THE NUTRITION TRANSITION AMONG ADOLESCENT FEMALES IN JORDAN

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ABSTRACT OF THE THESIS

The Nutrition Transition among Adolescent Females in Jordan
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The dietary behaviors and body image attitudes of the people of developing nations are quickly changing as many of these countries experience a nutrition transition. This transition is characterized by a shift from the traditional diet to one influenced by the Western world. There are many components to the nutrition transition, but the two main forces are cultural (including Western media) and economic influences that bring about the shifts in behavior and attitude. This study will add to the research on the nutrition transition by examining data from a non-representative sample of 199 female adolescents in Jordan. There are two hypotheses for this study. First is that the nutrition transition exists within this population and will be supported with high rates of restrained eating, as found in past research involving older Jordanian females. Second, media influence will help to explain the nutrition transition within this population. A linear regression was run using SPSS version 21.0 to assess the significance of the variables representing the nutrition transition. Significant results for the IES Total and the MFES Emotional scale were found suggesting that programming to promote intuitive eating within the population could be helpful in preventing further progression of the nutrition transition. Possibilities for future research are also discussed.
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CHAPTER 1

INTRODUCTION

The following chapter offers the background, purpose, and significance for the current research.

BACKGROUND

Over the last few decades developing nations have experienced an alarming and rapid shift in diet as they begin to grow and modernize (Popkin & Gordon-Larsen, 2004). Known as the nutrition transition, this shift is characterized by a change from traditional diets and lifestyles to a more “Westernized” diet often with less physical activity (Hawks, R. M. Merrill, et al., 2004; Popkin & Gordon-Larsen, 2004). The traditional diet ingredients include a balance of legumes, fruits, vegetables, and whole grains (Popkin, 2010). The “Western” diet consists of higher levels of saturated fats, refined and processed foods with little fiber, and much greater amounts of sugar (Popkin, 2002). With such drastic and rapid changes, many of these developing countries have seen an equally rapid increase in obesity and other chronic, non-communicable diseases (Popkin & Gordon-Larsen, 2004). Additionally, many of these developing countries are still dealing with unresolved infectious diseases increasing (Hawks, R. M. Merrill, et al., 2004).

Developing nations are now facing a double burden of disease as they transition: an increase in diet-related non-communicable diseases such as cardiovascular disease, diabetes, hypertension, etc., along with infectious diseases that are often still prevalent. In the ten-year span between 1990 and 2000 non-communicable disease deaths rose from 47% to 56% in developing nations; that number is predicted to increase to around 70% by the year 2020 (Galal, Corroon, & Tirado, 2010). With this increase in disease, developing nations are now facing an increase in health care costs, which economically they cannot afford (Hawks, R. M. Merrill, et al., 2004; Pearson, 1996; Popkin, Horton, Kim, Mahal, & Shuigo, 2001).

The literature has identified economic and demographic changes as main contributors to the nutrition transition as they drive the development of a country, increasing urbanization
and promulgating modern ideals with a strong Western influence (Hawks, R. M. Merrill, et al., 2004). However, the role of Western culture and media is also important to consider. When assessing the nutrition transition within a particular country, the influence of Western media helps to explain the change in attitudes towards attractiveness and the subsequent change in eating styles that follow these attitudes (Hawks, R. M. Merrill, et al., 2004).

**ENVIRONMENTAL CAUSES**

The nutrition transition is part of the global health transition, which takes into consideration demographic, economic, and social changes in a population and how they explain and affect the overall transition of a developing nation (Hawks, R. M. Merrill, et al., 2004; Vorster, Bourne, Venter, & Oosthuizen, 1999). Increased urbanization and market-based economies have had a negative effect on nutritional quality in developing nations (Popkin, 2004). According to Treloar et al. (1999), foods that are imported carry more “prestige” than food that is grown locally and thus these foods are more likely to be embraced and accepted into the diet of developing countries (p. 280). The research also shows a strong association between a higher adult body mass index (BMI) and lower socioeconomic status (SES) (Popkin, 2010). As Drewnowski (2000) stated, high fat and high sugar diets used to be associated with wealth. However, over the past few decades there has been a sizeable reduction in the price of vegetable oils and sugar, coupled with an increase in the availability of these products to even the poorest of nations (Drewnowski, 2000; Popkin, 2004, 2010).

Urbanization and the overall change in demographics of developing countries also impact the nutrition transition. As people move from rural areas to urban areas they are introduced to, and become dependent upon, Western style fast foods. These pre-packaged, more highly processed foods include more sugar, fat, and meat than a traditional diet incorporates (Popkin, 2004). Urbanization has also created a shift away from employment in agriculture and manual labor to more administrative and service industry positions leading to more sedentary lifestyles (Galal et al., 2010).

Economic growth, greater availability of cheaper nutritionally empty foods, coupled with fast paced and increasingly sedentary lifestyles, has helped to lead many of these nations swiftly into the nutrition transition. Yet, demographic and economic changes alone
cannot fully explain this process. Much of the original research on the nutrition transition has concentrated more on these environmental factors, but cultural changes, including those resulting from the impact of Western media, are equally important.

**Cultural Influence**

Advertising and Western media play a key role in how people in a developing nation think about their nutrition. As discussed earlier, as a developing country experiences economic changes that lead to increases in income, lower food prices, greater availability of cheap food products, and urbanization, the population becomes a viable target for advertising via mass media exposure (Hawks, R. M. Merrill, et al., 2004). However, as a nation transitions from its traditional dietary habits and begins to adopt those of the Western world, it is also faced with changes in attitudes towards attractiveness (Hawks, R. M. Merrill, et al., 2004).

Cash and Pruzinsky (2002) explain that negative body image is an important component that plays into a variety of women’s health issues including: obesity, depression, disordered eating, and other forms of unhealthy weight management. Western culture supports a thin body ideal and often makes use of negative advertising to push women to reach this ideal. It is no surprise then that as Western culture begins to influence the culture of developing nations the women of those countries begin to exhibit Western style attitudes and behaviors regarding body image and nutrition. As Hawks, R. M. Merrill, et al. (2004) explained, with the change in diet and body shape ideal, many women shift their eating behavior yet again from the social and environmental eating style to restrained eating.

**Statement of the Problem**

The dietary energy supply (DES) in Jordan has been steadily increasing over the past few decades (Hourani, 2011). The country is experiencing an increase in obesity rates throughout the population, but past research has shown that women are particularly at risk for being overweight or obese in Jordan compared to men (Galal et al., 2010). Research shows that Jordan is experiencing a nutrition transition. There are multiple studies in the literature that support the existence of this transition and the many problems it creates for the population of Jordan. However, the research available has mostly looked for this trend in
college to middle aged women (Madanat, Brown, & Hawks, 2007; Madanat, Hawks, & Angeles, 2011; Madanat, Lindsay, & Campbell, 2010).

Research concerning the adolescent population of Jordan does not include the nutrition transition specifically. There is research regarding eating behaviors, but it does not take into account all of the nutrition transition scales (Mousa, Al-Domi, Mashal, & Jibril, 2010). The mean population age in Jordan is around 22.4 years and this young population is growing rapidly (Central Intelligence Agency [CIA], 2012). With such a sizeable population of young people, and with past research showing adult women are more often overweight or obese (a sign of the nutrition transition), it is important to understand the nutrition transition trends within the adolescent female population in Jordan (Madanat, Hawks, et al., 2011).

**PURPOSE OF THE STUDY**

This study will help to support the research on the nutrition transition by examining data from a sample of the female adolescent population in Jordan. In the United States, almost 60% of high schools girls had dieted based on a nationally representative survey (Ackard, Croll, & Kearney-Cooke, 2002). This research found that dieting frequency was positively associated with eating disorder symptoms, body dissatisfaction, and emphasis on one’s outer appearance (Ackard et al., 2002). A study of eating disturbances among adolescent schoolgirls in Jordan noted the importance of Western media in regards to its influence on eating disorders (Mousa et al., 2010). Another study by Gordon-Larsen, Adair, Nelson, and Popkin (2004) found that the proportion of obese and overweight adolescents that transitioned to overweight and obese adults was very high. Past research on college age females in Jordan has shown the effects of the nutrition transition on this population, resulting in high levels of restrained eating, disordered eating attitudes and behaviors, higher levels of emotional eating, as well as increased rates in overweight and obesity (Madanat et al., 2007; Madanat, Lindsay, et al., 2010).

**THEORETICAL BASIS AND ORGANIZATION**

This study followed the theoretical framework of the nutrition transition posited by Hawks, R. M. Merrill, et al. (2004). This model takes into account not only the economic, demographic, and modernization influences on the nutrition transition, but also the cultural
influences that play a key role in body size preferences and resulting eating styles (see Figure 1). As explained earlier, there is a shift from internal (intuitive eating) cues to external (social and environmental) cues. As a developing country shifts from the traditional eating style of intuitive eating to the Western influenced style of external eating (often associated with over eating) levels of obesity begin to increase. However, along with this Western influence on dietary intake, there is also an influence through media and culture that shifts traditional cultural viewpoints on attractiveness and body image (Hawks, R. M. Merrill, et al., 2004).

Figure 1. The nutrition transition, eating styles and public health consequences.

The model assesses the level of nutrition transition through multiple scales and surveys (further discussed in the Methods section of this paper) that measure the effects of Western culture and media on the developing country. Countries that are further developed and have experienced higher Western media and culture exposure are expected to have lower levels of intuitive eating (one of the main assessment tools of nutrition transition). The opposite is expected for countries with low levels of Western media and culture exposure. The model was designed to show the same patterns in perceived attractiveness and eating styles (Hawks, R. M. Merrill, et al., 2004).

This model of the nutrition transition has been supported through multiple studies (Hawks, R. M. Merrill, et al., 2004; Madanat et al., 2007; Madanat, Hawks, Campbell, Fowler, & Hawks, 2010; Madanat, Lindsay, et al., 2010) and has been used to evaluate the nutrition transition among college females in Jordan in past research (Madanat, Lindsay, et al., 2010).
CHAPTER 2

LITERATURE REVIEW

As explained in the introduction, Jordan is moving quickly through the nutrition transition. To better understand this transition it has been established that not only economic and demographic changes, but also the cultural shifts caused by Western media influence play a part in determining the nutrition transition within a given population. This has been shown in past research with multiple populations of adult females in Jordan, as well as developing nations in other parts of the world, such as Asia (Hawks, R. M. Merrill, et al., 2004). To follow is a review of supporting literature on the nutrition transition in Jordan, supplemented by similar research in other countries.

THE NUTRITION TRANSITION IN JORDAN

Jordan, a small Arab country, shares its borders with Iraq, Syria, Saudi Arabia, Palestinian National Authority, and Israel (CIA, 2012). It has limited resources and often finds itself in the middle of political unrest from the previously mentioned surrounding countries. The Jordanian government focuses mostly on increasing economic development, as well as continuing a stable political environment within the nation (Madanat, Troutman, & Al-Madi, 2008).

Jordan has a population of about 6.5 million people with a growth rate of about 0.965% (CIA, 2012). There has been an increase in population more recently due to political unrest in the Middle Eastern region and the absorption of refugees from surrounding countries. As of 2012 Jordan has taken in 1,979,580 Palestinians, 173,680 Syrians, and 29,286 Iraqis (CIA, 2012). Around 79% of the population is urban (CIA, 2012). The median age in Jordan is around 22.4 years based on statistics from the Central Intelligence Agency (CIA, 2012). Understanding the patterns regarding the nutrition transition within a population of so many young people is imperative for the future health of this rapidly growing nation.

Jordan has been particularly affected by chronic disease, which is now the leading cause of morbidity and mortality within the country (Zindah, Belbeisi, Walke, & Mokdad,
The afore mentioned dietary changes and lack of exercise play an important role in the increase of chronic disease within the population, which Zindah et al. (2008) argue will only increase in the coming years. In 2003, 38.2% of all deaths in Jordan were attributed to cardiovascular disease and 14.3% to different types of cancer (Zindah et al., 2008). Through a self-reported survey in 2002, done in conjunction with the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO), it was shown that the prevalence within the Jordanian population of adults 18 years and older for the following chronic diseases were as follows: obesity was 12.8%, diabetes 6.4%, high blood pressure 22.2%, high cholesterol 20.9%, and asthma 5.1% (Zindah et al., 2008).

In 2004 the rates had increased within the population: obesity 19.5%, diabetes 7.5%, high blood pressure 30.2%, and high cholesterol 23.1% (Zindah et al., 2008). These numbers only continue to rise. The 2007 version of this survey showed rising obesity rates with 36% of the adult population in Jordan diagnosed as obese (Al-Nsour et al., 2012). There is an important difference between the measurements that should be noted. The statistics from 2002 were self-reported, whereas research professionals measured participants for the 2004 and 2007 statistics. This could help to explain the rise in rates because there were so many undiagnosed cases of these chronic diseases prior to the 2004 measurements (Zindah et al., 2008). The 2004 self-reported survey also showed that around 50% of Jordanian adults were not involved in any kind of regular physical activity (Zindah et al., 2008). The lack of physical activity further perpetuates the rise in morbidity and mortality rates due to chronic disease.

Obesity and overweight in a population are characterized by an overconsumption of a high-fat and high-sugar diet combined with a sedentary lifestyle and lack of physical activity (Galal et al., 2010). It is no surprise that Jordan, like many other developing countries experiencing a nutrition transition, has rising obesity rates. According to the food and nutrition profile on Jordan, the dietary energy supply (DES) has been steadily increasing since the 1960s, which mark the start of the nutrition transition in Jordan (Hourani, 2011). Based on numbers from 2005-2007 the DES was around 2979 kcal/capita/day, which far exceeded the population caloric requirements of 2056 kcal/capita/day (Food and Agriculture Organization of the United Nations, 2004). Carbohydrates in the Jordanian diet have
decreased significantly and been replaced by fats, which now make up about 30% of the diet (Hourani, 2011).

There has also been a decrease in consumption of fruits and vegetables along with cereals over the past forty years and a noticeable dietary increase of meat and other animal products (Hourani, 2011). The 2007 self-reported survey by the CDC and WHO showed a decrease in fruit and vegetable consumption, with only around 17% of participants reporting an intake of three or more cups of fruits and vegetables per day (Al-Nsour et al., 2012). This shows a 3% reduction from the 2004 version of this same self-reported survey where 20% of the population had reported consuming comparable amounts of fruits and vegetables (Zindah et al., 2008).

Women have been shown to be particularly affected and to have higher rates of overweight and obesity compared to men in Jordan (Galal et al., 2010). An important observation within the Jordanian population is that there is poor awareness of what constitutes a healthy body weight. Around 30% of obese Jordanians reported their weight to be about average (Zindah et al., 2008). This is an important observation because it shows that much of the Jordanian population is unaware of the fact that they are overweight and thus are unaware of the health risks they face due to their weight.

**PAST SUPPORTING RESEARCH**

Research on the nutrition transition incorporates two main components that characterize the transition: eating behaviors within the population and body image attitudes within the population. These two topics are assessed using a number of surveys (explained in detail in the Methods section of this research) that seek to explain where the population falls within the nutrition transition. Current and past supporting literature will be discussed within these two main topic areas, as well as past research specific to adolescents concerning the topics of eating behaviors and body image.

**Eating Behaviors**

Hawks, R. M. Merrill, et al. (2004) explained that with the traditional diet people engaged in healthy eating styles that were linked to the physical satisfaction of hunger (internal or intuitive eating). With the shift to a more Westernized diet also comes a shift in
eating behavior. Hawks, R. M. Merrill, et al. (2004) referred to this as a shift in eating based on social and artificial environmental cues. Hunger satisfaction is based on social enjoyment and gratification of eating (also known as external eating). As people pull farther and farther away from the intuitive eating style and base their eating on social and environmental cues, they tend to overeat and indulge in richer, more caloric dense foods which leads to more overweight and obese populations, a main characteristic of the nutrition transition (Hawks, R. M. Merrill, et al. 2004).

Restrained eating (dieting) is the intentional restriction of calories, which, if practiced regularly, will lead the body into a famine survival response that lowers the body’s basal metabolic rate. This leads to an increase in the storage of fat and a decrease in energy expenditure (burning of calories), which in turn can lead to future weight gain and diet related chronic diseases (Gaesser, 1999). The restriction of nutrition can also cause negative psychological effects that can contribute to cycles of emotional eating, binge eating, and other dysfunctional food relationships (Hawks, R. M. Merrill, et al., 2004). In summation, while restrictive eating is seen as an option to control body weight and achieve the media’s representation of attraction through the thin ideal body shape, the long-term effects may actually increase weight gain and other health risks associated with the nutrition transition (Hawks, R. M. Merrill, et al., 2004).

Hawks, R. M. Merrill, et al. (2004) looked at different parts of Asia to test the validity of Hawks’ nutrition transition model. Countries included in this research were Thailand, the Philippines, Japan, and China with a comparable representative U.S. population. The research posited that the intuitive eating scale would follow the economic and demographic trends of each country. It was found that the U.S. and Japan scored lower on the scale showing that they were more influenced by Western attitudes on eating (eating less intuitively) and Thailand, the Philippines, and China scored higher on the scale showing that they eat more intuitively (Hawks, R. M. Merrill, et al., 2004).

This data included both male and female college students, the majority of whom ranged from age 19-22. Most participants had a normal body mass index (BMI), but the U.S. had a higher percentage of obese and overweight participants. The hypothesis that intuitive eaters are more likely to have a normal BMI than those who do not was generally supported in this research and the U.S. scored lowest on the intrinsic followed by Japan. As predicted,
the more developing countries of Thailand, the Philippines, and China all scored higher on intrinsic eating. As for extrinsic eating, the expected trends were not seen in this research (Hawks, R. M. Merrill, et al., 2004).

However, the researchers explained a possible reason for this finding. Extrinsic eating attempts to assess the dieting behaviors of a population and there is a growing trend to deny any dieting behavior because it is associated with negative connotations (Hawks, R. M. Merrill, et al., 2004). Even though many people may try to control their weight through restrictive eating habits, they choose not to define this behavior as “dieting” or lie about it (Hawks, R. M. Merrill, et al., 2004). Overall this data supported the hypothesis that nutrition transitions are underway within all of the developing countries; however, each country is at a different stage. The intuitive eating scale is a good assessment of the nutrition transition and helps to explain the eating behavior trends characteristic of the transition (Hawks, R. M. Merrill, et al., 2004).

Madanat, Hawks, et al. (2010) looked more closely at the nutrition transition in China using a variety of scales aimed at measuring different types of eating behaviors. Using a population of college aged women Madanat, Hawks, et al. (2010) saw significant levels of restrained eating even though many of the participants were underweight or normal weight and many participants wished to lose more weight, which would put their BMI at an unhealthy level. Overall though, these women did not have high levels of disordered eating behaviors or attitudes (Madanat, Hawks, et al., 2010).

Using the same survey instruments from the China study along with the Hawks’ model, Madanat et al. (2007) looked at the nutrition transition among women aged 18-73 in Jordan. Once again high levels of restrained eating were found in the population and high rates of disordered eating attitudes (Madanat et al., 2007). There were also high levels of obesity and overweight among the representative sample and as hypothesized these women scored higher on the disordered eating behavior, emotional eating, and restrained eating scales (Madanat et al., 2007).

Building upon this research, Madanat, Lindsay, et al. (2010) used the Hawks’ model to assess the nutrition transition in a cross-sectional sample of college-aged women in Jordan. Again a majority of the sample showed high levels of restrained eating, as well as disordered eating behaviors and attitudes (Madanat, Lindsay, et al., 2010). The sample also had high
levels of underweight participants and within this sample, women were more likely to eat based on external hunger cues versus internal hunger cues as found in some previous studies of developing countries, such as Hawks, R. M. Merrill, et al. (2004) (Madanat, Lindsay, et al., 2010).

In a study of college women in four different countries (Madanat, Lindsay, Hawks, & Ding, 2011) the nutrition transition was assessed in Japan, the U.S., China, and Jordan. Again using Hawks’ model to assess the level of transition within each country, Jordanian students were found to have higher levels of overweight and obesity compared to the other developing nations as well as higher levels of external eating behaviors. As seen in earlier studies Jordanian women also had particularly high levels of restrained eating (Madanat, Hawks, et al., 2011).

Overall, past research has shown that the nutrition transition is occurring rapidly in many developing countries, especially in Jordan, and that many women are beginning to eat more externally and partake in restrictive eating behaviors.

**Body Image**

Most traditional diets were low in fat and led to a leaner body type. Yet, in traditional cultures a more voluptuous body type is often preferred because it is a sign of attractiveness and prosperity (Treloar et al., 1999). For many women in developing countries the shift from the traditional diet to a Western influenced diet is welcomed because it offers many of them the chance to gain weight they were unable to before (as they strive to embody the traditional cultural beauty ideal) because their diets now include more fat and richer foods (Madanat, Hawks, et al., 2011). While the initial weight gain is welcomed at first, opposing Western media messages on body size and attractiveness begin to affect women’s perceptions of personal beauty and subsequently their eating behaviors and they switch from admiring a plumper body type to a thinner one (Madanat, Hawks, et al., 2011).

Stice, Schupak-Neuberg, Shaw, and Stein (1994) noted that sociocultural pressures to be thin are promoted and enforced by mass media. Western media attributes femininity, female success, and attractiveness to a thin body ideal (Stice et al., 1994). Lake, Staiger, and Glowinski (2000) explain that Western media creates an overall dissatisfaction in women regarding their body type and weight, leading to negative eating attitudes, weight and dieting
obsession, and a plethora of eating disorders in Western societies. Many women experience the media inspired pressures to conform to this ideal thin body type, which can lead to abnormal eating behaviors and attitudes about food and nutrition (Stice et al., 1994).

Past research found that the Japan and the U.S. participants placed higher importance on fashion and beauty with lower scores on the self-care subscale (Hawks, R. M. Merrill, et al., 2004). Thailand, China, and the Philippines scored higher on this subscale emphasizing the importance of physical health and fitness instead of fashion and beauty (Hawks, R. M. Merrill, et al., 2004). This shows that countries that are further along in the nutrition transition follow Westernized trends that put more importance on physical appearance when it comes to beauty (Hawks, R. M. Merrill, et al., 2004).

Madanat, Lindsay, et al. (2011) used the Sociocultural Attitudes Towards Appearance Scale (SATAQ-3), the Body Esteem Scale (BES), and Stunkard’s body silhouettes to better assess body satisfaction and body image in college age Chinese females. While no significant results were found regarding Western media influence on body image and body satisfaction, it is thought that perhaps Chinese women are not at a point in the nutrition transition where the results of Western media influence are fully recognizable (Madanat, Lindsay, et al., 2011).

In the study by Madanat et al. (2007) regarding women in Jordan high levels of restrained eating and disordered eating behaviors were found among the participants. However, these women did not have unrealistic desired body changes that were abnormal or unhealthy and they had fairly normal body esteem levels (Madanat et al., 2007). It is posited that this could be explained by the mix of traditional attitudes towards body image and body esteem and those of Western culture discussed earlier in the introduction (Madanat et al., 2007).

Further research by Madanat, Lindsay, et al. (2010) provided similar results to the above study in a college-age sample of women in Jordan. While again high levels of disordered eating behaviors and attitudes were found, these women still had positive body esteem and body satisfaction levels. Those that did desire any physical changes still chose body silhouettes that were within a healthy range. Further more, this population did not feel that Western media influenced their feelings on body image. However, it was suggested in the research that perhaps these women are unaware of the influence these messages may be
having on their attitudes towards their body image and satisfaction. Compared to the Madanat et al. (2007) study, women in this sample did score higher on the SATAQ-3 scale, showing a stronger influence from Western media on body type expectations, so it seems while the influence is not yet significant, it is becoming more present over time, at least in younger generations (Madanat, Lindsay, et al., 2010).

Madanat, Hawks, et al. (2011) further investigated the desired body changes within a sample of Jordanian women with a mean age of 33.6 (age range 18-70). Two thirds of this population wished to lose weight. However, again it was found that those wanting to lose weight had realistic, healthy weight loss expectations. Body size preferences, body image, and body satisfaction still seemed to follow traditional cultural trends within this population (Madanat, Hawks, et al., 2011).

Madanat, Hawks, et al. (2011) still found normal levels of body esteem and body satisfaction within this particular population of Jordanian university students, even with the high levels of overweight and obesity in the population. These women had accurate perceptions of their actual body size when identifying themselves using Stunkard’s body silhouette scale (Madanat, Hawks, et al., 2011).

In summation, the research on body image seems to show that at least in some cases, women do have strong desires to lose weight, although many of them have realistic and healthy goals for their weight loss. Most women in Jordan had normal levels of body esteem and body satisfaction within the populations studied.

**ADOLESCENTS AND THE NUTRITION TRANSITION**

There is very little research on adolescents and the nutrition transition, especially in Jordan. However, a study by Mousa et al. (2010) was done to start a baseline for research in Jordan on adolescent girls and their eating behaviors and body image. While this study did not specifically look at the nutrition transition and how it played a role in these two concepts, it did include the connection between Westernization, economic growth, and demographic movement to help explain the changes within this young population (Mousa et al., 2010). Mousa et al. (2010) explained that young adolescent girls often experience eating disorders that are associated with weight concerns and that this is even more likely in developing countries affected by Westernization.
Also mentioned were the cultural shifts in dress from long, loose, flowing dresses to the adoption of more form-fitting clothing and styles based on Western fashion. This has focused more attention on young women’s bodies and appearance than previously because traditional clothing styles were more forgiving and flattering to all body types, unlike many Western styles of clothing (Mousa et al., 2010). Using many of the same, or similar surveys as Hawks, R. M. Merrill, et al. (2004), Mousa et al. (2010) found within their population of 432 adolescent schoolgirls (ranging from 10 to 16 years of age) in Amman, Jordan, that these girls experienced weight and shape concerns similar to Western populations as well as some disordered eating behaviors.

**Present Study**

This research will follow the Hawks, R. M. Merrill, et al. (2004) model to assess the nutrition transition within this data set of adolescent girls in Jordan. This study will help to inform further research on the eating behaviors and body image perceptions of Jordanian adolescent girls. Even though the population for this particular study is not representative, it could spark an interest in future programs and interventions to help promote healthy body image and eating attitudes within the studied population. Findings from this small-scale study could also lead to more interest in research involving adolescent populations, which generally have been ignored in the past with regards to nutrition transition research.

There are some important differences to note between the present research and that of the past. First of all, the sample used for this study is not a representative sample. The main goal of this research was to assess where the adolescent females of this specific population were in the nutrition transition. The research was collected at a school in Jordan that was hoping to better understand how their students were dealing with the nutrition transition in order to guide future school programs and health education that would meet the needs of their students.

Secondly, very little research has been done on the adolescent population of Jordan in regards to the nutrition transition or any of its measurable components. However, because such a high percentage of Jordan’s population is young, additional research regarding this particular segment is needed. Since adolescents are increasingly exposed to media, it seems especially important to look at the effect media may be having on this younger population.
and their eating behaviors. This research will help extend present knowledge on the nutrition transition in Jordan and whether it has progressed to a point where even younger portions of the population are seeing the effects.

**HYPOTHESES**

The main research question for this study is whether the nutrition transition is underway within this non-representative sample of Jordanian female adolescents. Based on the literature review and the limited research on adolescents in this area the following hypotheses will be explored:

- **Hypothesis 1:** The existence of a nutrition transition will be supported with most adolescent girls being restrained eaters.
- **Hypothesis 2:** Western media influence will help to explain the nutrition transition within this population of Jordanian adolescent females.
CHAPTER 3

METHODS

STUDY DESIGN AND SAMPLE

The sample for the current study started with a recruitment of 213 adolescent females from middle to high-income families ages 11-17 attending a private high school in Amman, Jordan. Of the 213 recruited, 199 completed the survey. Students were asked to complete an online survey (lasting approximately 25 minutes) during their regularly scheduled computer class. Both parental consent and student assent were required for a student to be eligible to participate. The survey instrument was mostly a replication of an instrument previously used in Jordan to assess eating styles, body dissatisfaction, body esteem, and level of Westernization in a random sample of Jordanian women and then in a cross-sectional sample of college-age women (Madanat, Lindsay, et al., 2010).

Prior to data collection, research approval was granted through the Institutional Review Board (IRB) at San Diego State University. Once IRB approval was received, informational flyers were sent home to the parents of all potential participants informing participants about the purpose of the study and including a parental consent form that was required in order for students to participate in the survey. At the following computer class the instructors collected all signed consent forms and students then gave oral assent prior to sitting down to take the computer-based survey. Students were asked once more for their assent at the start of their online survey. All aspects of the survey were electronic. Students understood that participation in the survey was voluntary and that they could skip questions or stop at anytime. The survey was anonymous and no identifying information was collected. The study was in partnership with the school, which intends to develop a curriculum for its students that will touch on self-esteem, body image, and weight management.

INSTRUMENTS

To assess the dependent variable (BMI Percentile) this study used a collection of validated scales (independent variables) to give a comprehensive assessment of Hawks’
framework. All of the following scales were previously validated in the literature and a pre-test was done to validate them within this population. The instruments included were as follows.

**Eating Habits Questionnaire: Restraint Scale (RS)**

This is a ten-item scale that was validated and found to be a reliable measure of restrictive eating behavior and dieting. The median represents the cut-off point. Thus anyone scoring at the median or above is considered a restrained eater (Drewnowski, Riskey, & Desor, 1982; Polivy, Herman, & Warsh, 1978).

**Intuitive Eating Scale (IES)**

The IES has four sub-scales: (1) Anti-dieting orientation, (2) an internal motivation for eating based on the physical satisfaction of hunger, (3) limited social, environmental, and emotional eating, and (4) a self-care orientation that emphasizes health and fitness over fashion and beauty. It was developed in the US to measure intuitive eating behaviors in college students, but has been validated in this population (Hawks, R. M. Merrill, et al., 2004).

**Motivation for Eating Scale (MFES)**

This a 43 item, Likert-type scale was created to differentiate between its four sub-scales: emotional eating, intuitive eating, social eating, and environmental eating (Hawks, Merrill, Gast, & Hawks, 2004). The subscales measure the following: intuitive (physical) eating (items: 5, 9, 16, 20, 25, 29, and 35) measures the intuitive eating stage of the nutrition transition. Social eating (items: 27, 32, 33, 37, and 42) and environmental eating (items: 1, 7, 10, 12, 15, 18, 22, 24, 30, 38, and 41) were combined to measure external eating within the nutrition transition. Emotional eating (items: 2, 3, 4, 6, 8, 11, 13, 14, 17, 19, 21, 23, 26, 28, 31, 34, 36, 39, 40, and 43) measures the later stage of the nutrition transition where individuals have become restrictive eaters (Madanat, 2006).

The scale measures the degree of agreement on a variety of statements that are related to motivations for eating (Madanat et al., 2007). The MFES can also be used to identify if participants are intuitive eaters or if they have shifted via the nutrition transition to external and emotional eating (Madanat, 2006).
Sociocultural towards Appearance Questionnaire (SATAQ-3)

This questionnaire assesses the impact of societal and media influences on body image and eating disturbances (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). The scale consists of 30 items with four sub-scales: information (items: 1, 5, 9, 13, 17, 21, 25, 28, and 29), pressures (items: 2, 6, 10, 14, 18, 22, and 26), internalization-general (items: 3, 4, 7, 8, 11, 12, 15, 16, and 27), and internalization-athlete (items: 19, 20, 23, 24, and 30).

Demographics

Basic demographic information survey was also included. The survey asked for age, weight, height, mother’s occupation, father’s occupation, and sex and number of siblings for each participant.

Other Variables

The following variables were also included in the original survey for this data, but were not used in the analyses for this research: Eating Attitudes Test (EAT-26) (Al-Subaie et al., 1996; Garner & Garfinkel, 1979; Loranzo, Labori, & Lock, 2002), the Body Esteem Scale (BES) (Mendelson, Mendelson, & White, 2001), and Stunkard’s Body Silhouettes (Stunkard, Sorenson, & Schulsinger, 1983).

Validity and Reliability

All of the above instruments have been validated in Jordan. Each instrument was translated by a native speaker into Arabic and then independently translated back into English by another native speaker to guarantee the accuracy of the translation. A focus group was held to assess the face validity to insure understanding and cultural appropriateness of the questions within each scale. A pretest group of Jordanian women was used to assess both the validity and reliability of these instruments in Jordan, which included factor analyses, computed alpha coefficients for internal consistency, and the Guttman split-half coefficient to measure reliability (Madanat, 2006). However, none of these analyses were done with the age group used for this study.
DATA ANALYSIS

Data were analyzed using the statistical software package SPSS version 21.0 (SPSS Inc., Chicago, IL, USA). Linear regression analyses were executed, controlling for demographic variables, to understand the significance of the selected variables on eating behaviors and attitudes. The significance level was set at 0.05. Standard frequency tables, chi-squares, $t$ tests, and ANOVA were used to summarize and illustrate the data.
CHAPTER 4

RESULTS

DEMOGRAPHICS

Table 1 shows the demographic distribution for the given population sample of 199 participants. The average age was 13.23 years old (SD=1.37). About 8% of the population was underweight and another 18.4% of the population was overweight/obese. The largest percentage of participants was in the 7\(^{th}\) grade (44.4%) followed by the 10\(^{th}\) grade (29.6%), the 8\(^{th}\) grade (20.7%) and the 9\(^{th}\) grade (5.3%). Regarding participants’ parental employment it was found that 97% of father’s and 53% of mother’s were employed. Participants had an average of 2.20 brothers (SD=1.08) and 2.34 sisters (SD=0.94).

Table 1. Demographic Distribution of Female Adolescent Participants (n=199)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD) or Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>13.23 (1.37)</td>
</tr>
<tr>
<td>Grade Level</td>
<td></td>
</tr>
<tr>
<td>7(^{th})</td>
<td>44.4%</td>
</tr>
<tr>
<td>8(^{th})</td>
<td>20.7%</td>
</tr>
<tr>
<td>9(^{th})</td>
<td>5.3%</td>
</tr>
<tr>
<td>10(^{th})</td>
<td>29.6%</td>
</tr>
<tr>
<td>Father’s Employment (yes)</td>
<td>97%</td>
</tr>
<tr>
<td>Mother’s Employment (yes)</td>
<td>53%</td>
</tr>
<tr>
<td>Number of Brothers</td>
<td>2.20 (1.08)</td>
</tr>
<tr>
<td>Number of Sisters</td>
<td>2.34 (0.94)</td>
</tr>
</tbody>
</table>

SUBSCALES AND SCALES

Table 2 shows the distribution of means for the subscales and scales, where mean scores are based on a 1-5 range. In regards to the Intuitive Eating Total score, the mean was 3.1460 (SD=0.5850). This shows that overall the population answered neutrally to questions on the Intuitive Eating Scale. However, their responses leaned towards the (neutral)/(agree) side, meaning that many of them seem to be eating more intuitively.
Table 2. Mean for Subscales and Scales and their correlation with BMI Percentile

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>r</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IES Total</td>
<td>3.1460 (0.58)</td>
<td>-0.472</td>
<td>0.000</td>
</tr>
<tr>
<td>MFES Environmental</td>
<td>3.0087 (0.78)</td>
<td>-0.030</td>
<td>0.720</td>
</tr>
<tr>
<td>MFES Emotional</td>
<td>2.2563 (0.89)</td>
<td>0.126</td>
<td>0.138</td>
</tr>
<tr>
<td>MFES Physical</td>
<td>3.1050 (0.96)</td>
<td>-0.042</td>
<td>0.610</td>
</tr>
<tr>
<td>MFES Social</td>
<td>2.9238 (0.81)</td>
<td>0.052</td>
<td>0.531</td>
</tr>
<tr>
<td>Restraint Scale (Eating Habits)</td>
<td>20.5291 (5.68)</td>
<td>0.474</td>
<td>0.000</td>
</tr>
<tr>
<td>SATAQ Internal General</td>
<td>2.6719 (1.07)</td>
<td>0.207</td>
<td>0.013</td>
</tr>
<tr>
<td>SATAQ Internal Athlete</td>
<td>2.8293 (1.01)</td>
<td>0.240</td>
<td>0.003</td>
</tr>
<tr>
<td>SATAQ Information</td>
<td>2.7627 (1.01)</td>
<td>0.137</td>
<td>0.096</td>
</tr>
<tr>
<td>SATAQ Pressures</td>
<td>2.3869 (1.02)</td>
<td>0.258</td>
<td>0.001</td>
</tr>
</tbody>
</table>

In regards to the MFES scales, participants scored highest on physical eating (3.105) (SD=0.96) compared to social eating (2.9238) (SD=0.81) and emotional eating (2.256) (SD=0.89). The physical eating score fell between 3 (neutral) and 4 (agree); although it is closer to neutral, the trend seems to show that girls are eating based on physical cues (their body telling them they are hungry) versus emotional or social cues such as feeling bored or upset, or because food is around them in a social situation.

Additionally, using a median cut-off point of 20 for the population, the restraint scale showed that 54.06% of the sample were restrained eaters, meaning that a large percentage of these girls restricted their caloric intake on a daily basis.

The SATAQ-3 scale was used to assess the girls’ thoughts on the affects of media on their body image. The mean scores for the Internal Athlete, Internal General, and Information were between 2 (disagree) and 3 (agree) with a range of 2.67-2.82. The subscale Pressures, which is concerned with the pressures from media to look a certain way, leaned more towards 2 (disagree) with a score of 2.3869 (SD=1.02), meaning most girls did not feel that media pressures affected their body image. In the initial correlation SATAQ Internal General, Internal Athlete, and Pressures were significant.

Additionally, a stepwise backward linear regression was run to assess which variables were truly significant via a calculated elimination process. Table 3 shows all variables included in the model. With each variable eliminated, the model significance improves. The final model represents the point at which no further improvement can be made. The final model can be found in Table 4. The results of the backward linear regression show that as
Table 3. Multivariate Linear Regression Assessing the Nutrition Transition among Female Adolescents in Jordan

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>P-Value</th>
<th>Confidence Intervals:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>143.951</td>
<td>0.031</td>
<td>13.348</td>
<td>274.553</td>
</tr>
<tr>
<td>Age</td>
<td>-1.749</td>
<td>0.517</td>
<td>-7.112</td>
<td>3.614</td>
</tr>
<tr>
<td>Father’s Employment (yes)</td>
<td>20.131</td>
<td>0.491</td>
<td>-37.976</td>
<td>78.237</td>
</tr>
<tr>
<td>Mother’s Employment (yes)</td>
<td>-1.412</td>
<td>0.828</td>
<td>-14.329</td>
<td>11.506</td>
</tr>
<tr>
<td># Brother’s</td>
<td>-3.145</td>
<td>0.334</td>
<td>-9.606</td>
<td>3.315</td>
</tr>
<tr>
<td># Sister’s</td>
<td>0.786</td>
<td>0.804</td>
<td>-5.512</td>
<td>7.084</td>
</tr>
<tr>
<td>IES Total</td>
<td>-0.983</td>
<td>0.066</td>
<td>-1.671</td>
<td>-0.295</td>
</tr>
<tr>
<td>RS Total</td>
<td>1.246</td>
<td>0.167</td>
<td>-0.536</td>
<td>3.029</td>
</tr>
<tr>
<td>MFES Environmental</td>
<td>-0.012</td>
<td>0.988</td>
<td>-1.614</td>
<td>1.590</td>
</tr>
<tr>
<td>MFES Emotional</td>
<td>-0.563</td>
<td>0.709</td>
<td>-1.193</td>
<td>0.136</td>
</tr>
<tr>
<td>MFES Physical</td>
<td>-0.282</td>
<td>0.706</td>
<td>-1.768</td>
<td>1.204</td>
</tr>
<tr>
<td>MFES Social</td>
<td>1.121</td>
<td>0.400</td>
<td>-1.524</td>
<td>3.765</td>
</tr>
<tr>
<td>SATAQ Internal General</td>
<td>-0.294</td>
<td>0.717</td>
<td>-1.911</td>
<td>1.323</td>
</tr>
<tr>
<td>SATAQ Internal Athlete</td>
<td>-0.596</td>
<td>0.587</td>
<td>-2.783</td>
<td>1.590</td>
</tr>
<tr>
<td>SATAQ Information</td>
<td>0.081</td>
<td>0.913</td>
<td>-1.394</td>
<td>1.557</td>
</tr>
<tr>
<td>SATAQ Pressures</td>
<td>0.247</td>
<td>0.793</td>
<td>-1.622</td>
<td>2.115</td>
</tr>
</tbody>
</table>

Notes: With Dependent Variable BMI Percentiles (n=199). Unstandardized coefficients were significant at the 0.05 level.

Table 4. Final Multivariate Linear Regression Assessing the Nutrition Transition among Female Adolescents in Jordan

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>P-Value</th>
<th>Confidence Intervals:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>171.636</td>
<td>0.000</td>
<td>125.914</td>
<td>217.358</td>
</tr>
<tr>
<td>IES Total</td>
<td>-1.150</td>
<td>0.000</td>
<td>-1.559</td>
<td>-0.741</td>
</tr>
<tr>
<td>MFES Emotional</td>
<td>-0.473</td>
<td>0.007</td>
<td>-0.814</td>
<td>-0.133</td>
</tr>
</tbody>
</table>

Notes: With Dependent Variable BMI Percentiles (n=199). Unstandardized coefficients were significant at the 0.05 level.

BMI percentile increases by one unit, the IES Total has a 1.150 unit decrease and MFES Emotional has a 0.473 unit decrease. These changes in the IES Total and MFES Emotional variables explain 29% of the variation in the BMI percentiles of this population of adolescent girls in Jordan.
CHAPTER 5

DISCUSSION

Previous research shows that economic and demographic factors, as well as the influence of Western culture, particularly through media, has played a large role in the nutrition transition in Jordan (Hawks, R. M. Merrill, et al., 2004; Madanat et al., 2007). It is accepted that Jordan is experiencing a nutrition transition and that college age and middle aged women have been significantly affected regarding their eating behaviors and attitudes, and slightly affected when it comes to their attitudes towards body image and attractiveness (Madanat, Hawks, et al., 2011; Madanat et al., 2007). The nutrition transition has led to an increase in the prevalence of obesity and non-communicable diseases within the population of Jordan (Popkin & Gordon-Larsen, 2004). The present study chose to focus on female adolescents, because past research has not assessed the nutrition transition within this population in Jordan.

KEY FINDINGS

- **Hypothesis 1**: The existence of a nutrition transition will be supported with most adolescent girls being restrained eaters.

  Based on the analyses significant variables were found to support the existence of the nutrition transition within the female adolescent population in Jordan. However, in contrast to the original hypothesis, restrained eating was not a significant variable in this sample and did not end up explaining the existence of the nutrition transition. Instead, IES Total was the most significant variable when compared to the dependent variable BMI percentile and explained most of the variation along with MFES Emotional.

  The mean score for IES Total within this population was 3.15 (SD=0.58) and MFES Emotional was 2.26 (SD=0.89). This population of Jordanian adolescent girls falls within the neutral to disagree category of the scales meaning that they are more towards the middle of the nutrition transition model. However, for adolescent girls that were overweight or obese within this population, the higher their BMI percentile, the lower their rates of intuitive
eating. With such high rates of overweight and obesity in Jordan, understanding the relationship between intuitive eating and that ability to maintain a healthy weight is warranted. If the relationship between intuitive eating and weight management was better understood then it could lead to health programming and future research that might help to curb the obesity and overweight epidemic within this population.

It is important to note that this limited non-representative sample of Jordanian adolescent girls may not be giving us a well-rounded picture of what is really happening within the general adolescent female population of Jordan. This sample came from a private, upper middle class school that enforces a school uniform for all attending students. The demographic characteristics of this population alone may have played a large role in the significance found within this sample. Lower income schools, public schools, or private schools in other areas of Jordan may yield different results. Also, because the school from this study had asked for this research to be done in part to help them with understanding their students health needs, it may be that this population is already more health conscious. This level of health consciousness could be very different from the rest of the population and it may have affected the results found within this study.

The obesity epidemic in Jordan has received a fair amount of attention within the older populations of women, but adolescents have often been left out. While other forms of abnormal eating behavior were not found significant within this population, based on past research, it is clear that this population will soon be facing more pressures regarding their eating behavior and body image as they transition into college age and middle age. As discussed in Madanat et al. (2007) obesity and overweight are often considered a driving force behind abnormal eating behaviors such as restrictive eating and dieting as well as body image issues. Attacking the obesity epidemic in Jordan early on could help to lower the rates of not only obesity and overweight in the population as these adolescents age, but it may also help to lower the levels of abnormal eating behavior and negative body image within Jordan.

- **Hypothesis 2:** Western media influence will help to explain the nutrition transition within this population of Jordanian adolescent females.

While significant results were only found for the IES Total and MFES Emotional variables in regards to BMI percentiles, all other variables, while not significant within this
population, did seem to be leaning towards and following the expected nutrition transition
trends.

However, no significant results were found with the SATAQ scores to support Hypothesis 2. As discussed in Madanat et al. (2007), there could be many reasons for lack of significant findings. The most simplistic answer is that female Jordanian adolescents are perfectly content with their body size and image and feel no pressure from media to change their physical appearance.

Another thought is that perhaps these young women are simply unaware of the influence of Westernization and media on their attitudes and are unable to recognize that the thoughts they have are potentially from an outside source (Madanat et al., 2007). For example, their parents and other family members may adopt and support Western influenced ideas at home regarding eating behavior and body image and adolescents may in turn subscribe to these same beliefs without realizing that the attitudes and opinions they hold come from a media source originally. Only time and further research can tell what is truly happening within this population in regards to media influence.

**LIMITATIONS**

This research was not without its limitations. First of all the sample was not representative. The survey was only given at one school location and many of the older students were unable to participate because of conflicts with major exam requirements. Because of this the sample was made up mostly of younger participants. Past research has shown the nutrition transition is underway in college age women and middle aged women in Jordan; had older grades been able to participate in the study, there may have been more significant findings. The lack of upper grade participants also kept the final sample size fairly small. Though 199 people took the survey, not everyone completed all the survey questions. Thus, for some variables the sample size was even smaller. A small sample size can skew the numbers and affect the overall results and significance of the variables.

Furthermore, because the data collected was in the form of individual surveys, there was the potential for self-reported bias when participants answered questions on the survey. This could be for many reasons. Participants might answer a question a certain way because they think it is what the researcher is looking for, or because they are embarrassed to answer
truthfully, etc. The survey included personal questions such as height and weight as well as questions regarding eating behaviors and attitudes, which could cause discomfort or embarrassment for some participants, leading them to answer dishonestly. Additionally, the data used for this study was secondary data, so the principal investigator on this project had no control over the way the data was originally scored.

Lastly, no qualitative data was collected to go along with the survey portion of the original research, which could have added additional insight as to the attitudes and behaviors towards eating and body image within the population. While the surveys and scales used for this research have been validated and found reliable within the college age and middle aged population of Jordan, no pretest was done within the adolescent population to make sure the scale and survey items were interpreted appropriately by this age group. While the age difference is not particularly large, it might be that adolescents interpret some of the survey questions differently because of their generation. Including qualitative research to get a better understanding of how participants are interpreting survey questions could offer insight for future research on the nutrition transition within adolescents.

**STRENGTHS**

This study included numerous strengths along with its limitations. First of all, as far as the principal investigator is aware, this is the first study to assess the nutrition transition in Jordan among the female adolescent population. The adolescent population is particularly pliable and affected by trends and popular culture (specifically media), thus it makes sense that adolescents would be influenced by media and that their eating behaviors and body image attitudes might reflect these influences. It is also important to look at which variables might explain or predict these changes in eating behavior and attitudes, as well as body image.

Through this research it was found that intuitive eating was a significant predictor of the nutrition transition and overweight/obesity. This is helpful to understand because future health programming can concentrate on maintaining intuitive eating behaviors in the female adolescent population in Jordan.
FUTURE RESEARCH CONSIDERATIONS

Regarding future research and implications for public health, future projects should include more research involving the nutrition transition among adolescents in general. Future projects in Jordan involving adolescents should include a representative sample, a larger sample size, and participants from the upper grades so that the nutrition transition can better be assessed throughout all grade levels. It might also be helpful for researchers to take physical measurements of participants to help control for self-reporting bias and also as a body image distortion measure.

Additionally, as mentioned earlier, it could be useful to include a qualitative component in future studies that would allow questions to be tailored based on the specific survey responses of the participants, as well as, including open ended questions and questions that relate specifically to adolescent lifestyles and behaviors to see if having questioned framed in a more relatable manner might yield different results.

Furthermore, if a pretest were done prior to the survey it would help to show whether adolescents understood the survey questions as they were intended and could offer the opportunity to reword questions to make survey items more appropriate for this specific population. Including a qualitative interview with the parents of the adolescents could also be beneficial. For example, it would be interesting to see if perhaps parents are influenced by Western media and their influence has an effect on the foods they provide in their home, their eating styles, and body image preferences, which in turn affects the behaviors and attitudes of their children. Participants may have answered that Western media has no effect on their behaviors and attitudes directly, but it may be having an effect indirectly. By interviewing with parents, future research could look into this idea more closely.

As discussed earlier in this study, there is research to show that eating disorders and body image issues are on the rise in adolescent populations. This is a public health concern that should not be ignored. While the key findings in this project did not fully support the conclusions in past research, including the suggested changes in future research might yield more telling results. This research at least helps to highlight the importance of understanding the nutrition transition within the adolescent population of Jordan and could improve future health programming within this population. It could help to promote intuitive eating, which in turn could prevent rising overweight and obesity rates within this sample.
CONCLUSION

Overall, this study was able to show significant results supporting that the nutrition transition is underway among the female adolescent population of this non-representative sample in Jordan. While results from research within older female populations in Jordan regarding the nutrition transition were stronger than those found in this study, the adolescent population is still an important sample to consider, and in fact might hold the key to slowing the nutrition transition within the Jordanian population in general. More research is needed to fully understand the impact of the nutrition transition on Jordanian youth and what might be most effective in preventing the transition from intuitive eating to emotional or social eating behaviors. This thesis concentrated on eating attitudes and behaviors in regards to the nutrition transition, however, body image is also important when considering the nutrition transition. Thus, more research is needed in regards to female adolescents in Jordan and the influence of media on their attitudes and beliefs about eating and body image.
REFERENCES


