children's intake of unhealthy food had children who were highly responsive to food (Gray, Janicke, Wistedt, & Dumont-Driscoll, 2010; May et al., 2007; Webber et al., 2010). These children were at risk of being overweight or obese, and had higher BMI scores (Faith et al., 2004; Pagnini et al., 2007). Examples of restrictive behaviors include limiting sweet food, junk food, and children's favorite foods (May et al., 2007).

Monitoring Feeding Practices

Parental monitoring is defined as observing the child's eating habits (Birch et al., 2001), and managing of a child's food intake (Faith et al., 2004). Parents with leaner children are more likely to monitor their children's food intake than parents with heavier children due to parental concern about their children's growth and risk for malnutrition (Faith et al., 2004; Pagnini et al., 2007). According to Saelens, Ernst & Epstein (2000), a likeness was found among the obese and non-obese siblings under the control that was put by their mother's overeating. The mothers perceived their children differently based on their weight, which may put additional pressure on female children to control their weight.

In a sample of 169 parents who were surveyed to find information regarding their attitudes toward their children's weight, 41.4% of children were at risk of being overweight, 18.9% were overweight, and only 12.4% of the parents from the sample considered their children to be overweight (Gray et al., 2007). However, 83.4% of parents showed a deep

concern to childhood overweight; they were less likely to encourage their children to eat more if they were overweight and they controlled the eating habits of their children. Galloway et al., (2005) showed that the feeding practices used by parents had a direct relation with emotion-based eating that influences the weight of girls in early adulthood. Spruijt-Metz et al., (2002) studied mother's feeding practices and found that mothers reported higher monitoring level for boys' junk food, sweets, and fat intake than girls among White and African-American.

Pressure Feeding Practices

Pressure feeding practices are defined as the adults' attempt to increase a child's consumption of food (Birch et al., 2001; Kaur et al., 2006). Pressure feeding practice has both short term and long-term effects on children (Galloway et al., 2006). Using pressure feeding practice with children may lower their food intake and some children show negative reactions to the foods that they are forced to eat (Galloway et al., 2006). Parental pressure to eat was found to negatively affect children's behaviors toward food (Webber et al., 2010). Children showed less enjoyment toward food when their parents pressured them to eat (Webber et al., 2010).

Heavier children receive less of the pressure-feeding practice from their mothers (Cardel et al., 2012; Crouch et al., 2007; Kröller & Warschburger, 2009), which may be due to less concern about malnutrition in their overweight children. Overweight or obese children are rewarded with food from their mothers less frequently than underweight or normal weight children, and mothers reported that they give their children less control over their food intake when children are overweight or obese (Kröller & Warschburger, 2009).

Mothers who identified their children as overweight reported that they pressured their children to eat healthy foods and limit unhealthy food (May et al., 2007). Parents often pressure children to eat if food is left on their plate, even when the child is full (Conrade & Ho, 2001).

Young children can maintain their energy needs (Conrade & Ho, 2001), but when they are pressured to eat, adults disrupt their innate ability to recognize hunger and fullness cues (Fisher & Birch, 1999). Over time, the inability to recognize hunger and fullness can result in increased weight (Fisher & Birch, 1999). Children are more likely to enjoy food and consume novel food if they are not pressured to eat it, while children who are forced by their parents to consume food that they do not want to eat are more likely to adopt negative reactions to food behaviors (Galloway, Fiorito, Francis, & Birch, 2006).

Picky eaters are defined as children who refuse to consume adequate variety and amount of food that familiar or unfamiliar to them (Dovey, et al., 2008). Galloway et al., (2006) found that pressuring children to eat is associated with less food consumed. They also found that children made negative comments about the food. The researchers suggest that that negative reactions to food might be a reaction to pressure. Pressuring children to eat is not a helpful practice for promoting intake of healthy foods.

Rewarding Feeding Practices

Sweet or high sodium snacks are sometimes used as a reward. Rewarding feeding practices are defined as using food-based contingencies to control a child's behavior (Birch. 1984). Children whose parents use snacks as a reward may increase their liking of snack foods (Sleddens, Kremers, de Vries & Thijs, 2010).

Mothers may reward their children with food to make their children happy (Pagnini et al., 2007). Mothers who use a rewarding feeding practice have children who are more likely to increase their consumption of unhealthy food and decrease their liking to nutrient-dense foods (Kröller & Warschburger, 2009).

Parents should not use food as rewards with their children to regulate their behaviors or emotions (Sleddens et al., 2010). This may promote overeating foods of low nutritional value.

Modeling Food Consumed

Modeling in relation to food consumption is defined as observational learning in which children are given the opportunity to watch others, and then explore different foods. Modeling is a strategy that impacts children's likelihood of consuming the food (Woolner, 2000). Parents who model the consumption of healthful food increases children's intake of those foods (O'Connor et al., 2009; Sleddens et al., 2010). Mothers who model the consumption of healthy foods have children who are more likely to consume those healthy foods, such as fruits and vegetables, and the children are less likely to consume high-energy-dense foods (Vereecken et al., 2010; Kröller & Warschburger, 2009). Not only will modeling influence the type of food children consume, but the amount consumed as well (Sleddens et al., 2010). Children with parents who consume snacks are most likely to consume the same kind of snacks, including fruits and vegetables (Sleddens et al., 2010).

Parental Weight and Feeding Practices

Parents' weight is related to the feeding practices they use with their children (Gray et al., 2010; Hennessy et al., 2010; Jansen et al., 2012). Parents who are overweight and obese are more likely to be concerned about their children's weight; and those parents are

more likely to use restrictive feeding practice with reduced pressure to eat (Faith et al., 2004; Francis and Birch, 2005; Gray et al., 2010; Jansen et al., 2012). A high level of parental food restriction and concern about child weight status is associated with high parental BMI (Faith et al., 2004; Francis & Birch, 2005; Gray et al., 2010; Jansen et al., 2012).

Children's Age and Parental Feeding Practices

A child's age may influence the type of feeding practices parents use. Parents' feeding restrictions occurred more frequently with their younger children than with their older children (Faith et al., 2004; Francis and Birch, 2005; Gray et al., 2010; Jansen et al., 2012). Mothers with younger children monitor their children's food intake and use rewarding feeding practices more frequently than mothers with older children (Kröller & Warschburger, 2009). Some parents cannot control their older children's food consumption (Gray et al., 2010), and older children are more likely to be influenced by other factors such as peers and the availability of food (Kröller & Warschburger, 2009).

Family Socioeconomic Status/Availability of Food and Food Intake

Family socioeconomic status can predict children's eating behaviors and weight (Gray et al., 2007; Jansen et al., 2012), and dietary habits, quality, and quantity of the food offered to children (Chen et al., 2012). A high socioeconomic status has been associated with fewer uses of inappropriate feeding behaviors and consequently a lower risk of obesity (Chen et al., 2012). In addition, children who come from families with a high income are more likely to consume more healthy food than those who come from families with a low income (Kröller & Warschburger, 2009).

The environment in which a child is reared is a factor in the child's eating habits (Payas et al. 2010), The BMI of mothers who belonged to urban areas of African-American

territory have higher BMI as compared to Caucasian mothers ones who lived in rural areas (Payas et al., 2010). Hispanic populations use more food restriction and pressure feeding practices than Europeans who are the least likely to use these practices (Cardel et al., 2012). Socioeconomic status is inversely related to parental restriction whereas directly related to the adiposity in children (Cardel et al., 2012). The risk of being overweight is greater among children whose families are low-income, which has been attributed to dietary intake rather than sedentary activities (Gray et al., 2007). Parental feeding control was higher among low income families than other economic groups (Cardel et al., 2011). Children from a low economic background can have less quality and quantity of food whereas families with sound financial status have more power to buy food with quality and quantity (Campbell et al., 2006). For example, parents reported that they do not purchase fruits and vegetables because of the high price and of the low preferences (Sleddens et al., 2009).

Recommendation for Appropriate Feeding Practices

Appropriate feeding practices are recommended (Branen & Fletcher, 2013; Johnson, 2000; Satter, 2004). Satter (2004) recommends that parents and children have a division of responsibility. Parents are responsible for what food should be served, and when food should be served. On the other hand, the child decides how much to eat or whether to eat (Satter, 2004). Branen & Fletcher (2013) expand on the division of responsibility with their six principals of feeding young children in group settings: 1) adults set the feeding environment; 2) children need a variety of foods; 3) adults should sit with and eat with children; 4) adults select what is served and how it is served; 5) children choose how much, if any, to eat; and 6) children should serve themselves.

Children have the physical ability to self-regulate the amount of food that they want to eat; however, parents must provide a variety of healthy choices to children and reinforce their internal queues (Johnson, 2000). Many adults are unaware that allowing children to decide what and how much to eat of the offered food through self-service does not influence effort or time needed for a meal (Branen, Fletcher, & Myers, 1997). Parents should be aware of the context of mealtime with their children.

A study by Johnson (2000) examined self-regulation of energy intake. The aim was to help children learn to attend to their internal cues of hunger and the satiety. After a six week intervention to reinforce children's internal queues, children showed a greater responsive to their hunger and fullness. By assisting children to focus on the internal signals and they can self-regulate their bodies.

Internal queues can be reinforced through adults' verbal communication as well (Ramsay et al., 2010). Ramsay et al. (2010) examined the type and frequency of adult verbal communication to reinforce internal queues during meals at child care centers. Communication was predominantly an effort by the adult to provoke and encourage the child to eat i.e. it emphasis on non-internal cues. This can be reduced by training parents and child care providers in type of communication that should be held during mealtimes.

Parents impact children's development of feeding behaviors, which demonstrates the need for providing guidance on appropriate feeding practices (Scaglioni, Salvioni & Galimberti, 2008). Parents should understand the implications of pressuring and restriction feeding practices. In addition, parents should encourage children to try new foods and promote acceptance of healthy food (Scaglioni et al., 2008). Also, parents should offer children healthy choices and model consumption of healthy foods, and reinforce children's

self-regulation of food and respond to their satiety and hunger (Scaglioni et al., 2008). Moreover, parents at mealtime should be advised to have regular mealtime and provide a variety of foods, and consume more rich food such as fruits and vegetables, and lower their consumption of high-energy-dense food (Scaglioni et al., 2008). In addition, adults should use appropriate verbal communication with children to enhance appropriate feeding behaviors (Johnson, 2000; Ramsey et al. 2010).

Summary

Parents are concerned about their children's health and they may increase their attention toward their children's eating (Rhee, 2008). Childhood obesity increases the risk of numerous health consequences, use of long-term medication, and can result in hospitalization (Dietz, 2004; Guo & Chumlea, 1999; Sullivan, 2010). Pervious researchers examined childhood obesity in Saudi Arabia and found that children in Saudi Arabia experience the prevalence of obesity in all regions (El-Hazmi and Warsy, 2002; El Mouzan et al., 2012). Concerns for childhood obesity in Saudi Arabia are evident (Heyer, 2012), and a lack of information is available related to childhood obesity and parental styles (Al-Othman et al., 2006). In addition, women's autonomy can influence children's health outcomes (Engle et al., 2000), but limited research is available on autonomy and feeding practice in Saudi Arabia.

The purpose of this study was to examine the relationship between Saudi mothers' feeding practices, children's negative reactions to food, and mothers' autonomy. The four objectives of the study were to: 1) identify internal consistency for Child Feeding Questionnaire (CFQ) (Birch et al. 2001), Negative Reactions to Food Scale (Rowe & Plomin, 1977), and Autonomy Scales (Shroff et al., 2009) in Saudi Arabian mother's with young children, 2) identify Saudi mothers' child-feeding practices and attitudes using the CFQ

(Birch et al. 2001), their Negative Reactions to Food, and Autonomy; 3) determine whether there is an association between CFQ scales, Negative Reactions to Food, and Autonomy to demographics factors; 4) determine whether there is an association between CFQ scales and Negative Reactions to Food to Autonomy.

Chapter III

Introduction

Historically, Saudi Arabia has experienced a change in eating habits and activities after the oil boom that began in 1938. This change may have influenced the high prevalence of overweight and obesity among Saudi children (El-Hazmi & Warsy, 2002; Long, 2005). The existence of obesity and overweight is increasing in all regions in Saudi Arabia (El Hazmi &, 2002; El Mouzan et al., 2012). Childhood obesity increases the risk of multiple health consequences (Dietz, 2004; Guo & Chumlea, 1999; Sullivan, 2010), which has prompted greater international attention to address the problem (World Health Organization, 2013).

Parenting style may influence a child's weight (Rhee, 2008). Parental feeding styles impact children's food consumption, energy intake, and weight status; and the type of feeding style parents use may be a risk factor for childhood obesity (Alison et al., 2012). Children with indulgent parents had higher BMI than children with authoritarian parents (Hughes et al., 2005). Authoritarian parents are known to be controlling in feeding (Fletcher et al., 1997; Hughes et al., 2005). Authoritarian parents were found to use a high level of restrictive and pressure feeding practices (Fletcher et al., 1997; Hughes et al., 2005), whereas authoritative parental feeding styles were related to healthy eating behaviors and supportive feeding practices.

Parents' attitudes toward childrearing and feeding, including parental feeding styles, are influenced by cultural rules and background factors (Alison et al., 2012; Hughes et al., 2005). In Saudi Arabia, parents were found to be controlling of parenting and Saudi society

was considered the most conservative authoritarian and insular Arab country (Dwairy et al., 2006).

Where feeding style is the overall approach to feeding, feeding practices are those specific actions used by adults in feeding their child. Like feeding styles, adults' feeding practices (i.e. restriction, controlling and monitoring) influence children's food preferences and eating habits (Kroller & Warschburger, 2009). Inappropriate use of feeding practices may impact children's weight status, and may lead to childhood obesity (Hennessy et al., 2010; Kroller & Warschburger, 2009; Webber at el., 2010). Negative feeding practices may put children at risk for eating disorders (Francis & Birch, 2005), and development of negative reactions to food characteristic (Powell, Farrow, & Meyer, 2011). Parental feeding practices and attitudes may also lead to overfeeding/underfeeding children and result in an increase or decrease consumption of certain high calorie foods (Galloway et al., 2006; Fisher & Birch, 1999). For example, restrictive some kind of food may lead children to consume more of restrictive food; on the other hand, pressuring children to eat may decrease their liking that food (Galloway et al., 2006; Faith et al., 2004; Pagnini et al., 2007).

Like parental feeding styles, culture influences parental feeding practices as well. Cultural influences, such as decision-making, impact parenting beliefs, goals, and values, and can eventually influence parenting styles and practices (Dwairy et al., 2006; Hennessy et al., 2010). Different parental beliefs and attitudes among ethnicities may contribute to high risk of obesity among children (Heorr et al., 2009; Hughes et al., 2005). For instance, Hispanic populations use more food restriction and pressure feeding practices than Europeans who are the least likely to use these practices (Cardel et al., 2012), and parental restriction may relate to incidence of childhood obesity (Cardel et al., 2012).

Culture plays a role in women's autonomy and decision-making (UNDP, 2006) which in turn impacts feeding styles and practices. In Arab societies, women's role is primarily as housewives and child caregivers (Elamin & Omair, 2010; Metcalfe, 2008). In the past, most major family decisions were made by the father or other males in the family (Long, 2005). However, the effects of modernization and westernization have led to a greater change in the role of women and have generated more opportunities for women in the society (Elamin & Omair, 2010; UNDP, 2006). Decisions are more frequently being made jointly by both the father and the mother (Long, 2005). Women's autonomy has a role in ensuring healthy child outcomes (Engle et al., 2000; Shroff et al., 2009). Low women's autonomy is one of the major factors that affects child health outcomes (Shroff et al., 2009) and thus, may have an impact on feeding practices used by mothers.

Research has been conducted across the globe concerning feeding practices, concern about child weight (Birch et al., 2001; Cardel et al., 2012; Crouch et al., 2007; Hughes et al., 2005; Kröller & Warschburger, 2009), and women's autonomy and children's health status (Shroff et al., 2009). Few studies have been conducted regarding Saudi Arabian parental feeding practices and concerns about child weight (Al-Othman et al., 2006; Hashemi, 2009), but more research is needed.

The purpose of this study was to examine the relationship between Saudi mothers' feeding practices, children's negative reaction to food, and mothers' autonomy. The four objectives of the study were to: 1) identify internal consistency for Child Feeding Questionnaire (CFQ) (Birch et al. 2001), Negative Reactions to Food scale (Rowe & Plomin, 1977), and Autonomy scales (Shroff et al., 2009) in Saudi Arabian mother's with young children, 2) identify Saudi mothers' child-feeding practices and attitudes using the CFQ

(Birch et al. 2001), their Negative Reactions to Food scale and Autonomy scales; 3) determine whether there is an association between CFQ scales, Negative Reactions to Food scale, and Autonomy scales to demographics factors; 4) determine whether there is an association between CFQ scales and Negative Reactions to Food scale to Autonomy scales.

Hypotheses

Parental feeding practices (pressure, restriction, monitoring, and concern) are significantly associated with mother's autonomy, mother's concern about child weight, mother's weight, and demographic factors.

Methods

A cross-sectional survey was conducted with a convenience sample of Saudi Arabian women living in the US to capture their perceptions of their child's weight, and to identify the child feeding practices they report using with their child between two-six years of age. The study was approved by the University of Idaho Institutional Review Board.

Participants

Participants were contacted using a snow-ball technique (Kaplan, Korf, & Sterk, 1987). An initial group of Saudi mothers (n=8) were contacted, and asked to provide contacts information of mothers with young children. Those mothers then were asked to provide contact of other mothers and so on.

In addition, a massage was sent to Saudi media clubs from several universities in the US via Facebook™ requesting contacts information for Saudi mothers with 2-6 years old children (See Appendix B for the message and a list of clubs). Through the Saudi media clubs, a list of mothers' contacts with children between ages of 2-6 years and who were willing to participate in this study was obtained. Those mothers were told by the Saudi clubs

about the study and the need of their help before receiving an email from the researcher (See Appendix C). Then, mothers were contacted via email using the initial contact script (see Appendix A).

The initial contact script (Appendix A) included the consent statement, description of the project, and notification of the incentive (Amazon™ gift card), eligibility criteria, and a hyperlink that directed mothers to the online survey. Participants were eligible to participate if they could answer "yes" to the following questions: Do you have one or more children between the ages of 2-6 years?; Were you born in Saudi Arabia?; Have you lived in Saudi Arabia for a minimum of 15 years?; Are both your parents from Saudi Arabia?; and, Do you have access to the internet?

Parental Feeding Practices and Perception of Child Weight Questionnaire

The questionnaire included the Child Feeding Questionnaire (CFQ), which is a reliable and valid questionnaire (Birch et al., 2001). The questionnaire includes questions about parental attitudes, beliefs, and practices about child feeding and child weight (See Appendix D). The CFQ includes 31 items measuring seven factors: responsibility of feeding, parent weight, child weight, concern about child weight, pressure to eat, restrictions, and monitoring. The responses to all items are coded on a five-point Likert-type scale ranging from one to five. In addition to the questions on the CFQ, a decision-making domain of autonomy (Shroff et al., 2009) was included to examine the relationship between mothers' autonomy and child feeding practices.

Autonomy measures were based on four domains of women's decision-making power in various activities: cooking, buying jewelry, obtaining health care and visiting parents' home (Shroff et al., 2009). In the present study, autonomy was divided into two

categories: first, a feeding autonomy; and the second, general autonomy. Feeding autonomy included four items in women's decision- making power to decide: 1) items to cook, three items were added to this category: 2) food that child(ren) are served, 3) food that adults are served at mealtimes, and 3) rules and practices for feeding children. General autonomy included three items to measure women's decision making power: 1) health care for oneself, 2) purchasing jewelry or other major household items, and 3) going and staying with parents or siblings. Five questions on children's Negative Reactions to Food (Rowe & Plomin, 1977), and one question asking mothers to identify the body silhouette of their child in relation to body weight (Eckstein et al., 2006) were included. Demographic questions at the end of the questionnaire included: mothers' self-reported height and weight, mother's perceived child weight, family income, employment status, number of children and the region mothers live in the US and in Saudi Arabia (Appendix E).

Translation of the Questionnaire for Women from Saudi Arabia

The English version of the survey was reviewed by three experts in childhood obesity including one of the CFQ developers to ensure consistency and content validity. Then, it was translated to Arabic, the predominant language spoken by the participants (See Appendix F). The survey was back-translated by two people who speak both Arabic and English.

The questionnaire was pilot-tested with three mothers from Saudi Arabia who were living in the US. As a result of the pilot, this question, "How often are you responsible for deciding what your child's **portion sizes (amount of food)** are?" was clarified by adding the phrase "amount of food" in parenthesis to explain "portion size." A "Not applicable" option was added to the child weight questions inquiring about children older than 6 years of age

because the target ages for children in this study was 2-6years old and not all of those questions may apply. The questionnaire was loaded into an online survey tool, SurveyMonkey©, in Arabic and English.

Organization of the Data for Analysis

A convenience sample of 184 mothers from Saudi Arabia and living in the US with children between ages two-six years old were contacted to complete the questionnaire. Sixty one respondents (33%) did not meet the inclusion criteria or did not fill out any questions. Of the 123 remaining respondents 15 (12%) did not complete the survey after question eight or 80% of the questionnaire, which was used as the criteria for removal from the participant sample. The total number of participants who met the inclusion criteria and completed 80% of the questions was 108.

Analysis

Upon initial review of the data, responses were not normally distributed and there were an insufficient number of responses within the demographics. Therefore, responses for demographic questions were condensed into two to three categories for analysis. Normal distribution was examined by reviewing histograms displaying the normal curve. See Table 1 for question responses that were condensed.

Table 1. *Condensed Response for Each Question*

Original Response Scale	Condensed Scale

Q.7 Please select the image below that most closely matches the image of your child:	Seven categories for each image 1- Strongly underweight 2- Slightly underweight 3- Underweight 4- Normal 5- Strongly overweight 6- Slightly overweight 7- Overweight	Three categories 1- Underweight (strongly underweight, slightly underweight, underweight) 2- Normal (normal) 3- overweight (strongly overweight, slightly overweight, overweight)
Q.35 Your child as a preschooler was/is	Five categories 1- Markedly underweight 2- Underweight 3- Normal 4- Overweight 5- Markedly overweight	Three categories 1- Underweight 2- Normal 3- Overweight
Q.39 How long have you been living in the U.S.?	Five categories 1- Less than 6 months 2- 6 months to 1 year 3- More than 1 year to 3 years 4- More than 3 years to 5 years 5- More than five years	Three categories 1- Less than 6 months to one year 2- More than one year to 3 years 3- More than three years to more than five years
Q.40 Where are you currently living in the U.S.?	Five categories 1- Northwest 2- Southwest 3- Midwest 4- Northeast 5- Southeast	Two categories 1- West 2- East
Q.42 What is your highest degree?	Five categories 1- High school 2- Bachelor degree 3- Master degree 4- Doctoral degree 5- I don't have degree	Three categories 1- High school 2- Bachelor degree 3- Advanced degree
Q.44 What is your estimated family income?	Seven categories 1- Less than $9,600 2- $9,600-$19,200 3- $19,200-$28,800 4- $28,800-$38,400 5- 5- 38,400-$48,000 6- 6- $48,000-$63,960 7- More than $63.960	Three Categories 1- Less than $9,600 to $28,800 2- $28,800-$38,400 3- 38,400- more than 63.960
Q.45 What is your age?	Continuous	Two categories 1- 19-29 2- 30+

Q.49 How many children do you have?	Continuous	Three categories 1- One child 2- Two children 3- Three or more children

Cronbach's alpha was used to assess the internal consistency and reliability of measured items for the CFQ on the Restriction, Monitoring, Pressure, Concern about Weight, and Perceived Responsibility scales, the Negative Reactions to Foods scale, General Autonomy scale, and Feeding Autonomy scale. Descriptive statistics including mean and standard deviation were calculated for questionnaire responses. Spearman's correlation coefficient was used to examine the association between the dependent variables (restriction, pressure to eat, monitoring, concern about child weight, negative reactions to food, and autonomy) with the independent demographic variables (mothers' BMI, income, educational level, regions, mothers' age, length of time in the US, urbanity (SA), and working status). Spearman's correlation coefficient also was used to measure the association between negative reactions to food and restriction, pressure to eat, monitoring, concern about child weight, and autonomy. Statistical significance was set at $p \leq 0.05$ for all tests and SPSS Statistics (IBM Corp. Released 2011 IBM SPSS Statistics for Windows. Version 20. Armonk, NY: IBM Corp) was used to complete the analysis.

Results

The results of this study will begin with a discussion of the demographic information of the participants. Following the discussion of demographics factors, participants' responses were used to identify internal consistency for items on the CFQ (Birch et al. 2001), Negative Reactions to Food scale (Rowe & Plomin, 1977), and Autonomy scales (Shroff et al., 2009) for Objective one. As part of objective 2, Saudi mothers' child-feeding practices using the

CFQ (Birch et al. 2001), their Negative Reactions to Food, and their General and Feeding Autonomy were examined. Objectives 3 and 4 investigated1) determination of whether there was an association between CFQ scales, Negative Reaction to Food, and Autonomy to demographics factors and 2) whether there was an association between CFQ scales and Negative Reaction to Food to Autonomy. Following the results is a comparison of means (SD) from CFQ scales in the present study with previously published research. Results of each objective and the comparison of CFQ scales are provided below.

Demographics Information from Saudi Mothers Living in the US

The age of participants (n=108) ranged from 20 to 37 years (*M* = 27.7), and the gender of their children was 38% (41) female and 57% (62) male. Five participants did not answer the item regarding their child's gender. Participants' demographic information is provided in Table 2. Mothers' height and weight were obtained via self-report and were used to calculate BMI (kg/cm). Mothers with BMIs between 25 and 29.9 were considered overweight (30%, n=25); those with a BMI at or above 30 were classified as obese (17%, n=14); (50%, n=41) of mothers had normal weight with BMI at 18.5-24.9; and (2%, n=2) were underweight with BMI at less than 18.5 (CDC, 2011). BMI data were not included for 14 women in the sample due to pregnancy. Participants were asked to self-report their weight as underweight, normal, or overweight. Eight participants (7%) reported themselves as being underweight, 62 (57%) reported themselves as being normal, 25 (23%) of the participants reported themselves as being overweight, and 9 (8%) reported themselves as markedly overweight. Some mothers misclassified themselves and perceived themselves as having normal weight while they were overweight or perceived themselves as underweight while they were normal.

Seventy one percent (77) of the participants reported that they were working on a degree. The majority of participants, 88% (95), reported not having a job aside from being a student. Thirty nine percent (42) of the participants lived in western half of the US, and 54% (58) lived in the eastern half of the US. About 11% (12) of the participants lived in the US for less than six months to one year, 44% (47) lived in the US for more than one year to three years, and 42% (45) lived in the US for more than three years. When participants were asked about their child's weight as a preschooler, (24%, n=26) reported that their child was underweight, (59%, n=64) reported that their child was normal, (4%, n=4) reported that their child was overweight, and (4%, n=4) reported their child's age was not applicable to the weight question. Some participants did not respond to all questions and therefore, the percentages may not add up. Full demographic information is provided in Table 3.

Table 2. *Demographics information of mothers from Saudi Arabia with children between 2-6 years of age*

Demographics	N (%)
Age of mothers	
20-29	67 (64%)
≥30	37 (36%)
Number of children	
One child	37 (34%)
Two children	45 (42%)
Three or more children	20 (19%)
Educational level	
High school	21 (19%)
Bachelor degree	49 (45%)
Advanced degree	32 (30%)
Household income	
Less than 9,600	2 (2%)
$9,600-$19,200	15 (14%)
$19,200-$28,800	15 (14%)
$28,800-$38,400	37 (34%)
38,400-$48,000	21 (19%)
$48,000-$63,960	8 (7%)

More than $63.960	4 (4%)
Region in Saudi Arabia	
Eastern	43 (40%)
Southern	6 (6%)
Western	29 (27%)
Northern	1 (1%)
Central	23 (21%)
Urbanity (Saudi Arabia)	
Urban	81 (75%)
Rural	6 (6%)
Suburban	14 (13%)
BMI	
Underweight	2 (2%)
Normal	41 (50%)
Overweight	25 (30%)
Obese	14 (17%)
Child care	
Yes	66 (65%)
No	36 (35%)

Internal consistency for CFQ scales, Negative Reactions to Food, and Autonomy

Cronbach's alpha for negative reactions to food, monitoring, and concern were found to be highly reliable (See Table 2): Negative reactions to food consisted of five items, monitoring feeding practice consisted of three items, and mothers' concern about child weight consisted of 3 items. The perceived responsibility subscale was less reliable and consisted of three items. Restriction and pressure had low reliability: restriction consisted of seven items with Q.11 removed to get a higher reliability score and pressure in feeding practices consisted of four items. The internal consistencies in the original CFQ for all factors (monitoring, concern, restriction, pressure, and perceived responsibility) ranged from 0.70 to 0.93 versus 0.41 to .87in the present study. General autonomy was highly reliable and consisted of three items, and feeding autonomy had a low reliability and consisted four items. See Table 2 for internal consistency scores across all scales from the questionnaire.

Identification of Saudi Mothers' Child-Feeding Practices Using the CFQ: Perceived Responsibility, Pressure, Restriction, Monitoring, and Concern

The mean (SD) for perceived responsibility were 4.1 (0.8); for concern about child weight were 1.8 (1.2); for restriction were 3.8 (0.8), for pressure to eat were 3.9 (0.9), and for monitoring were 4 (0.9). The mean (SD) indicated a high level of perceived responsibility, mothers' used of restriction, pressure, and monitoring feeding practices, and low level of concern about child weight. See Appendix G for full output of responses.

Table 3: Means, Standard Deviation, and Cronbach's Alpha for Negative Reactions to Food, Child Feeding Questionnaire, Self-Reported General and Feeding Autonomy

	M	SD	Cronbach's α
Negative Reactions to Food	3.47	0.3	0.80
Pressure	3.77	0.36	0.41
Restriction	3.64	0.34	0.52
Monitoring	3.95	0.16	0.87
Concern	1.93	0.11	0.78
Perceived Responsibility	4	0.08	0.67
General Autonomy	1.1	0.03	0.73
Feeding Autonomy	1.27	0.14	0.56

Note: (1) Responses were rated from one to five, with one being *Not All Like My Child* and five being *Very Much Like My Child*. M = 12.6, SD = 4.4 in the original study (Rowe & Plomin, 1977).
(2 & 3) Responses were rated from one to five, with one being *Disagree* and five *Agree*.
(4) Responses were rated from one to five, with one being *Never* and five being *Always*.
(5) Responses were rated from one to five, with one being *Unconcerned* and five being *Very Concerned*.
(6) Responses were rated from one to five, with one being *Never* and five being *Always*.
(7 & 8) Responses were rated from one to two, with one being *Respondent Plays a Role* and two being *Respondent Does Not Play a Role*.

Identification of Saudi Mothers' Report of Their Child's Negative Reactions to Food

The majority of participants, 67% (73), reported that once their child has decided he/she doesn't like a food, he/she won't try it again. A little over half of the participants reported that their child rarely likes new foods the first time he/she tries them (56%, 61). The majority of participants, 62% (67) reported that their child tends to dislike many kinds of food. Fifty two percent (56) of participants reported that their child has strong likes and dislikes in food. Forty four percent (48) of the participants reported that their child tends to react negatively to new foods" and 38% (41) reported that it's unlikely to that their child would react negatively to new food. See Appendix G for full output.

Identification of Saudi Women's Autonomy

The mean (SD) for feeding autonomy were 1.07 (0.64), and 1.25 (0.43) for general autonomy which indicated high level of autonomy in Saudi mothers.

Identification of Saudi Mothers' Selected Silhouette for Their Child

The majority, 69% (n = 75) of participants selected a sketch that depicted their child at a lower weight or smaller size compared to a sketch depicting their child at a higher weight or larger size 7% (n = 7). See table 4 for mean, SD, and frequencies of Saudi mothers' selected silhouette for their child.

Table 4: Means, Standard Deviation, and Frequencies of Silhouettes for Saudi Arabian Mothers Who Live in the US to Select the Matched Sketch of Their 2-5 Years Old Child

	N	M[2]	SD	Underweight[3] n (%)	Normal n (%)	Overweight n (%)
Silhouettes[1]	106	1.86	0.846	75 (69)	24 (22)	7 (7)

Note: (1) Gender– and age-range–specific sketches one for girls and one for boys. In analysis, sketch 7 on left (heaviest) and sketch 1 on right (lightest) (Rowe & Plomin, 1977).
(2) Mean indicated a smaller sketch.

(3) Sketches were collapsed with 1, 2, 3 sketches represented a lighter sketch (underweight), 4 represented a normal sketch (normal weight), and 5, 6 represented a heavier sketch (overweight). No one of the participants chose sketch 7.

Association between CFQ Scales, Negative Reaction to Food, and Autonomy to Demographics Factors

Concern about child weight was negatively associated with income (r = -0.20, p = 0.04), and length of time in the US was negatively associated with silhouette (r = -0.20, p = 0.04). No significant association between other CFQ items and autonomy with other demographic factors was identified (see Table 5).

Table 5: Spearman Correlation Coefficient for Child Feeding Questionnaire Scale, Silhouette, and Autonomy with Demographics for Saudi Arabian Mothers with children between 2-6 years of age

	Monitoring	Restriction	Concern	Pressure	Perceived Responsibility	Silhouette	General Autonomy	Feeding Autonomy
	r	r	r	r	r	r	r	r
Age of mothers	-0.13	0.09	-0.18	0.03	-0.07	-0.07	-0.12	-0.02
Mothers' BMI	0.05	0.043	0.10	-0.05	0.03	-0.09	-0.10	-0.00
# of children	-0.09	0.05	0.05	0.14	0.02	-0.00	-0.06	-0.01
Education level	-0.03	0.06	-0.11	0.04	-0.09	0.03	-0.14	-0.00
Employment	-0.11	-0.14	-0.06	-0.71	0.07	-0.06	-0.18	-0.10
Income	-0.17	0.06	-0.20*	-0.06	0.00	-0.08	-0.00	-0.17
Region in SA	-0.02	-0.10	-0.00	-0.11	-0.03	-0.06	-0.10	0.04
Time in the US	0.08	0.00	-0.03	-0.05	-0.09	-0.20*	0.12	0.9
Urbanity SA	0.00	-0.40	0.05	0.07	-0.02	0.09	0.07	0.09

***Significance at $p \leq 0.05$**

Association between Child Feeding Scales and Autonomy

Concern about child weight and feeding autonomy were positively associated (r = 0.20, p = 0.04), as were perceived responsibility and feeding autonomy (r = 0.21, p = 0.03). No significant association was identified between general autonomy and the scales of the CFQ (see Table 6).

Table 6: Spearman Correlation Coefficient for Child Feeding Questionnaire and Autonomy

	General Autonomy		Feeding Autonomy	
Factors of influence	r	p	r	p
Pressure to eat	0.05	0.63	0.07	0.45
Restriction	-0.10	0.34	-0.13	0.20
Monitoring	-0.13	0.18	-0.04	0.67
Concern	0.09	0.36	0.20	0.04*
Perceived Responsibility	-0.13	0.18	0.21	0.03*

*Significance at $p \leq 0.05$

Association between Child Feeding Scales, Negative Reaction to Food and Silhouettes

Significant associations between CFQ scales and negative reactions to food were identified. Restriction was positively associated with negative reactions to food with r = 0.20, p = 0.04; Perceived responsibility was negatively associated with negative reactions to food with r = -0.19, p = 0.05; and concern about child weight also was negatively associated with negative reactions to food with r = -0.19, p = 0.05. Concern about child weight was positively associated with silhouettes with (r = 0.23, p = 0.02). Spearman Correlation for CFQ, negative reactions to food, and silhouettes was presented in table 7.

Table 7: Spearman Correlation Coefficient for Child Feeding Questionnaire, Negative Reactions to Food, and Silhouettes

	Negative Reactions Scale		Silhouettes	
Factors of influence	r	p	r	p
Pressure to eat	0.06	0.56	-0.01	0.90
Restriction	0.20	0.04*	-0.07	0.50
Monitoring	-0.05	0.62	0.13	0.19
Concern	0.19	0.05*	0.23	0.02*
Perceived Responsibility	-0.19	0.05*	0.19	0.06

*Significance at $p \leq 0.05$

Comparison of Means (SD) from CFQ scales in Present Study and Other Studies

The mean score for perceived responsibility in the present study was consistent with previous studies that reported mean scores Hispanic, African-American, Australian, and White ethnicities in previous literature. The mean score for pressure to eat was similar in all ethnicities presented in table 8, but lower in White mothers from the U.S. The mean for monitoring child food intake was consistent in all ethnicities. Presentation of mean (SD) across ethnicities are presented in Table 8.

Table 8. *Reported Mean (SD) Scores for Categories on the Child Feeding Questionnaire among Ethnicities*

	Saudis	Hispanic[1]	African American[1]	White American[3]	Australian[2]
Categories	← M (SD) →				
Perceived responsibility	4.1 (0.8)	4.79 (0.6)	4.6 (0.7)	3.6 (0.8)	4.6 (0.6)
Concern about child weight	1.8 (1.2)	2.30 (1.2)	2.1 (1.2)	2.9 (1.5)	1.8 (1.0)
Restriction	3.8 (0.8)	4.19 (1.1)	4.3 (0.8)	2.8 (1)	3.6 (0.9)

Pressure to eat	3.9 (0.9)	3.70 (0.9)	3.6 (0.9)	1.6 (0.8)	2.7 (1.0)
Monitoring	4 (0.91)	4.05 (1.1)	4.3 (1)	3.6 (1)	4.3 (0.7)
Perceived child weight		3.01 (0.3)	2.9 (0.5)		3 (0.3)

Note. (1)Anderson, C. B., Hughes, S. O., Fisher, J. O., & Nicklas, T. A. (2005). Cross-cultural equivalence of feeding beliefs and practices: The psychometric properties of the child feeding questionnaire among Blacks and Hispanics. *Preventive Medicine, 41*(2), 521-531.
(2)Crouch, P., O'dea, J. A., & Battisti, R. (2007). Child feeding practices and perceptions of childhood overweight and childhood obesity risk among mothers of preschool children. *Nutrition & Dietetics, 64*(3), 151-158.
(3)Spruijt-Metz, D., Lindquist, C. H., Birch, L. L., Fisher, J. O., & Goran, M. I. (2002). Relation between mothers' child-feeding practices and children's adiposity. *The American Journal of Clinical Nutrition, 75*(3), 581-6.

Discussion

The purpose of this study was to examine the relationship between Saudi mothers' feeding practices, children negative reactions to food, and mothers' autonomy. The four objectives of the study were to: 1) identify internal consistency for Child Feeding Questionnaire (CFQ) (Birch et al. 2001), Negative Reactions to Food Scale (Rowe & Plomin, 1977), and Autonomy Scales (Shroff et al., 2009) in Saudi Arabian mother's with young children, 2) identify Saudi mothers' child-feeding practices and attitudes using the CFQ (Birch et al. 2001), their Negative Reactions to Food, and Autonomy; 3) determine whether there is an association between CFQ scales, Negative Reaction to Food, and Autonomy to demographics factors; 4) determine whether there is an association between CFQ scales and Negative Reaction to Food to Autonomy.

Upon examination of the internal consistency for CFQ scales, Negative Reactions to Food, and Autonomy scales in Saudi Arabian mothers with young children was found to be consistent and highly reliable for negative reaction to food, monitoring, concern of child's weight, and autonomy in feeding. On the other hand, restriction and pressure in child feeding

demonstrated poor internal consistency. The internal consistencies in the original CFQ for all factors (monitoring, concern, restriction, pressure, and perceived responsibility) ranged from .70 to .93 in White Americans and Hispanic (Birch et al., 2001), versus .41 to .80 in the present study. The range of the internal reliability from the present study is consistent with Chinese-Americans (internal reliability .48 to .99) from previous research (Huang et al., 2012).

Weak associations were identified in Saudi mothers' feeding practices, negative reactions to food, silhouettes, and demographics. In the present study, concern about child weight was negatively associated with household income indicating that a greater concern about child's weight was present for Saudi mothers reporting a lower income. As income can influence the foods purchased and offered to children that support a healthy weight, low income families may had the additional concern about being able to offer foods to their children that are supportive of a healthy weight. This finding is consistent with Gray et al., (2007) study and indicated a higher risk for childhood obesity among children from low-income family. It was found that low-income families with overweight children, or at risk of being overweight, are more likely to specify the cost of their children's diet as one factors influencing their children's weight (Gray et al., 2007). Concern about child weight may result in the use of inappropriate and controlling parental feeding practices especially among low-income family (Cardel et al., 2012).

In this study, the more concern Saudi mothers reported about their child's weight the lower score reported for their child's picky eating. Overweight children receive less pressure to eat but experience more restriction with certain kinds of food than normal and underweight children (Cardel et al., 2012; Crouch et al., 2007; Kröller & Warschburger, 2009). In

addition, picky eaters are often at a lower weight and thus, parents may have less concern of overweight. However, parents of picky eaters could have greater concern for their child not consuming sufficient amounts or types of food and being at risk for underweight.

On the other hand, Saudi mothers' concern about their child's weight is weakly associated with a larger silhouette. Eckstein et al., (2006) stated that parents who recognized their child as overweight were more likely to be worried and concerned about their child's weight. Saudi parents have reported that obesity is unhealthy (Hashemi, 2009) and thus they are aware of the need to address obesity in their children, which is indicated in the present study.

The greater use of restrictive feeding practices was associated with negative reactions to food in the present study. Saudi mothers who are more restrictive in their feeding may be fostering picky eating behaviors. Previous literature has identified negative outcomes of restrictive feeding practices: an increase of consuming the restricted foods, eating in the absence of hunger, and obesity (Fisher and Birch, 1999, Jansen et al., 2008). Restrictive feeding practices are often used by mothers who are concerned about their child being overweight (Gray et al., 2007; May et al., 2007; Pagnini et al., 2007; Spruijt-Metz et al., 2002). While restrictive feeding was not associated with concern about weight in the present study, participants frequently reported using restriction with their children. Although, mothers' perceived responsibility was negatively associated with negative reactions to food indicating further understanding on how mothers' define perceived responsibility needs further study.

Despite the results in the present study with no significant association between the pressure scale and demographics, negative reactions to food or autonomy, it is notable that

over half of the participants reported using pressure feeding practice with their children. Galloway et al., (2006) found that pressuring children to eat is associated with less food consumed and children had a greater number of negative comments and reactions about the food. Higher levels of pressure are associated with decreased fruit and vegetable intake and increased consumption of low energy-dense foods such as fast and junk foods in both boys and girls during early childhood (Wardle et al., 2005), Further, children who were forced to eat were more likely to develop avoidance eating behaviors (Powell, Farrow, & Meyer, 2011; Kröller & Warschburger, 2008).

Saudi mothers in this study reported that they had autonomy and perceived responsibility was positively associated with feeding autonomy. Saudi traditional family dynamic includes defined and divided roles and responsibilities by gender (Dwairy et al., 2006; Long, 2005). Since the traditional role for Saudi women is the rearing of children (Long, 2005) results of the present study in that women have feeding autonomy and that perceived responsibility is associated with feeding autonomy is expected. However, in consideration of the historical role of women in the household and gender equality (Elamin & Omair, 2010; Metcalfe, 2008) the results of the present study unexpectedly identified Saudi women in the US as having general autonomy. This could be a result of Saudi women being exposed to the Western culture by living in the US (Elamin & Omair, 2010) and results may be different for Saudi women living in Saudi Arabia.

Limitations

A few limitations are recognized in this study. The participant sample is a convenience sample of Saudi mothers who are living in the US, and thus results from this study cannot be inferred to Saudi mothers who live in Saudi Arabia or to mothers from other countries. The

self-selected sample also resulted in a highly educated sample which further delineates the sample from mothers living in Saudi Arabia. Mothers in Saudi Arabia have a different support system than Saudi mothers living in the US and therefore may respond differently to questions.

Weight and height were self-reported for mothers, which may not accurately reflect actual weight in mothers. Future studies should measure actual weight and height for both mothers and children, and examine the relationship between parental feeding practices and child weight among mothers who live in Saudi Arabia.

Conclusion

This study presents an exploratory study of mothers who are native Saudi Arabians, living in the US and their reported maternal feeding practices using the CFQ, negative reactions to food, and autonomy. Internal reliability was identified and consistent feeding practices among Saudi mothers in the US were found in comparison to results from previous literature on other ethnicities. Saudi mothers did present concern with their child's weight and negative reactions to food. Mothers reported use of restrictive and pressuring parenting feeding practices that should be studied further. While Saudi Arabian mothers living in the US reported general and feeding autonomy, further research is needed with mothers living in Saudi Arabia. This exploratory study provides foundational information on maternal feeding practices and women's autonomy in Saudi Arabian mothers with their children that can be used for future study.

References

About Saudi Arabia. "n.d." Retrieved from http://saudiembassy.net/

Alam, A. A. (2008). Obesity among female school children in North West Riyadh in relation to affluent lifestyle. *Saudi Medical Journal, 29*(8), 1139-44.

Al-Dossary, S. S., Sarkis, P. E., Hassan, A., Ezz El Regal, M., & Fouda, A. E. (2010). Obesity in Saudi children: A dangerous reality. *Eastern Mediterranean Health Journal, 16*(9), 1003-8.

Alison, T., Erin, H., Alex, P., Aviva, M., David, M. G., Raymond, R. H., Christina, L. K., & Christina, D. E. (2012). Feeding styles and child weight status among recent immigrant mother-child dyads. *International Journal of Behavioral Nutrition and Physical Activity, 9*(1), 9-62.

Al- Othman, A. M., Reilly, J. J., & Belton, N. R. (2006). Comparative study between young children of different societies to evaluate the impact of feeding style on the nutritional status. *Journal of Medical Sciences, 6*(1), 12-17.

Al-Saeed, W. Y., Al-Dawood, K. M., Bukhari, I. A., & Bahnassy, A. (2007). Prevalence and socioeconomic risk factors of obesity among urban female students in Al-Khobar city, Eastern Saudi Arabia, 2003. *Obesity Reviews, 8*(2), 93-99.

Amin, T., Al-Sultan, A., & Ali, A. (2008). Overweight and obesity and their relation to dietary habits and socio-demographic characteristics among male primary school children in Al-Hassa, Kingdom of Saudi Arabia. *European Journal of Nutrition, 47*(6), 310-318.

Anderson, C. B., Hughes, S. O., Fisher, J. O., & Nicklas, T. A. (2005). Cross-cultural equivalence of feeding beliefs and practices: The psychometric properties of the child

feeding questionnaire among Blacks and Hispanics. *Preventive Medicine, 41*(2), 521-531.

Bari, M. A. (2002). The greatest gift: A guide to parenting from an Islamic perspective. London: *Ta-Ha Publishers*.

Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence, 11*(1), 56-95.

Baumrind, D. (1996). The discipline controversy revisited. *Family Relations, 45*(4), 405-414.

Birch, L. L., Marlin, D. W., & Rotter, J. (1984). Eating as the "Means" activity in a contingency: Effects on young children's food preference. *Child Development, 55*(2), 431-439.

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), 201-10.

Branen, L., & Fletcher, J. (2013). Feeding young children in group setting. Retrieved from http://www.cals.uidaho.edu/feeding/

Campbell, K. J., Crawford, D. A., & Ball, K. (2006). Family food environment and dietary behaviors likely to promote fatness in 5–6 year-old children. *International Journal of Obesity*, *30*(8), 1272-1280.

Cardel, M., Willig, A. L., Dulin-Keita, A., Casazza, K., Beasley, T. M., & Fernández, J. R. (2012). Parental feeding practices and socioeconomic status are associated with child adiposity in a multi-ethnic sample of children. *Appetite, 58*(1), 347-53.

Chen, Y. C., Chen, P. C., Hsieh, W. S., Portnov, B. A., Chen, Y. A., & Lee, Y. L. (2012). Environmental factors associated with overweight and obesity in Taiwanese children. *Paediatric and Perinatal Epidemiology, 26*(6), 561-571.

Chimombo, J. (2005). Issues in basic education in developing countries: An exploration of policy options for improved delivery. *Journal of International Cooperation in Education, 8*(1), 129-152.

Conrade, G., & Ho, R. (2001). Differential parenting styles for fathers and mothers: Differential treatment for sons and daughters. *Australian Journal of Psychology, 35*, 29-35.

Crouch, P., O'dea, J. A., & Battisti, R. (2007). Child feeding practices and perceptions of childhood overweight and childhood obesity risk among mothers of preschool children. *Nutrition & Dietetics, 64*(3), 151-158.

Davison, K. K., & Birch, L. L. (2001). Weight status, parent reaction, and self-concept in five year-old girls. *Pediatrics, 107*(1), 46-53.

De Lauzon-Guillain, B., Musher-Eizenman, D., Leporc, E., Holub, S., & Charles, M. A. (2009). Parental feeding practices in the United States and in France: Relationships with child's characteristics and parent's eating behavior. *Journal of the American Dietetic Association, 109*(6), 1064-9.

Dietz, W. H. (2004). Overweight in childhood and adolescence. *The New England Journal of Medicine, 350*(9), 855-7.

Dwairy, M., Achoui, M., Abouserie, R., Farah, A., Sakhleh, A., Fayad, M., & Khan, H. (2006). Parenting styles in Arab societies. *Journal of Cross-Cultural Psychology, 37*(3), 230-247.

Eckstein, K. C., Mikhail, L. M., Ariza, A. J., Thomson, J. S., Millard, S. C., Binns, H. J., & Pediatric Practice Research Group. (2006). Parents' perceptions of their child's weight and health. *Pediatrics, 117*(3), 681-90.

Eisenberg, M. E., Neumark-Sztainer, D., & Story, M. (2003). Associations of weight-based teasing and emotional well-being among adolescents. *Archives of Pediatrics & Adolescent Medicine, 157*(8), 733-8.

Elamin, A.M., & Omair, K. (2010). Males' attitudes towards working females in Saudi Arabia. *Personnel Review, 39,* 746 – 766.

El-Hazmi, M. A., & Warsy, A. S. (2002). The prevalence of obesity and overweight in 1-18-year-old Saudi children. *Annals of Saudi Medicine, 22*(5-6), *303-307.*

El Mouzan MI, Al Herbish AS, Al Salloum AA, Al Omar AA, Qurachi MM. (2012). Regional variation in prevalence of overweight and obesity in Saudi children and adolescents. *Saudi J Gastroenterol, 18*, 129-32.

Engle, P. L., Bentley, M., & Pelto, G. (2000). The role of care in nutrition programmers: Current research and a research agenda. *Proceedings of the Nutrition Society, 59*(1), 25-35.

Faith, M. S., Berkowitz, R. I., Stallings, V. A., Kerns, J., Storey, M., & Stunkard, A. J. (2004). Parental feeding attitudes and styles and child body mass index: Prospective analysis of a gene-environment interaction. *Pediatrics, 114*(4), 429-36.

Farghaly, N. F., Ghazali, B. M., Al-Wabel, H. M., Sadek, A. A., & Abbag, F. I. (2007). Life style and nutrition and their impact on health of Saudi school students in

Abha, Southwestern region of Saudi Arabia. *Saudi Medical Journal, 28*(3), 415-21.

Fisher, J. O., & Birch, L. L. (1999). Restricting access to palatable foods affects children's behavioral response, food selection and intake. *The American Journal of Clinical Nutrition, 69*(6), 1264-1272.

Fisher, J. O., & Birch, L. L. (2002). Eating in the absence of hunger and overweight in girls from 5 to 7 y of age. *The American Journal of Clinical Nutrition, 76*(1), 226-231.

Fletcher, J., Branen, L., & Lawrence, A. (1997). Late adolescents' perceptions of their caregiver's feeding styles and practices and those they will use with their own children. *Adolescence, 32*(126), 287-98.

Francis, L. A., & Birch, L. L. (2005). Maternal influences on daughters' restrained eating behavior. *Official Journal of the Division of Health Psychology, 24*(6), 548-54.

Galloway, A. T., Fiorito, L., Lee, Y., & Birch, L. L. (2005). Parental pressure, dietary patterns, and weight status among girls who are "Picky eaters". *Journal of the American Dietetic Association, 105*(4), 541-8.

Galloway, A. T., Fiorito, L. M., Francis, L. A., & Birch, L. L. (2006). 'Finish your soup': Counterproductive effects of pressuring children to eat on intake and affect. *Appetite, 46*(3), 318-323.

Gray, V. B., Byrd, S. H., Cossman, J. S., Chromiak, J. A., Cheek, W., & Jackson, G. (2007). Parental attitudes toward child nutrition and weight have a limited relationship with child's weight status. *Nutrition Research, 27*(9), 548-558.

Gray, W. N., Janicke, D. M., Wistedt, K. M., & Dumont-Driscoll, M. C. (2010). Factors associated with parental use of restrictive feeding practices to control their children's food intake. *Appetite, 55*(2), 332-337.

Guo, S. S., & Chumlea, W. C. (1999). Tracking of body mass index in children in relation to overweight in adulthood. *The American Journal of Clinical Nutrition, 70*(1), 145-148.

Hashemi, J. M. (2009). The prevalence of obesity among children aged 7-12 years in Jeddah Saudi Arabia and their parents' awareness of this problem. *Thesis (Ph.D.)-University of Arkansas, Fayetteville.*

Hennessy, E., Hughes, S. O., Goldberg, J. P., Hyatt, R. R., & Economos, C. D. (2010). Parent behavior and child weight status among a diverse group of underserved rural families. *Appetite, 54*(2), 369-77.

Hesketh, K., Wake, M., & Waters, E. (2004). Body mass index and parent-reported self-esteem in elementary school children: Evidence for a causal relationship. *International Journal of Obesity, 28*, 1233-1237.

Hewitt, A., & Stephens, C. (2007). Healthy eating among 10-13-year-old New Zealand children: Understanding choice using the Theory of Planned Behaviour and the role of parental influence. *Psychology, Health &; Medicine, 12*(5), 526-535.

Heyer, K. (2012)."The food court in the magic kingdom: Globalization, cuisine and attitudes in Saudi Arabia". *University of New Orleans: Theses and Dissertations*. Paper 1442. http://scholarworks.uno.edu/td/1442

Hoerr, S. L., Hughes, S. O., FIsher, J. O., Nicklas, T. A., Liu, Y., & Shewchuk, R. M. (2009). Associations among parental feeding styles and children's food intake in families with

limited incomes. *International Journal of Behavioral Nutrition and Physical Activity, 6*(55), 150-162.

Hughes, S. O., Power, T. G., Orlet, F. J., Mueller, S., & Nicklas, T. A. (2005). Revisiting a neglected construct: Parenting styles in a child-feeding context. *Appetite, 44*(1), 83-92.

Huang, S. H., Parks, E. P., Kumanyika, S. K., Grier, S. A., Shults, J., Stallings, V. A., & Stettler, N. (2012). Child-feeding practices among Chinese-American and non-Hispanic white caregivers. *Appetite*, 58(3), 922-927.

Itagi, V., & Patil, R. (2011). Obesity in children and adolescents and its relationship with hypertension. *Turkish Journal of Medical Sciences, 41*(2), 259-266.

Jansen, P. W., Roza, S. J., Jaddoe, V. W., Mackenbach, J. D., Raat, H., Hofman, A., Verhulst, F. C., & Tiemeier, H. (2012). Children's eating behavior, feeding practices of parents and weight problems in early childhood: Results from the population-based generation R study. *The International Journal of Behavioral Nutrition and Physical Activity, 9*(*130*).

Johnson, S. L. (2000). Improving preschoolers' self-regulation of energy intake. *Pediatrics, 106(*6), 1429-35.

Kaur, H., Li, C., Nazir, N., Choi, W. S., Resnicow, K., Birch, L. L., & Ahluwalia, J. S. (2006). Confirmatory factor analysis of the child-feeding questionnaire among parents of adolescents. *Appetite*, *47*(1), 36-45.

Kaplan, C. D., Korf, D., & Sterk, C. (1987). Temporal and social contexts of heroin-using populations. An illustration of the snowball sampling technique. *The Journal of Nervous and Mental Disease*, 175(9), 566-74.

Kroller, K., & Warschburger, P. (2009). Maternal feeding strategies and child's food intake: Considering weight and demographic influences using structural equation modeling. *The International Journal of Behavioral Nutrition and Physical Activity, 6* (1), 78-86.

Long, D. E. (2005). Culture and customs of Saudi Arabia. Westport, Conn: *Greenwood Press*.

May, A. L., Donohue, M., Scanlon, K. S., Sherry, B., Dalenius, K., Faulkner, P., & Birch, L. L. (2007). Child-feeding strategies are associated with maternal concern about children becoming overweight, but not children's weight status. *Journal of the American Dietetic Association, 107*(7), 1167–1175.

Metcalfe, B. (2008). Women, Management and Globalization in the Middle East. Journal of Business Ethics, 83, 1, 85-100.

McCormick, D. P., Sarpong, K., Jordan, L., Ray, L. A., & Jain, S. (2010). Infant obesity: Are we ready to make this diagnosis? *The Journal of Pediatrics, 157*(1), 15-19.

McKinney, C., & Renk, K. (2007). Differential parenting between mothers and fathers: Implications for late adolescents. *Journal of Family Issues*, *29*(6), 806-827.

Modi, N. (2011). The effect of the neonatal Continuous Negative Extrathoracic Pressure (CNEP) trial enquiries on research in the UK. *Archives of Disease in Childhood, 96*(6), 500-504.

Navalpotro, L., Regidor, E., Ortega, P., Martínez, D., Villanueva, R., & Astasio, P. (2012). Area-based socioeconomic environment, obesity risk behaviours, area facilities and childhood overweight and obesity. *Preventive Medicine*, *55*(2), 102-107.

O'Connor, T. M., Hughes, S. O., Watson, K. B., Baranowski, T., Nicklas, T. A., Fisher, J. O., Beltran, A., & Shewchuk, R. M. (2010). Parenting practices are associated with fruit

and vegetable consumption in pre-school children. *Public Health Nutrition, 13*(1), 91-101.

Oliver, L. N., & Hayes, M. V. (2005). Neighborhood socio-economic status and of overweight Canadian children and youth. *Canadian Journal of Public Health, 96*(6), 415-20.

Pagnini, D. L., Wilkenfeld, R. L., King, L. A., Booth, M. L., & Booth, S. L. (2007). Original article: Mothers of pre-school children talk about childhood overweight and obesity: The weight of opinion study. *Journal of Pediatrics and Child Health, 43*(12), 806-810.

Payas, N., Budd, G. M., & Polansky, M. (2010). Exploring relationships among maternal BMI, family factors, and concern for child's weight. *Journal of Child and Adolescent Psychiatric Nursing, 23*(4), 223-30.

Powell, F. C., Farrow, C. V., & Meyer, C. (2011). Food avoidance in children. The influence of maternal feeding practices and behaviours. *Appetite, 57*(3), 683-692.

Raj, M., & Krishna, K. R. (2010). Obesity in children & adolescents. *Indian Journal of Medical Research, 132*(11), 598-607.

Raj, M. (2012). Obesity and cardiovascular risk in children and adolescents. [Abstract]. *Indian Journal of Endocrinology and Metabolism, 16*(1), 13-9.

Ramsay, R. A, Laurel J. Branen, L.J., Fletcher, J., Price, E., Johnson, S. L., Sigman-Grant, M .(2010)“Are you done?” child care providers' verbal communication at mealtimes that reinforce or hinder children's internal cues of hunger and satiation. *Journal of Nutrition Education and Behavior, 42*(4), 265–270.

Redline, S., Tishler, P. V., Schluchter, M., Aylor, J., Clark, K., & Graham, G. (1999). Risk factors for sleep-disordered breathing in children. Associations with obesity, race,

and respiratory problems. *American Journal of Respiratory and Critical Care Medicine, 159*(5), 1527-32.

Rhee, K. (2008). Childhood overweight and the relationship between parent behaviors, parenting style, and family functioning. *Annals of the American Academy of Political and Social Science, 615*(1), 12-37.

Rowe, D. C. & Plomin, R. (1977). Temperament in early childhood. *Journal of Personality Assessment, 41*, 150-156.

Saelens, B. E., Ernst, M. M., & Epstein, L. H. (2000). Maternal child feeding practices and obesity: A discordant sibling analysis. *International Journal of Eating Disorders, 27*(4), 459-463.

Satter, E. (2004). Children, the feeding relationship, and weight. *Maryland Medicine*, *5*(3),26-28.

Saudiusa. (2013). Five hundred Saudi students arrived to the US. Retrieved from http://saudiusa.com/new/ar/mohe/11069-5500-.html

Sawyer, M. G., Harchak, T., Wake, M., & Lynch, J. (2011). Four-year prospective study of BMI and mental health problems in young children. *Pediatrics*, *128*(4), 677-84.

Scaglioni, S., Salvioni, M., & Galimberti, C. (2008). Influence of parental attitudes in the development of children eating behaviour. *The British Journal of Nutrition, 99,* 22-5.

Shroff, M., Griffiths, P., Adair, L., Suchindran, C., & Bentley, M. (2009). Maternal autonomy is inversely related to child stunting in Andhra Pradesh, India. *Maternal & Child Nutrition, 5*(1), 64-74.

Sleddens, E. F. C., Kremers, S. P. J., de Vries, N. K., & Thijs, C. (2010). Relationship between parental feeding styles and eating behaviours of Dutch children aged 6–7. *Appetite, 54,* 30-36.

Smith, L.C., Ramakrishnan, U., Ndiaye,A. L., & Haddad, R. M. (2003). The importance of women's status for child nutrition in developing countries. Research report 131. Washington, D.C.: International Food Policy Research Institute.

Spruijt-Metz, D., Lindquist, C. H., Birch, L. L., Fisher, J. O., & Goran, M. I. (2002). Relation between mothers' child-feeding practices and children's adiposity. *The American Journal of Clinical Nutrition, 75*(3), 581-6.

Study abroad "King Abdullah scholarships program". "n.d." Retrieved from http://www.mohe.gov.sa/en/studyaboard/King-Abdulla-hstages/Pages/introduction-a.aspx

Sullivan, L. (2010). The last one picked: Psychological implications of childhood obesity. *Journal for Nurse Practitioners, 6*(4), 296-299.

UNDP (New York, NY [etc.]), Arab fund for economic and social development (Kuwait)., & AGFUND (Riyadh). (2006). *The Arab human development report 2005: Towards the rise of women in the Arab world*. New York, NY: UNDP.

Vereecken, C., Rovner, A., & Maes, L. (2010). Associations of parenting styles, parental feeding practices and child characteristics with young children's fruit and vegetable consumption. *Appetite, 55*(3), 589-596.

Wang, Y., & Lobstein, T. (2006). Worldwide trends in childhood overweight and obesity. *International Journal of Pediatric Obesity, 1*(1), 11–25.

Wardle, J. & Cooke, L., (2005). The impact of obesity on psychological well-being. *Best Practice & Research Clinical Endocrinology & Metabolism, 19*(3), 421-440.

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), 1718-22.

World Health Organization. (2013). Obesity and overweight. Retrieved from http://www.who.int/mediacentre/factsheets/fs311/en/

Woolner, J. (2000). Children's food preferences behavioural analysis. Unpublished Doctoral Dissertation, University of Wales, Bangor.

Appendix A: Initial Contact Script

Hello,
Your contact information was given to me as someone who would be interested in participating in completing an online survey about parental feeding practices. In addition, you may be eligible to win **one of four $25 amazon gift card** if you complete all of the questions on the survey. The University of Idaho Institutional Review Board has approved this study.

In order determine your eligibility participate, I am going to ask you a few questions. Please respond yes or no to the following:

1. Do you have one or more children between the ages of 2-6 years?
2. Were you born in Saudi Arabia?
3. Have you lived in Saudi Arabia for a minimum of 15 years?
4. Are both your parents from Saudi Arabia
5. Do you have access to the internet?

If the answer is no on any of the questions, you are not eligible to take the survey.
If the answer is yes to all questions, you are eligible to take the survey.

You may be assured of complete confidentiality. Your email will not be shared with anyone and it will not be used for any other purpose other than to contact you with the survey link.

If you know of anyone else who may be interested in completing the survey, please send her contact information to Iman Almarhoon at alma9539@vandals.uidaho.edu.

* To take the survey, click on:
English version: "Take The Survey"
Arabic version: "Take The Survey"

We would be happy to answer any questions you might have. Please Dr. Ramsay at (208) 885-6026, or contact Iman Almarhoon at (208) 301-3890.

Sincerely,

Iman Almarhoon (MS Candidate)
Family and Consumer Sciences
University of Idaho

Samantha Ramsay, PhD, RD, LD
Assistant Professor, Foods and Nutrition
University of Idaho

Appendix B: Message Sent On Facebook to Saudi Media Clubs & List of Saudi Students Club

Hello,

My name is Iman Almarhoon and I am currently a graduate student at the University of Idaho. I am doing a study about parental feeding practices and attitudes in mothers from Saudi Arabia with children between ages 2-6 years old and who are living currently in the US. Kindly, I would like you to help me contact mothers that have children between 2-6 years old in your city to fill it out the survey, and if you know other mothers around the US, please provide their contacts to me as well. The contacts you provide will not be shared with anyone and it will not be used for any other purpose other than to contact mothers about the survey.

List of Saudi Students Clubs

Saudi Students Association in Kent, Ohio; Saudi Students Club Fayetteville, Arkansas; Saudi Students Club at St. Cloud State University; Saudi Students Club at Florida International University; Saudi Students Society in Boston; Saudi Students Club at Virginia Tec, Saudi Students Association at the University of Akron, Ohio; Saudi students Association at SMU; Saudis in UMN; Saudi Students Club at St Mary's University; Saudi Students Club at ASU; Saudi Students in Madison, WI; The Saudi Student Club of the University of Scranton; Saudi Students Club at UTSA; Saudi Students Events in Seattle, WA; Saudi Students Association at Lamar University; Saudi Club in NY; Saudi Students Club in Portland; Saudi Students Association at WVU.

Thank you,

Iman Almarhoon

Appendix C: Child Feeding Questionnaire Factors, Items, and Response Options (Birch et al., 2001)

Factor	Variable name	Order (#)	Question	Response options
Perceived responsibility	PR1	1	When your child is at home, how often are you responsible for feeding her?	1 = never; 2 = seldom; 3 = half of the time; 4 = most of the time; 5 = always
	PR2	2	How often are you responsible for deciding what your child's portion sizes are?	
	PR3	3	How often are you responsible for deciding if your child has eaten the right kind of foods?	
Perceived parent weight	PPW1	4	Your Childhood (5 to 10 years old)	1 = markedly underweight; 2 = underweight; 3 = normal; 4 = overweight; 5 = markedly overweight
	PPW2	5	Your adolescence	
	PPW3	6	Your 20s	
	PPW4	7	At present	
Perceived child weight	PCW1	8	Your child during the first year of life	1 = markedly underweight; 2 = underweight; 3 = normal; 4 = overweight; 5 = markedly overweight
	PCW2	9	Your child as a toddler	
	PCW3	10	Your child as a pre-schooler	
	Not used in analysis due to sample age	11	Your child kindergarten through 2nd grade	
		12	Your from child 3rd through 5th grade	
		13	Your child from 6th through 8th grade	
Concern about child weight	CN1	14	How concerned are you about your child eating too much when you are not around her?	1 = unconcerned; 2 = a little concerned; 3 = concerned; 4 = fairly concerned; 5 = very concerned
	CN2	15	How concerned are you about your child having to diet to maintain a desirable weight?	
	CN3	16	How concerned are you about your child becoming over weight?	
Restriction	RST1A	17	I have to be sure that my child does not eat too many sweets (candy, icecream, cake or pastries)	1 = disagree; 2 = slightly disagree; 3 = neutral; 4 = slightly agree; 5 = agree
	RST1B	18	I have to be sure that my child does not eat too many high-fat foods	
	RST1C	19	I have to be sure that my child does not eat too much of her favorite foods	
	RST2	20	I intentionally keep some foods out of my child's reach	
	RST3A	21	I offer sweets (candy, ice cream, cake, pastries) to my child as a reward for good behavior	
	RST3B	22	I offer my child her favorite foods in exchange for good behavior	
	RST4A	23	If I did not guide or regulate my child's eating, she would eat too many junk foods	
	RST4B	24	If I did not guide or regulate my child's eating, she would eat too much of her favorite foods	
Pressure to eat	PE1	25	My child should always eat all of the food on her plate	1 = disagree; 2 = slightly disagree; 3 = neutral; 4 = slightly agree; 5 = agree
	PE2	26	I have to be especially careful to make sure my child eats enough	
	PE3	27	If my child says "I'm not hungry", I try to get her to eat anyway	
	PE4	28	If I did not guide or regulate my child's eating, she would eat much less than she should	
Monitoring	MN	29	How much do you keep track of the sweets (candy, ice cream cake, pies, pastries) that your child eats?	1 = never; 2 = rarely; 3 = sometimes; 4 = mostly; 5 = always
	MN	30	How much do you keep track of the snack food (potato chips, Doritos, cheese puffs) that your child eats?	
	MN	31	How much do you keep track of the high-fat foods that your child eats?	

Appendix D: English Version of the Survey

Introduction: Thank you for completing the survey. In order for the results to be an accurate representation of Saudi parents, it is important that each question is answered; however you are free to not respond to any question. If you complete all the questions on the survey, you will be entered into a drawing to win one of four $25 Amazon gift cards. Before you begin, you should be able to answer "yes" to all of the following questions. If you cannot answer "yes" to all the questions please close out of the survey.

1. Do you have one or more children between the ages of 2-6 years?
2. Were you born in Saudi Arabia?
3. In the past, did you live in Saudi Arabia for a minimum of 15 years?
4. Are both your parents from Saudi Arabia?
5. Do you have access to the internet?

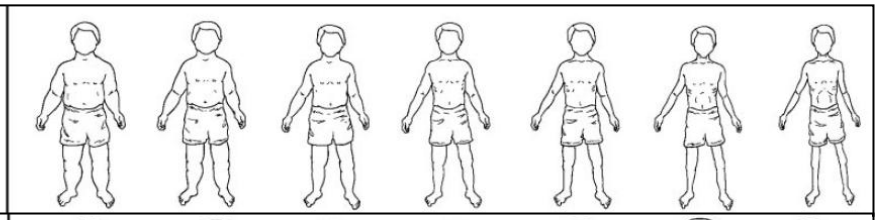
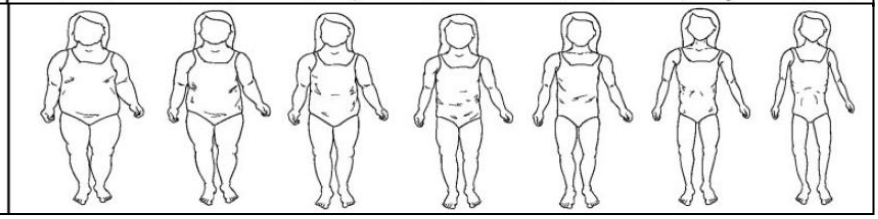
We would like to know more about your child's eating. Please read the following statements and check one box for each statement to show how YOUR child feels about trying new foods. It is important to remember that there are no "right" or "wrong" answers to these questions; we are interested in what parents really feel and do.

		Not at all like my child	**Somewhat unlike my child**	**Neither like my child or unlike my child**	**Somewhat like my child**	**Very much like my child**
1	Once my child has decided he/she doesn't like a food, he/she won't even try it again.	□	□	□	□	□
2	My child rarely likes new foods the first time he/she tries them.	□	□	□	□	□
3	My child tends to dislike many kinds of food.	□	□	□	□	□
4	My child has strong likes and dislikes in food.	□	□	□	□	□
5	My child tends to react negatively to new foods.	□	□	□	□	□

6- What is your child's gender?

1. Male
2. Female

7- Please select the image below that most closely matches the image of your child:

Mal	Ages 2–5	
Femal	Ages 2–5	

7	6	5	4	3	2	1

Now we will ask you some questions about how you feed your child.

		Never	Seldom	Half of the time	Most of the time	Always
8	When your child is at home, how often are you responsible for **feeding** her/him?	○	○	○	○	○
9	How often are you responsible for deciding what your child's **portion sizes (amount of food)** are?	○	○	○	○	○
10	How often are you responsible for deciding if your child has eaten the **right kind of foods**?	○	○	○	○	○

Respond to the following questions thinking about how you feed your child.

		Disagree	Slightly disagree	Neutral	Slightly agree	Agree
11	I have to be sure that my child does not eat too many **sweets (candy, ice cream, cake or pastries**).	○	○	○	○	○
12	I have to be sure that my child does not eat too many **high-fat foods**.	○	○	○	○	○
13	I have to be sure that my child does not eat too much of her/his **favorite foods**.	○	○	○	○	○

14	I **intentionally** keep some foods out of my child's reach.	○	○	○	○	○
15	I offer **sweets** (**candy, ice cream, cake, pastries**) to my child as a reward for good behavior.	○	○	○	○	○
16	I offer my child his/her **favorite foods** in exchange for good behavior.	○	○	○	○	○
17	My child should always eat **all of the food** on her/his plate.	○	○	○	○	○
18	I have to be especially careful to make sure my child eats **enough**.	○	○	○	○	○
19	If my child says ``I'm not hungry'', I **try to get** her/him to eat anyway.	○	○	○	○	○
20	If I did not **guide or regulate** my child's eating, she/he would eat much less than she/he should.	○	○	○	○	○
21	If I did not guide or regulate my child's eating, she/he would eat too many **junk foods**.	○	○	○	○	○
22	If I did not guide or regulate my child's eating, she would eat too much of her **favorite foods**.	○	○	○	○	○

Respond to the following questions thinking about how often you keep track of your child's food intake.

		Never	Rarely	Sometimes	Mostly	Always
23	How much do you keep track of the **sweets** (**candy, ice cream cake, pies, pastries**) that your child eats?	○	○	○	○	○
24	How much do you keep track of the **snack food** (**potato chips, Doritos, cheese puffs**) that your child eats?	○	○	○	○	○
25	How much do you keep track of the **high-fat foods** that your child eats?	○	○	○	○	○

Respond to the following questions about your concern with your child's eating and weight.

	Unconcerned	A little concerned	Concerned	Fairly concerned	Very concerned

26	How concerned are you about your child eating **too much** when you are not around her/him?	○	○	○	○	○
27	How concerned are you about your child **having to diet** to maintain a desirable weight?	○	○	○	○	○
28	How concerned are you about your child **becoming over weight**?	○	○	○	○	○

Now we will ask you some questions about your own childhood.

		Markedly underweight	Underweight	Normal	Overweight	Markedly overweight
29	During **your** Childhood (2-6 years of age) you were	○	○	○	○	○
30	During **your** adolescence (7-18 years of age) you were	○	○	○	○	○
31	During **your** early adulthood (your 20s) you were	○	○	○	○	○
32	At the **present time** you are	○	○	○	○	○

Respond to the following questions about your child.

		Markedly underweight	Underweight	Normal	Overweight	Markedly overweight	Not Applicable
33	Your child during the first year of life was	○	○	○	○	○	○
34	Your child as a toddler was/is	○	○	○	○	○	○

35	Your child as a preschooler was/is	○	○	○	○	○	○
36	Your child as a kindergartener is	○	○	○	○	○	○

The following questions ask about you.

37-To what region in Saudi Arabia do you live? (circle one)

1. Eastern
2. Southern
3. Western
4. Northern
5. Central

38-While in Saudi Arabia what kind of community did you live in?

1. Urban area
2. Rural area
3. Suburban area

39- How long have you been living in the U.S.?

1. Less than 6 months
2. 6 months to 1 year
3. More than 1 year to 3 years
4. More than 3 years to 5 years
5. More than five years

40- Where are you currently living in the U.S.?

1. Northwest
2. Southwest
3. Midwest
4. Northeast
5. Southeast

41- Are you currently a student or working on a degree?

1. I am not working on a degree
2. I am currently working on a degree

42- What is your highest degree?

1. High school
2. Bachelors Degree
3. Masters Degree
4. Doctoral Degree
5. I do not have a degree

43- Are you working outside of being a student?

1. No
2. Yes: Please list your occupation _____

44- What is your estimated family income?

1. Less than 3000 SR
2. 3001- 6000 SR
3. 6001-9000 SR
4. 9001-12,000 SR
5. 12,001-15,000 SR
6. 15,001-20,000 SR
7. ≥ 20,001 SR

45- What is your age? _____ YEARS

46- What is your estimated height? _____CENTIMETERS

47- What is your weight?_____KILOGRAMS

48- Are you currently pregnant, how many weeks?
I am not pregnant.

1. Yes

If yes, include the number of months_____

49-How many children do you have? _____

50- Is your child attending child care outside the home?

1. No
2. Yes Please describe _____

51- Decisions about feeding my child(ren) are usually made by (circle one)

1. Me alone
2. Me primarily, though other adults in our home or family are sometimes involved
3. Me and other adults in our home or family, who are equally involved
4. Other adults in our home or family primarily, but I am involved
5. Other adults in our home or family; I am not involved

Who makes the following decisions in your household:		You plays a role	You doesn't play a role
52	What items to cook?	◯	◯
53	The foods that child(ren) are served?	◯	◯
54	The foods that adults are served at mealtimes?	◯	◯
55	Rules and practices for feeding children?	◯	◯
56	Obtaining health care for yourself?	◯	◯
57	Purchasing jewelry or other major household items?	◯	◯
58	Your going and staying with parents or siblings?	◯	◯

Please enter your email address to get a chance to win **one of four $25 amazon gift card**!

Appendix E: Arabia Version of the Survey

مقدمة : في البداية نشكرك على تعبئة هذا الاستبيان. لضمان دقة النتائج التي يفترض أن تمثل الامهات السعوديات، فإنه من المهم لدينا أن تتم الإجابة على كل سؤال، ومع ذلك فلك كامل الحرية في اي وقت خلال تعبئة هذا الاستبيان ترك أي سؤال دون إجابة. إذا قمت باستكمال الاجابة على كل الأسئلة فستدخل السحب على واحدة من اربع بطاقات هدايا للشراء من موقع أمازون بقيمة 25 دولار.

قبل البدء في تعبئة هذا الاستبيان ينبغي أن تكون إجابتك [نعم] على كل الأسئلة التالية، وفي حال كانت الإجابة بـ [لا] على أي من الأسئلة التالية فيرجى التفضل بإغلاق هذا الاستبيان وعدم استكماله :

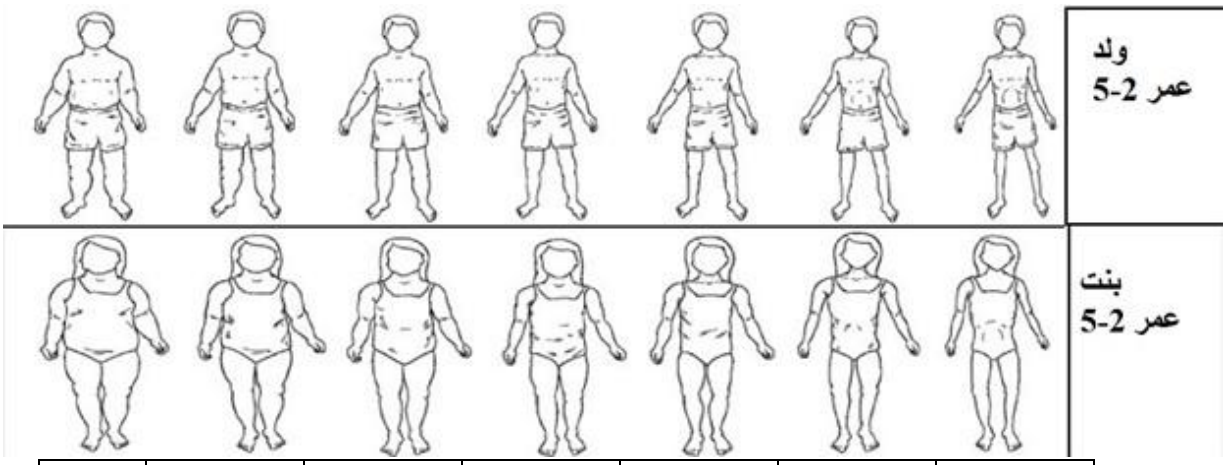
1. هل لديك طفل واحد أو أكثر أعمارهم ما بين الثانية والسادسة ؟
2. هل ولدت في السعودية ؟
3. هل عشت في السعودية لمدة تزيد عن 15 عام على الأقل ؟
4. هل والديك كليهما سعوديان ؟
5. هل تستخدم الإنترنت باستمرار ؟

نرغب من اسئلة هذا الاستبيان في معرفة السلوكيات الغذائية لطفلك، يرجى قراءة الجمل التالية وتحديد اجابة واحدة فقط لكل جملة حيث يفترض ان هذه الخيارات تحدد (كيف يشعر طفلك تجاه تجربة الاطعمة الجديدة ؟) ، من المهم أن تتذكر أنه لا يوجد إجابة خاطئة أو صحيحة لهذه الأسئلة ، لأن الهدف من هذه الاسئلة هو الحصول على إجابات تعكس الواقع بشكل دقيق.
اذا كان لديك اكثر من طفل اعمارهم ما بين 2-6 سنوتا, يرجى الاجابة نء الاسئلة لطفل واحد منهم فقط

		لا يشبه حال طفلي أبداً	نوعاً ما لا يشبه حال طفلي	لا يشبه ولا يتعارض مع حال طفلي	نوعاً ما يشبه حال طفلي	يشبه حال طفلي إلى حد كبير .
1	عندما لا يحب طفلي طعاماً ما ، فإنه لن يقوم بتجربته مرة أخرى	□	□	□	□	□
2	طفلي نادراً ما يحب الأطعمة الجديدة من أول تجربة	□	□	□	□	□
3	طفلي بشكل عام لا يحبذ إلا أنواع قليلة من الأطعمة	□	□	□	□	□
4	طفلي لديه توجه حاد تجاه الأطعمة إما أن يحبها بشكل كبير أو يكرها بشكل كبير	□	□	□	□	□
5	طفلي يميل إلى التصرف بسلبية تجاه الأطعمة الجديدة	□	□	□	□	□

6- ماهو جنس طفلك
1- ذكر
2-انثى

7- فضلاً اختر الصورة المناسبة من المجموعة أدناه التي تطابق صورة طفلك إلى حد كبير



7	6	5	4	3	2	1

الرجاء كتابة الرقم اللذي تم اختياره من مجموعه الصور ألاعه والتي تطابق صورة طفلك لحد كبير

الاسئلة التالية تتعلق بكيف تطعم طفلك

		أبداً	نادراً	بمعدل نصف الوقت	معظم الوقت	دائماً
8	عندما يكون طفلك في المنزل ، ما معدل كونك مسؤولة بشكل مباشر عن إطعامه (ـها) ؟	◯	◯	◯	◯	◯
9	ما معدل كونك مسؤولـة عن تحديد كميات الأكل لطفلك ؟	◯	◯	◯	◯	◯
10	ما معدل كونك مسؤولـة عن تحديد ما إذا كان طفلك قد تناول النوع المناسب من الطعام ؟	◯	◯	◯	◯	◯

الرجاء الاجابة على هذه الاسئلة مع الاخذ في الاتعبار الطريقة التي تتبعها في اطعام طفلك

	لا أوافق	نوعاً ما لا أوافق	محايد	نوعاً ما أوافق	أوافق

11	لا بد أن أتأكد من أن طفلي لا يتناول كميات كبيرة من الحلويات بما في ذلك (الحلوى و الايس كريم والكيك والمعجنات)	○	○	○	○	○
12	لا بد أن أتأكد من أن طفلي لا يتناول كميات كبيرة من الأطعمة الغنية بالدهون	○	○	○	○	○
13	لا بد أن أتأكد من أن طفلي لا يتناول كميات كبيرة من الأطعمة التي يفضلها	○	○	○	○	○
14	أنا (اتعمد) إبعاد بعض الأطعمة عن متناول يد طفلي	○	○	○	○	○
15	أنا أقدم بعض الأطعمة كالحلويات والايس كريم والكيك والمعجنات كمكافأة لطفلي على حسن أدبه	○	○	○	○	○
16	أنا أقدم لطفلي طعامه المفضل مقابل حسن الأدب والتصرف	○	○	○	○	○
17	ينبغي أن يأكل طفلي الطعام الذي أقدمه له في الطبق كاملاً	○	○	○	○	○
18	أنا أحرص بشكل خاص أن يأكل طفلي كمية كافية من الطعام	○	○	○	○	○
19	حتى لو قال طفلي أنه ليس جائع فسأحاول أن أجعله يأكل	○	○	○	○	○
20	إن لم أقم بضبط سلوكيات طفلي الغذائية فسوف يتناول الكثير من الطعام الذي يشتهيه ويفضله	○	○	○	○	○
21	إن لم أقم بضبط سلوكيات طفلي الغذائية فسوف يتناول الكثير من الوجبات السريعة	○	○	○	○	○
22	اذا لم اقم بضبط سلوكيات طفلي الغذائية فسوف يأكل أقل مما يكفي	○	○	○	○	○

الرجاء الاجابة على هذه الاسئلة مع الاخذ في الاعتبار عدد المرات التي تتابع فيها الطعام اللذي يأكله طفلك

		أبداً	نادراً	أحياناً	غالباً	دائماً
23	ما مقدار متابعتك لسلوكيات طفلك الغذائية المتعلقة بتناول الحلويات (الحلوى والايس كريم والفطائر والمعجنات) ؟	○	○	○	○	○
24	ما مقدار متابعتك لسلوكيات طفلك الغذائية المتعلقة بتناول الوجبات الخفيفة كرقائق البطاطس ومنتفخات الجبنة (الفش فاش) ؟	○	○	○	○	○
25	ما مقدار متابعتك لسلوكيات طفلك الغذائية المتعلقة بتناول الأطعمة الغنية بالدهون ؟	○	○	○	○	○

الرجاء الاجابة على هذ الاسئلة مع الاخذ في الاعتبار مدى قلقك واهتمامك بطعام طفلك ووزنه

		غير قلقـة	قلقـة قليلاً	قلقـة	قلقـة إلى حد ما	قلقـة جداً
26	عندما تكونين بعيدة عن طفلك إلى أي مدى تشعرين بالقلق من أن يتناول كمية كبيرة من الطعام فوق حاجته؟	○	○	○	○	○
27	إلى أي مدى تشعرين بالقلق من أن يحاول ابنك/ابنتك اتباع نظام حمية للمحافظة على وزنهم ؟	○	○	○	○	○
28	إلى أي مدى تشعرين بالقلق من أن ابنك/ابنتك قد يصبح سمين ؟	○	○	○	○	○

الآن سنسألك بعض الأسئلة التي تتعلق بطفولتك

		أقل من الوزن المناسب بكثير	أقل من الوزن المناسب	طبيعي	سمين	أكثر من الوزن المناسب بكثير
29	عندما كنت طفلـة ما بين السن 2-6 كنت	○	○	○	○	○
30	عندما كنت في سن المراهقة ما بين الاعوام 7-18 كنت	○	○	○	○	○
31	في مرحلة بلوغك المبكرة أي في العشرينات من عمرك كنت	○	○	○	○	○
32	في الوقت الحالي أنت	○	○	○	○	○

ا لآن سنسألك بعض الأسئلة التي تتعلق بطفللك

		أقل من الوزن المناسب بكثير	أقل من الوزن المناسب	طبيعي	سمين (ـة)	أكثر من الوزن المناسب بكثير	غير منطبق
33	طفللك في عامه الأول كان	○	○	○	○	○	○
34	طفلك في بداية مرحلة المشي كان	○	○	○	○	○	○
35	طفلك في مرحلة ما قبل الدراسة كان	○	○	○	○	○	○
36	طفلك أثناء فترة الروضة كان	○	○	○	○	○	○

الاسئلة التالية تتعلق بك:

37- إلى أي منطقة في السعودية تنتمي؟

1- المنطقة الشرقية

2- المنطقة الجنوبية
3- المنطقة الغربية
4- المنطقة الشمالية
5- المنطقة الوسطى

38- بينما كنت تقيم في السعودية ، كنت تعيش في:
1- في المدن
2- في الأرياف
3- ضواحي المدن

39- منذ متى تقيم في الولايات المتحدة ؟

6. أقل من ستة أشهر .
7. من 6 أشهر الى سنة واحدة .
8. من سنة الى 3 سنوات .
9. من 3 سنوات الى 5 سنوات .
10. أكثر من 5 سنوات .

40- في اي اقليم من الولايات المتحدة تقيم حاليا؟
1- الشمال الغربي
2- الجنوب الغربي
3- الوسط الغربي
4- الشمال الشرقي
5- الجنوب الشرقي

41- هل تدرس الآن للحصول على شهادة علمية ؟
1. لا أدرس الآن
2. أدرس الآن للحصول على شهادة جامعية

42- ما هي أعلى درجة علمية حصلت عليها؟

1. الثانوية العامة
2. البكالوريوس
3. الماجستير
4. الدكتوراه
5. لا أحمل شهادة علمية

43- هل تعمل بالإضافة لكونك طالب ؟
1. لا
2. نعم : يرجى ذكر وظيفتك : .....

44- كم معدل دخل العائلة شهريا؟
1- اقل من 3000 ريال
2- من 3000 الى 6000 ريال شهريا
3- من 6000 الى 9000 ريال شهريا

4- من 9000 الى 12000 ريال شهريا
5- من 12000 الى 15000 ريال شهريا
6- من 15000 إلى 20000 ريال شهريا
7- أكثر من 20 الف ريال شهريا

45 - ما هو عمرك؟
____ سنة

46- كم طولك التقديري؟
_____ بالسنتمتر

47- كم وزنك التقديري؟
_____ كيلوغرام

48- إذا كنت حامل ، في أي أسبوع؟

1- أنا لست حامل
2- اناحامل. الأسبوع الـ__

49- كم عدد أطفالك؟
_____

50- هل يذهب طفلك إلى مراكز رعاية أطفال خارج المنزل ؟
1. لا
2. نعم ، فضلاً ماهو نوع المركز (مثال: الروضة - الحضانة...)

51- القرارات المتعلقة بإطعام طفلي عادة تتخذ من قبل؟
1- أنا فقط
2- أنا بشكل أساسي ، ومع ذلك فقد يشترك بعض البالغين من الأقارب والعائلة
3- أنا وعدد من البالغين من الأقارب والعائلة بشكل متساوي .
4- غيري من الأقارب معنيون بهذه القرارات بشكل أساسي ، وبمشاركة مني
5- غيري من الأقارب معنيون بهذه القرارات بشكل أساسي ، ودون مشاركة مني

من يتخذ القرارات التالية في منزلك ؟		انتِ تلعبين دوراً هاماً في مثل القرارات	انتِ لا تلعبين دوراً هاماً هذه القرارات
52	من الذي يحدد نوع الأطعمة المراد طبخها ؟	◯	◯
53	من الذي يحدد الأطعمة التي تقدم للأطفال ؟	◯	◯
54	من الذي يحدد الأطعمة التي تقدم للكبار ضمن وجبات الطعام ؟	◯	◯

55	من الذي يحدد القوانين والممارسات التي تختص بإطعام الأطفال ؟	○	○
56	من الذي يقوم بتوفير الرعاية الصحية لك؟	○	○
57	من الذي يقوم بشراء المجوهرات أو غير ذلك من الاحتياجات المنزلية؟	○	○
58	من الذي يحدد بقاءك أو ذهابك مع الأهل والاقرباء؟	○	○

الرجاء ادخال البريد الالكتروني الخاص بك لكي تحظى بفرصة الفوز بواحدة من 4 بطاقات أمازون بقيمة 25 دولار .

Appendix F: Output

*Table 1: Mothers Report of Weather Their Children Have Negative Reaction to Food**

	Not at all %(n)	Somewhat %(n)	Neither %(n)	Somewhat %(n)	Very %(n)
Once my child has decided he/she doesn't like a food, he/she won't even try it again.	3.7% (4)	18 (19)	8.3% (9)	36.1% (39)	32% (34)
My child rarely likes new foods the first time he/she tries them.	11% (12)	20% (22)	10% (11)	31% (33)	26% (28)
My child tends to dislike many kinds of food.	10% (11)	18% (19)	7% (7)	27% (29)	35% (38)
My child has strong likes and dislikes in food.	7% (8)	17% (18)	21% (23)	20% (22)	32% (34)
My child tends to react negatively to new foods.	23% (25)	15% (16)	15% (16)	32% (34)	13% (14)

*Rowe, D. C. & Plomin, R. (1977). Temperament in early childhood. Journal of Personality Assessment, 41, 150-156.

Table 2: Mothers' Reporting Their Responsibility of Feeding Their Children

	Never %(n)	Seldom %(n)	Half of the time %(n)	Most of the time %(n)	Always %(n)
When your child is at home, how often are you responsible for feeding her/him?	-	6% (6)	19% (20)	36% (39)	39% (42)
How often are you responsible for deciding what your child's portion sizes (amount of food) are?	1% (1)	8% (9)	20% (22)	34% (37)	35% (38)
How often are you responsible for deciding if your child has eaten the right kind of foods?	1% (1)	10% (11)	15%(16)	37% (40)	36% (39)

Table 3: Reporting Of Mothers' Level of Restrictions

	Disagree %(n)	Slightly disagree %(n)	Neutral %(n)	Slightly agree %(n)	Agree %(n)
I have to be sure that my child does not eat too many sweets (candy, ice cream, cake or pastries).	1% (1)	5% (5)	10% (11)	26% (28)	57% (61)
I have to be sure that my child does not eat too many high-fat foods.	1%(1)	7% (7)	14% (15)	42% (45)	36% (39)
I have to be sure that my child does not eat too much of her/his favorite foods.	8% (9)	13% (14)	31% (33)	28% (30)	18% (19)
I intentionally keep some foods out of my child's reach.	11% (12)	11% (12)	9% (10)	28% (30)	40% (43)
I offer sweets (candy, ice cream, cake, pastries) to my child as a reward for good behavior.	7% (7)	12% (13)	15% (16)	29% (31)	37% (40)
I offer my child his/her favorite foods in exchange for good behavior.	6% (6)	15% (16)	21% (23)	27% (29)	30% (32)
If I did not guide or regulate my child's eating, she/he would eat too many junk foods.	21% (23)	14% (15)	22% (24)	24% (26)	18% (19)
If I did not guide or regulate my child's eating, she would eat too much of her favorite foods.	3% (3)	7% (7)	9% (10)	19% (20)	34% (37)

Table 4: Reporting of Mothers' Level of Pressure

	Disagree %(n)	Slightly disagree %(n)	Neutral %(n)	Slightly agree %(n)	Agree %(n)
My child should always eat all of the food on her/his plate.	11% (12)	11% (12)	19% (20)	20% (22)	38% (41)

I have to be especially careful to make sure my child eats enough.	13% (14)	7% (6)	15% (16)	24% (26)	40% (43)
If my child says ``I'm not hungry", I try to get her/him to eat anyway.	6% (6)	23% (25)	16% (17)	33% (36)	21% (23)
If I did not guide or regulate my child's eating, she/he would eat much less than she/he should.	-	7% (7)	14% (15)	23% (25)	54% (59)

Table 5: Reporting of Mothers' Level of Monitoring

	Never	Rarely	Sometimes	Mostly	Always
How much do you keep track of the sweets (candy, ice cream cake, pies, pastries) that your child eats?	2% (2)	2% (2)	19% (20)	38% (41)	38% (41)
How much do you keep track of the snack food (potato chips, Doritos, cheese puffs) that your child eats?	2% (2)	5% (26)	24% (26)	34% (37)	34% (37)
How much do you keep track of the high-fat foods that your child eats?	3% (3)	7% (8)	27% (29)	33% (36)	28% (30)

Table 6: Reporting of Mothers' Level of Concern

	Unconcerned	A little concerned	Concerned	Fairly concerned	Very concerned
How concerned are you about your child eating too much when you are not around her/him?	53% (57)	19% (21)	8% (9)	11% (12)	7% (7)
How concerned are you about your child having to diet to maintain a desirable weight?	66% (71)	8% (9)	9% (10)	7% (8)	7% (8)
How concerned are you about your child becoming over weight?	50% (54)	21% (23)	6% (6)	10% (11)	9% (10)

Table 7: Reporting of Mothers Perception of Their Weight

	Markedly underweight %(n)	Underweight %(n)	Normal %(n)	Overweight %(n)	Markedly overweight %(n)
During your Childhood (2-6 years of age) you were	3% (3)	19% (21)	69% (74)	4% (4)	3% (3)
During your adolescence (7-18 years of age) you were	4% (4)	18% (19)	55% (59)	19% (20)	2% (2)
During your early adulthood (your 20s) you were	1% (1)	14% (15)	66% (71)	14% (15)	3% (3)
At the present time you are	1% (1)	7% (8)	57% (62)	23% (25)	8% (9)

Table 8: Reporting of Mothers' Perception of Their Child Weight

	Markedly underweight %(n)	Underweight %(n)	Normal %(n)	Overweight %(n)	Markedly overweight %(n)	Not Applicable %(n)
Your child during the first year of life was	3% (3)	12% (13)	68% (73)	12% (13)	1% (1)	1% (1)
Your child as a toddler was/is	2% (2)	18% (19)	73% (79)	4% (4)	-	1% (1)
Your child as a preschooler was/is	3% (3)	21% (23)	60% (64)	4% (4)	-	4% (4)
Your child as a kindergartener is	4% (4)	19% (21)	56% (60)	2% (2)	-	7% (7)

Note: *(Table 2-8) 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), 201-10.

*Table 9: Reporting of Mothers' Level of Autonomy**

Who makes the following decisions in your household:	Respondent plays a role %(n)	Respondent doesn't play a role %(n)
What items to cook?	88% (95)	8% (9)
The foods that child(ren) are served?	91% (98)	6% (6)
The foods that adults are served at mealtimes?	85% (92)	11% (12)
Rules and practices for feeding children?	86% (93)	10% (11)
Obtaining health care for yourself?	88% (85)	16% (17)
Purchasing jewelry or other major household items?	56% (60)	40% (43)
Your going and staying with parents or siblings?	75% (81)	21% (23)

Note: *Shroff, M., Griffiths, P., Adair, L., Suchindran, C., & Bentley, M. (2009). Maternal autonomy is inversely related to child stunting in Andhra Pradesh, India. Maternal & Child Nutrition, 5(1), 64-74.