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NUTRITIONAL BELIEFS AND PRACTICES OF ARABIC SPEAKING MIDDLE
EASTERN MOTHERS

BY

MAISAA AL-BKERAT

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

IN

NURSING

UNIVERSITY OF RHODE ISLAND

2019

DOCTOR OF PHILOSOPHY DISSERTATION
OF
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2019

ABSTRACT

Childhood obesity is recognized as an important health problem in the United States. Researchers have identified culture and acculturation as major factors influencing obesity across several ethnic groups, although little is known about the historically invisible and vulnerable population of those identifying as Arabic speaking individuals from Middle Eastern countries. In Arabic culture, mothers are responsible for creating and maintaining a home environment that fosters healthy eating behaviors among family members including the children. It is assumed, therefore, that mothers in Arabic culture play an essential role in preventing childhood obesity.

The aim of this study was to explore perceptions of motherhood and childhood nutritional beliefs and practices of Arabic speaking Middle Eastern mothers now living in the US. The long term aim is to provide nurses with the knowledge needed to enhance their practice as community/public health nurses in school and community health settings. An inductive, descriptive, qualitative research design, including 2 semi structured in-depth interviews with each of 12 mothers from Arabic speaking Middle Eastern countries (Syria, Palestine, Jordan, Lebanon, and Saudi Arabia). Age range was 28-51. Six mothers finished high school, four had a bachelor degree, one had an associate degree, and one had not finished high school. Years as a mother ranged from 10-30 years. All the mothers were Muslims. Research questions were: What are Arabic speaking Middle Eastern women's perceptions of motherhood in relation to raising children and have these changed after moving to the US? What are the womens' perceptions of healthy children, and their nutritional beliefs and practices

related to children and have these changed after moving to the US? What enablers and constraints have the women encountered in trying to foster their nutritional practices while living in the US?

The women in this study all agreed that motherhood involves caring responsibly, and feeling warmth, kindness and love for their children, as well as most wanting their children to be successful. In addition they agreed that their perceptions of motherhood were affected by the birth of their first child and by living in the US, including new responsibilities and/or a deeper and more expansive level of responsibility. The essential component of these Middle Eastern Arabic speaking mothers' nutritional beliefs is that food and family is central to everyday life.

Enablers that helped this group of women to practice their nutritional beliefs included:

(1) mother's knowledge and communication skills; (2) children's familiarity with Arabic tradition from a very young age; (3) access to families with a similar cultural background and (4) access to desired items of food and ingredients. Constraints that restricted the mothers ability to foster their nutritional practices included: (1) mother's inability to cook; (2) inability to eat together as family; (3) frequent availability of snacks at home; (4) negative influence of family members; (5) negative influence of peers in school; (6) long distance to Arabic food stores; and (7) the high cost of organic food.

ACKNOWLEDGMENTS

All praises to Allah for granting me the health, strength and patience to complete this dissertation, and achieve my dream. First and foremost, I would like to gratefully and sincerely thank Dr. Donna Schwartz-Barcott and Dr. Diane Martins who helped me and guided me to complete this dissertation; they were more than generous with their expertise and precious time. Thanks for your guidance, inspiration, support, and mentorship throughout my academic journey. I am very grateful to have such expertise, and such inspiring advisors, I will miss our meetings and discussions. I have learned so much from working with you, and I will carry those lessons with me for years to come.

Special thanks to Dr. Andrea Rusnock, the external committee member, and Dr. Brian Quilliam, the defense chair, for their comments and feedback.

Thanks to the Nursing Foundation of Rhode Island and Connecticut Nurses' Foundation for a research grant.

A very special thank you to all of my study participants for generously and openly sharing their experiences and perceptions with me.

DEDICATION

الحمد لله الذي علم بالقلم علم الإنسان ما لم يعلم، الحمد لله المنان الملك القدوس السلام، الحمد لله الذي بنعمته تتم الصالحات، قدر الامور فاجراها على احسن نظام، ما شاء الله كان وما لم يشأ لم يكن، الحمد لله الذي أعانني على انجاز هذه الرسالة.

من أعماق قلبي ، أهدي رسالتي هذه لوالدي العزيز عيسى البكيرات وإلى والدتي العزيزة وفاء البكيرات ، الكلمات عاجزة عن وصف عظمة الحب الذي أحمله لكم ، وأشكركم على دعائكم وحبكم وتشجيعكم لي. دعائي لكم بطول العمر و حسن العمل و بلوغ الجنان.

و أقدم خالص امتناني وشكري ل محمد خير عواودة وزوجته زهور الرواشدة على كل دعم قدموه لمساعدتي على إتمام هذه المرحلة. شكرًا لكما على الدعم المالي و المعنوي، شكرًا لكما على الاهتمام و الرعاية الدائمة لأطفالي ، شكرًا لكما على أنكما أفضل "عمو و سلول" في حياة أطفالي، كلمات الشكر لا توفيكم حقكم. جزاكم الله كل خير و جعله في ميزان حسناتكم.

كما أقدم خالص شكري و امتناني لعمتي الحاجة أم سامر على دعائها ودعمها ورعايتها لأبنائي. دعائي لك بطول العمر و حسن العمل و بلوغ الجنان.

شكر خاص واعتذار لأطفالي الرائعين ، لين وعمر وريان. شكرا لدعمكم بكلماتكم الطفولية الجميلة ، أنا آسفة جدا على الوقت الذي لم أقضيه معكم، أحبك كثيرا.

أتوجه بخالص شكري إلى إخواني وأخواتي الاعزاء والغاليين على قلبي، أمانى وإسماعيل ومصطفى ورهف، على دعائهم ودعمهم.

إن قلت شكراً فإن شكري لن يوفيكم، إكمال هذه الرسالة لم يكن ممكناً دون تشجيعكم ودعمكم.

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Chapter I

Introduction

In the US, childhood obesity has been referred to as an ‘epidemic,’ one which has raised concerns about its long term physical and psychosocial consequences (Wang & Beydoun, 2007, Centers for Disease Control and Prevention, 2016a). The Centers for Disease Control and Prevention (CDC) reported the prevalence of obesity covering 2015–2016 to be as high as 18.4% among school age children from 6- to 11-years-old (Centers for Disease Control and Prevention, 2018a). Since 1960 the CDC’s National Health and Nutrition Examination Survey (NHANES) has been used to track childhood obesity across ethnic groups (Ogden, Carroll, Kit, & Flegal, 2014). Researchers have used this national source of data to establish the importance of culture and acculturation as major factors influencing obesity across several ethnic groups (Dixon, Peña, & Taveras, 2012; Garcia et al., 2012; New, Xiao, & Ma, 2013). Other researchers have described how cultural beliefs, perceptions, and nutritional practices can influence levels of obesity. For example, in some cultures, mothers may perceive thinness as a reflection of poor health and malnutrition. In the Latino culture having a “skinny” child is often seen as a sign of bad parenting and poor health leading to a preference for a chubby child (Lindsay, Sussner, Greaney, & Peterson, 2011). Also, in the Chinese culture obese children are seen as healthier than thin children, and in one study it was reported that Chinese parents in the US believed that

one of the ways that they express love for their children is providing food for them (Cheah & Van Hook, 2012).

This kind of information is being used in nursing to provide culturally congruent nursing care, a fundamental standard and requirement for nursing practice (Leininger, 1988; Joint Commission on Accreditation of Healthcare Organizations [JCAHO], 2010; Institute of Medicine [IOM], 2011). Unfortunately, there is very little scientific based information or understanding of nutritional beliefs and practices of Arabs living in the US for nurses to draw upon. This is due in part to the difficulty of identifying Arabs as belonging to a single ethnic group. The Middle Eastern population has not been separated out in the US government census, but instead has been combined with ‘others’ under the general racial and ethnic classification as “white.”

Prevalence of childhood obesity varies across ethnic groups (Ogden et al., 2014). The reasons for this variation are complex and may include differences in cultural beliefs and practices, level of acculturation, and perceptions of body image, media, sleep, and physical activity. In addition, this variation in childhood obesity may develop as a consequence of the socio- and environmental context in which families live (Dixon et al., 2012; Peña, Dixon, & Taveras, 2012).

Parents’ food selection, home environment, and life style related to physical activity, and sedentary behaviors, influence the children’s development of habits that contribute to normal weight or to being overweight and obese (Lindsay et al., 2011).

Therefore nurses should be aware of different cultural perceptions regarding body image and food selection preferences in order to apply effective educational approaches based on cultural beliefs (Hackie & Bowles, 2007).

Culturally, motherhood is very important to Arabic speaking women. A major element of motherhood involves meeting the nutritional needs of children and their families (Kulwicki & Ballout, 2013). In the Arab culture mothers are responsible for creating and maintaining a home environment that fosters healthy eating behaviors among family members including the children. The majority of Arabic speaking Middle Eastern mothers practice the Muslim faith, which also has a strong emphasis on caring for family members. No research, however, to date has been found that focuses specifically on Arabic speaking mothers from the Middle East in the US and their nutritional beliefs and practices. This may be due to the fact that “Arabs in the United States have experienced historical and persistent systemic stigma and discrimination” (Abboud, Chebli, & Rabelais, 2019, p.1580).

There is a lack of research that focuses specifically on the Arabic speaking population in the US, especially in relation to mothers who play such an important role in caring for family members. Therefore, there is a need to have a more in depth understanding of perceptions of motherhood in relation to raising children, as well as mothers’ nutritional beliefs and practices related to children, and whether these have changed after moving to the US. This study will address these questions through interviews with Arabic speaking Middle Eastern mothers.

The Robert Wood Johnson Foundation (RWJF) and Healthy People 2020 (US Office of Disease Prevention and Health Promoting) have focused on health and culture in order to achieve health equity. The RWJF announced a “vision of working with others to build a Culture of Health that gives everyone in America an equal opportunity to live the healthiest life they can” (RWJF, 2018, p.1). One of the Healthy People 2020 recommendations aimed at achieving health equity is to increase the availability of and access to culturally sensitive health care providers (Healthy People 2020, 2018). The findings from this study will be used to enhance the cultural sensitivity of nurses working with Arabic speaking mothers from Middle Eastern countries. This first of its kind study will provide nurses with a better understanding of this population in regard to Middle Eastern Arabic speaking mothers’ perceptions of motherhood, their nutritional beliefs and practices related to children, and how these may have changed since migration to the US. This culturally based knowledge is essential for community health nurses working with this population to assess nutritional practices and prevent or address childhood obesity.

Research Questions

The aim of this study is to explore the perception of motherhood and childhood nutritional beliefs and practices of Arabic speaking Middle Eastern mothers now living in the United States. The following research questions were used to guide this study:

1. What are Arabic speaking Middle Eastern women's perceptions of motherhood in relation to raising children and have these changed after moving to the US?
2. What are the women's perception of healthy children, and their nutritional beliefs and practices related to children and have these changed after moving to the US?
3. What enablers and constraints have the women encountered in trying to foster their nutritional practices while living in the US?

An inductive, qualitative, descriptive research design including semi structured in-depth interviews with twelve mothers from Arabic speaking Middle Eastern countries was used to address these questions.

Significance and Relevance of the Study for Knowledge Development in Nursing

Culture has been a concern of nurse researchers since the 1960s, beginning with the seminal work of Madeleine Leininger, a nurse anthropologist who established the field of transcultural nursing. The ultimate goal of Leininger's theoretical and empirical work was to promote culturally congruent nursing care, which she recognized "required in-depth understanding of different cultures of the world ..."

(Leininger, 1988, p. 155). As Leininger explained "Nursing needed to shift from a largely ethnocentric and unicultural position to a multicultural knowledge base in order to be relevant and effective in working with people worldwide. Nurses needed to discover care knowledge of diverse cultures and to use this knowledge to guide

their teaching, clinical practices, curricular work, consultation, and research” (Leininger, 1997, p.43).

Subsequently, Afaf Meleis, a renowned nurse researcher, focused on the health care of immigrants and the effect of transition on individuals’ biological, psychological, sociological, and cultural needs, and health behaviors (Meleis, 1997). According to Meleis (1997), individuals in transition share some commonalities: being “disconnected from usual social network and social support system,” experiencing a “temporary loss of familiar reference points or significant objects,” having “new needs that may arise,” or “old needs that remain unmet,” and “old sets of expectations no longer congruent with changing situation” (Meleis, 1997, p. 109). It is important to study transition in nursing to facilitate a smooth transition, maintain homeostasis and enhance adjustment.

Understanding culture can have a significant effect on providing care in a way that meets the needs of patients from different cultures (Marzilli, 2014). Understanding culture depends on knowing about the culture, for example, knowing about the different roles women play. Knowing about the stresses, strains, and satisfactions of these roles are important for developing an understanding of why and when women choose to seek health care for themselves and for their families and how they determine and try to maintain or enhance their health (Meleis, 1997).

Nurses play an essential role in promoting good health. They are in a significant position to interact with patients and families across healthcare and

community-based settings, and can assist in the prevention and treatment of childhood obesity (Rabbitt & Coyne, 2012). “Professional nurses witness first-hand the effects of childhood obesity as they treat children in emergency rooms, primary care offices, school clinics, and other settings. Preventing disease and promoting healthy lifestyles are standards of nursing practice— fundamental to almost everything nurses do in patient and community education” (Jones, 2010, p.1). According to Jones (2010), nurses can contribute to the management and prevention of childhood obesity through educating, advocating, and partnering. The professional nurse should educate parents, children, families, and communities about the impact of childhood obesity on health. Nurses need to continue to encourage and support healthy eating habits and adequate physical activity. Nurses have been advocating that childhood obesity be addressed. They have been supporting several policy recommendations such as those related to funding school wellness programs, requiring federal nutritional standards on all foods served in schools and establishing recreational facilities in underserved areas to provide places for physical activity. As an example of partnering, the American Nurses Association (ANA) partnered with the White House in supporting the “Let’s Move!” initiative, launched by First Lady Michelle Obama to reverse the trends of childhood obesity in the United States (Jones, 2010). It consists of four components: healthy choices, healthy schools, physical activity, and access to affordable foods. It is a partnership involving parents, schools, communities, health care providers, and

food and beverage industries, and represents a multi-dimensional approach to promote healthy weight.

One of nurses' responsibilities in addressing childhood obesity is to identify children who have excess weight, and discuss the potential health impacts of this with families. The nurse should explain the child's growth pattern and link it to health in a way that is meaningful for the parents. In addition, nurses should assess motivation and willingness to make lifestyle changes within the family (Mekechuk, Tjepkema Baron, & Lafrance, 2014). Mekechuk et al. (2014) provided an example of how the nurse could start such a conversation with a family, "if a child's BMI is at the 88th percentile, you might say "It looks like your child's weight is slightly high compared to their height." Because BMI percentile is only an indicator of potential health problems, it is important to explain why it may be a potential health concern. An effective explanation may be: "It is important to monitor growth to make sure a child is not gaining more weight than is needed for their height, as extra weight may lead to health problems." (Mekechuk et al., 2014, p. 29)

Conceptual Domains in Nursing

Kim (2010) identified culture as a concept in the environmental domain, while obesity was seen as a problematic and particularistic concept in the client domain. The domain of environment is commonly used to understand and explain phenomena in the client, client-nurse, and practice domains. Environment is composed of physical, social, and symbolic components. Kim identified culture as one component

of the symbolic environment. According to Kim (2010), the symbolic environment consists of: a) ideational elements such as ideas, values, beliefs, history, and knowledge; b) normative elements such as rules, laws, expectations, and constraints; and (c) institutional elements such as roles, organizations, institutions, society, and culture. Culture is seen as the basis for understanding disease and illness.

According to Kim (2010), the client domain, from the nursing perspective, refers to the focus on human living, health and behaviors related to health. Client refers to human beings mainly as individuals but also as dyads and groups, who are the recipients of nursing care. The reason for focusing on the client is to (a) attain an understanding about the nature of phenomena present in the client, (b) gain knowledge regarding the client's problems, (c) formulate generalized notions about why such problems exist in order to deliver the needed and most effective nursing care to the client.

Kim proposed 3 types of concepts in the client domain for study from a nursing perspective: (1) essentialistic concepts, (2) problematic concepts, and (3) health care experiential concepts. Essentialistic concepts refer to phenomena that are essential characteristics in the client and important to nursing and human health in general. Also essentialistic concepts refer to normal and fundamental characteristics and processes that human beings experience in usual and normal states of growing and living. Body-image is an example of an essentialistic concept related to this study. Also, concepts that refer to phenomena of human growth and development are

considered essentialistic concepts, such as maturation and bonding. Problematic concepts refer to the phenomena that are present in humans as deviations from usual and normal patterns of healthy living, and these concepts represent phenomena that need nursing intervention, such as obesity, chronicity and depression.

As noted above, Kim identified obesity as a problematic and particularistic concept in the client domain. Therefore, obesity as a concept is a phenomenon that deviated from the normal and usual pattern of healthy living and to describe this concept the focus is on parts of the human being, for example measuring of height and weight, as well as nutritional status. From this perspective, it is the nurse who sees this phenomenon as problematic and sees the person in need of some kind of intervention. A parent must also see the obesity as problematic in order for any nursing intervention to be effective. In the case of childhood obesity, this study will enhance nursing knowledge and practice related to one cultural group transitioning through acculturation in the USA, specifically Arabic speaking Middle Eastern mothers, as they attempt to meet the nutritional needs of their school age children.

The findings of this study add information and insight concerning nutritional beliefs and practices of Arabic speaking Middle Eastern mothers. Nurses can use this knowledge to apply effective communication and educational approaches while caring for children and mothers from this culture. The following chapter will include a review of relevant literature related to childhood obesity, and the role of culture and acculturation and their relationship to childhood obesity. This will be followed by

chapter three which will focus on the method that will be used in this study. The findings in relation to each research question, and discussion are presented in chapter four. The final chapter includes a summary, conclusion, and implications.

Chapter II

Literature Review

In the USA, the percentage of obesity among children and adolescents has more than tripled since the 1970s (Centers for Disease Control and Prevention, 2018a). By 2018, the prevalence for children and adolescents aged 2-19 years was being reported at 18.5%, affecting about 13.7 million children and adolescents. Obesity was 13.9% among 2- to 5-year-olds, 18.4% among 6- to 11-year-olds, and 20.6% among 12- to 19-year-olds. As noted earlier culture and acculturation are major factors influencing obesity across ethnic groups (Dixon et al., 2012; Garcia et al., 2012; New et al., 2013). For example, childhood obesity varied from 25.8% in Hispanics, to 22.0% in Non-Hispanic Blacks, to 14.1 % in non-Hispanic whites and 11% in Non-Hispanic Asians (Centers for Disease Control and Prevention, 2018a).

The long term aim of this study is to better understand how Arabic culture and the process of acculturation may influence childhood obesity. In order to gain this understanding one must first delve deeply into the nutritional practices of Arabic speaking mothers whose role is to manage the nutritional needs of the family. Therefore, exploring women's beliefs about motherhood and their nutritional practices in the country of origin and the USA, as well as enablers and constraints they experience in this process becomes a necessary first step, which is the focus of this study.

The first half of this chapter focuses on childhood obesity, its definition and measurement, its multiple causes and consequences, as well as current approaches to prevention. In the second half the focus shifts to the role of culture and acculturation beginning with definitions of culture, acculturation, and their relationship to childhood obesity.

Definition of Childhood Obesity

Overweight and obesity are defined as "abnormal or excessive fat accumulation that presents a risk to health" (World Health Organization, 2018a, p. 1). Body mass index (BMI) has become the most common indicator used to define underweight, normal weight, overweight, and obesity in adults (Han, Lawlor, & Kimm, 2010). However, BMI cannot distinguish between body fatness, muscle mass, and skeletal mass (Freedman & Sherry, 2009). In children, effects of age, sex, puberty, and race or ethnicity on growth also make classification difficult (Han et al., 2010).

One of the most important advantages of using BMI is that it is derived from measurements of height and weight, which are the most common anthropometric dimensions collected on children worldwide. Also, height and weight measurements are noninvasive, inexpensive to obtain, and relatively easily understood by health practitioners, clients, and families (Himes, 2009).

BMI is usually evaluated according to a reference data set or a growth chart, therefore the main challenge to the investigator is to choose an appropriate reference

data set and growth chart based on the purpose for which the BMI will be used. In the literature, there are three major growth charts, CDC, WHO, and the International Obesity Taskforce (IOTF). According to Rolland-Cachera (2011), in 2000 in the USA, the CDC first published sex-specific BMI for age growth charts. Generally, these charts are based on nationally representative data. In 2006 new WHO standards were released for assessing the growth of children from birth to five years of age. These were created from samples of healthy breastfed children from various countries around the world. In 2007 the WHO developed references for five- to 19-year-olds based on data from surveys in the USA. In 2000, IOTF developed BMI percentiles constructed on the basis of six nationally representative datasets to define childhood overweight and obesity. The IOTF international standard growth chart allows global comparison of prevalence (Cole, Bellizzi, Flegal, & Dietz, 2000).

The terminology used to define the different levels of BMI varies according to the reference data set. The terms “at risk of overweight,” “overweight,” and “obesity” can be found in the literature, but the terms may not define the same level of adiposity. With these differences in references data sets and definition of terms, investigators need to be precise in describing the definition and the reference data set used in any research study (Rolland-Cachera, 2011).

The major indicator of overweight according to the CDC is a BMI at or above the 85th percentile and below the 95th percentile for children and teens of the same age and sex (Centers for Disease Control and Prevention, 2016b). Obesity is

designated as a BMI at or above the 95th percentile for children and teens of the same age and sex (Centers for Disease Control and Prevention, 2016b). For the IOTF, BMI cutoff points for overweight and obesity by gender between two and 18 years were defined to pass through BMI values of 25 and 30 kg/m² at age 18 (Cole et al., 2000). According to WHO, overweight for children under five years of age “is weight-for-height greater than two standard deviations above WHO Child Growth Standards median; and obesity is weight-for-height greater than three standard deviations above the WHO Child Growth Standards median.” For children between 5–19 years old, “overweight is BMI-for-age greater than 1 standard deviation above the WHO Growth Reference median; and obesity is greater than 2 standard deviations above the WHO Growth Reference median” (World Health Organization, 2018b).

In a concept analysis of childhood obesity, Montoya and Lobo (2011) provided important points related to this concept, including that (1) there is no one classification system for childhood obesity that is universally accepted, (2) the classification of overweight and obesity has varied over the years, and (3) there is no clear cutoff points defining overweight and obesity. In addition, it is very important to involve a parent when dealing with childhood obesity, since parents must first be aware that obesity is a problem and notice that their child is obese. Lastly, as pointed out by Montoya and Lobo overweight and obesity are terms that are often used interchangeably when they are in fact different levels. For further information on how childhood obesity is diagnosed see appendix A.

Childhood Obesity: Causes, Consequences, and Prevention

The main cause of obesity and overweight is an energy imbalance between calories consumed and calories expended (Daniels et al., 2005; World Health Organization, 2018c). Childhood obesity is a complex condition that is affected by the interaction of many factors including genetics, nutritional intake, level of physical activity, and social and physical environment factors (Daniels et al., 2005; Gurnani, Birken, & Hamilton, 2015; Han et al., 2010).

According to World Health organization (2018c), the increased prevalence of childhood overweight and obesity worldwide is due to several factors including the global shift in diet to the consumption of energy-dense foods that are rich in fat and sugars but low in healthy nutrients such as vitamins and minerals, as well as a movement towards decreased physical activity due to increasing sedentary lifestyles, changing modes of transportation, and increasing urbanization. In addition, increases in childhood obesity are linked to changes in society such as social and economic development and policies in the areas of agriculture, transport, urban planning, the environment, food processing, distribution and marketing, as well as education.

Pathophysiological causes of childhood obesity. Serious symptoms for pathological obesity that need attention and further investigation include the very early age of onset, rapid onset of weight gain, hypogonadism, short stature/ poor linear growth, dysmorphic features, a somatic abnormality, and developmental delay. These

symptoms most frequently are associated with an endocrine or genetic abnormality (Dietz & Robinson, 2005; Gurnani et al., 2015; Speiser et al., 2005)

Endocrine causes. Endocrine diseases can be a cause of childhood obesity, although this is rare, occurring in less than 1% of children and adolescents who are obese (Kumar & Kelly, 2017). The endocrine disorders causing weight gain include hypothyroidism, growth hormone deficiency or resistance, endogenous or exogenous glucocorticoid excess (the use of corticosteroid medication or Cushing syndrome), and pseudohypoparathyroidism (Han et al., 2010; Kumar & Kelly, 2017; Speiser et al., 2005).

Genetic causes. The genetic factor is a major and crucial factor to examine as a cause of obesity (Sahoo et al., 2015). However, it is a combination of genetic and environmental and behavioral factors that most frequently affect weight. Less than 5% of childhood obesity cases result from genetic factors alone (Anderson & Butcher, 2006). Therefore, genetic factors are not the cause of the significant increase in prevalence of childhood obesity (Sahoo et al., 2015). Children with genetic syndromes accompanied with obesity usually have early onset obesity and other physical symptoms such as short stature, dysmorphic features, developmental delay, or intellectual disability (mental retardation), retinal changes, or deafness (Kumar & Kelly, 2017). Genetic syndromes associated with obesity include trisomy 21 syndrome; Prader-Willi syndrome; Albright hereditary osteodystrophy; Cohen syndrome; Bardet-Biedl syndrome; Alstro"ms syndrome; and Wilms tumor, aniridia,

genitourinary anomalies, and mental retardation (WAGR) (Brown, Halvorson, Cohen, Lazorick, & Skelton, 2015). The most common single gene defect found in children with obesity is mutations in the melanocortin 4 receptor (Kumar & Kelly, 2017). Other monogenic disorders include leptin deficiency, leptin receptor mutations, proopiomelanocortin deficiency, and preproconvertase deficiency (Brown et al., 2015). “Children with congenital leptin deficiency are severely hyperphagic, constantly demanding food, with an intense drive to eat, but without any of the clinical features suggestive of the recognized childhood obesity syndromes. They have impaired T-cell mediated immunity thus are at risk of frequent infections and have hypogonadotropic hypogonadism and so fail to undergo pubertal development. A similar clinical picture is seen in children with defects in the leptin receptor” (Lobstein, Baur, & Uauy 2004, p. 40).

As obesity may be influenced by endocrine and genetic causes, some medication and neurological disorders also have an effect (Gurnani et al., 2015; Kumar & Kelly, 2017). Several medications may lead to weight gain such as high-dose, antipsychotic drugs including risperidone and olanzapine, and antiepileptic drugs (Kumar & Kelly, 2017). Central nervous system tumors such as craniopharyngioma located in the hypothalamic area and the surgery to remove these tumors can lead to rapid weight gain as a result of physiological changes including reduced satiety, resistance to insulin and leptin, and enhanced insulin secretion due to autonomic dysregulation (Gurnani et al., 2015).

Lifestyle/Behavioral factors. As noted earlier obesity and overweight result from an energy imbalance between calories consumed and calories expended (World Health Organization, 2018c). Low levels of physical activity, long hours spent watching television, and high consumption of high-calorie foods and sweetened drinks have been linked to obesity (Han et al., 2010). According to Spruijt-Metz (2011), children's food choices over the last several decades have changed from healthy foods such as fruit and vegetables to energy-dense, to refined foods including fast foods and sugary beverages, to food types that contain high sugar. Low fiber might have a strong effect on obesity and related diseases. In a longitudinal study, the role of physical activity, inactivity, and dietary patterns were examined among preadolescents and adolescents (Berkey et al., 2000). The study included 6,149 girls and 4,620 boys within the age range nine to 14. The researchers found that higher caloric intakes, less physical activity, and more time with television/videos/games were associated with increased BMI (Berkey et al., 2000). Jago, Baranowski, Baranowski, Thompson, and Greaves (2005) conducted a study to examine if, diet, physical activity, sedentary behavior, or television watching predicted BMI among three to seven-year-old children. They found a significant positive association between physical activity and television watching with BMI.

Environmental factors. Several environmental factors have affected childhood obesity including intrauterine and postnatal factors, nutrition/feeding behaviors, family factors, and socioeconomic factors (Gurnani et al., 2015; Sahoo et

al., 2015). Environmental features have an influence on physical activity levels. They may encourage or discourage physical activity, such as access to recreational facilities, walkability of the environment, and low neighborhood crime rates (Spruijt-Metz, 2011). Davison and Lawson (2006) conducted a review of the literature to examine associations between the physical environment and physical activity among three to 18 year old children. They found that participation in physical activity is positively associated with the availability of public recreational infrastructure such as access to recreational facilities and schools, and transport infrastructures including the presence of sidewalks, controlled intersections, and access to destinations and public transportation. On the other hand, children's participation in physical activity is negatively associated with a number of roads to cross and traffic density/speed, and local conditions such as crime, and area deprivation.

Prenatal and postnatal factors. There is growing evidence that developmental processes play an important role in developing obesity (Gluckman & Hanson, 2008). Prenatal and postnatal are critical time periods of metabolic and endocrine plasticity and may have an influence in physiological responses to the environment. Therefore fetal and infant environment may increase the risk of obesity and metabolic disorder in later life (Campbell, 2016; Gluckman & Hanson, 2008). This field of research has been known as the developmental origins of health and disease (DOHaD) (Gluckman & Hanson, 2008). The connection between early life environmental factors and later life diseases was established by David Barker, when he found a link between

starvation of pregnant women during the Dutch (hunger winter) of the second world war and increased risk of cardiovascular and metabolic diseases in their children at adulthood (Barker, 2007; Heindel & Vandenberg, 2015). The original focus of DOHaD was on how fetal malnutrition contributes to adult hypertension, obesity, and insulin resistance, however, newer studies have showed a link between fetal over- or under-nutrition and other diseases including immunological, mental health, and reproductive diseases (Heindel & Vandenberg, 2015).

Fetal undernutrition can be a result of maternal undernutrition, maternal smoking, or placental dysfunction from preeclampsia. Prenatal undernutrition leads to fetal growth restriction resulting in a small birth weight for gestational age. Researchers have shown fetal undernutrition is associated with elevated risk of obesity (Campbell, 2016; Gurnani et al., 2015). This effect is due to fetal adaptation to low nutrition supplies that become a mismatch to a postnatal environment in which energy-rich nutritional supplies (Gluckman & Hanson, 2008).

Fetal overnutrition (which leads to large infant birth weight for gestational age) or infant overnutrition can cause obesity in childhood and later life (Campbell, 2016; Gluckman & Hanson, 2008). Risk factors for large infant birth weight for gestational age include maternal diabetes and maternal obesity (Campbell, 2016; Gluckman & Hanson, 2008). Infant overnutrition can be a result of infant overfeeding (Gluckman & Hanson, 2008).

Early postnatal experiences have an important effect on obesity risks.

Exclusive breastfeeding in the first 6 months is associated with a lower risk for later obesity (Arenz, Ruckerl, Koletzko, & von Kries, 2004; Hanson & Gluckman, 2014; Gurnani et al., 2015). On the other hand, increase protein in the infant's diet has been shown as a possible risk for raising of early excess weight gain, and it is possible that bottle-feeding may increase protein consumption in infants (Lobstein et al., 2004).

Rapid weight gain in the first few months of life, is associated with higher rates of childhood obesity and adult cardiometabolic risk (Campbell, 2016; Gurnani et al., 2015). According to Arenz et al. (2004), "possible explanations include behavioral and hormonal mechanisms and differences in macronutrient intake. Higher plasma-insulin concentrations in bottle-fed compared to breast-fed infants could stimulate fat deposition and lead to early development of adipocytes. Bioactive factors in breast-milk might modulate growth factors, which inhibit adipocyte differentiation in vitro. Furthermore, protein intake and amount of energy metabolism is lower in breastfed than in formula-fed infants" (p.1254).

Nutrition/Feeding behaviors. Several nutritional factors are associated with increased rates of childhood obesity. These include early introduction of solid foods (before six months), high caloric food intake during infancy, increased consumption of sweetened drinks such as juice and soda, increased consumption of fast food, eating while watching television, reduced family mealtimes eating together, and lower daily

milk, fruit, and vegetable intake (Gurnani et al., 2015; Han et al., 2010; Speiser et al., 2005).

Infancy is a period of rapid growth, therefore infants in this period are highly susceptible to environmental influences, including feeding. Researchers looking at the development of obesity in infancy have focused on the impact of breastfeeding, bottle feeding, and the timing of introduction of solid foods (Adair, 2008). During the infancy period, parents influence infants' pattern of growth. Aside from the decision to breast or formula feed, they also regulate the timing of solid food introduction, the types and amounts of other foods and feeding frequency, as well as their response to infant hunger and satiety cues, therefore increasing the possibility of overfeeding (Adair, 2008). Early introduction of solid foods is an important factor because these foods may increase the energy density of the diet for infants and thus lead to increased weight (Adair, 2008; Speiser et al., 2005).

Fast food contains a high number of calories with low nutritional value (Sahoo et al., 2015). Children who frequently eat fast food consume more total energy, more energy per gram of food, more total fat and carbohydrate, more added sugars, less fiber, less milk (calcium), and fewer fruits and vegetables than children who eat fast food infrequently (Speiser et al., 2005).

There is a positive correlation between overweight and screen time. Television and video games lead to a more sedentary lifestyle, also increase snacking and unsuitable food choices because of television advertising (Speiser et al., 2005).

Avery, Anderson, and McCullough (2017) conducted a systematic review to examine the associations between TV watching, while eating, and children's diet quality, and they found a positive association between eating while watching TV and childhood obesity. Eating while watching television is linked with poor diet quality among children, including increased consumption of sugar-sweetened beverages and high fat and sugar foods such as pizza, fried foods, junk foods, and sweet foods, and less consumption of fruits and vegetables.

Family factors. The home environment and parent-child interactions can influence a child's behaviors related to the risk of obesity (Ebbeling, Pawlak, & Ludwig, 2002). Children's eating habits are affected by the types of food available in the home and the food preferences of family members. Also family mealtimes can influence the type and amount of food consumed. In addition, the child is affected by family members' habits, whether they are sedentary or physically active (Budd & Hayman, 2008; Sahoo et al., 2015). According to a (2002) review by Ebbeling et al., many changes have occurred in family life over the past two decades, with a direction towards eating out and more access to television than previously. Children consume more energy when meals are eaten outside of home, which might be related to the tendency of restaurants to provide larger portions of energy-dense foods. On the other hand, eating at home with family seems to decrease television viewing, and improve diet quality (less saturated and trans-fat, less fried food, more fiber, fewer soft drinks,

and more fruits and vegetables). Furthermore, social support from parents and other family members is strongly associated with participation in physical activity.

Campbell (2016) conducted a review to discuss both biological and social determinants of childhood obesity at individual, family, and community levels. At the family level, Campbell found evidence that the home food environment, shared family meals, and electronic media use influence children's obesity through behavioral pathways. Mothers are role models for eating behaviors, and primarily create the home food environment, and there is evidence of a strong correlation between the eating patterns of mothers and children. In addition, there is a high correlation between parental obesity and their children's obesity.

Socioeconomic factors. Overweight and obesity are also influenced by socioeconomic status (SES) (Avery et al., 2017; Campbell, 2016; Speiser et al., 2005; Spruijt-Metz, 2011). Children living in a household with low income and education levels are more likely to become obese than those with higher income and education levels (Speiser et al., 2005). Living in a poverty-environment may be linked with poorer individual diet, poorer retail food choices, and less recreational environments, as well as increased environmental stressors such as living in a higher crime neighborhood (Campbell, 2016).

According to Spruijt-Metz (2011), adolescents from lower SES are more likely to be of minority status and less likely to have access to affordable healthy food, and safe places to play. Poor environments with limited availability of healthful foods,

and high availability of fast-food restaurants may also lead to higher overweight/obesity among children (Stein, Weinberger-Litman, & Latzer, 2014). Gordon-Larsen, Adair, and Popkin (2003) examined the relationship of family income and parental education to the prevalence of overweight in the National Longitudinal Study of Adolescent Health. They also investigated whether race/ethnic differences in income and education account for sex-specific disparities of the prevalence overweight. They found that ethnicity, socioeconomic, and overweight differences were greater among females than males, overweight prevalence decreased with increasing SES among white females and increased among higher socioeconomic African-American females. On the other hand, disparity was decreased at the highest socioeconomic for white, Hispanic, and Asian females. Among males, disparity was lowest at the average socioeconomic level.

Consequences. Childhood obesity has many adverse consequences on health. According to the CDC (2016a), for immediate health risks, obese children are at risk to have: high blood pressure and high cholesterol, which are risk factors for cardiovascular disease; increased risk of impaired glucose tolerance, insulin resistance, and type 2 diabetes; bone and joint problems; breathing problems, such as asthma and sleep apnea; fatty liver disease, gallstones, and gastro-esophageal reflux (i.e., heartburn). In addition, childhood obesity is related to psychological problems such as anxiety and depression; low self-esteem and lower self-reported quality of life; and social problems such as bullying and stigma. For future health risk, obese children

have a high risk for adult obesity, therefore, their obesity and disease risk factors in adulthood are likely to be more severe (Centers for Disease Control and Prevention, 2016a; Freedman, Mei, Srinivasan, Berenson, & Dietz, 2007).

Physical Consequences

Cardiovascular disease. Obesity has an effect on the cardiac structure and hemodynamics of the human body. Excessive adipose accumulation stimulates increased blood volume and cardiac output and can lead to cardiomyopathy in morbid obesity (Speiser et al., 2005). In addition, etiology of cardiovascular diseases that are linked to obesity may be mediated by increased preload and vascular damage. In combination with increased fat accumulation in the myocardium, increased ventricular stiffness leads to vascular dysfunction, hypertension, and left ventricular hypertrophy. Furthermore, obesity-associated insulin and leptin resistance enhance inflammation and endothelial dysfunction that leads to increased arterial stiffness, susceptibility to plaque formation, and accelerated atherosclerosis (Chung, Onuzuruike, & Magge, 2018).

Two of the most common cardiovascular comorbidities of childhood obesity are dyslipidemia and hypertension. Dyslipidemia is the abnormal elevation of lipids and cholesterol in the blood. In obese children, serum low-density lipoprotein cholesterol and triglycerides are increased and high-density lipoprotein cholesterol levels are decreased (Dietz, 1998). The potential mechanism of dyslipidemia being “Increased free fatty acids produced by increased lipolysis by visceral adipocytes and

hyperinsulinemia may promote hepatic triglyceride and LDL-cholesterol synthesis” (Dietz, 1998, p.521). Dyslipidemia can be treated by diet and exercise, however, if there is no effective results from diet changes and exercise, then an appropriate referral should be made (Barlow, 2007).

According to Sorof and Daniels (2002), obese children are at approximately a 3-fold higher risk for hypertension than nonobese children. Contributing factors for hypertension in an obese child include hyperactivity of the sympathetic nervous system, insulin resistance, and abnormalities in vascular structure and function. Management of hypertension in children must be directed at behavioral approaches, such as diet changes and increased physical activity, followed by medication if desired results are not achieved.

Diabetes. Over the past decade, there has been an alarming increase in the number of children with a diagnosis of type 2 diabetes mellitus (T2DM), a disease that previously affected only adults (Speiser et al., 2005). The T2DM can occur as a result of insulin resistance and declining insulin, “severe hepatic insulin resistance and fasting hyperglycemia secondary to increased gluconeogenesis is a prominent early pathophysiologic feature in youth with type 2 diabetes” (Chung et al., 2018, p.171). Children with T2DM are at risk for microvascular and macrovascular complications, including retinopathy, nephropathy, neuropathy, and atherosclerosis, at younger ages (Robinson, Geier, Rizzolo, & Sedrak, 2011). Based on Robinson et al. (2011) review, children should be screened for T2DM if they have a BMI in the 85th percentile or

higher, as well as having any additional risk factors for T2DM, such family history or signs of insulin resistance. Treatment of T2DM begins with lifestyle modifications, and metformin when the fasting blood glucose is between 126 and 200 mg/dL. Insulin should begin when fasting glucose level greater than 200 mg/dL. Insulin should be added also after 3 to 6 months of metformin therapy if it didn't control glucose level.

Respiratory. The correlation between asthma and overweight or obesity is controversial (Speiser et al., 2005). However, the explanation for an apparent association may be due to the difficulty in differentiating between shortness of breath related to obesity and increased work effort and wheezing-related symptoms due to asthma (Gurnani et al., 2015). There is a strong association between obesity and obstructive sleep apnea (OSA). OSA is 4 to 6 times higher in obese children than in nonobese (Speiser et al., 2005).

Gastroenterology. Obesity, metabolic syndrome, and hyperinsulinemia are important risk factors for gallstone development, therefore gallbladder disease should be part of the differential diagnosis of obese adolescents with persistent abdominal pain (Speiser et al., 2005).

Nonalcoholic fatty liver disease is becoming more common in obese children. In nonalcoholic fatty liver disease, the hepatic transaminases increase 4-5 fold, and alkaline phosphatase increase 3 fold. Bilirubin, albumin, and prothrombin may increase in later stages (Robinson et al., 2011; Speiser et al., 2005).

Musculoskeletal. According to Robinson et al. (2011), overweight and obese children are at higher risk of orthopedic complications than nonobese including a greater prevalence of fractures (hips), musculoskeletal discomfort, impaired mobility, and lower extremity malalignment. Obesity that continues into adulthood may cause osteoarthritis and articular cartilage breakdown. In addition, childhood obesity may contribute to some orthopedic problems, such as slipped capital femoral epiphysis and Blount disease. Since overweight and obese children are more susceptible to develop orthopedic complications such as discomfort with mobility, they may be less likely to participate in physical activity and thus have a greater risk for weight gain.

Psychosocial consequences. In addition to physical consequences, childhood obesity affects children's and adolescent's social and emotional health. According to Sahoo et al. (2015), overweight and obese children are often exposed to bullying because of their weight. They also face many other difficulties such as negative stereotypes, discrimination, and social marginalization. Also, it is hard for overweight and obese children to participate in physical activities because they are likely slower than their peers and struggle with shortness of breath, therefore they are excluded from these activities. These negative social problems lead to a lower self-esteem and lower self-confidence, negative body image, and compromised academic performance. Obese children prefer to be socially isolated to protect themselves from negative comments and attitudes. They usually prefer to stay in places they think are safe such as their home, where they may look for food as a comfort. In addition, overweight and

obese children have fewer friends than normal-weight children, which leads to less social interaction and play, and more sedentary activities.

Rankin et al. (2016) conducted a review to examine the psychiatric, psychological, and psychosocial consequences of childhood obesity. They found that childhood obesity was negatively associated with psychological comorbidities, such as depression, emotional and behavioral disorders, and low self-esteem during childhood. In addition, overweight children were more likely to have multiple associated psychosocial problems than their normal weight peers, which may be influenced by obesity stigma, teasing, and bullying. Moreover, they pointed out that it is unclear as to whether psychiatric disorders and psychological problems are a cause or a consequence of childhood obesity or whether common factors stimulate obesity and psychiatric problems in susceptible children and adolescents.

Prevention. Prevention is viewed as the best approach for dealing with childhood obesity (Daniels et al., 2005; Gurnani et al., 2015; Lobstein et al., 2004; Speiser et al., 2005). Programs to prevent obesity should be directed to all children (Barlow, 2007; Lobstein et al., 2004). Lifestyle behaviors to prevent obesity should be focused on children with BMI within the normal range (5th– 85th percentile) and some overweight children BMI between 85th and 95th percentile, depending on their growth pattern and risk factors (Barlow, 2007). The main goal of obesity prevention is to prevent children with normal BMI (less than 85th percentile) from becoming at risk of overweight or overweight (Daniels et al., 2005). Levels of childhood

prevention as presented by Daniels et al. (2005) include primary prevention, which is aimed at preventing at-risk-of overweight children from becoming overweight (BMI $\geq$ 95th), and secondary prevention, aimed to treat overweight children to reduce comorbidities and normalize weight.

Energy intake should equal energy expenditure to prevent obesity, therefore, prevention programs must include strategies to balance energy intake by diet modifications and energy expenditure through increased physical activity. In addition, for effective results, these programs must be comprehensive and involve family, school, and community environments (Dietz & Gortmaker, 2001).

Family based prevention. The family has an important role in influencing children's health (Davis et al., 2007). Parents are usually responsible for producing the food environment for a child, and children adopt their parents' eating and behavior habits, therefore parents have the main influence on a child's food preferences and mealtime behaviors. Additionally, family involvement in physical activity affects the overall activity level of the child (Sorg, Yehle, Coddington, & Ahmed, 2013). The primary health care provider can have a role in preventing obesity by providing information to all family members about healthy eating and physical activity, and supporting effective parenting strategies (Lobstein et al., 2004). Examples of family prevention strategies include eating meals at a set time and place; not skipping breakfast; not watching the television at mealtime; decreasing portion size by using small plates; avoiding sweet or fatty foods and soft drinks; not allowing televisions in

children's bedrooms; and limiting television watching and video games playing time (Robinson et al., 2011).

School-Based Prevention. Most school-age children in the USA spend an average of 6 to 7 hours a day at school, therefore, schools are a primacy setting for preventing childhood obesity (Centers for Disease Control and Prevention, 2018b). According to the CDC (2018b), researchers studying school-based prevention programs have shown that for elementary and middle school students a comprehensive approach is the most effective program to address at school setting. A comprehensive approach includes nutrition and physical activity and involves school members, parents, caregivers, and other community members (e.g., pediatricians, after-school program providers). The effectiveness of this program comes from its main objective which is to support the health and well-being of all students. It does not separate students according to their weight status. To avoid embarrassing students, schools should not place attention on physical appearances or emphasize negative stereotypes about obesity. CDC recommends applying the Whole School, Whole Community, Whole Child (WSCC) model to guide a schools' approach to prevent childhood obesity and support students with obesity as well. The WSCC model emphasizes the psychosocial and physical environment as well as involving community agencies and families. In addition, this model engages students as active participants in their learning and health. The WSCC model consists of 10 components, including, health education, nutrition environment and services, employee wellness, social and

emotional school climate, physical school environment, health services, psychological and social services, community involvement, family engagement, and physical education and physical activity (Centers for Disease Control and Prevention, 2018c).

Community-Based Prevention. “Community-based interventions seem to approach obesity prevention from an ecological perspective, considering the individual, the home, school, neighborhood, as well as surrounding environmental influences and policies. Differences in culture and values within a community are able to be considered and integrated into intervention design” (Ickes & Sharma, 2013, p. 3). Lack of coordination across different sectors is one of the main obstacles to effective community-based level prevention strategies, from the health care provider’s office to schools and daycare settings, to parks and playgrounds, and to grocery stores and restaurants. Therefore, one of the important roles of health care providers in addressing childhood obesity prevention is to be aware of existing obesity prevention initiatives in their communities and to interact with leaders of those initiatives (Davis et al., 2007).

According to Lobstein et al. (2004), there is a need for a broad spectrum from individual and local group-based initiatives through to organizational, national, and international policies, the reason being is that recent increases in obesity prevalence are mainly related to social and environmental forces that are not under individual control. Many researchers have recognized the macro-environmental factors that contribute to obesity, including the trend towards globalization of markets and patterns

of economic development, food production, urbanization, media development, and mechanization. In addition, the societal factors that prompt obesity are often viewed as desirable, such as greater accessibility of essential goods and services as well as improvements in household income and standard of living. “Examples of problematic social trends include: increase in the use of motorized transport, e.g. to school; increase in traffic hazards for walkers and cyclists; fewer opportunities for recreational physical activity; increased playing of sedentary games; multiple TV channels around the clock; greater quantities and variety of food available; more frequent and widespread food purchasing opportunities; larger portions of food; rising use of soft drinks to replace water; more use of restaurants and fast food stores” (Lobstein et al., 2004, 67).

One of the public health initiative goals to address obesity is to increase the awareness of non-health sectors about obesity to collaborate and participate in programs to prevent obesity. The objectives of the work focus on changes in the nature of the food supply and in the mechanization of physical activity. Strategies may involve a successful consumer education and advocacy, legislative and policy changes, and community-based programs (Lobstein et al., 2004).

“In summary, long-term obesity prevention strategies must be economically viable, culturally acceptable and futuristic. Obesity prevention cannot be accomplished by ‘turning back the clock’ to reverse development and economic advancement. Rather, the challenge is to create environmental incentives and

opportunities that will prevent excess weight gain and that are compatible with other aspects of the desired aggregate lifestyles” (Lobstein et al., 2004, p.70). See appendix B for further prevention of obesity approaches.

Focusing on prevention brings us back to the influence of culture on childhood obesity. As noted earlier, researchers have identified culture and acculturation as two important factors influencing child obesity. The following section begins with the overview of culture and the acculturation process, and their influence on childhood obesity.

Role of Culture and Acculturation in Childhood Obesity

Culture is an important concept, particularly when using this concept in a health care setting. Culture has several definitions in the literature. The definition of culture depends on the perspective of the individual who is defining it (Marzilli, 2014). There is no generally agreed upon definition of culture (Jahoda, 2012).

The complexity of the concept of "culture" is then remarkable. It became a noun of "inner" process, specialized to its presumed agencies in "intellectual life" and "the arts." It became also a noun of general process, specialized to its presumed configurations in "whole ways of life." It played a crucial role in definitions of "the arts" and "the humanities," from the first sense. It played an equally crucial role in definitions of the "human sciences" and the "social sciences," in the second sense (Williams, 1977p. 17, as cited in Rosaldo, 2006).

According to Marzilli (2014), the first known use of the word culture was in 43 BCE, with its meaning being the development or cultivation of the soul. This definition was used by the Roman philosopher Cicero (Whiston & White, 1758, as cited in Marzilli, 2014). By the late 1700s, the word culture was used additionally “to indicate an improvement or cultivation of the soil to grow plants” (Marzilli, 2014, p.227). In the 1800s, a common use of the word culture indicated that the mind had been expanded and developed in the arts, sciences, and language. In 1871, the first scientific use of the term is credited to the Anthropologist Edward Tylor who defined culture as “that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society” (Tylor, 1871, p. 1, as cited in Baldwin, Faulkner, & Hecht, 2006). For a more extensive review of culture definitions see appendix C.

For this study, the view of culture as whole way of life will be used due to its breadth and close approximation to this research study. In keeping with this view, Samovar and Porter (1991) defined culture as “deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects, and possessions acquired by a group of people in the course of generations through individual and group striving” (Samovar & Porter, 1991, p.51 as cited in Faulkner, Baldwin, Lindsley, & Hecht, 2006).

Race and ethnicity concepts are found in the literature to indicate a group of people and in some cases they are used interchangeable with culture (Marzilli, 2014; Spencer-Oatey, 2012). Generally race “refers to the social group a person belongs to on account of a mix of physical characteristics; whereas, ethnicity refers to the social group a person belongs to based on a shared culture” (Dein, 2006, p.68). Race is defined as “genetic or biologically based similarities among people, which are distinguishable and unique and function to mark or separate groups of people from one another” (Spencer-Oatey, 2012, p. 19). Race is a more inclusive concept than culture or nation, for example, not all Caucasian people are part of the same culture or nation, and several western European countries include people from the Caucasian race (Spencer-Oatey, 2012). Ethnicity is a concept that is used “to refer to a wide variety of groups who might share a language, historical origins, religion, identification with a common nation-state, or cultural system” (Spencer-Oatey, 2012, p. 19). Ethnicity indicates one or more of the following: shared origins or social background, shared culture and traditions that are distinctive, maintained between generations, and lead to a sense of identity and group, and a common language or religious tradition (Senior & Bhopal, 1994).

The U.S. Census Bureau classification of race and ethnicity include:

- White: A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

- Black or African American: A person having origins in any of the Black racial groups of Africa.
- American Indian or Alaska Native: A person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment.
- Asian: A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- Native Hawaiian or Other Pacific Islander: A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

It should be noted that in this census classification Arab identity is captured under “white”, which has caused long standing cultural invisibility (Abboud et al., 2019).

Harris, Moran and Moran (2004) identified ten cultural characteristics that describe any group of people, which include: (1) a sense of self or space: some cultures are very structured and formal, while others are more flexible and informal. And some cultures are very closed and precisely determine individual's place, while others are more open. (2) Communication and language: The communication system, verbal and nonverbal, differentiates one group from another. Also, the meanings of gestures differ by culture. (3) Dress and appearance: this includes the outward clothes and adornments, also body decorations that tend to be culturally distinctive, for

example the Japanese kimono, and the Native American headband. (4) Food and feeding habits: the way in which food selected, prepared, presented, and eaten differs by culture. (5) Time and time consciousness: sense of time differs by culture, some cultures are exact while others are relative, in addition the time in the sense of seasons of the year differs by culture, some areas think in term of four seasons, winter, spring, summer, and fall. While other areas think in the way rainy or dry seasons. (6) Relationships: cultures impact human and organizational relationships by age, gender, status, and degree of kindred, also by wealth, power, and wisdom, for example family unit. (7) Values and norms defined by cultural needs. (8) Beliefs and attitudes (e.g., religion): religious traditions in various cultures consciously or unconsciously influence individuals' attitudes toward life, death, and the hereafter. (9) Mental processing and learning defined by how people organize and process information. (10) Work habits and practices.

For this study the focus was on culture as a way of life. In order to identify and describe the sample of this study cultural characteristics as identified by Harris et al. (2004) were used. The characteristics that were addressed are communication and language; beliefs and attitudes; and food and feeding habits.

Culture and Childhood Obesity. Understanding culture can have a significant effect on reducing health disparities. Also health care providers, including nurses, can use this knowledge to deliver care in a way that meets the needs of patients from different cultures (Marzilli, 2014). In addition, individuals' cultural backgrounds

have an impact on decision making and nurse-patient interaction, therefore it is very important for nurses to understand culture when preparing interventions and educational tools to meet the needs of patients (Marzilli, 2014). Furthermore, individuals' cultural backgrounds influence how they understand health care and how they react and express feelings about sickness, as well as the traditional treatments in which they believe (Gupta, 2010).

As noted earlier prevalence of childhood obesity varies across ethnic groups. According to the Ogden et al. (2014), for children and adolescents aged 2-19 years the prevalence of obesity (having BMI $\geq$ 95th percentile) was higher among Hispanics (21.9%) and non-Hispanic blacks (19.5%) than among non-Hispanic whites (14.7%). In addition, the prevalence of obesity was lower in non-Hispanic Asian youth (8.6%) than in youth who were non-Hispanic white, non-Hispanic black, or Hispanic. Several studies have found children from racial/ethnic minority have a higher risk for obesity. Compared with white, black and Hispanic children had an increased infant weight gain, shorter sleep duration during infancy, more televisions in bedrooms, higher sugar-sweetened beverage intake, and higher intake of fast foods (Taveras, Gillman, Kleinman, Rich-Edwards, & Rifas-Shiman, 2010). Latino children spent more time viewing television and had more televisions in their bedrooms, and they consumed more sugar-sweetened beverages than non-Hispanic white or Asian children (Giammattei, Blix, Marshak, Wollitzer, & Pettitt, 2003). Non-Hispanic black children had a higher rate of watching television than white (Andersen et al., 1998). Black

adolescent girls had lower levels of physical activity than white adolescent girls (Kimm et al., 2002). One research study was found that measured obesity among youth Arab Americans (Abou-Medienne & Shamo, 2005). This was a cross sectional study that was conducted among 158 fifth grade Arab American students in Michigan. The researchers reported 31% of boys and 24% of girls were overweight, and 17.6% of boys and 15.5 % of girls were obese.

The reasons for this variation in childhood obesity across ethnic groups are complex and may include differences in cultural beliefs and practices, level of acculturation, and perceptions of body image, media, sleep, and physical activity. In addition, this variation in childhood obesity may develop as a consequence of the socio- and environmental context in which families live (Dixon et al., 2012; Peña et al., 2012). The neighborhoods and physical environment where ethnic minority children live may influence food choices and the physical activity level of these children (Peña et al., 2012). According to Kumanyika (2008), in ethnic minority and low-income communities, there is less access to healthy food due to lack of markets that provide healthy food products at a reasonable cost, and high exposure to fast food restaurants.

In addition one's culture has influence on feeding practices. Cultures include differing beliefs about food choices and feeding practices for children. Sealy (2010) found that food choices for parents and children are connected with cultural eating habits, food easily accessed, and foods that require less time for preparation. Also,

ethnic and cultural identity and tradition have an important influence on food choices. Moreover, cultural beliefs may influence parents' perceptions of their children's health status and behaviors, therefore, parents may have different perceptions of what is considered a healthy child. In some cultures, mothers may have a perception that thinness is a reflection of poor health and malnutrition. For example, in the Latino culture having a "skinny" child is often seen as a sign of bad parenting and poor health leading to a preference for a chubby child (Crawford et al., 2004; Lindsay et al., 2011). This view could influence parents' decisions regarding eating habits and physical activity. Hackie and Bowles (2007) found that, from their sample, sixty-one percent of Hispanic mothers who had overweight preschool children did not recognize that their children were overweight, and 50% of these mothers did not take any action to control what their children ate. Reifsnider et al. (2006) interviewed 25 mother-child dyads of 3-year-old children at two Head Start Centers. They asked the mothers their beliefs about child health, growth, and feeding. Mothers were shown pictures of children to elicit mothers' perceptions of children's body sizes, and they found that 18% of mothers thought the obese child looked the healthiest, 36% thought the overweight child looked healthiest, and 45% chose the normal-sized child.

Cheah and Van Hook (2012) conducted research among Chinese and Korean immigrants in the USA to examine child feeding practices and children's body weight. According to Cheah and Van Hook (2012), the Chinese parents believed that obese children are healthier than thin children, and Chinese immigrant parents in the USA

believed that one of the ways that they express love for their children is by providing food for them. One explanation of these cultural beliefs as Cheah and Van Hook stated can be rooted in deprivation and food insecurity in the parents' early life in their countries of origin. That is, the parents preferred children to be fat and developed caring behaviors that encouraged children to eat when food was available, due to the feelings of deprivation and the threat of food insecurity, or uncertainty about the future.

Lindsay, Sussner, Greaney, and Peterson (2009) described immigrant, Latina mothers' perceptions of factors that act as barriers to establishing healthy eating and physical activity habits for preschool children. They found that immigrant Latina mothers faced many barriers to establishing and maintaining healthy eating, including the cost of food, access to recreational facilities, neighborhood safety, and weather. In addition, they found that television watching was seen as integral to family life, especially during meals and TVs were used as a babysitter and tool to learn English. Lindsay et al. (2011) found that the mothers' immediate social support networks, especially grandmothers, cultural beliefs, and social pressures, strongly influenced mothers' beliefs and feeding practices about child weight status.

Acculturation. The origin of the concept of acculturation is in anthropology, followed later by its use in a wide range of disciplines, for example psychology, sociology, and public health (Wallace, Pomery, Latimer, Martinez, & Salovey, 2010). In 1895, American anthropologist Otis Tufton Mason first used the term acculturation,

in explaining ethnographic differences among Native Indians, Alaskan Natives, and Africans relative to New World Europeans. Then, in 1905, the German scholar Paul Ehrenreich conducted extensive anthropological research describing “areas of acculturation” among South American tribes, while focusing on language and mythology (Herskovits, 1958, as cited in Wallace et al., 2010). Currently acculturation refers to cultural change from the place of origin to the adoptive host society (Wallace et al., 2010). "Acculturation has been defined as the process by which immigrants adopt the attitudes, values, customs, beliefs, and behaviors of a new culture" (Pérez-Escamilla, & Putnik, 2007, p. 860). According to Thomson and Hoffman-Goetz (2009), in public health some researchers define acculturation as a unidimensional process, for example “Acculturation refers to the process by which immigrants adopt the attitudes, values, customs, beliefs and behaviors of a new culture.” (p.985). On the other hand, other researchers have defined acculturation as occurring on more than one dimension, (bi- or multidimensional), for example “Acculturation is a process of cultural adaptation that happens when groups of persons from different cultures come into continuous contact with each other. Acculturation is not, however, a linear process because it does not necessarily lead to assimilation and a loss of a person’s ethnic identity” (p.986).

Today acculturation is seen as a complex concept which is difficult to quantify, even though researchers frequently depend on simple, static, proxy indicators such as birthplace, language use, and number of years spent in the USA to measure level of

acculturation (Pérez-Escamilla, & Putnik, 2007). It is important to use the concept of acculturation in order to understand the individual health of those who are moving from one society to another, because, cultural lifestyle beliefs, dietary habits, patterns of physical inactivity, and use of folk remedies have many effects on the development of certain diseases (Wallace et al., 2010).

Acculturation and childhood obesity. Many researchers have examined childhood obesity and acculturation among different ethnic groups, most of which have been quantitative studies based on one of the major two models of acculturation: unidimensional, and bidimensional models. According to the unidimensional model acculturation is the process by which individuals (immigrants) from one culture take on the identity (individual's original culture; ethnic identity) of another culture (mainstream cultural identity) over time (Gordon, 1964). In contrast, the bidimensional model of acculturation entails two independent dimensions: maintenance of the culture of origin and adherence to the dominant or new culture. In this model the individual maintains values from the original culture and at the same time takes and accepts some values from the new culture (Cabassa, 2003; Kim, Newhill, & López, 2013). The most widely researched bidimensional model is Berry's model of acculturation (Berry, Phinney, Sam, & Vedder, 2006). Beginning in the 1970s, Berry proposed that there are two independent dimensions underlying the process of acculturation, one being individuals' links to their cultures of origin and the other to their new culture of settlement (Berry et al., 2006). These links can be shown

in many ways, including preferences for involvement in the two cultures (termed acculturation attitudes), and in the behaviors that they engage in (for example, their language use, and social relationships). In Berry's framework, two issues are raised: the degree to which individuals can maintain their original culture and identity; and the degree to which people seek to be involved in the new culture. When these two issues are crossed, an acculturation space is created with four sectors which show how individuals are seeking to acculturate. These sectors are assimilation, separation, marginalization, and integration. Assimilation refers to a process in which an individual has little interest in maintaining the original cultural and shows a preference for interacting and being involved with the larger society. Separation refers to a process in which an individual prefers to maintain the culture of origin and avoids involvement with the new larger society. Marginalization refers to the process in which both cultures, original and new, are avoided. Integration refers to a process in which both cultural maintenance and involvement with the larger society are sought (Berry et al., 2006).

According to Caprio et al. (2008), both globalization and acculturation have an influence on cultural change and cultural homogeneity, which has an effect on obesity. Globalization can affect obesity by encouraging travel (movement from low-income to high-income countries), trade (e.g., production and distribution of high-fat, and energy-dense food), communication (advertising food marketing), the increased gap between rich and poor, and the epidemiologic transition in the global burden of

disease. Acculturation can affect obesity through encouraging the leaving of traditional beliefs and behaviors that might decrease the risk of overweight and obesity, and the acceptance of beliefs and behaviors that might increase the risk of overweight and obesity (Caprio et al., 2008).

According to Caprio et al (2008), in many countries, traditional diets (high in complex carbohydrates and fiber) are replaced with high-fat, energy-dense diets, and processed foods. In addition, globalization has led to fewer home-cooked meals, more calories consumed in restaurants, increased snacking between meals, and increased availability of fast foods in schools. The authors also suggested that there are similar changes in patterns of physical activity connected to the risk of obesity worldwide, including increased sedentary recreation, increased use of motorized transport, and fewer opportunities for recreational physical activity (Caprio et al., 2008).

Researchers have found that the acculturation process tends to vary considerably across ethnic groups. Some of the most heavily studied include Mexican, Vietnamese, and Korean Americans. No studies have been conducted on Arab Americans. The following is a summary of some of these studies.

Among the Hispanic population some researchers have showed a relationship between acculturation and food types and feeding practices that are associated with child obesity. Participants with a lower acculturation level were more associated with child obesity than participants with higher acculturation level (Dancel et al., 2015; Power, O'Connor, Orlet Fisher, & Hughes, 2015; Vera-Becerra, Lopez, & Kaiser,

2016; Verstraete, Heyman, & Wojcicki, 2014). Some of these feeding practices included pressuring a child to consume more food, using food as a reward, and controlling food intake by limiting less-healthy foods (Power et al., 2015). Verstraete et al., (2014) examined the association between breastfeeding and risk for obesity in children of recently immigrated and unacculturated Latina mothers. The researchers showed that breastfeeding for longer than 12 months significantly protected the development of obesity in early childhood in children of relatively unacculturated Latina women in the United States. On the other hand, a study by Lind et al., (2012) showed that lower levels of acculturation was associated with both positive and negative healthy lifestyle characteristics, depending on sex. Moreno et al., (2016) found that Hispanic children with higher levels of acculturation were at lower risk for being overweight or obese compared to children with lower levels.

For the Asian population, Lu, Diep, & McKyer (2015) conducted a literature review to summarize the identified risk factors for childhood obesity among Asian Americans, assess the methodological quality of the existing literature, and provide recommendations for future health care related research and practice on Asian American children and adolescents. They found that children's nativity or generational status, children's acculturation level, and number of years children lived in the USA were all positively associated with children's overweight status. In terms of the relationship between mothers' acculturation level and children's overweight status, Lu et al., (2015) review showed mixed findings. On the one hand, mother's

acculturation level, when measured by language, identity, friendships, and behaviors, was negatively associated with Asian American children's weight status, while, mother's nativity status (another indicator of acculturation) was positively associated with Asian American children's overweight status (e.g., having a mother who was not born in the USA was protective against the development of childhood obesity).

Schaefer et al., (2009) conducted a study to examine the relationships of physical characteristics, socioeconomic status, and cultural characteristics on health outcomes such as BMI and percent body fat tendency toward overweight, and overweight in a group of early adolescent females of Asian-American and Mexican American ethnicity. They found that new immigrant populations may have increased risk of chronic disease due to risk for overweight and overweight at an early age. This was related to socioeconomic status and acculturation. However, this may vary among different ethnic groups as they noticed; the associations among socioeconomic status, acculturation characteristics, percent body fat, and risk for overweight were observed in Asian-American, but not in Mexican-American early adolescent girls. In another study, Cook, Tseng, Tam, John, and Lui (2017) aimed to explore whether ethnic-group socioeconomic status is an indicator of community level disadvantage, one that may influence overweight/obesity in Asian American adolescents. They also wanted to examine whether the association between ethnic group socioeconomic status, adolescent overweight or obesity varied by nativity status. They found that ethnic-group socioeconomic status is inversely associated with overweight/obesity in

Asian American adolescents, which means adolescents in high- or middle-level socioeconomic status ethnic groups were less likely to be overweight or obese than adolescents in low socioeconomic status. These relationships were more noticeable for foreign-born adolescents but the findings were not significant for those born in the USA.

Unger et al., (2004) examined the association of acculturation to the USA with physical activity and fast-food consumption among Asian-American and Hispanic adolescents. They found that there was an association between high level of acculturation and lower frequency of physical activity and a higher frequency of fast-food consumption, therefore increasing the risk of obesity. Another study was conducted by Diep, Baranowski, and Kimbro (2017a) to examine the association between acculturation and weight change in Asian-American children, and to compare changes by Asian ethnic group and acculturation with socioeconomic status. They found that Filipino children had the highest overweight and obesity risk in kindergarten and second grade. Also, acculturation (specifically mother's English proficiency), without household or socioeconomic status measures, was a significant predictor of weight change. With the acculturation and socioeconomic status interaction, mother's English proficiency was also a significant predictor of overweight and obesity. The children from less educated households were at more risk of overweight and obesity with acculturation, than children from more educated households. According to Diep et al. (2017a) this research was the first study to

examine acculturation and BMI change, and ethnicity and BMI change, in Asian-American children, so they recommended that more studies need to be done to verify these findings. One qualitative study was found by the same first author, Diep. This qualitative study was done to examine Chinese American children's behaviors, food preferences, and cultural influences on their diet (Diep, Leung, Thompson, Gor, & Baranowski, 2017). Twenty-five Chinese American children aged 9–13 years were interviewed. They found that Chinese American children practiced both Asian and non-Asian dietary behaviors, including consumption of non-Asian foods for breakfast and lunch, but Asian foods for dinner; infrequent dining at restaurants; grocery shopping at Asian and non-Asian stores; and familial influences on diet. In addition more acculturated children and children of higher socioeconomic status appeared to prefer and consume a more Westernized/non-Asian diet.

For studies that cross multiple ethnic groups, a study by Van Hook and Baker (2010) showed strong evidence that sons of immigrants who moved to the country as adults are at the greatest risk of obesity. In kindergarten some weighed more, and over time they gained more weight than sons of natives. Also, they found in comparing with natives, sons of the first immigrant generation began elementary school significantly heavier and gained more weight during elementary school. On the other hand, daughters of this generation were not significantly different than daughters of natives, and in comparing with sons of the same immigrant group they weighed less and had slower weight gain. Singh, Kogan, and Yu (2009) examined the prevalence

and socio behavioral correlates of obesity and overweight among 46,707 immigrant and US-born children and adolescents aged 10–17 years. They noticed the increase in obesity prevalence across all gender, race and socioeconomic groups. In addition, the prevalence of overweight and obesity increased with each successive generation for white and black immigrants, but no variation was found in the prevalence among Hispanic children by generational status. Also immigrant children watched less TV than native-born children but they were more inactive than native children. In another study, Baker, Rendall, and Weden (2015) showed that children of USA born mothers were less likely to be obese than similar children of foreign-born mothers; and the children of the least-acculturated immigrant mothers (measured by low English language proficiency) were the most likely to be obese.

De Hoog et al., (2013) assessed racial/ethnic differences in the diet in young children and the role of maternal BMI, immigrant status and perception of child's weight. They found that black and Hispanic children ate more sugar sweetened beverages and less low-fat dairy. Total energy intake was higher in Hispanic children. Children of immigrants ate less fast food and bad fats and more fiber. Watt, Martinez-Ramos, and Majumdar (2012) investigated if parental social support is associated with children's overweight and obesity and if this relationship is moderated by race/ethnicity, acculturation, and/or parent's sex. This study showed that Hispanics (English and Spanish-speaking) and African Americans had higher rates of child overweight and obesity and were less likely to have social support with parenting than

Whites. Only for English-speaking Hispanic fathers, social support appeared as a significant predictor of overweight and obesity.

As noticed from the acculturation and childhood obesity section, there are variations in the effect of acculturation on childhood obesity among different ethnic groups. For example, within the Hispanic population, a low acculturation level was associated with childhood obesity, while within the Asian population a high level of acculturation was associated with obesity (Unger et al., 2004). Among the above quantitative studies on acculturation and childhood obesity, only one study provided a definition of acculturation (Dancel et al., 2015). There was no standard measure of acculturation, with three studies being based on unidimensional measures (Dancel et al., 2015; Lind et al., 2011; Moreno et al., 2016), three studies on bidimensional measures (Power et al., 2015; Schaefer et al., 2009; Unger et al., 2004). In the remaining six studies, a proxy of acculturation such as years of stay in the United States, language, and generational status were used (Watt et al., 2012; Diep et al., 2017a; Singh et al., 2009; Baker et al., 2015; Verstraete et al., 2014). None of the studies was based on what participants sought to maintain from the country of origin or how much they wanted to be involved in the host country. In one qualitative study on Chinese children (Diep et al., 2017b), the authors gained some understanding by asking participants to describe their favorite foods, restaurants, and parents' cooking and grocery shopping habits. There were several limitations, however, in this study. The interviews very narrowly focused and lasted an average of only 14 minutes with

half of the children interviewed in person and half on phone. Most striking was the exclusion of any children who could not read, speak or write English.

No research study was found either quantitative or qualitative that focused on acculturation and childhood obesity among the Arab American population. Since little is known about the acculturation of the Arabic speaking Middle Eastern population, a qualitative descriptive study was therefore considered as an important starting point. An interview approach offered a deeper understanding of the acculturation processes for this population.

In summary, this section has provided a general overview of culture and acculturation on childhood obesity, one's culture has influence on perception of body image, and feeding practice. Researchers have identified that acculturation has impact on obesity across several ethnic groups in the US. In the next section, the focus shifts to the importance of Arab culture and the role of motherhood and nutritional practices.

Arabic Culture, Motherhood, and Nutritional Practices

“Most Arabs in the United States come from diverse religious traditions, including Christianity, Judaism, Bahá’í, Druze, and Yazidism, and others adopt no religious tradition. However, Arabs are portrayed as uniformly Muslim” (Abboud et al., 2019, p.1581).

The terms Middle Eastern and Arab American have been used interchangeably in the literature, however there are differences between these two terms (Nassar-McMillan, Ajrouch, & Hakim-Larson, 2014). Middle East is a term that usually

indicates a specific geographical area and includes many countries that do not define themselves as Arab (e.g., Turkey and Iran), but Arab or Arab American refers to individuals whose origins were from Arabic-speaking countries (Nassar-McMillan et al., 2014).

The “Middle East” is defined as an area, which extends from the Atlantic Ocean (west) to Afghanistan (east). It includes the countries of Yemen, United Arab Emirates, Turkey, Syria, Saudi Arabia, Qatar, Palestine, Oman, Northern Cyprus, Lebanon, Kuwait, Jordan, Israel, Iraq, Iran, Egypt, Cyprus, and Bahrain (Maps of the World, 2015). Most immigrants from the Middle East countries have settled in California, Michigan, and New York. In 2009-2013, the top four counties with Middle East and North Africa immigrants were Los Angeles County in California, Wayne County in Michigan, Cook County in Illinois, and Kings County in New York (Zong & Batalova, 2015).

An Arab refers to an individual who originated from one of the countries belonging to the League of Arab States. These 22 countries are Algeria, Bahrain, Comoros, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen (Nassar-McMillan et al., 2014). Despite the large area and highly diverse countries from which Arabs come, their common ancestry, history, and language (Arabic) unite them and give them a common identity. More than 90% of Arabs are Muslims, therefore religion is seen frequently as another

unifying factor. Islamic religion has left a significant mark on the mores, norms, and health beliefs and practices of Arabs (Zahr & Hattar-Pollara, 1998). Both Middle Eastern and Arab women were selected because they reflected a rather homogenous population.

According to Suleiman (1999), Arab Americans immigrated to North America in two distinct waves, the first wave of immigration began in the late nineteenth century and continued to World War II, and the second wave began after World War II and continues to the present. The majority of Arab immigrants of the first wave came from the Greater Syria region, and most of them were Christian. They came seeking better economic opportunities. During the second wave, immigrants came mainly because of political issues in their country and they came from all parts of the Arab world, especially from Palestine, Lebanon, Syria, Egypt, Iraq, and Yemen, with a majority of them being Muslims. “The uniqueness of Arab Americans as a cultural group stems from the social conditions under which the group arose as a distinct, recognizable, and visible ethnicity” (Ajrouch, 2014, p. 12). It is difficult to find specific information about the Arab American population in the USA since it is included under the white race in the U.S. Census (U.S. Bureau of the Census, 2018). This categorization makes them invisible as an ethnic minority, and leads to a lack of research having been conducted with this population (Abboud et al., 2017; Abboud et al., 2019; Abuelezzam, El-Sayed, & Galea, 2018).

Arabic culture. According to Zahr and Hattar-Pollara (1998), in the Arabic culture, the family is the strongest social unit and is the foundation on which society is built. Family commitment, honor, loyalty, obligations, responsibility, and unity are central values in the life of Arabs. Within the family, the father is the head and the decision maker. He is responsible for providing the basic needs of each family member and to protect them. The mother's main role is to nurture, build, and provide the daily demands of the spouse and the children, as well as to maintain social relationships within the extended family and the society. In addition, the mother has the responsibility for raising the children according to culture and tradition and for guiding them throughout their lives. Children in the Arabic family are raised to live within the expectations of the culture. Children are expected to obey parents, respect the elderly, be faithful to the family, and demonstrate parental dedication. In addition, children are taught to give family needs a higher priority than their own (Barakat, 1993; Patai, 1983). Age has an important role in the function and structure of the Arabic family. Age is linked with wisdom due to experience and most of the time age is considered more important than education. Older men and women are treated with great esteem and respect. As a result of this respect, major decisions should be taken after consulting with the elder members of the family (Patai, 1983).

According to Arabic cultural beliefs, being healthy means being able to perform daily routine tasks without pain or physical complaints. In regard to children's health, healthy toddlers should not be skinny or pale. A chubby child is

preferred and considered to be in good health. Food, especially candy and other sweets, is frequently used to reward good behavior (Zahr & Hattar-Pollara, 1998). Home remedies are used first when a toddler or older child becomes sick, for example, herbs are used for an upset stomach, and a cold or the flu are treated with hot liquid, and lemonade (Zahr & Hattar-Pollara, 1998).

In a review of the literature, Yosef (2008) described health beliefs and practices of the Arab Muslim population in the United States. Yosef concluded that this population is at increased risk for several diseases such as heart disease, diabetes, and cancer and do not have the knowledge that is needed to prevent, detect, and treat these diseases. In addition this population faces many barriers in accessing the American health care system. Some these barriers include modesty, gender preference, and illness causation misconceptions, arising out of their cultural beliefs and practices. Also, there are barriers that relate to the complexity of the health care system and the lack of culturally competent providers. Obeidat, Lally, and Dickerson (2012) conducted a qualitative study to understand the diagnosis and surgical treatment experience of Arab American women with early stage breast cancer. They emphasized the importance of understanding the cultural background of Arab Americans in order to provide relevant health care. Additionally, they emphasized the importance of healthcare providers, including nurses, encouraging patients to identify what the illness means to them in order to provide appropriate supportive interventions. According to these authors health care providers should assess patients'

decision-making preferences, and encourage them to participate in decision making without making any assumptions based on their ethnic/cultural background. A review by Abboud et al. (2017) was done to evaluate and synthesize literature on cervical cancer screening behaviors and identify factors influencing these behaviors among Arab American women. They highlighted the need for more research to better understand cervical cancer prevention behaviors in Arab American women in order to apply culturally relevant interventions.

Arab acculturation in the US. Goforth, Oka, Leong, and Denis (2014) conducted a study to see how acculturation, acculturative stress, and religiosity were associated with psychological adjustment among Muslim Arab American adolescents. They used “The Vancouver Index of Acculturation” (VIA), which is based on a bidimensional model of acculturation. They found that age, gender, religiosity, and length of time in the USA significantly predicted heritage cultural orientation but not mainstream cultural orientation. Also the results showed that these variables significantly predicted general social stress, perceived discrimination stress, and process-oriented stress. Additionally length of time in the USA significantly correlated negatively to perceived discrimination stress. In another study Jadalla, Hattar, and Schubert (2015) assessed the relationship between acculturation and health promotion practices among Arab Americans. These authors showed that being less acculturated predicted better nutritional and stress management practices, on the other hand being more acculturated predicted better physical activity and interpersonal

relationships. Additionally, in a recent review of the literature on the acculturation process of Arab-Muslim immigrants in the USA, Al Wekhian (2016) identified a wide range of potential barriers that prevent Arab-Muslim immigrants from successfully integrating into the USA society. Cultural and religious differences, distinctions in moral and ethical values, perception of gender relations, demonization of the Arab population in mass media, and discrimination were the major factors causing the overall struggles during the acculturation process. This article helps one understand many aspects of the acculturation process of Arab immigrants, and the differences between cultural values of the USA culture and Arab immigrant culture.

Hattar-Pollara and Meleis (1995) conducted a qualitative study to describe the lived experiences of Jordanian women who immigrated to the USA, and to provide an in depth description of the perceived stressors associated with their immigration experiences. They interviewed thirty women. The researchers emphasized that immigrant Arabic women come from cultures that differ significantly from that of the USA. These women were usually housewives in a culturally constant and stable environment. In the new culture they were often required to learn a new language and absorb and integrate a variety of added roles, while keeping what they already had established. In addition they were expected to establish a balanced family life in the new culture. Three main themes were identified in relation to the sources and contexts of stress: (a) the daily living of settling in, (b) the quest for ethnic continuity, and (c) the re-creation of familiarity. Their findings also indicated that the women in their

sample believed that to achieve any successful resettlement, it is important to develop several skills. These skills included learning the English language, learning to drive, understanding how things worked in the USA, and integrating a diverse set of new role responsibilities.

As noticed from the above acculturation studies, researchers generally acknowledged that acculturation is a process that occurs over time and may never be complete. In order to understand how acculturation influences Arabic mother's nutritional beliefs and practices as they may have changed through immigration, one needs a conceptualization of acculturation as a process. The best single definition is "the process by which immigrants adopt the attitudes, values, customs, beliefs, and behaviors of a new culture" (Pérez-Escamilla, & Putnik, 2007, p. 860). It is this definition that undergirds this research.

Arabic culture specific to motherhood and nutritional practices. As mentioned earlier, the mother's main role in the family is to nurture, build, and provide the daily demands of her spouse and children including their nutritional needs. Also, according to Arabic cultural beliefs, a chubby child is preferred and considered to be in good health. Food, especially candy and other sweets, is frequently used to reward good behavior (Zahr & Hattar-Pollara, 1998).

According to Kulwicki and Ballout (2013), in Arabic culture, providing food is a way of expressing love and friendship, hospitality, and generosity. For Arabic women, the preparation and presentation of meals is seen as a way of expressing love

and caring for the family. In addition, in gathering with friends, the types and quantity of food served are indicators of the level of hospitality and honor for guests. In regard to common foods and food rituals, the spices and herbs most frequently used include cinnamon, allspice, clove, ginger, cumin, mint, parsley, bay leaves, garlic, onions, nutmeg, cardamom, thyme, and rosemary. Yogurt is used in cooking or served plain. All Arabic countries have rice and wheat dishes, stuffed vegetables, and pastries. Dishes are decorated with raisins, pine nuts, pistachios, and almonds. Favorite fruits and vegetables include dates, figs, apricots, guavas, mangos, melons, apples, bananas, citrus fruits, carrots, tomatoes, cucumbers, parsley, mint, spinach, and grape leaves. In addition, grains are an essential part of the diet such as fava beans, chickpeas, peas, corn, lentils, kidney beans, and white beans. The most common meats are lamb and chicken. Muslims are prohibited from eating pork and pork products. Bread is an important component of every meal, and olive oil is widely used. In Arabic culture foods are mostly prepared "from scratch", therefore, consumption of preservatives and additives is limited.

As noted earlier, no research study was found that focused on acculturation and childhood obesity among the Arab American population. Additionally the amount of basic information about this culture is highly limited. The US census classification of Arab identity under "white" has caused long standing cultural invisibility and poverty of data in the literature about this population. Therefore, this qualitative study was conducted as a starting point for gaining an in-depth understanding of mothers'

nutritional beliefs and practices, and how these may have changed after moving to the US. This study addressed this need through interviews with Arabic speaking Middle Eastern mothers.

Chapter III

Methodology

The aim of this study was to explore perception of motherhood and childhood nutritional beliefs and practices of Arabic speaking Middle Eastern mothers now living in the US. The specific research questions were:

1. What are Arabic speaking Middle Eastern women's perceptions of motherhood in relation to raising children and have these changed after moving to the US?
2. What are the women's perceptions of healthy children, and their nutritional beliefs and practices related to children and have these changed after moving to the US?
3. What enablers and constraints have the women encountered in trying to foster their nutritional practices while living in the US?

Research Design

An inductive, descriptive, qualitative research design including 2 semi structured in-depth interviews with each of 12 mothers from Arabic speaking Middle Eastern countries was conducted to address the above research questions. The use of a qualitative research approach was a good fit for this study since no research study was found that focused specifically on Arabic speaking mothers and their beliefs about motherhood and healthy children in relation to nutritional practices. Additionally there is a need for basic information about this area and a greater understanding of the mother and her role in nutritional practices and beliefs before quantitative research on

a larger population can be undertaken. A qualitative approach is the first step to achieve this. Interviewing is best used when there is an interest in understanding other people's experiences and the meaning they make of those experiences (Seidman, 1998). According to Seidman (1998), choosing a research method is based on the purpose of the research and the questions being asked. If the researcher is interested in knowing what others experience, their beliefs, and what meanings they make out of that experience, then interviewing is the ideal choice of inquiry. "Qualitative interviewing is a way of finding out what others feel and think about their world. Through qualitative interviews you can understand experiences and reconstruct events in which you did not participate." (Rubin and Rubin, 1995, p. 1). Focus group interviews were considered because of their ability to increase the potential range of ideas through group discussion, but not selected based on the researcher's experience with Arab Middle Eastern women and their unwillingness to share personal information in a group setting.

In this study, Rubin and Rubin's (1995) type of qualitative interviewing was used to structure the interview. Rubin and Rubin (1995) used the term "conversational partner" to emphasize the link between interviewing and conversation, and to show that both interviewer and interviewee work together to achieve the purpose of the research. Rubin and Rubin's (1995) form of interviewing allows the researcher to gain an in-depth understanding of participants' experiences in their own words. Both the researcher and interviewee play an active role in shaping the conversation, this

cooperative experience helps the interviewee feel understood, accepted, and trusted as a source of reliable information. Also the researcher's personality, style and beliefs are part of the interview process.

According to Rubin and Rubin (1995), a qualitative interviewing design is flexible, iterative, and continuous. The flexibility of design is valuable because the researcher has to work out questions to examine new ideas and themes that arise during the interviews. Another helpful point of flexibility is that the researcher can adjust the questioning, so that participants will be able to address the specific part of the topic that they know best. "Design in qualitative interviewing is iterative. That means that each time you repeat the basic process of gathering information, analyzing it, winnowing it, and testing it, you come closer to a clear and convincing model of the phenomenon you are studying" (Rubin and Rubin, 1995, p.46). Continuous qualitative interviewing means that the questioning is restructured throughout the research. A specific answer might propose a new line of inquiry. In this study, flexibility in conducting the interview was especially valuable in that the researcher sometimes needed to rearrange the order of the interview questions depending on the participant's stories. Additionally, the researcher sometimes tried many different words and phrases in Arabic to find the right word or phrase that would align with the meaning of the word in English. For example, in the last interview question the researcher tried several different words in Arabic for "constraints".

Participants (Conversational Partners) and Setting

The participants in this study included mothers from Arabic speaking countries who had school age children. They were interviewed in Arabic by the researcher, whose native language is Arabic, at a place of convenience for the participants. This included 11 at their home and one at the mosque. The interview was recorded, transcribed in Arabic. Approval from the University of Rhode Island Institutional Research Board was obtained.

The inclusion criteria included a Middle Eastern Arabic speaking mother with at least one school age child (6-12 years) from the Middle East living in or near Rhode Island. Exclusion criteria included a mother younger than 18, or with only children younger than six years or older than 12 years, and Arabic speaking but not from a Middle Eastern country (Algeria, Comoros, Djibouti, Libya, Mauritania, Morocco, Somalia, Sudan, and Tunisia). Identification of the first conversational partner was done through contacting one graduate student from an Arab Middle Eastern community who lived in graduate housing at the state university. This student, who was in frequent and close communication with women in the Middle Eastern community, identified and contacted the first participant. She introduced the research purpose to the mother, and explained that she was free to choose to participate or not in this study. When the participant agreed, the contact information was shared with the researcher. The researcher then contacted the participant by phone, introduced herself, and a time and place were scheduled where the mother felt comfortable to

share information. The subsequent participants were recruited by snowball sampling, which involved asking the first participant to make referrals to other participants (Polit & Beck, 2012). It is important to note here that the women were not asked to include Muslim women. It was unexpected that all of the mothers ended up being Muslims. The decision to limit the geographical range was based on two major reasons: (1) there were known networks of Arabic speaking women with children living in Rhode Island and in nearby areas in Connecticut and Massachusetts and (2) the sample size was small and could be accommodated within this geographical area. Children ages 6-12 were chosen since, in the US, school age children spend long hours at school, and their food choices and eating habits are often influenced by other than their family, such as friends, thus making this a point in time when Arabic speaking mothers may have more difficulty dealing with issues of acculturation and maintaining what they consider to be a nutritious and healthy diet for their children.

At the time of the interview, each participant was asked if she had any questions about the research, and informed consent in Arabic was obtained (appendix D), along with an agreement to allow for the recording of the interview. The interview began with a brief introduction of the researcher.

The following demographic data were collected at the beginning of the first interview: age, education level, years in the US, language use, years as a mother, number of children, and general level of English proficiency. The latter was estimated by asking the mother if she could go alone with her child to a doctor's appointment, if

she could understand letters that she received from school and/or if she could understand movies or TV programs in English. If the mother answered these questions as yes, then I estimate that she has the minimal level of English that she needs to communicate with others. However if she answered as no then I can estimate that her English language is a barrier. The researcher tried to estimate the socioeconomic status of participants by asking about the mother's or her spouse's job. The researcher chose not to ask explicitly about the income, because in this culture asking about income is not acceptable and it was anticipated that the mothers would feel uncomfortable providing this information with someone that they do not know well. This demographic information was collected to more fully describe the participants.

Sample size. Unlike quantitative research, qualitative research methods are often conducted to gain an in-depth understanding of a phenomenon and are not aimed at making generalizations to a larger population, as is the case with this study (Dworkin, 2012).

In deciding on the size of the sample in qualitative research, there are numerous factors to be considered, including data saturation, the quality of data, the scope of the study, the nature of the topic, the qualitative method used, and time and funding constraints (Guest, Bunce, & Johnson, 2006; Morse, 2000). Patton (1990) suggests that qualitative researchers typically focus in-depth on relatively small samples, even single cases ($n=1$), selected purposefully. The sampling strategies

strive for information-richness i.e. one only has to consider the impact of the work of Piaget or Freud to realize that sample size is not the determinant of either clinical or research significance (Kuzel, 1999).

Sampling is driven not by a need to generalize or predict, but rather by a need to create and test new interpretation.” “...to create a deeper understanding...” “...the sample size in a qualitative study is typically small—often between five to 20 units of analysis.” “Which data sources are information rich? Who should I talk to or what should I look at first? As interpretation develops, additional questions arise. What will confirm my understanding? What challenges my understanding? What will enrich my understanding? (Kuzel, 1999).

Most researchers would argue that one of the most important factors to think about in determining sample size in qualitative studies is the concept of saturation, “the point at which no new information or themes are observed in the data” (Guest et al., 2006, p. 59). Although debatable, most qualitative researchers have noted that saturation generally occurs around the completion of 12 in-depth interviews (Guest et al., 2006). The aim of this study was to involve 10-15 participants. The interviews continued until data saturation was achieved at participant number 12.

The Researcher

The researcher of this study is an Arabic speaking nurse from Jordan who worked in a pediatric unit for a Jordanian hospital and as a clinical instructor for 5

years in Jordan. In 2010, she moved to the United States to pursue graduate study. She earned a master's degree in nursing education from Kent State University (KSU), Ohio in December 2012. In the Fall of 2013, she started the PhD program in nursing at the University of Rhode Island. This researcher was an "insider" in terms of sharing the same culture, gender, language and religion, as the participants, as well as the experience of being a mother with a school age child and having moved from a Middle Eastern country to the U.S.

An insider-researcher is "someone whose biography (gender, race, class, sexual orientation and so on) gives her a lived familiarity with the group being researched" (Griffith, 1998, p. 362). In a review, Bonner and Tolhurst (2002) outlined several benefits of being an "insider": having a greater understanding of the culture being studied; not altering the flow of social interaction unnaturally; and having an established intimacy between the researcher and participants which promotes both the telling and the judging of truth. In addition, being an 'insider' can facilitate gaining access, and establishing rapport with participants. However, being an insider has disadvantages. According to Breen (2007) these can include greater familiarity which can lead to a loss of objectivity by making assumptions based on the researcher's knowledge and experience, and difficulty focusing on the interview process because his or her reflections on the potentially personal nature of the data, and the assumption among participants that the researcher already knows the answers.

Insider knowledge allowed this researcher to have the required knowledge to be able to communicate with the mothers in an appropriate way in their culture, in addition to understanding the mothers' nonverbal behavior (For example, while the mother is talking about her children's eating habits, the researcher can know that if she agrees or disagrees depending on her facial expressions and her hands movement), and identify and discuss all types of food and practices that were mentioned in the interview. In addition, being an insider facilitated communication with the participants, and all mothers were willing to share information and talked to the researcher freely. To minimize the potentially negative effect of being an insider, the researcher met with the two core committee members after each interview and discussed the interview with them, and where there were unclear data, the researcher sought out further clarification in the follow up interview. In addition, this researcher wrote a journal about her experience prior to this study and shared this with one of the core committee members.

Data Collection and Analysis

The interviews were conducted by using a conversational guide as recommended by Rubin and Rubin (2005). The guide included interview questions and probes. The first question in the guide asked the participant to explore her perceptions of motherhood, and the researcher used probes to encourage the mother to talk about motherhood in relation to raising children, including nutritional beliefs and practices and making comparisons before and after immigration. For the second

research question, the researcher used photos from the CDC website, which are classified by the CDC according to BMI: normal weight, overweight, and obese (Huang et al, 2007 as cited in Ogden, n. d). The participant was asked to look at these pictures and then the researcher asked a series of questions regarding which child looked best, healthiest, and if any looked too heavy or too thin. The word “best” was ambiguous for some mothers, therefore the researcher used other words such as “prefer” or “like to see” (more elaboration on this point will be presented in the next chapter). In addition, the participant was asked about her children’s food consumption and eating patterns before and after immigration. For the third research question regarding constraints and enablers, the plan was to ask the participants what enablers and constraints they had encountered in trying to provide a healthy diet. Most of the mothers however mixed healthy and non-healthy traditional foods in their responses.

Immediately after the interview, the researcher wrote field notes as guided by Schatzman and Strauss (1973). They include observational, theoretical, and methodological notes. Observational notes included the interview transcript and detailed notes about the setting and the participants, such as the participant’s behavior, facial expressions, and gestures, as well as, any of the researcher’s emotional responses to the interview. This type of note contained as little interpretation as possible. Theoretical notes included the researcher’s interpretations about the possible meanings of the observations. Under methodological notes, the researcher identified

any problems or insights that arose during the interview and noted any changes or additions for the subsequent interview.

A series of steps were used to expand the initial theoretical note and analyze the data with more depth and in relation to each of the three research questions. In order to address the first question, the researcher listened to the recorded interview, reviewed the interview transcription, and notes on the interview. A summary was written related to the participant's perceptions of motherhood. To address the second research question, the researcher reread the transcript and analyzed the data in regard to the mother's perception of a healthy child, and her nutritional beliefs and practices, and if these had changed before and after immigration. For example, what seemed like important nutritional related beliefs emerged such as the perception and focus on the family as whole rather on than any one individual. Based on this the researcher and the two core committee members went back and grouped content under the category of family centered. To address the third research question, the transcript and notes were read again and an inventory of facilitators and barriers that helped or hindered the mother's efforts to foster healthy nutritional practices was developed. These steps were followed with each additional participant and then a cross case analysis was conducted in which the data from each mother were compared and contrasted. Additionally, the two core committee members with expertise in qualitative research reviewed the conversational guide (see appendix E), transcripts, and analysis in conjunction with the researcher.

Credibility

There are many different criteria (e.g., trustworthiness, meaningfulness, credibility) that are being used currently to evaluate the quality of any one qualitative research study (Polit & Beck, 2012; Borkan, 1999; Rubin & Rubin, 1995). Rubin and Rubin's (1995) set of criteria that focuses on credibility was selected since it aligns with the interview method used in this study.

Rubin and Rubin (1995) proposed three criteria to enhance credibility of qualitative research, transparency, consistency-coherence, and communicability. According to Rubin and Rubin (1995), transparency means that the qualitative research report is presented in a way that a reader will be able to see the basic process of data collection and analysis, permit others to assess its strengths and weaknesses, and the conscientiousness of the interviewer. Therefore, to enhance the research transparency, the interviewer should keep records of what he or she did, saw, and felt. In this study, transparency was achieved by maintaining original copies of the interviews, recordings, field notes, and additional analytical steps. Also, two core committee members reviewed the conversational guide, and the flow of ideas from the interviewed data through the analysis and write up of findings in conjunction with the researcher.

Rubin and Rubin (1995) described consistency-coherence as the researcher's examination of contradictory data. To check for coherency the researcher should ask deeper questions and seek more detailed answers. If contradictions exist in a

conversational partner's responses, the researcher should ask about it, and seek an explanation. In this study to enhance consistency-coherence, the researcher wrote in the theoretical notes if there were any contradictory data found in the conversational partner's responses in the first interview. When any were found, the researcher prepared follow up questions under the methodological notes for the second interview, in an effort to clarify any contradictions. For example, one participant in her first interview, she reported that her children stopped taking home lunch to school in their elementary school, but later in the interview when I asked her about school lunch she told me that her children only eat school lunch once or twice weekly, so in the second interview I asked for clarification, and she answered that her children stopped taking the traditional foods to school and she instead prepared for them the food that other students know in school such as a turkey sandwich.

Finally, credibility requires communicability. Rubin and Rubin (1995) clarified that communicability occurs when the final report feels real to the reader. The participants should see themselves in the description of the research. Other researchers should understand and relate to the findings. Readers from other research areas should feel confident with the richness of detail, abundance of evidence, and vividness of the text. In this study to enhance communicability, direct quotes were used in order to vividly describe the participants' responses. Also, in order to check that the participants saw themselves in the description of the research, the researcher reviewed the previous interview with them at the beginning of the second interview

and checked to make sure it made sense to them. At that time, the researcher also asked the participants for feedback about the initial interview. Most of feedback that the researcher received was that the participants were happy to share their experience and this was the first time that they were able to talk about important topic to them.

Chapter IV

Findings

The aim of this study was to explore the perceptions of motherhood and childhood nutritional beliefs and practices of Arabic speaking Middle Eastern mothers now living in the United States. The research questions were:

1. What are Arabic speaking Middle Eastern women's perceptions of motherhood in relation to raising children and have these changed after moving to the US?
2. What are the women's perceptions of healthy children, and their nutritional beliefs and practices related to children and have these changed after moving to the US?
3. What enablers and constraints have the women encountered in trying to foster their nutritional practices while living in the US?

The findings of this study will be described in light of each research question. In this chapter, characteristics of the study participants will be provided, the findings will be presented in relation to each research question, and a discussion of these findings will follow.

Characteristics of the Study Participants

Twelve Middle Eastern Arabic speaking mothers were interviewed from five Arab Middle Eastern countries (Syria, Palestine, Jordan, Lebanon, and Saudi Arabia) to address these questions. All of the mothers were Muslims. Three mothers lived in Rhode Island and 9 in Connecticut (in areas close to Rhode Island). There were seven

mothers in their 30s, three in their 40s, one who was 51 years old, and one who was 28 years old. In regard to educational level, six mothers finished high school, four had a bachelor degree, one had an associate degree, and one had not finished high school. It was estimated that two mothers could use English in everyday in-depth communication (one did most of the interview in English and the other went to undergraduate school in the US), seven mothers could use English in basic but not in-depth communication (could go alone with their child to a doctor's appointment and understand letters received from school), and three mothers needed considerable help in everyday communication. Regarding the number of children, six mothers had four children, three had five, two had three, and one had six. Additionally, six women had been mothers for 10-15 years, three for 17-20 years, two for 23 and 25 years, and one for 30 years. Related to years in the US, mothers had been in the US from one to seven years with five for seven years, two for four years, two for 18 years, one for 17 years, one for 19 years and one for 9 years.

Research Question One: Perception of Motherhood

The first question each mother was asked during the interview was what is the meaning of motherhood for you? All the mothers were able to speak about their perception of motherhood. Additionally, for all of them their perception of motherhood was affected by the birth of their first child and by living in the US.

General perception of motherhood. The women all agreed that motherhood involves the responsibility to care for their children and includes feelings of warmth, kindness and love, as well as a desire for their children to be successful.

All the women perceived *a mother as one who is responsible for taking care of her children*. This responsibility of caring for one's children was often the mothers' most immediate response to her perception of motherhood. These responsibilities included raising children with good manners, preparing and providing food for children, following up on the children's homework and studies from school, and vigilantly protecting them from any harm outside the home. For example one mother said "Motherhood is a big responsibility, it is not just having children, I have to take care of them from when they are babies, for example weaning and toilet training are very hard steps when the child is very young, then the responsibilities increase as the children get older. I have to watch their behavior. I have to raise them and teach them what is right and what is wrong, and teach them how to speak, especially here in the US. I struggle with 2 languages....teaching them the Arabic language is the hardest thing I face now." This woman also talked about the mothers' responsibilities according to the developmental phase of a child, starting with infancy which included feeding, weaning and toilet training and morals.

Another mother described caring for children as wanting to know everything that her children experienced during the day such as how they spent their time out of the home and in school and who and what they were doing with their friends. As she

stated “Motherhood is everything, taking care of my children very carefully, taking care for every detail in their lives such as relationships with their friends and the community that they are living in.” She wanted to keep in touch with her children in regard to every detail of their lives in order to know everything about them, and to provide appropriate care, as well as to be close to them, but not to control them.

Another woman said “I am responsible for taking care of my children. I have to cook for them, educate them. I want them to be the best.” For this mother it was not clear exactly what she meant by “best,” but she seemed to imply throughout the interview that she wanted her children to be successful in their academic and career life, and to have a family and have a good life. Later in the interview she spoke of her oldest child who was 16 years old. She mentioned his achievements in school, his goals to go to medical school and how very proud she was of him and she spoke of him as though she saw him as the best of all her children.

Additionally, the responses of all the women included *feelings of warmth, and kindness toward, as well as a deep love for their children*, although not always expressing these feelings using the word love explicitly. One mother expressed her feelings this way “A mother is warm and kind, I feel my kids are a part of me that I cannot live without.” Another mother remarked that “Motherhood is a very big responsibility, but at the same time I feel my children are very close to me, I feel big love toward my kids.” While another stated “Being a mother is the most beautiful

thing in life, when I hear the word “mama” I feel great.... Motherhood is love, warmth, and kindness.”

For a few mothers this love encompassed living their lives for their children and/or family. One mother stated that she dedicates her life for her children “My children are all my life, I live for them. Since I got married I dedicate all my life for my husband and my kids, and I am very happy for this, thank God.”

Another woman expressed her feeling in a way that she could not live away from her children. She said “I cannot imagine my children going away from me. I cannot imagine living a day without them. In the future when my daughter wants to go to university, I will not allow her to go to a faraway university, it should be close, and my son also, the same feeling. From now I discuss this matter with my husband, I say to him I cannot, I do not feel I am able to leave them.”

Two of the women had a child who was much younger than the other siblings by as much as 8-10 years. Both mothers reported that they are very attached to their youngest children, and all family members share in the caring of this child. The first mother said “my 9 year old I nursed for 2 years and 4 month.... I was not able to stop, I was so attached to her...yeah, and she was like so healthy...oh... my baby.” The second mother stated “when I delivered my youngest daughter, we all were very very happy, because there is a period between her and her brother, and because she is a girl, and we wanted a girl, because we wanted a sister for my other daughter, and until now she is very special for all of us especially for me and her father.”

Most of the mothers expressed that *they wanted their children to be successful*, two of whom used the word successful explicitly. They mentioned that they wanted their children to be successful in life meaning to be successful in their academic life, and to have a good job and a family in the future. As one mother stated “to be able to raise my kids with good manners - I need to teach them to be successful people.” Another said “The most important thing for me is that my children are very successful at school, this is my priority.”

Additionally, two of these women spoke about their future dreams for their children. One of them talked about it being an important aspect of her own dreams and objectives. She said “I feel it is not enough for me to achieve my personal objectives, I feel part of my success is when my children are successful as well... I am willing to do everything in order that my children achieve better things than I have achieved.” The other woman talked about children being an investment in her future. She stated “Motherhood does not mean just getting pregnant and delivering a baby and that’s it. No motherhood includes raising them. You look to them as they are your future investment. I mean, in the future when they get older, God willing, they will take care of me a lot.”

Changes in perceptions after the birth of the first child. All of the mothers agreed that their perceptions of motherhood were affected by the birth of their first child. Most of the women (9 mothers) stated that *a stronger sense of responsibility*

emerged with the birth of the first child. For three of the mothers, their perceptions were not formed until after having a child. As one mother stated

Once I delivered my first baby, I felt something new, which is responsibility, there is a human being I am responsible for, how I should raise him. Most of the influence will be from me, because the influence of the mother is much more than the father's influence, because the child spends more time with the mother....having children is a big responsibility.

This mother's general perception of motherhood is all about responsibility. Before having children, she had cared for her sister's children, but she did not really feel a deep level of responsibility until she had her own children. Before having children she thought being a mother was more about loving the children than being responsible for them.

Another mother said "Before having children, I thought I will have a baby and play with him. Once I became a mother I began to feel responsible....I am responsible that my kids feel safe all the time. I am responsible that my kids get the best education, I am responsible to raise my kids with good manners." And another woman stated "before having children I thought raising kids is very easy, one only needs to carry the baby, feed him, change the diaper, and clean him, this was my understanding."

Influences on perceptions related to living in the US. All of the mothers expressed that their perceptions of motherhood were influenced as they were living in

the US by *having new responsibilities and/or a deeper and more expansive level of responsibility.*

These mothers' new responsibilities were related to the *Arabic language, Islam religion and cultural aspects of child life.* The mothers did not have these responsibilities back in their home country, because they were living in a society they were accustomed to and shared the same language, religion and cultural background. Here in the US they needed to teach their children so that they could learn and keep the traditional cultural values. The responsibilities related to raising and taking care of children had increased since they now were alone and without the support from other family members that they had had in their country of origin. For example one mother said:

Here in the US the sense of responsibility has increased. I mean, when I was in my home country, for example, I did not care much to teach my kids about our religion, we were living in a country where all of the people around us were the same and there were many people taking care of the children with you. But here I have this responsibility to make my kids keep their Arab identity and religion, and no one helps me in this, except me. And at the same time, I want my kids to adapt to living here, it is very difficult

This mother reflected some of the aspects of the bidimensional model of acculturation. She wanted to maintain the values from her original culture and at the same time she wanted to adapt with the new culture. Another mother said:

Since I came to the US the responsibilities have increased, when we first came me and my husband were very worried because we are in a different culture and environment. We were very worried that when we spent time here and our kids get used to living here, they will not be able to communicate with other kids from the same culture if we return to our home country, therefore we became very anxious, and we decided to teach them how to keep their values, principles and language.

This particular mother, unlike many of the others, showed no interest in adapting to this new culture, her priority was to keep her cultural values and language.

All six women who had children before coming to the US expressed a deeper and more expansive level of responsibility after moving to the US and for these women this was basically because they now felt alone. In addition these mothers agreed that their husbands spent longer hours at work than in their home country, and this was one of the reasons for their increased responsibilities. For example one mother said:

Here I have more responsibilities, my husband spends long time at work, so I have to do everything, such as shopping, dropping off my kids at school, and taking the kids to doctor appointments, I did not have these responsibilities in Syria. Here there is a need for more effort to teach children Arabic language, and to raise them with cultural values and religion

For those mothers who did not have children before coming to the US, they also expressed deeper levels of responsibility but they did not experience former directly. They compared their role to their mothers' roles when they were kids in the home country and currently in comparison with their sisters or brothers who were still living in the home country.

Research Question Two

As noted earlier, question two involves several aspects related to the women's perception of a healthy child, their own nutritional beliefs, and practices related to their children and how these may have changed when they moved to the US.

Women's perception of healthy children. The women were shown three photos and were asked a series of questions regarding which child looked best, healthiest, and if any looked too heavy or too thin. The first photo represented a child whose body mass index according to the CDC was within the normal range (below 85th percentile) and this picture was meant to depict a child whose weight is normal. The second photo showed a child who is classified by the CDC as overweight (BMI is between 85th and 95th percentile) and this photo was meant to depict a child who is overweight. The third photo presented a child who has a BMI above 95th percentile. This picture was meant to show a child who is obese according to the CDC growth charts.

Overall, these Middle Eastern Arabic speaking mothers' perception of the best and healthiest child centered around those of the normal and overweight child, while a

child who was too heavy was reflected in the photo of an obese child. For most of the mothers, none of the photos captured their view of a child who was too thin. This is illustrated in tables 1 and 2.

Table 1

Mothers Responses to BMI photos for Best and Healthiest

	Best	Healthiest
Photo 1 (BMI within normal range, <85 th)	6	5
Photo 2 (BMI within overweight range 85 th ≤95 th)	6	7
Photo 3 (classified as obese, BMI ≥ 95 th)	0	0

Table 2

Mothers Responses to BMI photos for Heavy and Thin

	Heavy	Thin
Photo 1 (BMI within normal range, <85 th)	0	3
Photo 2 (BMI within overweight range 85 th ≤95 th)	0	0
Photo 3 (classified as obese, BMI ≥ 95 th)	12	0

In the first interview question based on the three photos, the mothers were first asked which size child they thought looked the best. Only a few of the mothers were able to point to a photo directly when asked this question. However, it seemed as though most were puzzled based on their facial expression. Therefore in order to help them and make the question understandable to them other words were used, such as

“prefer” or “like to see.” The mothers were able then to point to a photo. Six of the mothers picked the photo that was meant as normal as best, and an additional six selected the second which was designated as overweight, but no one chose the last one which was seen as obese. After the mothers picked a picture they were asked why they picked that photo. They seemed a little puzzled by the question and only three responded. The first mother selected photo one saying “look at his legs and chest.” The second and third mothers selected photo 2, stating that “she has straight posture, and does not have a big abdomen” and “she looks normal, not thin or overweight.”

The second interview question was related to the three photos and focused on which child they thought looked the healthiest. In contrast to the previous question that related to “best,” all the mothers identified quickly with the term “healthy” and seemed to have no problem with its meaning. Five mothers picked the first photo (normal) as healthiest, and seven mothers chose the second photo (overweight) as healthiest, but no one selected the third photo (obese).

For the above 2 questions about “best” and “healthiest,” nine of the mothers selected the same photo for both best and healthiest. Four mothers selected the first photo which showed a child with normal weight as best and healthiest. On the other hand, five mothers picked the second picture which represented a child with overweight as best and healthiest. Three mothers chose different photos to represent best or healthiest.

Some of the mothers were able to speak out when they were asked about their understanding of a healthy child. Some expressed that the healthy child is the active child, while others referred to the skin color as an indication of a healthy child. For example, one mother said “child activity, and his skin color, should not be pale, it did not depend if he has white or black skin color. He has rosy cheeks.” Two mothers noted that in addition to the healthy child being active, he is also the child who does not get sick. For example one mother stated “being healthy this means that he does not get sick, and he does not have an increased weight, and at the same time not very thin. Also he has energy to run and play.” One mother thought that a thin child has poor health, “If I see the child’s weight is very thin, I feel he has a lack of vitamins, or the mother does not care about feeding her child well, this is my understanding.” One mother expressed her understanding of a healthy child in a more comprehensive way, physically and mentally, stating that “he likes to enjoy everything he does as it is, that means at learning time he enjoys that he is learning, at playing time he likes and enjoys that he is playing and at eating time he likes and enjoys that he is eating, this child is a physically and mentally healthy child.” This mother used to work as a teacher in her country of origin, so she included a learning time, and she provided an example of how a healthy child showed focus during study time and participated effectively.

In the third interview question regarding the three photos, the mothers were asked if any of the children looked too heavy and if so, which ones. All the mothers

selected the third photo, which is classified as obese. Then the mothers were asked if they saw this child as overweight or obese. Five mothers indicated that this child was obese, but seven mothers thought this child was just overweight. For example, one mother said about the third child “she is a little overweight, not obese, look at her tummy, arms, face, and legs. The girl is over normal weight but I cannot say she is obese.” When the mothers were probed about causes of overweight or obesity, they responded that causes of obesity might be related to the amount of food consumed, the type of food such as junk food, fried, fast food, a lot of sweets and candy, and existing health problems such as a child who had asthma and could not exercise. For example one mother said “depended on ready-to-eat meals, and no organized meal times” and another mother stated “fast food and eating a lot of candy, and lack of exercise, also if the child watches television and uses phone for long time, all of these effect the children.”

In regard to the fourth question, the mothers were asked if any of the children looked too thin and if so which one, nine of the mothers responded “none of them are thin.” Only 3 mothers saw the first child as thin.

Nutritional beliefs and practices. The essential component of these Middle Eastern Arabic speaking mothers’ nutritional beliefs is that *food and family is central to everyday life*. This meant that all members of the family (father, mother and children) should be present for the main meal of the day, and the food must be home made. In practice, there were not always keep able to this.

In order to address the mothers' nutritional beliefs and practices before and after living in the US, the participants were asked two main interview questions. These included: tell me about children's food, and eating pattern in your home country? And tell me about your children's food, and eating pattern in the US?

For this group of women, their general nutritional beliefs included: food is very important for everyday life, the main meal is family focused, in addition to their belief related to the structure of meals in terms of their frequency, the kind of food served, and that everyday should include home cooked food. The following is a discussion of these beliefs, along with the women's practices with regard to them and if these beliefs and practices changed when they moved to the US.

All of the mothers emphasized that food is very essential for everyday life. They expressed this in the way that they talked about planning what they should provide daily for their family. One mother stated, "I plan what I want to cook a day before to check if I have all the ingredients for the meal." In addition, the mothers confirmed that preparation of food is the main responsibility of the mother. From all the interviews, it could be inferred that the husband and children expect food to be served by their mother daily. One mother stated "food is every day. The mother's duty is to make sure to provide comfort and food and provide everything possible for the kids and husband to live a healthy and nice life as a family. And food is the main part in our daily life." Moving to the US had no influence on the mothers' belief that food is one of their daily priorities. They still planned in advance in order to prepare

meals, however, shopping for the food was the men's responsibility in their country of origin. Most of the mothers reported that they didn't use to go and buy the food. In contrast, all the mothers reported that in the US they do the shopping. One mother said, "When I was in Syria, women did not go to do the shopping, husbands did this." Although men and women shared responsibility for buying the food, women usually prepared the list, including the food types and quantity. As one mother described "I decided what to buy, because I am the one who cooked, so I know what we needed."

All the mothers agreed that all the *family members must meet for the main meal*. If this was not possible, the father and mother should be present with whoever else was available. To achieve this, all family members must wait for the father to return from work, so that they can meet and eat together. The mother's responsibility is to make the arrangements needed to make sure that all family members can be present in time. As one mother noted, "my husband comes home at 6pm, so the time of the main meal is at 6." Another mother reported that with time the children get use to this practice and then they refuse to eat without the presence of their father. She said:

One time my husband was late getting home, and as I told you, usually we wait for him until 6-7pm, so I put the food on the table for them to eat and I told them that their father would be late and I said you can eat. They refused and they waited for their father until he returned home at 9 pm and we ate together, I think because I have got them used to it.

Moving to the US did not have an effect on the mothers' belief that all family members should be present and eat together. All the mothers reported that in their country of origin and in the US they do the same.

All of the women also expressed that *every day there should be home cooked food*. Either they cook every day, or they increase the amount of cooked food so that there is enough food to feed the family for two days. For example, one mother noted that "almost I cook every day, I do not cook a large amount of food, because I prefer to eat fresh food" and another mother said "I cook every two days."

In regards to the frequency of the meals, all of the women emphasized that there must be *at least two main meals daily*, breakfast, and an evening main meal (dinner). In practice, the time and content of the meals depended on the father's schedule, resulting in differences in the time and content of the meals between the father's days on and off of work. During week days family members did not gather together to eat breakfast. Most mothers reported that their children usually eat breakfast before going to school, mainly cereal and milk. One mother insisted that her children must eat eggs daily. In contrast, some women stated that their children sometimes didn't like to eat breakfast at home. For the main evening meal during week days, as mentioned earlier, all family members must be present and eat together, therefore, children must wait for their father. Most mothers reported that usually the main meal is at 5 or 6 pm. This meal contained at least several of the following ingredients: vegetables with sauce, rice, salad, plain yogurt, bread (pita), pasta, meat

(e.g., lamb, beef), poultry (e.g., chicken), and fish. For example, one mother described “I cook everything, I cook beans, green beans and dry beans....vegetables and rice....macaroni...lasagna...meat...chicken.” Another mother listed “ for lunch my kids like to have rice with beef and chicken and they like to have stuffed zucchini with rice and meat boiled with tomato sauce that’s a very special meal for my kids, they like a lot of food has yogurt....they like rice with fish.”

Most mothers reported that the father’s day off was either Saturday or Sunday. The breakfast on the father’s day off usually consisted of traditional foods, such as cheese, humus, falafel (made from ground chickpeas, fava beans, or both. Herbs, spices, and onion, fava beans, bread. For example, one mother listed “for breakfast I prepare egg, cheese and fava beans.” Another mother said “for Saturday breakfast I prepare hummus falafel, cheese, thymes and olive oil....olives.... with warm pita bread and tea.” For the evening main meal, all of the mothers stated that the father’s day off is considered a special day, therefore they prepare one of their favorite traditional meals, or sometimes they may go to eat outside of home, for example pizza, shawarma (chicken sandwich), or Chinese food.

In their country of origin, it had been the same as in the US in regard to the number of meals. The family continues to have at least 2 main meals, and the time of the meals depends on the father’s schedule, however, the difference between the two countries is in the meal time. Most mothers expressed that in their home country the number of working hours is less than in the US, therefore the main meal usually was

in the middle of the day, not in the evening. For those families they might have another light meal in the evening. Breakfast contains traditional food and all the kids should eat before going to school. They only can have snack at school because the school day is short, it is about 5 hours. The main meal included traditional foods, and its time was around 2-3pm. All the mothers stated that in their country of origin the day off always was Friday, therefore it was a special day in terms of religion and family. All family members gathered for breakfast and lunch on Fridays.

In moving to the US the families became exposed to other cultural foods. The women mentioned Indian, Mexican, and Chinese food, as well as American food in their meal list. For example, one mother said “my kids like Indian and Mexican foods, I learned how to cook this food here in the US.” For some children they start to get used to these different foods and like to eat them more than their traditional food, and some mothers expressed their concerns and how they attempt to reinforce the traditional food. One mother said “my kids like American food more than our traditional food, but I want them to eat what I cook and I ask them to eat.”

In the US, the school day is usually about 7 hours and children can eat breakfast and lunch at school. Some mothers felt that it is okay for their children to eat the food at school, however these mothers do not pay attention to what kind of food is served at school. The only important thing is that this food does not contain any pork products. One mother stated “I always check the school menu to make sure the food does not contain pork products.” Other women emphasized that their kids eat

the food prepared at home at school. They give the children lunchboxes that include food for breakfast and lunch, “I give my kids home prepared food to eat at school.”

In regard to snacks that might be offered to children during the day, most mothers expressed that in their home country children can have one snack at school and sometimes at home, but snacks are not available at home. In contrast, most mothers noted that in the US snacks are always available at home and some children have easy access to them. These snacks might include chips, pretzels, ice cream, cake and cookies. For example, one mother stated that “for snacks my children might eat popcorn, cake...ice cream.” And some mothers listed fruit as one kind of snack, mostly apples, oranges, bananas, and strawberries.

Most of the mothers would have full control over food provided to their children when they were in their native country. When they came to the US they had the possibility of losing some of this control when the children go to school. To compensate for this, some of these mothers do not include school food as part of what they see as necessary food for the day. As one mother stated:

I always prepare breakfast for my daughter before going to school, the breakfast is optional at school, and I prefer that she eats at home, usually I want her to eat eggs and drink a cup of milk, I feel if she didn't eat anything else until lunch time that would be enough, and usually she eats lunch from school, but I don't depend on it....I do not have any problem if she eats or not at school, I do not care.

When the mothers were probed about healthy foods, they interpreted healthy in different ways. In one way they used healthy food as nutritious, in another way they meant clean. Most mothers responded that healthy food should contain fresh fruits and vegetables, and fresh meat, chicken or fish (not frozen). Some mothers added that healthy food should be balanced and varied, as well as not being fried. In addition it should not include sugar or be canned. The most explicit answers were: “the food should be varied, means we eat everything, fats, carbohydrates, starches, and sugars everything but it should be in balance.” “I cannot buy anything frozen, I never buy frozen stuff, I have to have everything fresh” and “for me the healthy food, first point is to keep as far away from fried food as possible, when the meal has more fried food it will be the worst.... The second point is, honestly I do not do it, to eat boiled food, but that means the food does not have any taste.” Two mothers added to eat healthy the individual should not eat a large amount of food, “healthy food should contain fruit and vegetables. And of course the person should eat everything in reasonable amount” and “to eat healthy, you should not eat a large amount of food.” From a cleanness point of view, three mothers insisted all the ingredients must be cleaned in order to prepare the meal and this was a reason why these mothers didn’t prefer prepared meals. For example one mother described “I don’t like prepared food because of the amount of fat in it and disregarding if it’s healthy or not healthy I look at it as not clean...because more than one time when I go to buy food I don’t feel comfortable regarding its cleanliness...but that doesn’t mean that we don’t eat in restaurants...we

eat outside but not very often.” Another mother made a contrast between frozen and fresh food in terms of cleanliness, stating “I might buy frozen beans because I can’t find the fresh ones but if I find fresh ones I buy them because I think they are cleaner, they do not have preservatives.”

Research Question Three: Enablers and Constrains to Foster Mothers’

Nutritional Practices

The aim of the third research was to identify enablers and constraints that Arabic Speaking Middle Eastern mothers encountered in trying to foster their nutritional practices while living in the US. To address this research question the mothers were asked: What helps you in providing your child a healthy diet? And what are the constraints or limitations you have in providing your child with a healthy diet?

The first intention was to discuss enablers and constraints related to providing healthy food, however these interview questions came after a long conversation with mothers about their nutritional practices, therefore most of the mothers in their answers mixed fostering of healthy foods with traditional foods, and mainly their answers focused on traditional foods. For the mothers who were able to discuss their understanding of healthy foods, they provided some enablers and constraints that were specific to healthy food.

Enablers. Factors that helped this group of women to practice their nutritional beliefs included: (1) mother’s knowledge and communication skills; (2) children’s familiarity with Arabic traditional food from a very young age; (3) access to families

with a similar cultural backgrounds and (4) access to desired items of food and ingredients.

Mother's knowledge and communication skills. Mother's knowledge and communication skills helped to foster nutritional beliefs for traditional and healthy food. Two mothers had baccalaureate degree with some relation to nutrition, and those mothers were able to give specific nutritional information regarding healthy foods. Other mothers had general information by reading some news and looking for information through internet searches. For example one mother said "my source of information regarding nutrition comes from internet searches and watching vlogs for nutritionist and physicians."

Some mothers thought that talking with the children and explaining to them the benefits of food for the body might convince children to eat this food, as well as discuss with them the effect of unhealthy food on the body. For example one mother said "I don't just say no for eating too much candy, I try to explain to him and say eating candy affects your teeth and your body.... After much debate he was convinced." Most mothers emphasized that this method works well for young children, mostly 5-10 years.

The mothers knew how to prepare foods that are generally appealing for children by making decorations and/or changing some meal ingredients. One mother pointed out that food presentation has an important effect on encouraging a child to eat food. She stated "making decorations and shapes with food help with getting young

children to eat.” Two mothers described how they change the meal recipe to make the meal acceptable for children. One mother said “I change the recipe by removing ingredients that my kids don’t like, because I want them to eat this meal.”

Another mother emphasized that time management has an influence on quality of food that the mother can provide for her family. Time management gave this mother the time necessary to perform her responsibilities: “time management is very helpful in setting a schedule for all my daily responsibilities, so I can find time for cooking” (p2).

Children’s familiarity with Arabic traditional food from a very young age.

Another enabler that helped some of these mothers to foster their nutritional practices was that the children were used to seeing the food that the mother prepared since they were very young. Three mothers expressed that because they usually cook every day, homemade food becomes more acceptable to the children and the children’s willingness to eat increases. For example, one mother reported “kids when they start to eat homemade food at very young age they get used to it.” Another mother stated that “when the mother accustoms her children to eat certain types of food, they will keep eating this food until they grow up.”

Access to families with a similar cultural background. Communication with other families having the same cultural background had an impact on fostering mothers’ nutritional practices. Three mothers reported that when their children communicate with other children who share the same cultural background, they accept

more the traditional food. One mother stated “when I have a relationship with other families having the same cultural customs and tradition as mine, this helps me maintain the traditions that I got used to.” Another mother said “my friends who are living close to me, they have the same types of food....All of them like to cook....If I want to visit my friend she will make the same kind of food that I make.”

Access to desired items of food and ingredients. Regarding access to desired food items, it can be inferred from most interviews that this is an important point because all participants expressed their ability to go shopping for food items and no one complained about not finding specific food items or had any financial issue. Only one mother mentioned this point explicitly, stating that “everything here is available, basically you can do whatever you want anytime. You could go and bring ingredients and make food...that’s something really important.”

In relation to nontraditional healthy foods, residency as a nuclear family in the US helped mothers to enhance consumption of healthy foods. Seven mothers agreed that living in a nuclear family helped them to control the types of foods that they provided to their children. These mothers had lived for some time in an extended family. One mother stated “my mother in law came and lived with my family for 4 years, during this period she was deciding what we cooked.... I let her do it out of respect for her and did not even bother her.” Another mother said “my mother and father in law were living with my family last year.... When I refused to give my

children certain kinds of foods such as extra snacks, they were going and asking for it from their grandfather or grandmother, and they were willing to give it to them.”

Constraints. There were some constraints that seemed to restrict the mothers’ ability to foster their nutritional practices. These constraints included: (1) mother’s inability to cook; (2) inability to eat together as family; (3) frequent availability of snacks at home; (4) negative influence of family members; (5) negative influence of peers in school; (6) long distance to Arabic food stores; and (7) the high cost of organic food.

Mother’s inability to cook. There were several ways that constrained mothers’ ability to cook. One way involved the willingness of the mother to cook. Preparing food daily is time-consuming for cooking and kitchen cleaning. One mother said “cooking every day is not easy thing, it requires time and energy.” Another way was that the mother’s health condition might limit her ability to cook. For example one mother said “I have disc desiccation, sometimes I couldn’t stand and cook, so I need help.” Another mother expressed that getting sick prevented her from providing appropriate food for her children, stating “when I get sick, my husband takes responsibility of feeding the children, he always brings prepared foods such as fried chicken. I do not like this and keep thinking of them.”

Inability to eat together as a family. A long workday for family members, as well as mother’s busy schedule were mentioned as constraints. One mother compared work hours between her native country and the US. She emphasized that long

workdays limit her desire to wait for all family members to gather for the main meal. If they waited for each other this would make the meal time late: “here in the US working hours are more than in Syria.” Three mothers commented on their schedules. One mother currently is working, another one used to work, and still another used to go to school. These mothers illustrated that being busy had an effect on providing nutritional practices. They had to arrange their schedules in order to provide meals to family members such as cooking for two days, or cooking a day before. For example one mother said “there is sometimes I couldn’t cook every day because I didn’t have time to cook...but my kids didn’t feel it and they had food everyday...but instead of cooking every day I used to make a big meal that would last for two days.”

Frequent availability of snacks at home. Most of the mothers reported that snacks are available at home constantly and they are easily accessed by children. For example, one mother stated that “my kids like to eat snacks such as chips, chocolate, pretzels....and these are always available inside the home.” Another mother reported “my husband always brings snacks and my kids know about this....and I couldn’t hide them.” Still another compared the consumption of snacks in her country of origin and with these in the US, stating “Here in the US I get used to buying snacks in family sized packages and keeping them at home, but in my country snacks were not available in packages, children usually had pocket money and they went and bought their own snacks.”

Negative influence of family members. The influence of other family members including the father and siblings sometimes limited the mother's ability to apply nutritional practices. These mothers reported that younger children always try to imitate the oldest sibling, therefore if the oldest sibling decides not to eat for any reason the younger one copies the behavior immediately. For example, one mother said "my little son always imitates his older brother. When he heard the oldest brother saying I don't like this meal and I don't want to eat, he directly says I don't want to eat too without even trying it." The mother who had nutritional knowledge discussed the influence of the father. She pointed out that in order to apply healthy eating patterns all family members should collaborate. "It is hard to change any habits without collaboration between family members. I tried to apply what I had learned about preparing a meal in a healthy way, but my husband did not help me."

Negative influence of peers in school. Another essential constraint was the influence of peers in school. Most of the mothers expressed that their children were affected by other children in school. For example one mother stated that "the kids in the school didn't accept the food my kids eat... so they made fun of them...so there was a period of time my kids decided not to take food with them to school." Another mother said "sometimes my children when they took traditional lunch from home, they had some comments from other children wondering about the kind of food they brought, so they refused to take it another time."

Long distances to Arabic food stores. Some mothers complained that Arabic stores are not close, and there are some foods that are only available in these stores, such as some spices, pita bread, some kinds of cheeses, and some kinds of vegetables such as small Zucchini. One mother reported “sometimes we go to New Jersey.... And we go to Boston in Massachusetts....but now there’s halal meat and halal food in restaurant depot that’s an hour away so it’s closer than New Jersey and Boston.”

The high cost of organic food. Two mothers complained about the high cost of some types of food, specifically organic food that is considered by these mothers to be more healthy. They said “organic food is very expensive in comparing to other food” and “I prefer fresh food....and sometimes I try to bring organic fruit and vegetables but it is very expensive.”

Discussion

This study was conducted to gain an in depth understanding of perceptions of motherhood of Arabic speaking Middle Eastern mothers in relation to raising children, as well as mothers’ nutritional beliefs and practices related to children and whether these have changed after moving to the US. Perhaps the most meaningful contribution of this study is the mothers’ responses to the photos as they identified the overweight child as healthiest, giving the impression that these mothers need education to increase their awareness regarding childhood overweight and obesity and its current and future consequences.

The following discussion will be focused on four additional points, including the family as a whole unit, and the mother's role and perception of motherhood, an understanding of mothers' food choices, the transition in nutritional practices, and body image.

In each interview the importance of the family as a whole and the central role of the mother emerged in regard to all aspects of child care, including nutritional practices. This finding is consistent with the earlier literature review in which the family was described as the strongest social unit in Arabic culture and the foundation on which the society was built. Family commitment, honor, loyalty, obligations, responsibility and unity were identified as central values in the life of Arabs (Zahr & Hattar-Pollara, 1998). In addition, children are to be raised to live within the expectations of the culture. Therefore, children are expected to obey their parents, respect the elderly, be faithful to the family and demonstrate parental dedication. Also, children are taught to give family needs a higher priority than their own (Barakat, 1993; Patai, 1983). One finding of this study, though not related to the original research questions, was the extent to which the family as a whole unit was central at meal times. All mothers emphasized that the father must be present for the main meal time. This was similar to Lindsay et al. (2009) research on Latina mothers, where the authors emphasized the importance of family as a whole unit and found that most mothers discussed their feeding practices and children's behaviors within the context of the whole family.

The findings regarding the mothers' perception of their role was also similar to Zahr and Hattar-Pollara's research (1998), where the authors found that the mother's main role was to nurture, build and provide the daily needs of their spouse and children. The mothers saw their responsibility as raising their children according to the culture and its traditions and guiding them throughout their lives. In this study, each mother reported that she had the responsibility to care for her children, raise them with good manners, prepare and provide food for them, follow up with the children's studies in school and protect them. At the beginning of the interview when the mothers were asked about their perception of motherhood the mothers did not refer specifically to nutritional needs or nutritional practices. It was only when they were asked directly did they start to talk about their responsibilities for the eating patterns et.al of their families. It seemed as though they were embedded in their unconscious, like one sees with core cultural values.

In addition, these findings were similar to Kulwicki and Ballout (2013), where the authors reported the preparation of meals was perceived as a way of expressing a mother's love and caring for her family. In this study, the mothers reported that food is very essential for everyday life and they confirmed that the preparation of food is a major responsibility of the mother. The mothers reported that the husband and children also expected food to be served daily by the mother.

Another essential finding in this study pertained to the perception of motherhood and the kind of relationship expected between the mother and her child.

The mothers reported that they wanted to do everything they could to take care of their children. It was when they became a mother and took on the responsibility of caring for their children that strong feelings of warmth, kindness and love emerged for each child. Although no research study was found that specifically focused on Arab Middle Eastern women's perception of motherhood in general, one study by Missal (2013) explored Gulf Arab women's perspectives on the transition to motherhood. Missal reported that the participants felt responsibility for their new babies and expressed feelings of happiness and intense love for their new babies.

It is hard to overstate the importance the mothers placed in the selection and preparation of food. The choices the mothers made were similar to those presented by Kulwicki and Ballout (2013) in describing the common foods and rituals seen in Arabic culture. The mothers mentioned that the common foods they provided included rice and wheat dishes, stuffed vegetables, pastries, plain yogurt, grains (fava beans, chickpeas, peas, lentils and white beans), lamb, beef chicken, fish, bread and olive oil. The mothers' favorite fruits and vegetables included dates, mangos, melons, apples, bananas, oranges, strawberries, carrots, tomatoes, cucumbers, parsley, mint, spinach, grape leaves, zucchini, eggplant and cabbage. An initial analysis would lead one to think that the women's food choices align relatively closely with the Dietary Guidelines for Americans, 2015-2020. According to these guidelines a healthy eating pattern includes: a variety of vegetables from all of the subgroups—dark green, red, and orange, legumes (beans and peas), starch and other fruits, especially whole fruits;

grains, fat-free or low fat dairy, including milk yogurt, cheese and /or fortified soy beverages; a variety of protein foods, including seafood, lean meats and poultry, eggs, legumes and nuts, seeds and soy products and oils. The one component that was not clear about the women's food choices regards the use of fat free or low fact dairy products. When the mothers mentioned milk, yogurt and cheese, they did not indicate that these products were fat free or low fat.

All of the mothers in this study were Muslim, therefore eating pork and pork products were prohibited. All the mothers mentioned that they are very careful regarding this point. They emphasized that they must check the school menu before letting their children consume the school meal. In addition they went to specific stores to purchase Halal food (Halal is Arabic for permissible). Halal food is that which adheres to Islamic law, as defined in the Quran, especially in regard to the consumption of meat. This issue might be the main reason why these mothers' families do not consume prepared foods, as they may be hesitant that some of the prepared foods are not allowable.

According to most unidimensional theories of acculturation (Cabassa, 2003), these women would not be seen as assimilated in any way in the US. And this generally would be viewed by other, non-Arabic speaking Middle Easter individuals as negative. In contrast, these mothers would be recognized as being at different levels of Berry's bidimensional model in relationship to the role expectations of motherhood and nutritional beliefs.

The findings of this study showed that all of the mothers wanted to maintain the traditional nutritional practices and aimed to be with the whole family. After moving to the US, all mothers in this sample continued to have a traditional meal every day and made every effort possible to have the family together. The major influence that affected mothers' nutritional practices was when the children started going to school and they had more exposure to other cultures. It was harder for the mothers to maintain traditional foods all the time and they had to figure out different ways in order to try to maintain traditional food intake. The mothers selected different levels of commitment to sustain traditional food intake. Some mothers allowed the children to choose what they wanted to eat at school, either from the school cafeteria or take any familiar food from home. These mothers prepared lunch at home for their children, so that when the children came back from school, they would eat what the mother had prepared. This seems to reflect the integration sector in Berry's bidimensional model of acculturation, in which both cultural maintenance and involvement with the new culture are wanted. On the other hand, one mother insisted that her children should take traditional food to school. This mother reflected the separation sector in Berry's model in which an individual prefers to maintain the culture of origin and avoids involvement with the new culture. In terms of the mothers' preferences of traditional meal in the home with the family, these mothers also reflected the separation sector of acculturation in Berry's model.

Several of the Arabic speaking Middle Eastern mothers in this study, like the Hispanic mothers in studies by Hackie and Bowles (2007) and Reifsnider et.al. (2006), identified overweight or obese children in the photos as being healthy. It is hard to know if the mothers had any difficulty distinguishing among the photos given that the children depicted were not from Middle Eastern descent. Additionally, it is unclear whether or not these mothers' perceptions then influenced how they did or would actually identify their own children's weight. In one unexpected observation, a mother described her child as overweight but when the researcher happened to see the child, it was clear that the child was obese. Also, one wonders how any of these mothers would respond if they felt their child's weight was not in the healthiest group.

In a later interview, the researcher asked the above mother about the height and weight of the child at the last doctor's appointment. The mother clarified that the doctor told her that her son was obese, but no further follow up or serious actions were recommended by the doctor. In this case, it remained unclear whether or not the mother recognized her child's weight as potentially problematic and if she did it, how or what actions she might take to help reduce her child's weight. At the same time, it is noteworthy almost half (5 of 12) of the mothers in this study identified the normal weight child as the healthiest. It may be that these mothers would more readily recognize if their child was overweight and might be more ready to take action.

Chapter V

Summary, Conclusions, Limitations and Implications

Childhood Obesity is recognized as an important health problem in the United States and researchers have identified culture and acculturation as major factors influencing obesity across several ethnic groups in the US, although little is known about those identifying as Arabic speaking individuals from Middle Eastern countries. In Arabic culture, mothers are responsible for creating and maintaining a home environment that fosters healthy eating behaviors among family members including the children. The researcher assumed, therefore, that mothers in Arabic culture are essential for preventing childhood obesity.

There is a need to have a more in depth understanding of Arabic speaking Middle Eastern mothers' perceptions of motherhood in relation to raising children, as well as mothers' nutritional beliefs and practices related to children, and whether these have changed after moving to the US. The findings from this study could be used to enhance the cultural sensitivity of nurses working with Arabic speaking mothers from Middle Eastern countries. Also this culturally based knowledge is essential for community health nurses working with these mothers to prevent or address childhood obesity.

A literature review was conducted in chapter two that provided an overview of childhood obesity, its definition and measurement, its multiple causes and consequences, as well as current approaches to prevention. In addition, the role of culture and acculturation was presented in this chapter, including definitions of

culture, acculturation, and their relationship to childhood obesity. Lastly, a review of Arabic culture with a focus on motherhood and nutritional practices was presented.

An inductive, descriptive, qualitative research design including 2 semi structured in-depth interviews with each of 12 mothers from Arabic speaking Middle Eastern countries was conducted. The specific research questions for the study were:

4. What are Arabic speaking Middle Eastern women's perceptions of motherhood in relation to raising children and have these changed after moving to the US?
5. What are the women's perceptions of healthy children, and their nutritional beliefs and practices related to children and have these changed after moving to the US?
6. What enablers and constraints have the women encountered in trying to foster their nutritional practices while living in the US?

Institutional Review Board approval was obtained from the University of Rhode Island for this study. The 12 Arabic Middle Eastern mothers were recruited through snowball sampling and all consented to participate. Participants were all Muslims between the ages of 28 and 51 years. One mother didn't finish the high school, six mothers finished high school, 4 mothers had a bachelor degree, and one mother had an associate degree. Number of children ranged between three to six children. The women in this study all agreed that motherhood involves caring responsibly, and feeling warmth, kindness and love for their children, as well as most wanting their children to be successful. In addition they agreed that their perceptions of motherhood were affected by the birth of their first child. All mothers expressed that their

perceptions of motherhood were influenced by living in the US in fact they included new responsibilities and/or a deeper and more expansive level of responsibility.

Overall, these Middle Eastern Arabic speaking mothers' perception of the best and healthiest child centered around those of the normal and overweight child, while a child who was too heavy was reflected in the photo of an obese child. The essential component of these Middle Eastern Arabic speaking mothers' nutritional beliefs is that food and family is central to everyday life.

Most mothers thought that a healthy diet should contain fresh fruits and vegetables, and fresh meat, chicken or fish (not frozen). Some mothers added that healthy diet should be balanced, varied, and not include fried, canned food or sugar.

Enablers that helped this group of women to practice their nutritional beliefs included: (1) mother's knowledge and communication skills; (2) children's familiarity with Arabic tradition from a very young age; (3) access to families with a similar cultural background and (4) access to desired items of food and ingredients.

Constraints restricted the mother's ability to foster their nutritional practices included: (1) mother's inability to cook; (2) inability to eat together as family; (3) frequent availability of snacks at home; (4) negative influence of family members; (5) negative influence of peers in school; (6) long distance to Arabic food stores; and (7) the high cost of organic food.

Conclusions

Childhood obesity is recognized as an important health issue in the US and in the world. According to the CDC, prevalence of obesity among school age children was 18.4% in 2015-2016. Researchers have found that the culture of individuals and

acculturation process as major factors influencing obesity. In this study, the essential component of these Middle Eastern Arabic speaking mothers' nutritional beliefs is that food and family is central to everyday life. Also these mothers embraced full responsibilities for raising the children. The most important finding of this study is the mothers' response to the photos, as they identified the overweight child as healthiest.

Limitations

Several limitations were noticed in this study. A snowball sampling was chosen because it offered advantages including how it helps one gain access to vulnerable and hidden populations as well as being low cost, efficient, practical and facilitative in establishing a trusting relationship with new participants (Polit & Beck, 2012; Kuzel, 1999). A known weakness of this approach is that the sample may be restrictive because of a small network of acquaintances (Polit & Beck, 2012). In this study, the sample became unexpectedly limited to Muslim women. At the same time the homogeneity of the sample in terms of religion helped in identifying common perceptions about the role of the mother and her nutritional practices.

Another aspect of the study that could be seen as a limitation was that the researcher was from the same culture as the mothers (insider). There were some things that the mothers did not make explicit because they assumed the researcher knew about it, i.e. assumed that prayers came before eating the meal. What the researcher gained was that the mothers talked in depth about specific issues such as their immigration experience.

Another limitation may have been from the singular focus on the voice of the mothers even though this was very helpful in addressing research questions one and two. In terms of the third question about enablers and constraints, it seemed as though the mothers were not necessarily aware of some of the enablers and constraints that seemed quite obvious to the researcher. For example, the researcher noticed from these interviews that the way the mother deals with her children has an impact on children consuming traditional food.

Implications

Future research. This research study focused solely on perception of motherhood. Future research particularly in the US needs to be conducted to look at the responsibilities of the father, how they might have changed after moving to the US, and with what effects on the family, if any.

There is a need for more refined, ethnically, grounded photos of children in the BMI categories. Furthermore, there is a need for more consistency across photos in regard to ethnicity and gender. Since these photos were distributed by the US Center of Disease Control and Prevention (CDC), it would be helpful if the CDC would examine the material for cultural sensitivity.

In this study, no data were collected related to the exact amount of each type of food that each family usually consumed and how these families prepared their meals. More research in greater details is needed on how Arabic speaking Middle Eastern families in the US prepare their meals, i.e. the type and amount of oil used in cooking, and the fat proportion in meats, as well as how often and what types of sweets they consume. A 24 hour food diary for children from Arabic speaking countries living in

the US could be used to evaluate the actual food intake of school age children. This would help in deciding whether or not a specific guideline is needed for children of Middle East ancestry in the US. A California Food Guide (Chatterjee, 2008) was found that is specific to Arab Ancestry in the US. In this guide, an overview of traditional food habits of the Middle East and adaptations to the US were provided, as well as some health concerns of this group. However no healthy food guidelines were provided.

One of the major values of this study was the use of in-depth qualitative interviews with these women. A better understanding of the acculturation experience in regard to beliefs and practices of the mothers was gained. It illustrates the value of a qualitative approach rather than the use of existing instruments that measure acculturation. Additionally qualitative research is needed that includes participant observation so that one does not have to rely solely on self-reported data related to child's food consumption and weight. Finally, there is a need to measure the prevalence of obesity among Arab Middle Eastern children in the US, and to examine the relationship, if any, between acculturation and childhood obesity among Arab Middle Eastern population.

Theory. Some findings of this study supported part of Berry's bidimensional model of acculturation. Beginning in the 1970s, Berry proposed that there are two independent dimensions underlying the process of acculturation, which are individuals' links to their cultures of origin and to their new culture of settlement (Berry et al.,2006). These links can be shown in many ways, including preferences for involvement in the two cultures (termed acculturation attitudes), and in the behaviors

that they engage in (for example, their language use, and social relationships). As mentioned earlier, in Berry's framework, two issues are raised: the degree to which individuals can maintain their original culture and identity; and the degree to which people seek to be involved in the new large culture. When these two issues are crossed, an acculturation space is created with four sectors which show how individuals are seeking to acculturate. These sectors are assimilation, separation, marginalization, and integration. Assimilation refers to a process in which an individual has little interest in maintaining the original cultural and shows a preference for interacting and being involved with the larger society. Separation refers to a process in which an individual prefers to maintain the culture of origin and avoids involvement with new larger society. Marginalization refers to the process in which both cultures, original and new, are avoided. Integration refers to a process in which both cultural maintenance and involvement with the larger society are sought (Berry et al., 2006).

One of the research findings was that the move to the US did not have an effect on the mothers' belief that all family members should be present and eat together. This point reflects the separation process in Berry's model. On the other hand, these families became exposed to other cultural foods after moving to the US and some of them added the food in their meal list, thus reflecting the integration process in Berry's model.

Based on the findings from this study, further concentrating on the process of acculturation of Middle Eastern Arabic population in the US, particularly cultural behaviors, beliefs and practices, could add greater depth to Berry's model,

Additionally, an effort could be made to utilize this model to enhance nursing interventions with to this population.

Nursing practice. A fundamental standard and requirement for nursing practice is to provide culturally congruent nursing care. Implications for public health nursing practice in school settings will be addressed below at the individual, family and organizational (school) levels. One of the significant roles for a school nurse is his/her work in educating, collaborating and supporting the role of the teacher in the classroom. Another role of the nurse is outreach with the family. Nurses may want to consider the findings of this study as they plan on how they are going to work with Arabic speaking Middle Eastern Mothers in how to discuss healthy nutrition patterns without focusing on weight. The mothers in this study needed education related to what is overweight and its consequences as well as to see examples in the photos. Since the mothers' focus was on a healthy child, the nurse could begin a dialogue around a healthy child rather than starting with weight or overweight.

One finding from these mothers was the discomfort that some of the children expressed about taking traditional food to school and other children's responses, which could be perceived as bullying. This finding could raise school nurse and others' awareness that such a situation is going on so that they may intervene to address this issue.

Due to the limited proficiency in English of some of these mothers, another strategy to be considered may be the value of providing dietary food information and the daily school menu in readable Arabic. Given the mothers' commitment to and sense of responsibility around child care and nutrition, it may be beneficial for the school

nurse to recommend that the Middle Eastern Arabic speaking mothers to be invited as key informants for recommendations, thoughts and ideas for what could be done to facilitate the child's transition from the home to the school environment.

This is an extremely important time for nurses to be aware of and sensitive to the historical and present level of discrimination against Arab Americans. Current Arab immigrants in the United States are experiencing higher levels of stigma and discrimination in our current political and social environment (Abuelezzam, El-Sayed, & Galea, 2019)

In agreement with Abboud et al. (2019), nurses should be responsible for identifying Arabs in general as a significantly marginalized population. This population needs to be included now by the National Institutes of Health (NIH), and the Institute on Minority Health and Health Disparities (NIMHD) as a minority group that is clearly experiencing health disparities (Abboud et al., 2019).

Appendix A

Childhood Obesity Diagnosis

The first step in the assessment of obesity is the measurement of the BMI (Dietz & Robinson, 2005). Detailed medical history, physical examination, and laboratory tests are needed to identify risk factors or any symptoms of the disease that may be a cause for the obesity (Speiser et al., 2005). Body fatness may be measured using several methods, direct and indirect methods. Direct techniques include underwater weighing, air displacement plethysmography, magnetic resonance imaging (MRI), computerized tomography (CT) and dual energy X-ray absorptiometry (DEXA), nevertheless, these techniques are too complex, costly, and time-consuming (Lobstein, Baur, & Uauy, 2004; Simmonds, Llewellyn, Owen, & Woolacott, 2016). Indirect methods for estimating body fat include BMI, waist circumference and waist-to-hip ratio, skin-fold thickness, and waist-to-height ratio (Lobstein et al., 2004; Simmonds et al., 2016). The following is a description of some direct and indirect methods.

Direct Methods for Measuring Body Fat

Underwater weighing (hydrodensitometry). Fat has a lower density than lean tissue, and when total body density and the specific densities of fat and lean tissue are known, then by using specific equation percentage body fat can be calculated (Lobstein et al., 2004). This method is used mainly for research purposes, and it is beneficial for validation of other methods of measuring body fat (Speiser et al., 2005).

Air displacement plethysmography. “A subject’s volume is determined indirectly by measuring the volume of air the subject displaces when sitting inside an

enclosed chamber. Adjustment for thoracic gas volume is made. Once body volume and mass are known, the principles of densitometry are applied to estimate percentage body fat” (Lobstein et al., 2004, p.10). This method is comfortable, relatively quick, and non-invasive. To be accurate the person should breathe through a tube and wear a nose clip, therefore the technique may be inappropriate for younger children (Lobstein et al., 2004).

Magnetic resonance imaging (MRI). MRI provides a visual image of adipose tissue and non-fat tissue. MRI is an accurate and reliable method to distinguish intra-abdominal from subcutaneous fat (Lobstein et al., 2004). However, MRI is expensive, and require more time to perform, and must be done in a major medical facility. The duration of the procedure is approximately 20 min, and the person should not move and require to enclose in a scanner, therefore it could be inappropriate for young children (Lobstein et al., 2004; Speiser et al., 2005).

Computerized tomography (CT). CT scans provide high-resolution X-ray-derived images. Total and regional body fat and percentage of body fat can be calculated. This method is accurate and reliable to quantify body fat, however, it is expensive and requires a skilled technician to perform, and specialist to interpret the result, as well as it involves significant radiation exposure. CT takes 20 min and requires the person to lie without movement in the scanner, hence is unsuitable for young children unless clinically indicated (Lobstein et al., 2004; Speiser et al., 2005).

Dual energy X-ray absorptiometry (DEXA). “DEXA is based on the principle that transmitted X-rays at two energy levels are differentially attenuated by bone mineral tissue and soft tissue, and the soft tissue component is subdivided into

fat and lean tissue by using experimentally derived calibration equations” (Lobstein et al., 2004, p.10). DEXA cannot distinguish between intra-abdominal and subcutaneous fat. Radiation exposure is lower than CT, so it is more appropriate for use in children and adolescents. However, DEXA is expensive and should be done in a major medical facility. Also, this procedure must be performed by a skilled technician. It may take up to 20 min and needs a very cooperative person, so it is unsuitable for children aged less than 6 years (Lobstein et al., 2004; Speiser et al., 2005).

Indirect Methods for Estimating Body Fat

Body mass index (BMI). According to CDC (2016a), BMI is calculated by dividing a person’s weight in kilograms by the square of height in meters. For children and adolescences, BMI is age- and sex-specific and is often referred to as BMI-for-age. An age- and sex-specific percentile for BMI is used to determine a child’s weight status because children’s body composition varies as they age and varies between boys and girls. Therefore, BMI levels among children and teens should be expressed relative to other children of the same age and sex.

BMI has become the most common indicator used to assess overweight and obesity and there is evidence that a child with a high BMI is likely to have excess body fatness. One of the most important advantages of using BMI is that it is derived from measurements of height and weight, which are the most common anthropometric dimensions collected on children worldwide. Also, height and weight measurements are noninvasive, inexpensive to obtain, and relatively easily understood by health practitioners, clients, and families (Himes, 2009). However, BMI cannot distinguish between body fatness, muscle mass, and skeletal mass (Freedman & Sherry, 2009). In

addition, BMI may not be an appropriate measure of body fatness in people who are particularly short, tall or have an unusual body fat distribution, and there may be racial differences in the relationship between the true proportion of body fat and BMI (Lobstein et al., 2004).

Waist circumference and Waist-to-hip ratio. Waist circumference is measured at the minimum circumference between the iliac crest and the rib cage. Hip circumference is measured at the maximum protuberance of the buttocks, then the ratio is calculated. These measurements are easy to perform with simple, low-cost equipment, and have a low observer and measurement error, with good reliability, and validity, this parameter is also a predictor of cardiovascular and metabolic risk factors in obese children. However, there are no accepted cutoff values for the classification of overweight and obesity based on these measures, (Lobstein et al., 2004; Speiser et al., 2005).

Skin-fold thickness. Skin-fold thickness can be measured at different sites on the body (e.g. triceps, subscapular) using skin-fold calipers. Estimation of fat mass and percentage fat can be calculated by using specific prediction equations. This method is simple, inexpensive, and quick. However, skin-fold thickness varies with age, sex and race, and the equations relating skin-fold thickness at several sites to total body fat need to be validated for each population. In addition, in very obese children the measurement of triceps skin-fold or other skin-fold thicknesses may not be possible (Lobstein et al., 2004; Speiser et al., 2005).

Laboratory Testing

For all overweight children, fasting profile of lipoprotein, insulin, and glucose is recommended (Dietz & Robinson, 2005). Overweight and obesity are the most common causes of elevated liver enzymes in adolescents. Elevated levels of liver enzymes occur in approximately 6% of overweight adolescents and 10% of obese adolescents (NHANES III was used as a sample for the study) (Strauss, Barlow, & Dietz, 2000). According to Speiser et al. (2005), laboratory testing directed to identify comorbidities of obesity may include thyroid functions, lipid profile, complete chemistries, and hepatic profile, and fasting glucose and insulin.

In summary, the following should be assessed for children for obesity diagnosis (Lee, 2007, p, 80):

- Family history of obesity, cardiovascular illness, and diabetes, including birth weights of the patient and siblings.
- Antenatal and perinatal history, especially that of prematurity, intrauterine growth retardation (IUGR), and gestational diabetes.
- Feeding and weight gain history in infancy and early childhood.
- Current care arrangements and dietary patterns.
- Exercise, television watching, schoolwork, and recreation patterns.
- History of obstructive sleep apnea (OSA) and daytime somnolence.
- Pubertal history, irregular menstrual periods, acne, and hirsutism.

Physical examination should include (Lee, 2007, p.80):

- Weight status as measured by BMI, height, and weight for age.
- Triceps and subscapular skinfold thickness where available.
- BP, including ambulatory BP where appropriate.

- Features of dysmorphism and genetic disorders, if any.
- Orthopedic abnormalities predisposing or consequent to obesity.

Appendix B

Proposed suggestions for the prevention of obesity (by Speiser et al., 2005, p. 1879)

A. Pregnancy

1. Normalize BMI prior to pregnancy.
2. Do not smoke.
3. Maintain moderate exercise as tolerated.
4. In gestational diabetics, meticulous glucose control.

B. Postpartum and infancy

1. Breastfeeding is preferred for a minimum of 3 months.
2. Postpone introduction of solid foods and sweet liquids.

C. Families

1. Eat meals as a family in a fixed place and time.
2. Do not skip meals, especially breakfast.
3. No TV during meals.
4. Use small plates and keep serving dishes away from the table.
5. Avoid unnecessary sweet or fatty foods and soft drinks.
6. Remove televisions from children's bedrooms; restrict times for TV viewing and video games.

D. Schools

1. Eliminate fundraisers with candy and cookie sales.
2. Review contents of vending machines for healthier choices.
3. Install water fountains.

4. Educate teachers, especially physical education and science faculty, about basic nutrition and benefits of physical activity.
5. Educate children from preschool through high school on appropriate diet and lifestyle.
6. Mandate minimum standards for physical education, including 30–45 min of strenuous exercise two to three times weekly.
7. Encourage “the walking school bus.”

E. Communities

1. Increase family-friendly exercise/play facilities for all age children.
2. Discourage the use of elevators and moving walkways.
3. Provide information on how to shop and prepare healthier versions of cultural-specific foods.

F. Healthcare providers

1. Explain biological and genetic noncontrollable contributions to obesity.
2. Give age-appropriate expectations for body weight in children.
3. Work toward classifying obesity as a disease to promote recognition, reimbursement for care, and willingness and ability to provide treatment.

G. Industry

1. Mandate age-appropriate nutrition labeling for products aimed at children (e.g., red-light/green-light foods, with portion sizes).
2. Encourage marketing of interactive video games in which children must exercise in order to play.

3. Use celebrity advertising directed at children for healthful foods to promote breakfast and regular meals.

H. Government and regulatory agencies

1. Classify obesity as a legitimate disease.
2. Find novel ways to fund healthy lifestyle programs, i.e. with revenues from food/drink taxes.
3. Subsidize government-sponsored programs to promote consumption of fresh fruits and vegetables.
4. Provide financial incentives to industry to develop more healthful products and to educate the consumer on product content.
5. Provide financial incentives to schools that initiate innovative physical activity and nutrition programs.
6. Allow tax deductions for the cost of weight loss and exercise programs.
7. Provide urban planners with funding to establish bicycle, jogging, and walking paths.
8. Ban advertising of fast foods directed at preschool children, and restrict advertising to school-age children.

Appendix C

Review of Culture Definitions

Kroeber and Kluckhohn (1952) critically reviewed concepts and definitions of culture, and collected about 150 definitions. This work has become the foundation that many writers from different disciplines have used to build their understanding of culture (Baldwin et al., 2006). Kroeber and Kluckhohn (1952) divided definitions into six groups (as cited in Baldwin et al., 2006): 1) enumeratively descriptive: a list of the elements of culture such as ideas and behavior; 2) historical: inherited or passed on among a group of people; 3) normative: behaviors and values that guide people on how to act in different cultural situations; 4) psychological: learning, habit, adjustment, and problem solving device; 5) structural: focus on the pattern or organization of culture; and 6) genetic: focus on “genesis” or origins of culture (symbols, ideas, and artifacts)

Kroeber and Kluckhohn (1952) synthesized different definitions and concluded a single, and useful definition:

Culture consists of patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievement of human groups, including their embodiments in artefacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, on the other as conditioning elements of further action (Kroeber & Kluckhohn, 1952, p. 181 as cited in Baldwin et al., 2006).

According to Baldwin et al. (2006), the definition of culture has a disputed history, cultures have been influenced by economic and political forces, climatic and geographic change, and the importation of ideas. “As Tracey Skelton and Tim Allen (1999) put it, there are complex, over-lapping, but potentially different" meanings of culture today, with definitions ranging from discourse and practice to product and representation, from ongoing action to a framework of explanation (p. 2). With the emergence of interpretive and other perspectives, these frameworks now exist in a dialectical tension between fractured postmodern and stabilizing structural functionalist perspectives on culture” (Baldwin et al., 2006, p.23)

Baldwin et al. (2006, p. 14) presented a summary of culture definitions in anthropology textbooks in the 1990s, these definitions included:

- The patterned and learned ways of life and thought shared by a human society.
- The capacity to use tools and symbols.
- A learned system of beliefs, feelings, and rules for living around which a group of people organize their lives, a way of life of a particular society.
- The learned set of behaviors, beliefs, attitudes, values, or ideals characteristic of a particular society or population.
- Everything that people have, think, and do as members of a society.
- The behavior, ideas, and instructions acquired by people as members of a society.
- The learned patterns of behavior and thought characteristic of a societal group.

- A set of rules or standards shared by members of a society that, when acted upon by the members, produce behavior that falls within a range of variation the members consider proper and acceptable.
- Everything that people collectively do, think, make, and say.
- The customary manner in which human groups learn to organize their behavior in relation to their environment.
- Traditions and customs transmitted through learning that govern the beliefs and behavior of the people exposed to them.
- That complex of behavior and beliefs individuals learn from being members of their group.
- The learned behaviors and symbols that allow people to live in groups, the primary means by which humans adapt to their environments. The way of life characteristic of a particular human society.
- The socially transmitted knowledge and behavior shared by some group of people.
- The system of meanings about the nature of experience shared by a people and passed on from one generation to another.
- The way of life of a people including their behavior, the things they make, and their ideas.
- Sets of learned behavior and ideas that human beings acquire as members of society.
- A shared way of life that includes material products, values, beliefs, and norms transmitted within a particular society from generation to generation.

- A way of life common to a group of people, including a collection of beliefs and attitudes, shared understandings, and patterns of behavior that allow those people to live together in relative harmony, but that set them apart from other peoples.
- According to Tylor, “The complex whole which includes knowledge, belief, art, law, morals, custom and any other capabilities and habits acquired by man as a member of society.”

Themes of Definitions for Culture

Faulkner, Baldwin, Lindsley, and Hecht (2006) in their book conducted a critical analysis to study the themes of culture definitions that emerged since Kroeber and Kluckhohn (1952) book. They identified seven different types of themes of definitions, including structure/pattern, function, process, product, refinement, power or ideology, and group-membership. Faulkner et al. (2006) clarified that there are overlapping and interpenetrating relationships between and among themes.

The following is summary of themes and subthemes of definitions for culture as presented by Faulkner et al. (2006):

1. Culture as structure: includes definitions that look at culture in term of a system or framework of elements (e.g., ideas, behavior, symbols, or any combination of these elements). Authors identified seven subthemes of structural definitions
 - a. Whole way of life: the most extensive definition of culture as whole way of life comes from Samovar and porter (1991), who defined culture as “deposit of knowledge, experience, beliefs, values, attitudes,

meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects, and possessions acquired by a group of people in the course of generations through individual and group striving” (p.51 as cited in Faulkner et al., 2006).

- b. Cognitive structure: these definitions treat culture as social cognition or the system of information, ideas, or concepts that guide symbol usage and behavior of a culture. These cognitive structures include thoughts, beliefs, assumptions, meanings, attitudes, preferences, values, standards, expression of unconscious processes, and interpretations.
- c. Structure of behavior: the focus of behavioral definition might be on individual behavior or on communal behaviors. Behavioral structures include patterns of rules, techniques, dispositions, customs, set of skills, pattern of behavior, habits, actions, concrete practices, ceremonies, and rituals.
- d. Language and discourse: this approach of definitions found in early sociological work. For example, Talcott Parsons (1964, p. 21, as cited in Faulkner et al., 2006) defined culture as “a commonly shared system of symbols, the meanings of which are understood on both sides with an approximation to agreement”. There are at least two ways to subdivide these definitions, the first one is to distinguish between culture as the forms of language available and how people actually use language in their everyday life (discourse). The second one is

distinguish between the symbols themselves and the meaning behind them.

- e. Relational structure: relationship to others, orientational system. For example Marshall Sahlins (2000, p. 18, as cited in Faulkner et al., 2006) defined culture as “the pervasiveness of the symbolic resolved some of the tension between utilitarian determinations of culture and cultural determinations of utility.” He came to see relations of production as related to “symbolic categories of persons, meaningful orderings of landscapes, values of objects, and purposes of consumption which themselves were cosmological in scope”.
 - f. Social organization: these definitions focus on organizational forms, political institutions, legal institutions (e.g., laws, crime and punishment), and religion as institution. For example Devid Berlo (1960) defined culture as “the structure and operation of families, governments, and educational systems” (p. 164, as cited in Faulkner et al., 2006).
 - g. Structure as an abstract construction: under this definition culture refers to a structure of concepts made by researchers to describe group of people.
2. Culture as function: includes definitions that see culture as a tool for achieving something:
- a. Provides guide to and process of learning, adaptation to the world, survival.

- b. Provides people with a shared sense of identity /belonging, or of difference from other groups. For example Schafer (1998) defined culture as “the relationship of people to the culture in which they are embedded bears on the sense of identity and belonging or alienation and estrangement that people experience in specific cultural contexts” (p. 42 as cited in Faulkner et al., 2006).
 - c. Value expression (expressive purpose): refers to culture expresses internal cognitive structures, for example Griswold’s (1994) definition “Culture refers to the expressive side of human life—behavior, objects, and ideas that can be seen to express, to stand for, something else. This is the case whether we are talking about explicit or implicit culture” (p. 11 as cited in Faulkner et al., 2006)
 - d. Stereotyping function (evaluative purpose): involves stereotyped forms of behavior and thought of the group itself.
 - e. Provides means of control over other individuals and groups.
3. Culture as process: includes definitions that focus on the ongoing social construction of culture:
- a. Differentiation: “refers to the processes, categories, and knowledges, through which communities are defined as such; that is, how they are rendered specific and differentiated” (Donald and Rattansi, 1992, p 4 as cited in Faulkner et al., 2006).
 - b. Producing group-based meaning (sense-making): “We think of culture as a process. It is what happens as people make sense of their own

- lives and sense of the behavior of other people with whom they have to deal” (Spindler & Spindler, 1990, p. 2 as cited in Faulkner et al., 2006).
- c. Handling “raw materials of life”: “process involving relations between human beings in a given environment for purposes of interaction, adaptation, and survival” (Casmir & Asuncion-Lande, 1990, p. 288 as cited in Faulkner et al., 2006).
 - d. Relating to others: refers to culture is a process of meeting individual and group based needs and creating meaning,
 - e. Dominating others or maintaining structural power: focus on how people in a group create meaning that negotiate relations power between groups.
 - f. Transmission of a way of life: refers to transmission of norms, values, and social structures from one set of group members to another, “We can define [culture] as the process by which a person acquires, from contact with other persons or from such things as books or works of art, knowledge, skill, ideas, beliefs, tastes, sentiments”-or in a more generic “transmission of learnt ways of thinking, feeling and acting [that] constitutes the cultural process (Radcliffe-Brown, 1977, pp. 14-15 as cited in Faulkner et al., 2006).
4. Culture as product: includes definitions of culture in terms of artifacts (with or without deliberate symbolic intent)
- a. Product of meaningful activity (more broad than representation): art, architecture, “definitions of culture center upon extrinsic factors such

as the artifacts that are produced by society (clothing, food, technology, etc.)” (Barnett & Kincaid, 1983, p. 249 as cited in Faulkner et al., 2006)

- b. Product of representation and signification: artifacts, cultural “texts” mediated and otherwise, etc. “Culture consists of the totality of man’s products. Some of these are material, others are not. Man produces tools of every conceivable kind, by means of which he modifies his physical environment and bends nature to his will” (Berger, 1969, p. 6 as cited in Faulkner et al., 2006)
5. Culture as refinement: includes definitions that frame culture as a sense of individual or group cultivation to higher intellect or morality.
- a. Moral progress: Stage of development that divides civilized from savage; study of perfection, civilization. “Culture is the moral and social passion for doing good; it is the study and pursuit of perfection, and this Perfection is the growth and predominance of humanity proper, as distinguished from our animality” (Harrison, 1971, p. 270 as cited in Faulkner et al., 2006).
 - b. Intellectual: as instruction or care given to development of the mind. It is “the effect of cultivating the human knowledges and of refining by means of the exercise of people’s intellectual faculties. “This can be an individual’s level of advancement, or the “whole of fundamental knowledge necessary” for human understanding (Enciclopedia Universal, no date, pp. 1105-1106 as cited in Faulkner et al., 2006).

- c. Uniquely human efforts from any of the aforementioned categories that distinguish humans from other species
- 6. Culture as power or ideology: includes definitions that focus on group based power (political, social, artistic, and ideational).
 - a. Political and ideological dominance: Dominant or hegemonic culture (critical definitions).
 - b. Fragmentation of elements (postmodern definitions).
- 7. Culture as group membership: includes definitions that speak of culture in terms of a place or group of people, or that focus on belonging to such a place or group
 - a. Country: these definitions refer to culture as “members, background culture, or native origin”. Such definitions treat culture as nation. This is used more in research, such as when researcher studies Japanese with the assumption that it is a form cultural group.
 - b. Social variations among components of contemporary pluralistic society: differentiate groups smaller than nations, “it was the common sense or way of life of a particular class, group or social category” (Johnson, 1979, p. 234 as cited in Faulkner et al., 2006), others referred to the deaf culture, ethnic groups, or religious groups as cultures. Young Yun Kim (1988) defined cultures in terms of “all levels of groups whose life patterns discernibly influence individual communication behaviors” (pp. 12-13 as cited in Faulkner et al., 2006).

Appendix D

Consent Form

THE
UNIVERSITY
OF RHODE ISLAND

Diane Cocozza Martins, Ph.D., R.N

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Nutritional beliefs, perceptions, and practices of Arabic speaking Middle Eastern mothers

نموذج الموافقة على الاشتراك البحث

معلومات أساسية

معلومات مهمة يجب معرفتها حول هذه الدراسة

الهدف من هذه الدراسة هو استطلاع المعتقدات والمفاهيم والممارسات الغذائية للأمهات- الناطقين بالعربية من الشرق الأوسط الذين انتقلوا مع الأطفال إلى الولايات المتحدة. عوامل الشمول / الاستبعاد: أمهات من الشرق الأوسط ، يتحدثن العربية، ويعيشن حالياً في - الولايات المتحدة لمدة لا تقل عن 5 سنوات ، لديهن على الأقل طفل في سن المدرسة (5-12 سنة). إذا اخترت المشاركة، فسيطلب منك إكمال مقابلتين في الموقع والوقت الذي تختارينه. وستكون المقابلة باللغة العربية وسيتم تسجيلها من قبل الباحث. قد يستغرق هذا ما يصل إلى 90 دقيقة للمقابلة الأولى و 30 دقيقة للمقابلة الثانية. مخاطر أو مضايقات من هذا البحث: هناك مخاطر قليلة لمشاركتك في هذه- لن توفر هذه الدراسة فوائد مباشرة لمشاركتك- لا يوجد أي مدفوعات لمشاركتك- سيتم تزويدك بنسخة من نموذج الموافقة هذا- المشاركة في هذه الدراسة هو أمر طوعي لا يتعين عليك المشاركة ويمكنك إيقافها في أي وقت-

عنوان الدراسة

المعتقدات و التصورات و ممارسات الغذائية للأمهات الناطقة بالعربية من الشرق الأوسط

الباحثون الرئيسيون

الباحث الرئيسي

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الدعوة

أنت مدعو للمشاركة في هذه الدراسة. الهدف من المعلومات الواردة في هذا النموذج هو مساعدتك على تحديد المشاركة أم لا. إذا كان لديك أي أسئلة، يرجى طرحها

لماذا يطلب منك أن تشارك في هذه الدراسة؟

يطلب منك أنتشارك في هذه الدراسة لأنك أم من الشرق الأوسط ، وتحدثين العربية ، وتعيشين حالياً في الولايات المتحدة. ويجب أن يكون عمرك 19 عامًا أو أكثر للمشاركة

ما هو سبب إجراء هذه الدراسة ؟

هناك نقص في الأبحاث التي تركز على سكان الشرق الأوسط في الولايات المتحدة ، وخاصة الأمهات اللاتي يلعبن دوراً مهماً في رعاية أفراد الأسرة. ولذلك ، هناك حاجة إلى فهم أكثر عمقا لمفاهيم الأمومة

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فيما يتعلق بتربية الأطفال ، وكذلك معتقدات و مفاهيم و ممارسات الأمهات الغذائية المتعلقة بالأطفال ، وما إذا تغيرت هذه الأمور بعد الانتقال إلى الولايات المتحدة

كيف سيتم استخدام المقابلة الخاصة بي؟

سيتم مراجعة المقابلة من قبل الباحث الرئيسي والباحث الطالب في هذه الدراسة من جامعة رود آيلاند. أي معلومات شخصية تشاركها ستكون سرية

ما هي المخاطر المحتملة من المشاركة في هذه الدراسة؟

هناك حد أدنى من المخاطر لمشاركتك في هذه الدراسة. بعض المواضيع التي تمت تغطيتها في المقابلة قد تجعلك تشعر "بالحنين إلى الوطن". بالنسبة للمقابلة ، أنت حر في تخطي أي سؤال لا ترغب في الإجابة عنه. أنت أيضًا حر في التوقف عن المشاركة في هذه الدراسة في أي وقت

ما هي الفوائد المحتملة بالنسبة لك؟

لا يتوقع منك الحصول على أي فائدة من وجودك في هذه الدراسة

ما هي الفوائد المحتملة لأشخاص آخرين؟

يمكن أن تساعد هذه الدراسة مقدمي الرعاية الصحية على فهم أفضل للأمهات الناطقين باللغة العربية من الشرق الأوسط والأطفال الذين يعيشون في الولايات المتحدة ، بالإضافة لفهم أهمية دور الأمومة لهم. كما يأمل الباحث في مشاركة المعتقدات والممارسات الغذائية للأم في الشرق الأوسط مع الآخرين

ما الذي سيكلفك المشاركة في هذه الدراسة؟

لا يوجد أي تكلفة عليك من المشاركة هذه الدراسة

هل سيتم تعويضك لكونك في هذه الدراسة ؟

لن يتم تقديم أي تعويض

ماذا يجب أن تفعل إذا واجهتك مشكلة أثناء هذه الدراسة ؟

مصلحتك هي الشاغل الرئيسي لكل عضو في فريق البحث. إذا كانت لديك مشكلة كنتيجة مباشرة لوجودك في هذه الدراسة ، فيجب عليك على الفور الاتصال بأحد الأشخاص المدرجين في بداية نموذج الموافقة هذا

كيف سيتم حماية المعلومات الخاصة بك؟

سيتم اتخاذ خطوات معقولة لحماية خصوصيتك وسرية بيانات الدراسة الخاصة بك

سيتم تخزين السجلات المسجلة في خزانة مغلقة في مكتب الباحث الأساسي ولن يراها فريق البحث إلا أثناء الدراسة ولمدة 5 سنوات بعد اكتمال الدراسة

سيتم تخزين التسجيلات الصوتية إلكترونياً من خلال برنامج خاص وآمن ولن يراها فريق البحث إلا أثناء الدراسة ولمدة 5 سنوات بعد اكتمال الدراسة

الأشخاص الوحيدون الذين يمكنهم الوصول إلى سجلات البحث الخاصة بك هم أفراد الدراسة ومجلس المراجعة المؤسسية وأي شخص أو وكالة أو راعي آخر وفقًا لما يقتضيه القانون. قد يتم نشر المعلومات من هذه الدراسة في مجلات علمية أو يتم تقديمها في الاجتماعات العلمية ولكن سيتم الإبلاغ عن البيانات على شكل مجموعة أو بيانات ملخصة وسيتم الحفاظ على سرية هويتك.

ما هي حقوقك كمشارك في بحث؟

يمكنك طرح أي أسئلة تتعلق بهذا البحث والحصول على إجابة هذه الأسئلة قبل الموافقة على المشاركة في الدراسة أو أثناءها.

للأسئلة المتعلقة بالدراسة، يرجى الاتصال بالباحثين المدرجة أسماؤهم في بداية هذا النموذج.

للأسئلة المتعلقة بحقوقك أو شكوكك المتعلقة بالبحث، تواصل مع مجلس المراجعة المؤسسية أو نائب الرئيس لشؤون الأبحاث والتنمية الاقتصادية:

- IRB: (401) 874-4328 / researchintegrity@etal.uri.edu.
- أي أرب (401) 874-4328 / researchintegrity@etal.uri.edu
- Vice President for Research and Economic Development: at (401) 874-4576
- نائب الرئيس للبحوث والتنمية الاقتصادية (401) 874-4576

ماذا سيحدث إذا قررت عدم المشاركة في هذه الدراسة أو قررت التوقف عن المشاركة بمجرد البدء؟

يمكنك أن تقرر عدم المشاركة في هذه الدراسة، أو يمكنك التوقف عن المشاركة في هذه الدراسة ("الانسحاب") في أي وقت قبل أو أثناء أو بعد بدء البحث لأي سبب. لن يؤثر اتخاذ قرار بعدم المشاركة في هذه الدراسة أو اتخاذ قرار بالانسحاب على علاقتك مع الباحث أو مع جامعة رود آيلاند. لن تخسر أي فوائد تستحقها.

توثيق الموافقة المسبقة

أنت تقوم طواعية باتخاذ قرار حول ما إذا كنت ستشارك في هذه الدراسة أم لا. توقيع هذا النموذج يعني (1) أنك قرأت وفهمت نموذج الموافقة هذا، (2) أنك حصلت على استمارة الموافقة التي تم شرحها لك، (3) تم الرد على أسئلتك و (4) أنك قررت أنتشارك في الدراسة. ستحصل على نسخة من نموذج الموافقة هذا.

أسم المشارك

(الرجاء كتابة الاسم هنا)

توقيع المشارك

التوقيع

التاريخ

إضافة صوت / فيديو إلى نموذج الموافقة البحث

من خلال التوقيع على نموذج الموافقة هذا ، أؤكد أنني أعطي الإذن لتسجيل (تسجيلات) صوتي ،
لإستخدامه في الأغراض المذكورة أعلاه ، والاحتفاظ بها لمدة خمس سنوات

اسم المشارك

توقيع المشارك

التاريخ

اسم الشخص الذي اخذ الموافقة

توقيع الشخص الذي اخذ الموافقة

التاريخ.

Consent Form for Research

KEY INFORMATION

Important information to know about this research study:

- The purpose of the study is to explore nutritional beliefs, perceptions, and practices of Arabic speaking Middle Eastern mothers with children who moved to the United States.
- Inclusion/exclusion factors: Mothers from Middle East, Arabic speaking, currently living in the US for at least 5 years, have at least one school aged child (5-12 years of age).
- If you choose to participate, you will be asked to complete two interviews in a location and time of your choice. The interview will be in Arabic and will be recorded by the researcher. This could take up to 90 minutes for the first interview and 30 minutes for the second interview.
- Risks or discomforts from this research: There are minimal risks to your participation in this study.
- This study will provide no direct benefits for your participation.
- There is no payment for your participation.
- You will be provided a copy of this consent form.
- Taking part in this research project is voluntary. You don't have to participate and you can stop it any time.

STUDY TITLE

Nutritional beliefs, perceptions, and practices of Arabic speaking Middle Eastern mothers

PRINCIPAL INVESTIGATORS

Principal Investigator:

Diane Coccozza Martins, Ph.D., R.N. Office: (401)874-5328 - Email: dcmartins@uri.edu

Student Investigator: Maisaa Albkerat, MSN Cell: (860) 710-3425 Email: maisaa_albkerat@uri.edu

INVITATION

You are invited to take part in this research study. The information in this form is meant to help you decide whether or not to participate. If you have any questions, please ask.

Why are you being asked to be in this research study?

You are being asked to be in this study because you are a mother from the Middle East, speak Arabic, and are currently living in the US. You must be 19 years of age or older to participate.

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What is the reason for doing this research study?

There is a lack of research that focuses on Middle East population in the US, especially mothers who play an important role in caring of family members. Therefore, there is a need to have a more in depth understanding of perceptions of motherhood in relation to raising children, as well as mothers' nutritional beliefs, perceptions, and practices related to children, and whether these have changed after moving to the US.

What will be done during this research study?

The researcher will conduct two interviews in Arabic with you that could last up to 90 minutes for the first interview and 30 minutes for the second interview. The interviewer will ask you about your nutritional beliefs, perceptions, and practices as a Middle Eastern mother. The interview will be audio-recorded to ensure that we capture everything that you say.

How will my interview be used?

Your interview will be reviewed by the principal investigator and student investigator of this study at the University of Rhode Island. Any personal information you share will be confidential.

What are the possible risks of being in this research study?

There are minimal risks to your participation in this study. Some of the topics covered in the interview could make you feel "homesick". For the interview, you are free to skip any question that you'd rather not answer. You are also free to stop participating in this study at any time.

What are the possible benefits to you?

You are not expected to get any benefit from being in this study.

What are the possible benefits to other people?

This study could help health care providers to better understand the Arabic speaking Middle Eastern mothers and children who are living in the US, and the importance of the role of mothering. The researcher also hopes to share Middle Eastern mother's nutritional beliefs and practices for others.

What will being in this research study cost you?

There is no cost to you to be in this research study.

Will you be compensated for being in this research study?

No compensation will be provided

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What should you do if you have a problem during this research study?

Your welfare is the major concern of every member of the research team. If you have a problem as a direct result of being in this study, you should immediately contact one of the people listed at the beginning of this consent form.

How will information about you be protected?

Reasonable steps will be taken to protect your privacy and the confidentiality of your study data.

The transcribed records will be stored in a locked cabinet in the primary investigator's office and will only be seen by the research team during the study and for 5 years after the study is complete.

The audio recordings will be stored electronically through a secure server and will only be seen by the research team during the study and for 5 years after the study is complete.

The only persons who will have access to your research records are the study personnel, the Institutional Review Board (IRB), and any other person, agency, or sponsor as required by law. The information from this study may be published in scientific journals or presented at scientific meetings but the data will be reported as group or summarized data and your identity will be kept strictly confidential.

What are your rights as a research subject?

You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study.

For study related questions, please contact the investigator(s) listed at the beginning of this form.

For questions concerning your rights or complaints about the research contact the Institutional Review Board (IRB) or Vice President for Research and Economic Development:

- IRB: (401) 874-4328 / researchintegrity@etal.uri.edu.
- Vice President for Research and Economic Development: at (401) 874-4576

What will happen if you decide not to be in this research study or decide to stop participating once you start?

You can decide not to be in this research study, or you can stop being in this research study ("withdraw") at any time before, during, or after the research begins for any reason. Deciding not to be in this research study or deciding to withdraw will not affect your relationship with the investigator or with the University of Rhode Island.

You will not lose any benefits to which you are entitled.

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Documentation of informed consent

You are voluntarily making a decision whether or not to be in this research study. Signing this form means that (1) you have read and understood this consent form, (2) you have had the consent form explained to you, (3) you have had your questions answered and (4) you have decided to be in the research study. You will be given a copy of this consent form to keep.

Participant Name:

(Name of Participant: Please print)

Participant Signature:

Signature of Research Participant

Date

AUDIO/VIDEO ADDENDUM TO THE CONSENT FORM FOR RESEARCH

By signing this consent form, I confirm that I give my permission for audio recording(s) of me, to be used for the purposes listed above, and to be retained for five years.

Printed Name of Participant

Signature of Participant

Date

Printed Name of Person Obtaining Consent

Signature of Person Obtaining Consent

Date

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Appendix E

Conversational Guide

- Question 1: What is the meaning of motherhood for you?

Possible probes:

- In relation to raising children
- Food
- Before and after immigration

- Question 2: I would like you to look at these pictures. As you can see, these children are different shapes and sizes.
 - Which size child do you think looks the best?
 - Which child do you think is the healthiest?
 - Do any of the children look too heavy to you? Which ones?
 - Do any of the children look too thin to you? Which ones?

Possible probes:

- Let's look at the child you said looks too heavy. What about this child makes him or her look too heavy? What do you think caused them to be too heavy?
- How do you think this child's weight affects him or her?
- Now, let's look at the children you said looks too thin. What do you think caused them to be too thin?

- Question 3: Tell me about your children's food, and eating pattern in your home country?

Possible probes:

- Who did the cooking?
- Who decided what to eat?
- Did you plan your meals in advance? Who did the food shopping?
- How many meals did your kids eat daily? Can you give some example of food choices for each meal
- How did you decide how much food to feed your child?
- Was there any influence from other family member?
- What was your understanding of healthy child? And healthy weight?

- Question 4: Tell me about your children's food, and eating pattern in the US?

Possible probes:

- Do you think your cultural background affects how you feed your child? How?
- What things make it hard for you to keep your child healthy?

- Question 5:

What helps you in providing your child healthy diet?

- Question 6:

What are the constraints or limitations you have in providing your child with a healthy diet?

Possible probes:

What issues have you had, if any, in feeding your child(ren) the cultural meals from your home country?

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