Perimenopausal Obesity:

The Culturally Specific Views of Perimenopausal GCC Women Concerning the Causes and Processes of Mid-Life Weight Gain.

by

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A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved February 2012 by the
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ARIZONA STATE UNIVERSITY

May 2012

ABSTRACT

Obesity is a worldwide epidemic. Countries in the Middle East, Central and Eastern Europe, as well as North America have the highest prevalence of obesity in the world. Perimenopause is a transitional period in the life of a woman, occurring a few years before and a year after menopause or last menses. During this period, a woman may experience several physiological, psychological and socio-economical changes that may affect the health promotion efforts related to weight management. Perimenopausal obesity prevalence is high in Middle-Eastern countries and is a particular problem in Gulf Cooperation Council Countries (GCC). Despite the high prevalence of obesity in GCC countries and its comorbidities among the perimenopausal women, not much attention is given to it. There is lack of understanding regarding the perception of perimenopausal women of midlife weight gain. This study proposed a qualitative descriptive design that used semi-structured interviewing, and conventional content analysis. The purpose of this study was to examine the culturally specific views of perimenopausal GCC women concerning the causes and processes of midlife weight gain. Constructs derived from the health belief and explanatory models to identify and sort themes into conceptual categories were used. The themes and initial interpretations were brought forward into the organizing and explanatory framework of the socioecological model for further exploration and elucidation. The problem of overweight/obesity among the perimenopausal women in GCC countries was found to have many dimensions. These dimensions interacted at multiple levels (individual, interpersonal, organizational and community) and

encompassed factors salient in both the HBM and Kleinman's model of disease and risk behaviors. The findings of this study suggest that weight-management programs targeting perimenopausal GCC women should be planned based on the multilevel factors that are expressed by them.

DEDICATION

I dedicate this dissertation to the greatest parents in the world, Zalikha and Abdul Majeed (may Allah be merciful on him) whose love, care, support and prayers made me what I am today; to my brothers Najeeb, Waleed and their families who were always there for me; to my sisters Fatma, Khadija and their families who never stopped encouraging me and making me feel like a star; to my fiancé Sameer and his family for their love, care and understanding; to Gail Petersen for her love and support; to my friends, coworkers and students who supported me throughout my life and my career; to Mr. Hamood Al-Kharousi, who have been always there when needed.

ACKNOWLEDGMENTS

I am grateful to many people who made this dream come true. I would like to acknowledge and appreciate Dr. Colleen S. Keller for her bringing the best out of me and her continuous support and guidance throughout the process. Special thanks to Dr. Bronwynne Evans and Dr. Linda Larkey who have generously given their time and expertise to better my work.

Grateful acknowledgement is given to the College of Nursing and Health Innovation at Arizona State University for supporting my scholarly pursuit through Don Tapia Nursing Fellowship in Honor of Dean Barbara Durand, and especially Dr. Bernadette M. Melnyk for inspiring us to become better scholars, leaders and citizens. I am grateful as well to Levi Colton and Christina Peete for coordinating the administrative concerns and advising me when needed to make it possible for me to complete my degree from the other part of the world.

My thanks and appreciation goes to Ministry of Health, Oman for their continued support of my studies. I would like to specially thank the Directorate General of Education and Training, Directorate General of Health Service-Muscat and the staff at Muscat Region's Health Centers and the participants for their valuable time and support. I am also grateful to Mr. Jeremy Fox who helped me in the process of editing my work.

TABLE OF CONTENTS

CHAPTER Page

LIST OF TABLES

LIST OF FIGURES

Chapter 1

INTRODUCTION

Obesity is a worldwide epidemic, with the prevalence of obesity (BMI≥ 30kg/m^2) and overweight (25kg/m^2<BMI<30 kg/m^2) increasing globally (WHO, 2010). Countries in the Middle East, Central and Eastern Europe, as well as North America have the highest prevalence of obesity in the world (James, Leach, Kalamara, & Shayeghi, 2001).

Women are particularly prone to obesity, and approaches that address life transitions across the lifespan suggest that a number of factors may converge at passage points, such as menopause that contribute to weight accumulation in the aging woman (Keller et al., 2010). Perimenopause is a transitional period in the life of a woman, occurring a few years before, and a year after menopause, or the last menses. During this period, a woman experiences a reduction in hormones, such as estradiol and progesterone, and as a result, some symptoms, such as hot flashes, night-sweats, fatigue, irritability, forgetfulness and headaches may occur (Li, Holm, Gulanick & Lanuza, 2000). During perimenopause, a woman may experience several social-life changes, including children leaving home, the death of loved ones, taking care of parents, preparation for retirement and changing relationships (Chayra, 2010; eMJA, 2000; University of Michigan, 2010). The physiological, psychological and socio-economic changes which occur during this period may affect the health-promotion efforts related to weight gain or weight management interventions during perimenopause.

BACKGROUND AND SIGNIFICANCE

INCIDENCE AND PREVALENCE OF OBESITY

The World Health Organization (WHO) indicated that there are approximately 1.6 billion overweight adults (age >15years) and at least 400 million obese adults in the world. WHO publications estimate that, by the year 2015 there will be nearly 2.3 billion overweight adults and more than 700 million obese adults (WHO, 2010). Middle-age women (45–59 year old) have a higher body mass index (BMI) than others (James et al., 2001). Approximately 67% of women who are over 50 years of age are overweight (Ryan, Nicklas, Berman & Elahi, 2003). It is thought that women gain an average of 2–5pounds during menopausal transition but there are many who gain more than that (Lovejoy, 1998).

While the evidence specifying the linkage between menopause and overweight/obesity is scarce, there are many studies that show there is a problem with weight gain during the perimenopausal transition in women. In the United States, for example, Ogden et al. (2006) analyzed data of the 2003–2004 National Health and Nutrition Examination Survey and concluded that 88% of non-Hispanic Black, 79.7% of Mexican-American and 65.3% of women of all races and ethnicity who are 40–59 years old are overweight and obese. These numbers remain stable in women who are 69 and older. Studies in the Gulf Co-operation Council – for the Arab States of the Gulf (GCC) show similar data (Al-Awadi & Al-Mannai, 2000; Al-Isa, 1995; Al-Lawati, Mohammed, Al-Hinai & Jousilahti, 2003; Musaiger, Al-Nuaim et al., 1996; Sheikh-Ismail et al, 2009). As a result, it

is thought that perimenopause is the period in life that predisposes a woman to gain weight.

Perimenopausal obesity prevalence is high in Middle-Eastern countries. Musaiger (2004) noted that the prevalence of obesity is higher in adult women than adult men. It ranges from 35%–75% in Middle-Eastern countries. Obesity in perimenopausal women is a particular problem in the Gulf countries. In Kuwait, for example, the prevalence of obesity has increased gradually in women who are 40 and older. Among the studied perimenopausal women, 57.2% were obese (Al-Awadi & Amine, 1989). Musaiger, Al-Awadi and Al-Mannai (2000) linked obesity in Bahraini people with age when analyzing data obtained from a cross-sectional survey of 514 adults (aged 30–79). The data suggested the overall prevalence of overweight and obesity was 31% to 48.7% respectively. In Saudi Arabia, the prevalence of obesity and overweight among women who are 30–70 years old is 49.15% and 31.55% respectively (Alsaif et al., 2002). Al-Nuaim et al., (1996) found that BMI was the highest among Saudi women who were 41–50 years old. Similarly, using a representative sample from all seven states of the United Arab Emirates, Sheikh-Ismail et al. (2009) found that women who were 30 to 60 years of age have the highest prevalence of overweight and obesity and were 33% and 24% overweight and obese respectively. In Oman's Healthy Lifestyle Survey, it was shown that 47% of women who are 40–59 years old had an abnormal BMI (Al-Lawati, Mohammed, Al-Hinai & Jousilahti, 2003). In a community-based cross-sectional survey, it was found that 46.2% of males and 49.5% of females were overweight/ obese. In addition, the prevalence of central

obesity was higher among females than males. Further, obesity and central obesity were more prevalent among older and less-educated adults (Al-Riyami & Afifi, 2003). The high prevalence of obesity in these countries calls for appropriate obesity-assessment strategies and interventions that address this problem among these at-risk midlife women. As a first step, it is important to assess the factors that contribute to midlife obesity in perimenopausal women in these counties.

During perimenopause, women may gain weight due to changes in physical activity and diet intake and is associated with several social, cultural and environmental factors (Keller et al., 2010). For example, women tend to accumulate visceral fat in an android pattern during this period (Lovejoy, Champagne, de Jonge, Xie, & Smith, 2008). Serum estradiol and energy expenditure decrease in many women during this transition time (Keller et al., 2010). This predisposes women to overweight and/or obesity and its complications, such as cardiovascular disorders (Gohlke-Barwolf, 2000). During the perimenopause there is reduction in levels of estrogen and energy expenditure and an increase in visceral fat, glucose and insulin, leading to an increase in metabolic syndrome (Carr, 2003). Lovejoy (1998) hypothesizes that reproductive hormones affect a woman's eating behavior and food choices and this may lead to changes in dietary intake. Further, those women who may be at risk of weight gain may demonstrate low levels of energy expenditure and increased dietary intake. Kimura, et al. (2006) found that changes in metabolic activity during menopause were linked to adiposity in postmenopausal women. In addition to the

physiological changes a woman experiences, she is also affected by certain social-life changes, such as children moving out of home, loss of spouse or taking care of an older adult and preparing for retirement. With all these changes, together with the consumption of a high-calorie diet and living in a modernized environment that does not promote physical activity, the energy intake of these women increases and energy expenditure decreases. This leads to overweight, obesity and subsequent comorbidities.

FACTORS RELATED TO OVERWEIGHT AND OBESITY AT PERIMENOPAUSE

While individual factors can contribute to the problem of obesity at midlife, other multilevel factors can play a role as well, such as the growth of economy, modernization, urbanization and globalization. These multilevel factors impact various changes in lifestyle, including a lack of physical activity and consumption of high-calorie diet contributing to overweight and obesity (WHO, 2010). The weight gain experienced by women is often caused by the interaction of individual, social and environmental factors that create a 'perfect storm' of circumstances that interact to impact behavior. This, in turn, contributes to weight gain, such as inappropriate eating and sedentary behavior.

There are many health, social and economical consequences of weight gain. Obesity is a risk factor for chronic diseases, including coronary heart disease, type II diabetes, cancers, hypertension, dyslipidemia, stroke, liver and gallbladder disease, sleep apnea, respiratory problems, osteoarthritis and some gynecological problems (CDC, 2009). Obese individuals suffer from

discrimination and stigmatization in their work place and when receiving healthcare (Brownell & Puhl, 2003). Obesity also affects the economical status of countries' health care systems. Approximately 2–6% of healthcare expenditure is on overweight and obesity and their comorbidities. Due to exclusion of many other obesity-related health problems that might not have been considered, this estimate might be higher than the one cited above (WHO, 2003).

STUDY RATIONALE

There are multiple factors that play a role in weight gain among perimenopausal women in GCC countries. Dietary habits, including consumption of high-calorie diets are one of many factors that cause weight gain. In addition, lack of physical activity due to changes in environment, a modernized lifestyle and changes in socio-economic factors can also contribute to the problem of weight gain in midlife women. Furthermore, multiparity and pregnancy are among the most important factors that lead to fat accumulation in these women because the fertility rate is high and the spacing period is short (Musaiger, 2004). Several other factors that might contribute to the problem include beliefs and attitudes, cultural factors and lack of awareness of weight-gain consequences in this age (Musaiger, 2004).

Despite the high prevalence of obesity in GCC countries and its comorbidities among the perimenopausal women, not much attention is given to it. There have been few attempts to study the factors that are linked with obesity in this cultural group. The problem is still lacking in-depth understanding and analysis. Moreover, there is lack of understanding regarding the perception of

perimenopausal women of midlife weight gain. Investigations that can assess the understanding of these women of overweight and obesity and its comorbidities are necessary in order to design programs that target the problem and address the alarmingly high prevalence of this epidemic in the region among perimenopausal women. This will also promote healthy aging.

THEORETICAL FRAMEWORK

Three theoretical approaches are synthesized to guide this study: the Health Belief Model (HBM), the Socio-ecological Model and Kleinman's Explanatory Model. The HBM has been used to describe health beliefs related to taking action and is important as a conceptual guide to understanding obesity and obesity-management-related health beliefs of these obese and overweight women and the factors that affect their decision to take weight-management action. The Socio-ecological model describes the multilevel contributions to health and illness beliefs and is important in understanding multilevel factors that contribute to the problem of perimenopausal obesity in perimenopausal GCC women. Kleinman's Explanatory Model is important because it addresses the notion of the individual's perceptions of disease causation. This model considers culturally based knowledge and beliefs of perimenopausal women that fosters understanding of obesity and obesity management and helps professionals design culturally relevant interventions to manage the midlife weight gain in perimenopausal GCC women. Each model will be discussed in detail.

HEALTH BELIEF MODEL (HBM)

The Health Belief Model (HBM) has been widely used for learning about health behavior from a person's attitudes and behaviors. This model was first introduced by Hochbaum, Rosenstock and Kegels in the 1950s to assess people's reaction to symptoms of tuberculosis (TB) when free screening of TB failed. The model was later used to learn about prescribed treatment compliance (Janz & Becker, 1984). The HBM proposes that a person will accept or adopt certain behavior if he/she believes that this behavior will have a positive consequence, prevents a negative consequence or is able to adopt the health behavior successfully. Four main concepts are the pillars of this model and these include one's probability of being affected with a condition (perceived susceptibility); a person's awareness of the significance of the problem (perceived severity); realization of the specified behavior's ability to produce positive outcomes or reduce negative consequences (perceived benefits); and perception of the problems that one might face while adopting the specified behavior (perceived barriers). The readiness of a person or the target group is observed through these concepts and is stimulated by cues to action that motivates adoption of the new behavior (Janz & Becker, 1984). Self-efficacy is a concept that was added to the model in 1988 to enable the assessment of one's confidence in the ability to adopt a behavior (The University of Twente, 2004).

THE SOCIAL ECOLOGICAL MODEL (SEM)

The Social Ecological Model (SEM) is a model that has been used in many health-promotion and disease-prevention activities that involve multilevel

components. It helps in identifying determinants at different levels and the relationships among them to help in creating sustainable changes (Kothari, Edwards, Yanicki, Hansen-Ketchum & Kennedy, 2007). The SEM is based on the social, institutional and cultural context of people and their environment (Stokols, 1992). It proposes five levels of influence on a person: individual, interpersonal, organizational, community, and public policy. The individual level's influence includes intrapersonal factors, such as knowledge, attitudes, behavior, self-concept and skills. Interpersonal factors describe social networks and social support systems, including family, work groups, support groups, peer groups, and friends. The organizational level includes institutions and organizations, such as religious organizations, worksites, schools and health care settings. The community level of influence describes relationships among organizations, community norms and mass media. The final level of influence is from public policy that includes local, state and national laws and policies (Gregson et al., 2001).

KLEINMAN'S EXPLANATORY MODELS (EMs)

Kleinman's Explanatory Models (EMs) are beliefs used to identify, understand and react to a health problem. They are based on the assumption that culturally based knowledge and beliefs of people regarding their health and illness can be analyzed by assessing their interpretations of their disease process and management. The EMs hypothesizes that these explanations are personal and subjective for each individual. The meanings of these explanations are based on cultural interpretations that are formed by using information and services that are

influenced by several cultural and personal beliefs. EMs is used to enable people to manage and understand diseases. EMs may include all or one of the five parts of an illness, including: (a) etiology, (b) time of onset of symptoms, (c) pathophysiology, (d) outcome of sickness, and (e) treatment (Kleinman, 1976; McSweeney, Allan & Mayo, 1997). Unlike other health belief models, EMs is not stable. It changes with a person's ethnicity, environment, life experiences, and knowledge. Personal factors, such as subjective understandings, knowledge and personal history have a stronger influence on changing EMs, despite the fact that they are formed through interaction between the social and cultural life of an individual. One should note that EMs are highly individualized, i.e. what is important for one person might not have any value to another. This is particularly important in the relationship between a healthcare provider and a client. The misunderstanding of a client's EMs might lead to non-compliance, lack of satisfaction and poor management of an illness (Allan, 1998; Hallenbeck, 2003; McSweeney, Allan & Mayo, 1997). EMs lead to understanding illness or the health problem from individual and cultural perspectives providing an opportunity for delivering culturally relevant care to individuals that improves their health outcomes (Kleinman, 1976). Significant research is in the literature to suggest that EMs is an appropriate guide for examining the problem of self-perceptions related to weight management (McSweeney, Allan & Mayo, 1997; Allan, 1998; Hallenbeck, 2003).

STATEMENT OF THE PROBLEM

The problem of interest in this study is the culturally specific views of perimenopausal GCC women concerning their perception of 'processes', 'causes' and multilevel influences impacting these women's high prevalence of obesity at midlife. Using theory-based culturally relevant interventions to introduce changes to lifestyle can help address the problem of midlife weight gain among these women. However, there is inadequate knowledge of the understanding, perceptions, and cultural influences of these women regarding midlife weight gain. As a result, it is necessary to study the explanation these women give for their midlife weight gain that predisposes them to obesity and weight gain. Their knowledge, beliefs and interpretations of midlife weight gain will be assessed to better understand the underpinnings of the factors that impact increasing prevalence rate of midlife weight gain among perimenopausal GCC women.

RESEARCH QUESTIONS

This study employed qualitative descriptive methods to explore the perceptions of weight gain and obesity in midlife women in GCC countries (see Chapter 3 for methods). The research questions that direct this study were:

1. What are the core values of GCC society concerning weight gain?
    - Premenopausal?
    - Perimenopausal?
    - Menopausal?
2. As a part of GCC culture, how do these perimenopausal women construct their views of midlife weight gain?

- Is there a common explanatory model of weight gain across such women?
- What subjective experiences influence that construction?
- What cultural, socioeconomic and environmental factors influence that construction?

3. How do GCC perimenopausal women manage their weight?
   - What are the barriers to weight management?
   - How does physical activity influence weight management?

Chapter 2

REVIEW OF LITERATURE

This chapter presents the research literature synthesizing theoretical and application evidence for the problem of obesity in perimenopausal women, factors related to obesity in women and women's perceptions surrounding the occurrence of obesity at menopause. Obesity and overweight are primarily caused by an imbalance in energy intake and output (U.S. Department of Health and Human Services, 2001). Although an individual's genes and age can contribute to predisposing him/her to weight gain, overweight and obesity are linked with many social, cultural and environmental factors in perimenopausal women (Keller et al., 2010). Many people associate menopause with negative symptoms and behaviors (Papini, Intrieri & Goodwin, 2002) but the literature fails to explain the complex interaction among individual, social and environmental factors that occurs during menopause that may contribute to weight gain. Many of the symptoms experienced by menopausal women are due to hormonal changes and decreased ovarian function (Ellen et al., 2007). Weight gain during the perimenopausal period is most likely to be related to the interaction of factors that contribute to high energy intake and low energy output (sedentary behavior). Wilcox, Bopp, Oberrecht, Kammermann and McElmurray (2003) discussed that the socio-demographic, psychological, social and perceived physical environment act as variables that promote physical activity. These factors are associated with physiological changes, such as hormonal or life changes, changes in relationships with children, parents, partners and friends. Life changes may include role

changes in the community, such as preparation for retirement and changes in relationships with the wider community. These changes disturb the equilibrium in the life of these perimenopausal women (Perrig-Chiello, Hutchison & Hoepflinger, 2008) leading them to adopt an unhealthy lifestyle resulting in more energy intake than energy expenditure, which consequently contributes to obesity. When one examines the etiological factors related to obesity, the factors that act as barriers or motivators to weight management and the changes that take place in midlife women will lead to a better understanding of weight gain during this stage in life (Im, Meleis & Lee, 1999).

CORRELATES OF OVERWEIGHT AND OBESITY

Physiological factors. Among the different factors that lead to obesity in perimenopausal women are physiological factors. Women in midlife gain more visceral fat and fat in the upper body (Ley, Lees & Stevenson, 1992; Lovejoy et al., 2008); experience changes in glucose and insulin level (Carr, 2003) and go through a decline in the steroidal hormones and energy output levels. These changes, especially visceral fat gain, predispose these women to be at risk for cardiovascular diseases (Gohlke-Barwolf, 2000). It is worth noting that replacing ovarian estrogen with exogenous estrogen may not necessarily slow down the process of weight gain or metabolic changes depending on the formula and the route of administration of the hormone (Gower, Nagy, Goran, Smith & Kent, 2000; Lobo, 2008). Other hormones, such as testosterone, and the changes in metabolic activity can result in gaining adipose tissues in postmenopausal women

and can cause a wide range of metabolic disorders among perimenopausal women (Janssen, Powell, Crawford, Lasley & Sutton-Tyrrell, 2008; Kimura et al., 2006).

Perimenopausal and postmenopausal women often have higher body weight, body mass index, mean total body fat and fat percentage than premenopausal women (Gambacciani et al., 1999). A study by Sowers et al. (2007) suggests that fat mass and waist circumference increases and skeletal muscle mass decreases in premenopausal and early perimenopausal women and these changes are often linked with changes in the follicle-stimulating hormone (FSH) levels, the chronological and ovarian age of these women. Similarly, Lovejoy et al. (2008) reports that only those who became menopausal among the 156 premenopausal women in their study gained body fat, weight and visceral adipose tissue. In addition, the sleep energy expenditure decreased 1.5 times more and fat oxidation increased in these women, who became menopausal. These changes, along with the individual, socio-cultural and environmental factors, predispose a woman to behavioral and emotional changes, such as 'comfort eating' and 'letting oneself go' – stress-related eating behavior that can lead to obesity (Brogan & Hevey, 2009; Keski-Rahkonen et al., 2007; Ziebland, Robertson, Jay & Neil, 2002).

Individual factors. There are several individual factors that are linked to obesity and weight gain during menopause. Some of these can be controlled and others not. The factors that cannot be controlled include age, hormones and the genes of a person. These factors are associated with the regulation of body fat and adipose tissue metabolism (Gambacciani et al., 1999).

Age. The age of a person plays an important role in the process of weight management. The early onset of obesity is correlated with higher BMI, waist circumference and higher body weight, despite the fact that these women try weight-loss strategies more often than those who gain weight later in life (Mccrone, Dennis, Tomoyasu & Carroll, 2000).

Genetic predisposition. The genetic makeup of a person contributes to their susceptibility to obesity. However, there is no literature that discusses the effect of genes on weight gain or the pattern of fat distribution in menopausal women. Nevertheless, genes that have been associated with obesity in the general population may contribute to the problem of obesity and weight gain during menopause (Centers for Disease Control and Prevention, 2010). Research supports that changes which occur in the genes of a person – especially the ones that occur in Leptin-melanocortin signaling pathways – might cause obesity (Farooqi et al., 2007; Krude et al., 1998; Montague et al., 1997). It is thought that changes in the receptors that contribute to childhood obesity might be the same ones that contribute to obesity in adults (Heid et al., 2008). FTO, a 2-oxoglutarate-dependent dioxygenase family member is thought to be linked to obesity (Frayling et al., 2007). The availability of genetic polymorphisms for body-fat regulation is found to be responsible for weight loss in postmenopausal women (Tworoger et al., 2004).

Cultural associations. A person's cultural background can affect his/her thoughts and opinions about weight gain (Allan, 1998). In order to find out the weight loss methods that African-American and Euro-American women use and

the factors (weight, age, and SES) that affect a woman's use of weight-loss methods, Tyler, Allan, and Alcozer (1997) in a naturalistic study employing intensive interviews and anthropometric measures, studied a broad community-based sample of 40 African-American and 40 Euro-American women of higher and lower social status who were 18–60 years old. Twenty different types of weight-loss methods were cited by the participants that were later sorted under three main categories: lifestyle work, head work – that is the use of mental techniques, such as daily planning diet and activity – or self-talk, to start an activity to lose or maintain weight, and professional services. The most frequently used weight-loss methods were from the lifestyle work category; with the leading methods identified as exercise on own and reduce high-calorie and/or increase low-calorie foods. African-Americans and Euro-Americans overwhelmingly used similar weight-loss methods, with the only significant difference occurring in the more frequent use of commercial diet products among the African-American group. Methods from the head work category were used significantly more by women with higher social status, while heavier women more frequently sought professional services to lose weight than thinner women. African-Americans were found to have less dietary restraints, low levels of motivation and employed dietary strategies that were ineffective, also spending less time on weight-management efforts. They tended to use commercial diet products more frequently and used them for a short term, as these are expensive, unusual and unpleasant. With African-Americans accepting larger body sizes and availability of these commercial diet products that cannot be used for long by these women,

there is a threat of body size increase (Tyler, Allan & Alcozer, 1997). This study suggests that culture has an influence on one's choice of weight-management strategies in this culture, as well as the desire for maintaining or losing weight for a healthier life.

Among other cultural factors impacting women's perceptions of obesity, is the notion of some cultures' acceptance of larger body sizes. This factor encourages these middle age women to gain weight and not realize the risk of obesity (Baturka, Hornsby & Schorling, 2000; Lynch et al., 2007). Multiple cultural factors affect women's understanding of weight management. Using ethnographic interviewing, Allan (1998) examined women from different ethnic groups, i.e. African-American, Euro-American and Mexican-American, to study their understanding of the causes of obesity and how weight gain should be dealt with. She asked these women to talk about their history of weight and their experience with it, as well as the major difficulties they faced due to being overweight. The analysis of data collected from these interviews resulted in six main categories of etiological factors that might contribute to weight gain in these women. These were: heredity, family norms, adult lifestyle, life-transitions, life-stress and emotional problems. Women related weight gain to early stages of life and linked that to heredity and family norms. However, weight gain later in life was thought to be related to lifestyle, life-transitions, life-stress and emotional responses. Women from all three ethnic groups described the pathophysiology of obesity in a similar way. African-American and Mexican-American women stated the consequences of obesity were personal and medical. However, Euro-

Americans indicated that the consequences were personal only. Weight-management activities described by the participants were related to diet, exercise, high level of willpower, lower life-stress and weight acceptance. However, none of the participants suggested the availability of fast-food restaurants, lack of educational programs related to nutrition or acceptable body sizes, as these issues were not considered earlier (Allan, 1998). Walcott-McQuigg, Sullivan, Dan and Logan (1995) found that there were several cultural factors that affect the weight-management behavior in the African-American culture and these were the pattern of cooking and eating, cultural diversity, values, attitudes and traditional parenting style that encouraged weight gain.

Individual factors. There are some other individual factors affecting weight-management issues that can be controlled and modified, such as the level of education, perceptions of barriers and benefits, employment status, social life and habits. Walcott-McQuigg et al., (1995), interviewing 36 African-American college-educated women, found six individual factors that these women thought of as influencing weight-management behavior. These were: emotions and feelings; beliefs; life-events, such as marriage or pregnancy; self-control; and discipline and commitment. Emotions and stress influences attitudes and values of self-control, discipline and barrier, and benefits perception as well as the cultural norms. As a result, with stressors, these midlife women found it difficult to be motivated to participate in weight-management programs. Polley, Jakicic, Venditti, Barr and Wing (1997) assessed this further by interviewing 154 men and women (40–55 years old) who were at risk of contracting diabetes. Their risk of

having the disease was evaluated, together with its effect on their intake, weight loss and adherence to dietary therapy. It was found that those who perceived diabetes as a serious illness and those with a higher BMI lost more weight. The health beliefs of these individuals did not affect their weight loss, diet intake or blood-glucose levels throughout the study.

BARRIERS TO WEIGHT MANAGEMENT

An individual's perception of the barriers to weight management is more important than that of a healthcare provider's perception. Healthcare providers tend to blame the patient for their weight, which creates a gap between the provider and the client and consequently does not help women in losing weight when advised. There is usually a difference in the thoughts and perceptions about the barriers to weight management between the individual and healthcare providers (Rueiaz et al., 2007). For example, the healthcare providers might think that lack of self-control, lack of time and the availability of a high-calorie diet are barriers to weight management. Clients' perceptions differ: they think that weight-management efforts or desire should come from themselves. Talking to their healthcare provider about weight management is not helpful, due to there being insufficient time to discuss this issue at a clinic visit (Rueiaz et al., 2007).

Unemployment, illiteracy, social isolation, lack of support, unhealthy habits, such as smoking and sedentary lifestyle, and poor-health report are common individual factors found among overweight/obese women compared to normal-weight women (Ali & Lindstrom, 2005). In addition, individuals with more knowledge are more likely to lose weight than those without (Klohe-

Lehman et al., 2006; Roach et al., 2003; Swift, Glazebrook, Anness & Goddard, 2008; Thornton et al, 2006; Wardle & Waller, 2000). As a result, it is recommended that healthcare providers empower their clients with appropriate knowledge regarding obesity and its consequences for their clients to lose weight (Swift et al., 2008). All these factors are related to the individual characteristics of a person and necessitate designing weight-management programs that are culturally orientated and individualized to each woman (Sidani & Braden, 1998).

Acculturation. Acculturation is 'a bi-dimensional process in which individuals may learn and/or adopt certain aspects of the dominant culture and in some cases retain most or some aspects of their culture of origin' (Ayala, Baquero & Klinger, 2008) and can have a role in weight management. For example, Ayala, Baquero and Klinger (2008) in a systematic review found that being resistant to acculturation protects Hispanics from obesity, as they consume more fruits, rice and beans and less sugar or sweetened beverages. In addition to acculturation, factors such as life transitions and changed relationships might affect the eating pattern of menopausal women. A woman who experiences the loss of a partner or gets divorced might experience a change in her lifestyle as well as her income that might be accompanied with role changes (Stotland, 2002).

Self-efficacy. Self-efficacy is an individual factor that aids in the success of weight-loss programs in many people (Ball & Crawford, 2006; Jacob, 2002; Roach et al., 2003). It is important to note that those women who lose weight for personal reasons have better outcomes from the weight-loss programs and

maintain the weight loss for a longer period, as against those who lose weight for other reasons (Allan, 1989).

Mental status. Another important factor is a woman's mental status related to menopause, something often linked to obesity. For example, women with depression gain weight due to a lack of physical activity and the accumulation of energy that is consumed (Juarbe, Gutierrez, Gilliss & Lee, 2006). However, there is no study that clearly states or studies the relationship between mood and weight gain.

Weight-management patterns. It is important to consider women's definitions of successful and unsuccessful weight-management experiences in order to design appropriate interventions that produce successful outcomes. Allan (1994) used data from women who participated in an earlier weight-management study. Using feminist methods, she asked the questions: 'What are women's definitions of successful or unsuccessful weight management as compared to biomedical definitions?' and, 'What women's experiences are with weight management over time?' (p.525) in a study that included 20 women (aged18–55years) of normal weight or moderately obese. The results showed that the participants' views of successful weight management were divided into three categories: biomedical, reframed normal weight and holistic. The biomedical category is consistent with the usual biomedical model, considering BMI and body weight as a sign of success. The reframed normal-weight category denotes that the women rejected the biomedical perspective and created their own personal standards of acceptable weight. In the holistic approach category,

successful weight management was very broad and it was viewing weight in the 'background' and all the other health and comfort-related feelings in the 'foreground'. These views of success in weight management were derived from participants' own experience in managing their own weight. This study provided directions towards designing holistic weight-management strategies that involve more than just the BMI as a sign of success. It should include other positive outcome of weight loss in its success criteria – such as health status, weight history and goals related to appearance and body size. Interventions designed for women must consider the meaning of weight to the environment they live in. Nurses should challenge the cultural stereotypical views regarding weight management and consider looking at weight management from a feminine perspective (Allan, 1994).

Socio-economic (SES). SES, the educational and the employment status of an individual, has an effect on weight gain, especially among certain ethnic groups. Being from a low socio-economic-status family can predispose a person to obesity and overweight (Lahmann, Lissner, Gullberg & Berglund, 2000).

Often people from lower SES, as well as those with a lower level of education and income, suffer from obesity more than others (Everson, Maty, Lynch & Kaplan, 2002; U.S. Department of Health and Human Services, 2001). Wamala, Wolk and Orth-Gomér (1997) examined the relationship of obesity and SES among middle-age women (30–65years), showing a strong inverse relationship between both. Women from lower SES were more prone to obesity than those who were from higher SES. The odds ratios after adjusting for the age

of low and high SES were 2.2 (95% CI, 1.1 to 4.4) and 2.7 (95% CI, 1.1 to 6.7), respectively. Lower-class women, as well as obese, had more children and they had their menarche at an early age. In addition, poor quality of life, job stress and low self-esteem, all contributed to the relationship between low SES and obesity.

Social class has an influence on both central and total obesity. Langenberg, Hardy, Kuh, Brunner and Wadsworth (2003) studied 1472 men and 1563 women born in 1946 in England, Scotland, and Wales in a prospective population-based birth cohort study. Anthropometric measurements were obtained at the age of 53 years, together with the social class, which was determined by the father's occupation at early age, and about the participant's last or current occupation. It was found that there was an inversely associated relationship between the father's occupation during a person's childhood and adulthood obesity. When adjusting for a person's own occupation, the same effect was evident with the father's occupation. Those people who improved their socio-economic status more than their father's were less obese than those who remained in the same social class.

Social factors. Social support plays an important role in obesity risk to an individual. Social support is classified into two categories: the structural, denoting the presence of those who support; and functional, the feeling of being supported. Social support has been associated with the adoption of a new health behavior (Verheijden, Bakx, Weel, Koelen & Staveren, 2005). Social support, self-efficacy and access to facilities are factors that increase the physical activity level, thereby reducing weight, but this is dependent on the weight of the individual (Blanchard

et al., 2005). If a person lacks social support, such as a mother lacking a baby caretaker or a person lacking a partner, he/she faces barriers to modifying his/her lifestyle to a healthier one (Thornton et al., 2006). Moreover, family norms are often thought of as factors that lead to weight gain (Allan, 1998). The social network of these women plays an important role in changing their health behavior (Barrera, Toobert, Angell, Glasgow & Mackinnon, 2006) and, as a result, plays an important role in their weight management. Being a member of a social network can enhance self-esteem, motivation, resource identification and goal achievement (Perrig-Chiello et al., 2008; Barrera et al., 2006) resulting in a better outcome to weight-management interventions.

McLaren (2007) completed a review of literature on the relationship between a person's socioeconomic status and obesity, reviewing 333 published studies. She found that the findings differed according to SES indicators used and the country in which the study was done. She referred to obesity as a 'social phenomenon' and recommended that interventions should be geared towards socioeconomic and sociocultural factors.

Environmental factors. Obesity is often associated with environment (Battle & Brownell, 1996; French, Story & Jeffery, 2001). For example, being from a community where weather and safety are poor acts as a barrier to weight management (Bird et al., 2009; Fleury, Keller & Perez, 2009; Kowal & Fortier, 2007; Miles & Panton, 2006; Pepin, McMahan & Swan, 2004;Wilcox et al., 2003). However, having close family members living in the neighborhood encourages people to walk often, increasing their energy expenditure and

reducing their weight (Miles & Panton, 2006). On the other hand, racial segregation has influenced weight gain among the African-American (Chang, 2006). This might be due to the preference for larger body size, as discussed by Allan et al. (1988).

The availability of certain types of palatable food that is cheap but high in calories and a neighborhood that does not allow enough opportunity for physical activity can act as a barrier to weight management. In contrast, the availability of appropriate safe facilities, together with the availability of healthy and nutritious food in the community, encourages individuals to be physically active (Pepin et al., 2004).

The media plays an important role in weight management among women. An example of a program that encourages women to lose weight or maintain a healthy weight is 'Sister Talk'. This is a TV program that is culturally relevant to encourage African-American women to lose weight (Gans et al., 2003).

HEALTH BELIEFS

The Health Belief Model (HBM) is an important behavioral-change model used in different health conditions with different populations who had different interventions. It helps to enable a person to understand the psychosocial factors linked with compliance to the prescribed weight-management program. In the HBM, in order to attain behavioral change, a person has to feel the benefits that he/she will gain if their behavior is changed; the barriers that he/she might face and how to resolve them with self-efficacy; that he/she is able to adopt a change

and the cues that provides a sign for knowing if a person is going to change his/her behavior (Daddario, 2007).

Perceived benefits of weight management. According to the HBM, people are more likely to practice health behavior or change to a healthier lifestyle if they perceive the benefits they would gain from it. Lambert et al. (2005) found the benefits available by losing weight to be: higher self-esteem, physical activity, making them healthier and reducing societal prejudice towards them. Another study reports that health promotion and wellness, disease prevention and social and psychological benefits are the most commonly reported benefits of participating in Yoga classes (Atkinson & Permuth-Levin, 2009). These are regarded as perceived benefits of weight management (Juarbe, Turok & Pérez-Stable, 2002). Health promotion and mental-health improvements, as well as physical attractiveness, are considered as benefits of weight management that encourage or motivate individuals to lose weight (Riebe et al., 2003; Walcott-McQuigg et al., 1995). Some other perceived benefits include self-efficacy, body image and role improvement (Ball & Crawford, 2006; Fleury et al., 2009; Gonzales & Keller, 2004; Jacob, 2002; Roach et al., 2003).

Barriers to weight management. There are several factors that prevent a woman from participating in a weight-management program, thereby acting as barriers to weight loss: lack of personal effort, social support, finances and low self-esteem (Lambert et al., 2005). Time, cost, misconception and health effects were reported to be barriers to practicing physical activities, such as Yoga in adults (Atkinson & Permuth-Levin, 2009). In addition to poor health and lack of

time, Bird et al. (2009) reports self-consciousness about appearance, tiredness and weather changes as barriers to weight management among Vietnamese and Italian women. Furthermore, Gonzales and Keller (2004) state that family obligations and responsibilities, lack of time, lack of social support, laziness, fatigue, lack of motivation and health problems are among the barriers to physical activity reported by Mexican-American women. Similarly, Juarbe et al. (2002) identified lack of time, women's roles, personal health as well as internal and external factors as barriers to weight management among 143 Latina women who were 40 to 79 years old. Kowal and Fortier (2007) reported the findings of a study using the ecological model in 149 women and reported that 39.6% reported daily activities, 31.5% were too busy, 20.1% feeling too tired, 19.5% feeling too lazy, 14.8% experiencing health problems, 14.7% having difficulty managing time and 12.8% not wanting to exercise alone as barriers to physical activity and exercise. Wilcox et al. (2003), using the social cognitive theory, assessed the physical activity correlates among 102 African-American women (70.6 +/- 9.2 years) found that age, depressive symptoms, sidewalks, healthcare provider discussion of physical activity and perceived traffic acted as barriers to physical activity among this group. Walcott-McQuigg et al. (1995) described time, stress, lack of control, lack of social support, lack of motivation and professional activities, as well as the structural set up of the community as barriers to moving or attempting to lose weight.

Factors, such as blame and lack of respect from others were noted as barriers to weight loss (Rueiaz et al., 2007; Thomas, Hyde, Karunaratne, Herbert

& Komesaroff, 2008). Barriers to weight loss include: the relationship between the overweight/obese person and their healthcare provider, including lack of communication between them, difficulty in following guidelines (Jones et al., 2007; Rueiaz et al., 2007; Thomas et al, 2008), low socioeconomic status, and the role of a person in their family (Ali & Lindstrom, 2005; Fleury et al., 2003; Lahman et al., 2000). Other factors reported as barriers include: inability to control self, cultural identification with a larger body size (Juarbe et al., 2002; Lynch, Chang, Ford, & Ibrahim, 2007), obesity onset at an early stage in life (Mccrone et al, 2000), lack of will to lose the weight gained during pregnancy (Allan, 1998) and creating own definition of overweight and acceptable weight (Allan, 1988). In addition, the norms of some cultures and communities where walking is not observed often act as barriers to weight management (Fleury et al., 2009).

Cues to action. Cues to action are stimulants to a person's strong will to act and change certain behavior. In weight management, many people think that the programs providing group support are motivating and beneficial (Lambert et al., 2005). Moreover, health-related problems, including physical, mental and emotional, are reported as cues to action (Allan, 1989; Atkinson & Permuth-Levin, 2009). Serious health problems and personal crises were also thought of as cues to take weight-management action (Allan, 1988).

Gonzales and Keller (2004) assessed the enablers of physical activity among older postmenopausal Mexican-Americans. They found that to have a healthy family, to lose weight, to feel better, to have a better body image and the

recommendations of physicians were the primary enablers of physical activity among this population. Furthermore, education, marital status, self-efficacy, more pros than cons, perceived stress, social support and perceived neighborhood safety were also thought of as enablers for physical activity (Wilcox et al., 2003). The cooperation between community organizations to promote physical activity can motivate community members and act as enablers and cues to action (Fleury et al., 2009).

EXPLANATORY MODELS

Explanatory Models, as developed by the anthropologist Arthur Kleinman, helps one understand the clients, families and their culture in relation to health and disease causation (Hallenbeck, 2009; Kleinman, Eisenberg, & Good, 1978). The Explanatory Model proposed three different definitions to physical conditions: disease (biomedical, i.e. changes in body organs' function), illness (the inability to function well socially) and sickness (Kleinman et al., 1978). Explanatory models are developed through asking 'what, why, how and who' questions that can help in exploring the views of individuals or a population of interest (Hallenbeck, 2009). Kleinman's model was used in understanding different cultural views of illnesses or conditions, such as clients' and physicians' explanatory model of diabetes (Cohen, Tripp-Reimer, Smith, Sorofman & Lively, 1994), anorexic individuals explanatory model of anorexia (Fox, Ward & O'Rourke, 2005), mother's explanatory models for their children's lack of growth (Reifsnider, Allan & Percy, 2000) and depressed women's explanatory model of depression (Schreiber & Hartrick, 2002).

Allan (1998) examined the understanding of the causes of overweight, the consequences of being overweight and how overweight should be dealt with among 40 of each category of African-American, Euro-American and Mexican-American women using the ethnographic interviewing with anthropometric measurements. Her primary research questions were: '(a) What are women's explanatory models of overweight? And (b) What are the linkages between women's explanatory models of overweight and professionally recommended weight-loss interventions?' (Allan, 1998). Data was analyzed using domain analysis (search for units of cultural knowledge, e.g. reasons for becoming obese or overweight) and constant comparison.

A line-by-line examination of the transcripts was used, highlighting key phrases and assigning tentative category labels. Passages were grouped and compared among all participants' responses. The categories used were the five Explanatory Models (EM) dimensions. Allen found 6 categories of etiology or reasons for weight gain among these women. They included: heredity, family norms, adult lifestyle, life-transitions, life-stress and emotional problems. Becoming obese or overweight was linked with childhood or adolescence. In childhood it was linked with heredity and family norms. In adulthood, it was linked to lifestyle, life-transitions, life-stress and emotional responses. There was little difference seen among the three groups when describing the pathophysiology of obesity. The consequences of obesity/ overweight for both African-American and Mexican-American were similar: both were personal and medical, though Euro-American was personal. Most participants reported

interventions related to diet and exercise as weight-management activities. Increasing willpower, decreasing life-stress and accepting weight were among the interventions that were also listed as weight-management activities. None of the participants suggested the availability of the fast-food restaurants, lack of educational programs related to nutrition or the acceptable body sizes, as these issues were not considered until recently (Allan, 1998).

In Allan's study, 37 white middle- and working-class women were interviewed using ethnographic interviewing in a descriptive, correlational study to find out how women use the health information in weight-management-related self-care. Findings suggest that all women create their own norms and categories of physicality and criteria to know if they are overweight or underweight. For creating these norms they do not use professional assistance and the cultural pressure to be thin does not affect their decision. Being overweight was a cue to action to do something about losing weight. For those women who were of normal weight, the ideal, acceptable and excessive weight was within the biomedical range; but for those who were overweight or obese, the acceptable and overweight weight range was overweight and obese in biomedical range. They considered not fitting into their clothes as a sign of weight gain. Many linked their weight to how they feel, i.e. felt comfortable when they were an acceptable weight. Information about weight and weight management was mostly obtained from mass-media, magazines, colleagues and weight charts. Most of the women stated self-image and unattractiveness as consequences of being overweight rather than illness or disease. More community-based studies are needed to understand

the cultural and physical environment that women live in and how they maintain their health. Personal crises and serious health problems were cues to action (Allan, 1988).

Hoke, Timmerman and Robbins (2006) stated that for designing effective culturally relevant interventions in weight management one must understand that particular culture's perspective of the problem being studied. Hoke et al. (2006) studied the explanatory models of rural Mexican-American women of the relationship between eating behavior, weight and health. This study was a qualitative descriptive study. The participants were self-identified Mexican-American women (35–55 years old), overweight, not pregnant, not diagnosed with any chronic disease and could speak English. The semi-structured interview guide was created using eight questions. These questions were related to past and current weight management; effect of eating behavior on health; the effect of a participants' thoughts on eating behavior; the meaning of healthy eating and healthy weight; the consequences of healthy-eating behaviors; healthy-eating behavior barriers and perceptions of changes in health status due to eating behaviors.

There were three weight-management behaviors noted: physical activity, low food intake and using pills. Self-esteem improvement was the primary consequence of healthy eating in addition to increased energy, weight loss and health improvement. Participants stated that unhealthy eating can lead to increased risk of disease, such as diabetes and high blood pressure. Stress, lack of self-control, control by others, social influences and cultural influences were

among the main barriers to healthy eating. This study informs nursing practice about the importance of using the explanatory model in improving the health status for overweight Mexican-American women who are aware of the serious obesity consequences but still fail to implement weight-management strategies due to the associated barriers (Hoke et al., 2006).

HEALTH BELIEF MODEL (HBM), EXPLANATORY MODELS (EMS) AND SOCIO-ECOLOGICAL MODEL (SEM)

In order to utilize these three models for it to be relevant to GCC countries, a new model is formulated after synthesizing the others (Figure 1). The new model starts with the individual, i.e. a perimenopausal GCC woman. HBM hypothesizes that an individual will only adopt a healthy behavior if he/she perceives the benefits, the severity, the susceptibility to the negative consequences and the barriers of adopting such behavior and there will be some cues to action that show a person's readiness (Janz & Becker, 1984). As a result, according to this new model, a woman has to perceive the benefits of participating in weight-management activities; the severity of the consequences of weight gain, her susceptibility to the negative consequences if she does not change her unhealthy behavior and the barriers of adopting a healthier lifestyle. This will be evident in the cues to action that will be seen in her and her readiness to adopt the new activity.

It is believed that in GCC countries these beliefs or perceptions of the perimenopausal women are based on their cultural values and beliefs. In order to understand, Kleinman's EMs can be used. Kleinman (1976) argues that the

healthcare system contains three parts of sickness or illness: popular, professional and folk. Popular consists of family, social network and community perception of illness and care. The folk sector consists of the 'non-professional health specialists'. The last part consists of the professional sector that deals with an illness with scientifically based treatment modalities. As a result, this new model shows these three parts of the healthcare system in GCC countries. Based on EMs an individual has his/her own explanation of a disease or illness and this is formed by many factors: such as beliefs, choices, decisions, roles, relationships, interaction with self, others or healthcare professionals and the setting (Kleinman, 1976). EMs concentrates on a person's interpretation of: (a) etiology; (b) time of onset of symptoms; (c) pathophysiology; (d) outcome of sickness; and (e) treatment (Kleinman, 1976; McSweeney, Allan & Mayo, 1997). Consequently, in order to understand a GCC woman's culturally based beliefs about perimenopausal obesity, it is important to understand these women's views of etiology, onset, pathophysiology, consequences and treatment that they use to overcome this problem – if they view it as a problem.

This perceptions and beliefs assessment provides an understanding of the individual, cultural and some of the organizational and community factors that might contribute to the problem of perimenopausal obesity. However, obesity is a complex problem: multilevel factors contributing to make it so. As a result, it is necessary to go a few steps further to study causes at all levels. In this new model, SEM is used to obtain a complete understanding of all the factors that contribute to perimenopausal obesity in GCC women. SEM studies factors beyond the

individual and interpersonal levels that were studied in HBM and EMs. It studies the individual, interpersonal, organizational, community, and public policy (Stokols, 1992). In GCC countries, perimenopausal women are affected by their intrapersonal factors, e.g. knowledge and age. These factors are also known to affect a person's beliefs and perception related to health behaviors. In order to obtain a complete understanding of these GCC countries' women's views and perception of perimenopausal obesity, it is also important to assess other factors, such as the organizations that they belong to, their communities and their support of the weight-management activities and the public policies that affect these women's adoption of weight-management activities or adoption of a healthy lifestyle. It is believed that all the above-reported factors might contribute to the complex problem of obesity. However, in GCC countries, culture and religion play the main role in the adoption of behavior and lifestyle of an individual.

Culture is an important factor that can affect a person's decision-making process related to weight management (Allan, 1998). Religion was also found to affect the decision-making process, emotions and motivation (Fernando, 2005). These are the main two factors that influence all the levels of decision making in the GCC countries. Consequently, in this model, culture and religion is shown in all aspects of it. Although not all GCC citizens are Muslim, Islamic traditions and lifestyle and Bedouin values have a great impact on the lifestyle of the individuals living in GCC countries (Rice, 2003). According to Muslims, Islam is a lifestyle. This lifestyle has been defined in the Holy Qur'an and the Prophet Mohammad's (PBUH) lifestyle noted and recorded by his followers 1420 years ago. Islam does

not separate life from religion (Rice, 2003). Bedouin values, including loyalty, justice, generosity and status, remain important in GCC culture (Rice, 2003). These values are the same among all GCC people regardless of their religion, economic status and family or political philosophy (Rice, 2003). Although they form strong relationships with others, the family is their main priority (Rice, 2003). They are mainly authoritarian who give the right to rule to their leader who is mostly a male (Rice, 2003). They use a 'circular pattern of reasoning' and punctuality and time is not an important issue to them (Rice, 2003). However, religion does not promote that as there are specific times for prayers in the religion to encourage people to be punctual. The GCC culture relies heavily on complex nonverbal communication. For example, shaking hands with a person is valued more than a written and signed contract (Rice, 2003). People believe that they lack control over their environment and they lack intellectual autonomy, making them resistant to self-management (Rice, 2003). The dotted line surrounding the model is a line indicating that the culture and religion of GCC countries' citizens are affected by external factors, such as the relationship with foreign countries and the exchange of labor among those countries.

All the previously discussed factors predispose a person to weight gain. As described previously, there are several barriers and motivators or enablers for physical activity that are perceived by perimenopausal women. Once the barriers are solved and the person is motivated to adopt a change, several cues to action appear and a person adopts a different lifestyle and changes behavior. Assessing the factors, barriers, benefits and cues to action does not provide the complete

picture of the phenomenon. Interventions that were used in perimenopausal obese women should be reviewed as well. This literature review has been previously published (Table 1) (Al-Zadjali, Keller, Larkey & Albertini, 2010).

EVALUATION OF INTERVENTION RESEARCH IN WEIGHT REDUCTION IN PERIMENOPAUSAL WOMEN

Menopause is the time period when a woman goes through different psychological, physiological and socioeconomic changes. These changes predispose women to risk succumbing to several types of conditions, such as heart disease, osteoporosis, depression and obesity. Obesity is a risk factor for many diseases. In order to prevent obesity/overweight, women need to adopt a healthier lifestyle and prevent middle-age weight gain or reduce weight during menopause. As a result, it is important to review literature to examine the research on interventions or programs that focus on weight management during perimenopause. Healthcare professionals taking care of perimenopausal obese women need to be aware of relevant theory-based interventions which are designed for these women and the applicability and generalizeability of these interventions, as well as the outcome of these interventions for perimenopausal women to be able to practice these interventions (Sidani & Braden, 1998). To examine the external validity, applicability and importance of a study, evaluation theory is the best approach. In this review, evaluation theory is used for examining the following components of these studies: the description of perimenopausal obesity; the theoretical constructs and critical inputs guiding the

studies; the effect of the intervention; and the link between the theoretical predictors and outcome of the intervention.

Method. To find out relevant obesity-management interventions for perimenopausal women, several electronic databases were searched: Cumulative Index to Nursing and Allied Health Literature (CINAHL); Academic Search Premier (EBSCO Host); Google Scholar; Medline; Health Sciences; Physical Education Index; PsycArticles; PsychCritique; Psychology; PsycInfo; and the Science Citation Index from 1995 to December 2009. The keywords used were: 'obesity', 'obese', 'overweight', 'menopause' and 'weight-management interventions'. The criteria for inclusion in this review were: interventions targeting perimenopausal women and using nutrition intake and/or physical activity; the outcome of the study included weight loss or changes in body composition and used experimental designs utilizing comparison groups. Both descriptive-correlational studies and studies that had a disease process as their primary outcome were excluded. The initial search resulted in more than 120 articles, but after applying the inclusion and exclusion criteria only seventeen met the criteria.

Data Extraction and Analysis. After selecting the studies that met the inclusion criteria, data was extracted using the evaluation-theory components. The study reports' problem definition, study design, theory used, critical inputs, outcome, the mediating variables that were thought to influence intervention effects and the validity of the instrument used for measuring outcomes.

Results. Most of the studies included were designed to evaluate the effect of weight-management interventions. The strategies used included low-calorie diet, physical activity or meal-replacement therapy. Exercise produced weight loss (Irwin et al., 2003) primarily among those women with available genetic factors that regulate body fat, such as fat loss in postmenopausal women (Tworoger et al., 2004). Insulin concentration, leptin level and homeostasis-model assessment scores reduced with physical activity in postmenopausal women and the effect was dependent on the fat mass available in the body (Frank, et al., 2005). In addition, physical activity reduced visceral adipose tissue (VAT) that produced improved insulin sensitivity and glycemic control (Giannopoulou, et al., 2005). Physical activity improved cardio-respiratory fitness and body weight even in low intensity (Church, Earnest, Skinner & Blair, 2007; Keller, Robinson, & Pickens, 2004). Similar to exercise, stretching also produced increased lean mass but exercise caused more weight reduction and bone-mineral density (Chubak et al., 2006).

Hypocaloric diet and physical activity caused weight loss. Weight loss using this strategy resulted in lower BMI, fat mass, waist circumference, systolic blood pressure, triglycerides, glucose, leptin and cortisol, blood pressure, triglyceride, HDL-cholesterol, glucose, the LDL-cholesterol and risk of chronic inflammation in postmenopausal women (Irwin et al., 2003; Kuller, et al., 2006; Mohanka et al., 2006; Simkin-Silverman et al., 2003; Nicklas et al., 2003; You, Berman, Ryan, & Nicklas, 2004). Weight reduction reduced plasma C-reactive protein (CRP) (Tchernof, Nolan, Sites, Ades & Poehlman, 2001) and did not

produce any negative effect on protein consumption or lean, soft tissue (Gallagher et al., 2000). Consumption of low-fat and low-cholesterol diet together with increasing physical activity helps in maintaining weight loss and prevention of weight gain during menopausal transition (Kuller, Simkin-Silverman, Wing, Meilahn & Ives, 2001). The risk of Metabolic Syndrome reduced among postmenopausal women who were involved in a study that used a meal-replacement and exercise program (Deibert et al., 2007).

Some studies used substances that have an effect on body composition. For example, Isoflavone had a relationship with increased fat-free mass (FFM) and muscle index (Aubertin-Leheudre, Lord, Khalil & Dionne, 2007). Epigallocatechin gallate (EGCG) – available in green tea – can reduce the heart rate and the level of plasma glucose concentration in the body (Hill et al., 2007).

Theoretical constructs and mediating factors. The reviewed reports were evaluated for their use of theories, critical input, mediating factors, treatment efficacy and the effects of intervention. Only four of the seventeen reviewed reports used theories. The self-determination theory (SDT) was used by Teixeira, et al., (2006). The social support theory was used by Keller, Robinson and Pickens (2004). However, the theory was not discussed or cited in their discussion. The HBM was used by the Physical Activity for Total Health (PATH) study but the components of HBM were not cited in the design and the outcomes reported. A cognitive behavioral method was used by Simkin-Silverman, et al. (2003) but no theory was specifically cited in the report.

The reports used in this review used several weight-management strategies, such as physical activity, hypocaloric diet, and meal-replacement therapy and the use of substances for weight management or a combination of these methods. Moreover, these reports described several types of each method. For example, several types of physical activity were described, such as stretching, leisure-time activity, aerobic exercise and walking (Church, Earnest, Skinner & Blair; 2007; Frank, et al., 2005; Keller, Robinson, & Pickens, 2004; Kuller et al., 2006; Latimar & Ginis, 2005; Mohanka et al., 2006; Rhew, et al., 2007; Irwin et al., 2003; Simkin-Silverman, Wing, Boraz, & Kuller, 2003). In contrast, these reports did not explain how these interventions produced the effect they did.

Exogenous Factors. Women during menopausal transition go through multiple changes and these changes can affect their health and life. Researchers, when doing research on perimenopausal women, should ensure the consideration of these changes and their effect on the intervention in order to reach the overall goal of the application of their research in clinical settings. These factors are the exogenous factors that can affect the outcome of the interventions. They may include personal factors, such as: age, ethnicity and health condition or contextual factors, such as the environment and the resources available. These factors were seldom discussed in the seventeen reports reviewed (Keller et al., 2010).

Discussion. ***Expected outcomes.*** This review of literature included seventeen experimental and randomized controlled-trial study reports. Several strategies for weight management in perimenopausal women were discussed, such as physical activity, hypo-caloric diet, meal-replacement therapy, use of

substances for weight management, or a combination of these methods. The results of this review emphasizes that a strategy that uses a combination of physical activity and a hypocaloric diet can be effective in reducing the prevalence of obesity and its comorbidities. To strengthen the evidence that the strategies used actually worked, special attention should be given to reporting the external validity of these interventions. Although the reviewed reports showed the efficacy of some strategies in weight management in perimenopausal women, they did not describe the effectiveness of these interventions in different settings and population (Green & Glasgow, 2006). Furthermore, the rationale behind the success of these interventions or the mechanisms was not described in these reports.

Assessment of the clinical problem. For a research intervention that can be applied to real-world situations, the problem of interest must be defined clearly, including the predisposing, precipitating and perpetuating factors that contribute to the problem. In this review, the researchers discussed perimenopausal obesity and its consequences. Inadequate description of the problem of interest can lead to limited applicability of the intervention used.

A perimenopausal woman – as discussed earlier in this chapter – goes through many changes in her life, including physiological, psychological, social and economical. These changes contribute to weight gain during this period in life. The complexity of these changes and their effect on the perimenopausal women calls for more clarity in describing the "problem" of perimenopausal obesity.

The factors that motivated these women to change to a healthier lifestyle, i.e. changing to hypocaloric diet or becoming physically active, need to be described to clarify and address the problem of perimenopausal obesity. Most of the reports included in this review discussed either pre or post menopausal women. This clearly identifies a gap in literature regarding perimenopausal women. Moreover, the cultural and ethnic backgrounds of the women involved in the studies reviewed were not given much attention. This further affects the external validity of the intervention used, as it is unclear if these interventions will produce similar results if used in any culture.

Theoretical constructs/mediating processes. As discussed earlier, only four of the reports cited or used any theory and the specific constructs were not cited in any report. This indicates that interventions were designed and administered to the participants without considering any theory to guide the interventions. The studies in this review looked at the impact of the designed interventions on weight/body-fat or associated risks. However, the replication and application of these interventions in the real world is not possible as the dose response was not clearly defined, i.e. the dose of the intervention needed to produce the desired effect on a person. Theories are constructed to express a new idea or a new insight into the phenomenon of interest. The overall goal of theories is to guide practice. They are used to specify and narrow a phenomenon into a conceptual model in order to understand it fully. They provide a concrete and specific structure for interpretation of initially puzzling behaviors, situations and events (Walker & Avant, 2005, p160). Thirteen out of seventeen reports used in

this review did not cite or use a theory to guide the intervention designed for weight management in this age group. They might have been based on research evidence.

Exogenous factors. The changes that a midlife woman goes through can affect her health and wellbeing. These changes might include social-life changes, e.g. retirement, children leaving home or taking care of aging parents. Social support might encourage or discourage weight gain in middle-age women. The disturbed marital relationships can affect the quality of a person's life, the quality of food consumed and the level of physical activity. This might lead to weight gain. These factors are important exogenous factors that should be highlighted when reporting research studies. However, the reports reviewed in this review ignored these factors and their effect on interventions. One of the major exogenous factors can be one's culture, ethnicity and race. However, culture and ethnicity were rarely discussed in the reviewed reports. The focus was on the symptom management rather than the consideration of the different cultural contexts that affect health and health behavior. Ignoring culture and ethnicity of a person may lead to inadequate assessment of the problem, which might, in turn, lead to ignoring the cause of the problem, making any treatment a challenge.

Conclusion. Although science is not lacking literature on weight management, there are many key elements lacking from these study reports. Many studies did not describe the sample characteristics, the theoretical constructs, the setting and the exogenous factors that might have influenced the effect of intervention and the choice of that strategy works better. This review

describes a major gap in literature, as it uncovers the limited applicability and generalizeability of these interventions on different settings and populations and people from different socioeconomic backgrounds. Information on the mechanism through which the specified interventions worked are lacking from these reports and most of the reports did not use any theory to guide the intervention. The problem of perimenopausal obesity was defined as menopause-related weight gain. Most of the reports described correlates with obesity and its risks but did not describe the contextual or behavioral issues that might be related to perimenopausal obesity. The reports reviewed did not consider describing adherence or drop-out of the participants from the study. These reports also demonstrated limited description of the cultural or ethnic background of the participants. This limits the applicability of these interventions to different ethnic or cultural groups.

Gaps in Literature. The gaps in the research literature related to weight management in perimenopausal women cannot be ignored. There are significant limitations in the reported research describing the associated factors with weight management and perimenopausal obesity. The research reports of the interventions that are used in the previously described studies suggested the predisposing factors, barriers, benefits and cues-to-action interventions lack comprehensive descriptions of adherence to the weight-management plans and interventions. These reports do not specify the motivating factors for weight management among these women. These factors are important to know in order to

design programs which can motivate these perimenopausal women to participate in and adhere to such programs or to replicate the available studies.

Researchers often fail to define the factors which made their programs successful, as well as describing the ethnic background of the women in the study. This has a negative impact on the external validity of the study as well as limiting the ability of healthcare providers to deliver culturally relevant care. They need to describe the generalizeability of their interventions to different populations and settings in real environments (Green & Glasgow, 2006). Furthermore, researchers do not define or describe the main concepts that further limit the generalizeability and applicability of the interventions used. Many researchers ignore the developmental factors that affect perimenopausal women and might contribute to weight gain among women, particularly women of the cultures studied.

SUMMARY

This literature review concludes that researchers should consider culture-centric information, from the women's perspective, that may impact the design of theory-based, culturally relevant weight-management interventions for perimenopausal women and for them to engage in healthier lifestyles and prevent obesity and related consequences. However, in order to do so researchers need to study the view of these perimenopausal women regarding weight gain during this stage in life, as different cultures and socioeconomic groups have different views of the perimenopausal obesity, and these views might affect the outcome of the weight-management strategies at midlife.

Women are different than men in their thoughts, attitudes, behaviour and perception of conditions and phenomena. Women differ from each other, each one being a unique individual. Their perception of phenomena or conditions are affected by various socio-ecological factors, such as their age, attitude, behaviour, self-concepts, social life, membership of organizations, cultures and rules and regulations which govern their lives. Likewise, women from different cultures and backgrounds view overweight/obesity differently. Consequently, the factors that affect their adoption of certain behaviour are different. In order to understand these women's values, beliefs and understanding of obesity, midlife weight gain, its consequences and weight management for designing culturally relevant interventions for them, it is important to study these women's explanatory model of overweight/obesity. Using a synthesis of the Health Belief Model, Social Ecological Model and the Explanatory Models simultaneously, will guide understanding of the phenomenon of midlife weight gain among GCC women from different perspectives, allowing the clarification of the problem of obesity among perimenopausal obesity among GCC women.

Chapter 3

METHODS

This chapter presents the research methods for this study and includes a description of the participants and procedures that were used to accomplish the study objectives. This study proposed a qualitative descriptive (Sandelowski, 2000) design that used semi-structured interviewing (Fontana & Frey, 1998), and conventional content analysis (Berelson, 1952; Hsieh & Shannon, 2005; Krippendorff, 1980; Miles & Huberman, 1994; Stemler, 2001; Weber, 1990). The purpose of this study was to examine the culturally specific views of perimenopausal GCC women concerning the causes and processes of midlife weight gain. A discussion of the qualitative descriptive approach and the interviewing methodology is described first.

Qualitative Descriptive Studies

A qualitative descriptive approach aims to describe participants' perceptions, views and experiences about a specific phenomenon of interest (Neergaard, Olesen, Andersen & Sondergaard, 2009). Although this approach is not based on a specific philosophy (Sandelowski, 2000), it is derived from naturalistic inquiry that is a combination of qualitative and behavioral concepts for studying phenomenon or events naturally as they are (Sandelowski, 2000). The naturalistic inquiry approach does not manipulate or change any variable: it studies the variables as they are (Sandelowski, 2000). Qualitative descriptive studies may employ some features of phenomenological, grounded-theory, ethnographic or narrative approaches (Sandelowski, 2000) but is different than

other qualitative approaches in that the primary focus is to produce 'rich, straight description' (Neergaard et al., 2009, p.2) of a phenomenon. Qualitative descriptive studies provide direct answers to the 'who, what and where' (Sandelowski, 2000, p.338), using language that is similar to the participants' own (Neergaard et al., 2009). The approach allows researchers to identify problems, formulate hypotheses and generate concepts for future testing (Neergaard, et al.,2009) and informs professionals and policy makers about concerns, responses, reasons, facilitators and barriers of a behavior, event or phenomenon (Sandelowski, 2000).

Using a qualitative descriptive design, an investigator can choose any of the sampling techniques (Sandelowski, 2000). Although almost any purposeful sampling technique can be used in such studies, one of the best options is maximum variation sampling because it permits the discovery of the special characteristics of a phenomenon of interest in a range of different cases (Sandelowski, 1995, 2000) and allows the investigator to obtain a broad description of a subject or phenomenon of interest (Neergaard et al., 2009). Regardless of the sampling technique, the aim of the investigator in qualitative descriptive studies is to select a sample that provides rich information for a study and to defend the reason for using the same. Different data collection methods can be used in qualitative descriptive studies, such as individual interviews, focus groups, observations or documents and the examination of artifacts (Sandelowski, 2000).

Qualitative descriptive studies use content analysis to analyze verbal and visual information. For this process, an investigator applies codes that are generated from data collected. They might count the frequency of responses but, unlike quantitative research, these are not the primary aims of the analysis: they are only used for finding a pattern or confirming it (Sandelowski, 2000). Data analysis can be conducted simultaneously with data collection in such studies (Sandelowski, 2000). This process of data analysis is reflexive and interactive that is an investigator works and changes his/her treatment of the data continuously in order to accommodate the new data and the new codes as they appear (Sandelowski, 2000). Data in these studies may be arranged in different ways: actual or reverse chronological order; progressive from a specific case to a broad context; from broad context to a specific case; a particular time in the life of an individual; or the Rashomon Effect that describes an event from the individual perspective of different people (Sandelowski, 2000).

The qualitative descriptive approach has many advantages: it is the least theoretical qualitative approach and is not constrained by philosophical commitments (Neergaard et al., 2009; Sandelowski, 2000). Though maximum variation sampling, such studies are the method of choice in generating a clear, factual description from participants' points of view of a phenomenon or an event that is experienced by them (Neergaard et al., 2009; Sandelowski, 2000). Furthermore, qualitative description is very useful when time and resources are limited (Neergaard et al., 2009). Because qualitative description is used for

developing or modifying interventions, explaining concepts and assessing needs, it is suitable to be used in mixed-method studies (Neergaard et al., 2009).

Qualitative descriptive studies are methodologically sound when used for appropriate purposes. They are interpretive because all description involves interpretation (Sandelowski, 2000, 2010) but they rely on a low-inference approach: that is, one which stays close to the data (Neergaard et al., 2009, p.3; Sandelowski, 2000). Rigor is addressed though a series of standards for evaluating procedures and conclusions – discussed further under 'consideration of credibility' in this document.

The purpose of using qualitative descriptive methodology for this study was to describe perimenopausal obesity in GCC women, about which little is known. Because the qualitative descriptive approach is used when a rich, straight description of an event or an experience is desired (Neergaard et al., 2009; Sandelowski, 2000), it was chosen to facilitate the provision of a clear description of perimenopausal obesity in GCC women. It was anticipated that obtaining information about women's perspectives will provide a clear picture of the factors related to this phenomenon as well as a better understanding of perimenopausal obesity in GCC women for future interventions by practitioners and policy makers.

Principles of Ethnography used for this Study

Culture is defined as code, conversation and community (Hecht, Jackson & Ribeau, 2003; Philipsen, 1987). 'Code' denotes the aspect of culture that carries a system of rules and meanings. 'Conversation' describes culture as a way

of interacting, whilst 'community' denotes membership, all of which can be represented in the shared narratives of a cultural group. So, the narratives/communication/community membership carries the codes such as norms. Culture is defined by Chrisman (2009) as 'a system of symbols which acts to establish powerful moods and motivations in humans by formulating conceptions of existence and clothing these conceptions with such an aura of factuality that the moods and motivations seem uniquely realistic.' Chrisman also quotes Tripp-Reimer and defines culture as 'the total lifeways of a human group. It consists of learned patterns of values, beliefs, customs, and behaviors that are shared by a group of interacting individuals...a set of rules or standards for behavior' (Chrisman, 2009). For the purpose of this study, culture was defined as a lifestyle of a group of people who share common values, beliefs, customs and behaviors. They interact and communicate with each other using verbal and nonverbal codes, such as language. Together they form a community – that is they belong to a group and have a membership in it.

Semi-Structured Interviewing as it was used in this Study

The interview is a data collection method in which an individual asks questions to another individual (Whiting, 2008). Interviewing is the strongest and the most commonly used way of understanding people (Fontana & Frey, 1998). It is used for different reasons, such as collecting data, marketing, generating data, evaluation and understanding of different views and behaviors. Interviews can be as short as five minutes or as long as several days (Fontana & Frey, 1998).

Babbie (1992) stated that interviewing was used since the ancient Egyptians days for censuses (as cited in Fontana & Frey, 1998, p.48). Maccoby and Maccoby (1954) reported that interviewing was later used for diagnosis and counseling. They also reported that during World War I, interviewing was used for psychological testing for measurements (as cited in Fontana & Frey, 1998). Converse (1987) credited Charles Booth as the first person who used interviewing for social survey. Booth used triangulation in his study by using unstructured interviews and ethnographic observations (as cited in Fontana & Frey, 1998). Interviews, as reported by Harvey (1987), were later used for polling opinion of people and studying people's attitude (as cited in Fontana & Frey, 1998). Interviewing has been used in different types of studies, including ethnography, qualitative descriptive, grounded theory and other qualitative study approaches (Fontana & Frey, 1998).

There are different types of interviewing: face-to-face, mailed, self-administered questionnaires, telephone surveys, structured, semi-structured and unstructured (Fontana & Frey, 1998). In this study, the focus was primarily on semi-structured interviews. Semi-structured interviews are interviews used to elicit in-depth information from the interviewee and are prescheduled in a specific time (Whiting, 2008). The investigator uses a pre-planned set of questions and other questions that are produced during the interview in order to obtain in-depth information (Whiting, 2008). Semi-structured interviews usually last 30 minutes to several hours (Whiting, 2008). In this study, the investigator used a pre-planned

set of questions and some other questions were used in order to elicit in-depth information. The interviews lasted 45 minutes to 3 hours.

There are several benefits of using semi-structured interviewing. It is a two-way conversation that allows flexibility in answering questions for the interviewee and is less intrusive (Crabtree, 2006). It allows comparison and produces reliable data (Crabtree, 2006; Bariball & While, 1994). A semi-structured interview allows discussion and exploration of perceptions and views of participants about personal and sensitive issues (Bariball & While, 1994). Semi-structured interviews provide opportunity for probing and asking for explanations, when necessary, for a better understanding of the data and the answers of the respondents (Bariball & While, 1994; Gill, Stewart, Treasure & Chadwick, 2008). However, semi-structured interviewing requires a trained interviewer who can use probes without hinting or directing the interviewee (WHO, 2004). Semi-structured interviewing was used in this study to concentrate and narrow the focus on perimenopausal GCC women's own perspective and viewpoint related to overweight/ obesity. In addition, it provided information about the factors that might otherwise be ignored or not considered important. Furthermore, semi-structured interviewing was used in order to obtain in-depth understanding of phenomenon of interest, i.e. perimenopausal obesity. This was consistent with qualitative descriptive method that strives to have deeper understanding of the phenomenon. For these reasons, semi-structured interviewing was the best data collection method for this study.

There are several stages in a semi-structured interview process: preparing for the interview, interviewing, then transcribing and analyzing interview data (Baumbusch, 2010; Whiting, 2008).

Preparation for the Interview. In order to prepare for a semi-structured interview, the investigator developed an interview guide to keep the interview focused on the purpose and objectives of the study and to facilitate the description of the interviewee of their experience (Baumbusch, 2010). The questions in this guide were broad questions that guided data collection process (Baumbusch, 2010; Burns & Grove, 2005). These questions produced the interviewee's description of the experience from which the other questions were generated (Baumbusch, 2010). The investigator used prompts and probes to elicit more information, clarifications and details from the interviewee, as well as redirect the interviewee back to the main topic when they moved to talking about something that was not related to the study (Baumbusch, 2010). In this study, a study protocol (Appendix H) was formulated which included the interview guide in order to guide the interview process.

Recording the interview is another important aspect for preparing for the interview. According to Rubin and Rubin (2005), audio recorders, note- taking and video recording are the most widely used methods of interview recording. Whiting (2008) emphasized that digital recording is easy, effective and saves efforts of note-taking and consequently, directs the attention of the investigator to the questions and the data collection rather than note-taking. In this study, two audio recorders were used in order to record the complete interview.

The way the investigator presents of him/herself plays an important role in the interview process and it is one of the important aspects to consider in the preparation phase (Burns & Grove, 2005; Fontana & Frey, 1998). This helps in leaving a positive impression on participants in the study, and contributes to the success or failure of the study (Fontana & Frey, 1998). The way an investigator presents him/herself will affect how people think about him/her. This means that if an investigator does not present him/herself properly, he/she might confront, for example, lack of cooperation from the interviewees leading to study failure (Fontana & Frey, 1998). The investigator in this study ensured presenting herself in a culturally acceptable way.

Interviewing. The investigator has to prepare for the interview in advance preparing a checklist that will guide him/her throughout the process (Whiting, 2008). Consequently, a study protocol (Appendix H) was prepared in order to guide the interview process in this study. It is also recommended that the interview process be held in a quiet room and, preferably, a room chosen by the interviewee (Whiting, 2008). In this study, the participants were called and asked to choose their preferred time and place of the interview. The actual interview process started with a four-stage rapport-building process: apprehension, exploration, cooperation and participation (Spradley, 1979; Whiting, 2008).

In apprehension, there was a sense of ambiguity and strangeness (Whiting, 2008). In such situations, the investigator started the conversation with a discussion of some general topics to induce relaxation with the environment (Whiting, 2008). The investigator carefully selected the words she used, as it is

advised to start with questioning about something familiar and broad. She started by asking about a broad, familiar topic such as "we know that different societies view weight gain in women differently. What views do you think GCC society has about weight gain in premenopausal women?" Then, the investigator moved to more specific questions or what is called "prompt" questions (Whiting, 2008, p.37). These questions were asked to elicit more explanations from the interviewee (Whiting, 2008). It is advised to have a pre-planned list of these "prompt" questions that one can use during the interview (Whiting, 2008). The order of asking them is not important in semi-structured interviews. However, phrasing these questions in a non-leading way is important, as leading questions might affect an interviewee's response (Whiting, 2008). A good introduction and opening of the interview might reduce apprehension; however, it is not until later in the interview that both the interviewee and the interviewer feel relaxed (Whiting, 2008).

The second stage of building rapport is exploration (Whiting, 2008). At this stage the interviewee started an in-depth description of the phenomenon (Whiting, 2008). The investigator continued asking open-ended question to explore the interviewee's feelings and obtain additional data to generate more knowledge (Whiting, 2008). The investigator used probing frequently in this stage (Whiting, 2008). Some probes were in the shape of silence to allow the participant to think or echo the interviewee's point or just ask the interviewee to explain more (Whiting, 2008; Burns & Grove, 2005).

The third stage in building rapport is cooperation. At this stage, both the interviewee and the investigator feel more comfortable talking to each other (Whiting, 2008). It is acceptable that the investigator shares some information with the interviewee but he/she should pay special attention in not turning the interview into a personal conversation (Whiting, 2008). At this stage, the investigator might ask more sensitive questions – as confidence has increased by this time and more details can be obtained from the interviewee (Whiting, 2008). In this study at this stage – and as the investigator felt that the interviewee became more comfortable – she started asking in-depth and sensitive questions and shared information with her. However, she made sure that the interview did not turn to a personal conversation.

The participation phase is the fourth stage of rapport building. At this stage the interviewee assumes the role of a teacher and guides the investigator (Whiting, 2008). This phase might not be reached in all interviews due to several factors: time, environment and sensitivity of the topic (Whiting, 2008). It is important that the investigator remembers that an in-depth interview might take a tremendous amount of time (Whiting, 2008). In this study, the investigator did not reach this stage with these women. After completing the data collection, the investigator concluded the interview at a point where both the interviewee and the investigator were comfortable (Whiting, 2008). She ended with an open question as to whether the interviewee wanted to add any more information. She ended on a thank you note and an acknowledgement of the value of the data collected (Whiting, 2008).

Transcribing the Interview Recording. In this study, the interviews were audio-recorded. These recorded interviews were transcribed by playing and replaying the recording. It was first transcribed in Arabic – as the interviews were done in Arabic and Balushi. These transcripts were then translated into English. They were then reviewed and validated by an Arabic- and English-speaking person.

This process was difficult and time consuming. It was difficult to capture the wording while transcribing. Replaying the recording helped and provided an opportunity for the investigator to note areas of personal development, such as unconsciously using phrases and words that are not supposed to be used (Whiting, 2008).

SAMPLING

The study participants were recruited using nonprobability convenience and snowball-sampling techniques. The convenient sample is a sample that is most accessible to the investigator in collecting data. This type of sample saves time, money and effort in data collection (Creswell, 2007; Miles & Huberman, 1994). Snowball sampling is a technique that uses current participants of a study to find potential participants who are useful and may be included in the study (Marshall, 1996). It was used to refer overweight and obese perimenopausal women known by study participants to the investigator (Marshall, 1996). To obtain new participants, the current participants were asked to refer the investigator to those women who met the inclusion criteria. It was thought that both of these sampling techniques were more likely to yield study participants

who met the inclusion criteria of being overweight or obese perimenopausal GCC women, as well as providing rich data of their experience, as GCC women, of perimenopausal obesity (Marshall, 1996; Miles & Huberman, 1994).

A total of 19 perimenopausal women from the Muscat Region who met the inclusion criteria were interviewed in the period from April 22nd 2011 to June 15th 2011. **The inclusion criteria** were: 1) women between the ages of 45–55 years old who showed interest in participating in the study voluntarily. These women were from the Cooperation Council for the Arab States of the Gulf (GCC) countries; 2) Participants who were overweight or obese (BMI> 25). 3); women who did not have a major clinical depression (PHQ9 < 15). 4). Participants spoke Arabic, English or Balushi, as these are the predominant languages spoken in the GCC countries. **Exclusion criteria** were: 1) women who were pregnant; 2) Women who were normal weight or underweight (BMI< 25); 3) under the age of 45 and over 55, as menopause occurs between the ages of 45 and 55 with an average age of 51 (Keller et al., 2010); 4) Women unable to speak any of the three languages listed above; 5) Women with a hearing or speech impairment.

Sample size. In order to estimate the sample size in a qualitative study, one should consider: the quality of data collected; the scope of the study; the topic to be studied; the quality of information collected; the design of the study; amount of shadowed data (i.e. the experience of others) reported by the informant and the number of interviews (Morse, 2000). This study used the qualitative descriptive method and semi-structured interviewing approaches. Both provided in-depth information about the specific phenomenon of interest (i.e. perimenopausal

obesity in GCC women) by a specific group of population selected using the convenience and snowball-sampling technique. The ***sample size*** was expected to range from 15 to 50 informants or until data saturation was reached and no new information was added to the data categories already collected and finalized (Sandelowski, 1995; Sullivan-Bolyai, Bova & Harper, 2005; Trotter, Needle, Goosby, Bates & Singer, 2001). A total of 19 perimenopausal women were interviewed in this study. The recruitment process stopped when no new information was added to the data categories.

SETTING

The Gulf Cooperation Council for the Arab States (GCC) consists of six countries located in the Arabian Peninsula extending from the Empty Quarter (the world's largest expanse of continuous sand) to the Gulf of Oman and Arabian Sea. The six GCC countries are: United Arab Emirates, State of Bahrain, Kingdom of Saudi Arabia, Sultanate of Oman, State of Qatar and State of Kuwait. The GCC countries' area is around 2672.7 thousand km² and the population is estimated to be 37.5 million. Their main source of income is oil. The six GCC countries represent the Islamic and Arabic culture. They have deep and strong relations with each other and are considered to be the foundation of Arab Unity. GCC countries share religious, cultural and family links with each other, supported by the unique geographical entity that is from the desert to the sea, enabling them to share values, beliefs and characteristics (GCC, n.d; H.H. Sheikh Mohammed bin Rashid Al Maktoum., 2010).

GCC women's life is affected by several factors. Although they are given the freedom of movement in most of these countries, a woman cannot leave home without the permission of her husband or father. Men are considered the primary breadwinner of the family and women in these countries have fewer employment opportunities than men. As they are Muslim, they are asked to dress modestly, covering all their body except the hands and face. However, the pattern of women's dress is also affected by her culture. Historically, due to cultural beliefs, women were not allowed to be educated. However, there have been changes over the past two to three decades and women are now allowed to be educated and be involved in the decision-making process and partake in national parliaments (Livani, 2007; Public Broadcasting Service, 2002; Roudi-Fahimi & Moghadam, 2003).

Oman is one of the GCC countries. It occupies the south-eastern coast of the peninsula and is 212,457 km² in size. Its 2009 mid-year population was 3,173,917. The main source of income in Oman is oil, agriculture and fisheries. Oman shares the Empty Quarter with Saudi Arabia to the west, shares borders with Yemen to south-west, the United Arab Emirates is to its north-west, the Gulf of Oman is on its northern side and the Arabian Sea is to its east and south. In addition to the geographical boundaries and environment, Oman shares similar religion, culture, beliefs and values with the other GCC countries. It represents a modernized Islamic and Arabic Middle-Eastern country. In addition, The Human Development Report of United Nations Development programs have considered Oman as a model for human development (MOH, 2010). As a result, it is used as

a setting for this study, expecting the findings from Oman to be transferrable to the other GCC countries.

As the investigator is working in the Ministry of Health, permission was obtained to recruit potential informants from the Primary Health Care Centers (PHC) of Muscat Region (Appendix C). There are 29 health centers in Muscat Region providing primary healthcare to people in that area. They are the first contact between the clients and healthcare system (MOH, 2010).

One of the domains of the 7th Five-year Plan for the Ministry of Health (MOH) is Non-Communicable Diseases, and two of the main objectives of this domain are "To reduce the prevalence rates of risk factors leading to non-communicable diseases (weight gain, obesity, lack of physical activity and smoking)" (MOH, 2005, p. 158) and "early diagnosis of non-communicable diseases (obesity, diabetes, arterial hypertension and chronic renal diseases)" (MOH, 2005, p. 158). As a result, nurses routinely assess clinic attendees' age, weight, and height before a client sees a healthcare provider. The nurses calculated the BMI of the potential participants, so that information was readily available as a recognizable eligibility criterion for nurses to refer participants to the study.

PROCEDURE

Recruitment. Potential participants were recruited from the women attending one of the 29 health centers in Muscat Region, or from women who were referred by the participants. The participants were recruited with the help of the nursing staff at the health center. Recruitment was conducted by posting flyers

at the health centers that included information about obesity, study purpose and the study procedures. Clinic attendees were asked if they were interested in the study once their routine demographic data and anthropometric measurements were taken in the triage room and they met the inclusion criteria. If the potential participants expressed interest in participating in the study, they were given a contact information release form (Appendix D) by the nurse to sign to enable the release of contact information to the investigator, and for the investigator to contact the potential participant within a week. If the potential participant was not able to read, the contact information release form was read to the participant by the nurse and the participant was asked to put a thumbprint on the form. The investigator then obtained the contact's information from the nurses and contacted the participants to fix the time, date and place of the interview. An information letter (Appendix E) that included a summary of the study's purpose, procedure and role of the participants was read to the participants at the beginning of the enrolment process by the investigator once she met a participant for an interview. All information was discussed and questions were answered before obtaining the verbal consent.

Data safety/human subject protection. This study was submitted for approval by the Institutional Review Board of Arizona State University (Appendix B). Hard copies of participants' information were collected and stored in a locked cabinet in the investigator's office and the soft copies were saved as a password-protected Microsoft Word file in the investigator's personal computer for use during the data-collection and data-authentication time. In order to

maintain confidentiality, participants' data was given a number at the start of the data collection. An information letter (Appendix E) that included a summary of the study's purpose, procedure and role of the participants was read to the participants at the beginning of the enrolment process by the investigator once she met a participant for an interview. All information was discussed and questions were answered before obtaining the verbal consent. The contact information of the primary investigator was provided to the participants to enable them to ask questions in relation to the study. The contact information of the person who reviewed the transcripts was also provided. The contact number of the Directorate General of Health Services of Governorate of Muscat was provided to the participants in the event that there were any complaints. The verbal consent of all the participants was recorded on a tape-recorder and the participants were reminded that they could stop participating in the study at any point.

The interviews were conducted once with each participant. At the end of the interview, the participants were given a brochure with information on physical activity (MOH, n.d.). There was a follow-up session for the participants to authenticate the interview transcripts done by the investigator and clarify any unclear data.

The participants were asked to choose the setting for the interview. They were asked to choose the location as a private, closed office or an examination room in the health center or in a place that was more convenient to the individual. Interviews were conducted within a week of the anthropometric measurements of the interviewee. Once the participant and the investigator agreed on the location,

the time of the interview was scheduled. The investigator allocated 2 hours per interview. All interviews were then audio-taped by using 2 tape recorders. Field notes and a contact summary were taken after the interview was documented by the investigator. These interviews were then transcribed into Arabic first and then translated to English. Both the Arabic and English transcripts were reviewed and validated by an Arabic/English-speaking person. The transcripts were shown to the participants for authentication. The investigator read the transcript to any participant who was unable to read.

Data collection devices. ***Clinic screening; Anthropometric measurement.*** In order to measure the Body Mass Index, measuring a person's height and weight is necessary. Centers for Disease Control and Prevention's National Health and Nutrition Examination (NHANES III) anthropometric procedures measurements guidelines (2010) was used in order to measure both height and weight.

a. Height. This was measured by a fixed stadiometer with a vertical backboard and a moveable head board. Both the participant's feet were placed together, touching the base of the foreboard with toes pointing slightly outward at a 60^{o} angle and the body weight evenly distributed. The nurse measuring the height checked four contact points for precision: heel, buttocks, shoulder blades and back of the head for their contact with the vertical board. The participant's arms and shoulders were relaxed, with the head in the Frankfort Plane. If not, the nurse adjusted the head slightly. Then, the nurse lowered the head board and asked the patient to take a deep breath in order to straighten the spine. The head board was then lowered and the hair slightly compressed for a better

measurement. The measurement was taken in centimeters and nearest millimeters (CDC, 2010).

b. Weight. This was measured by an electronic load-cell scale. The patient was instructed to remove any heavy materials or clothing. Then, the nurses instructed the patient to stand still on the scale with hands to the side and feet closed. The patient looked straight ahead. The patient's weight was measured in kilograms to the nearest two decimal places (CDC, 2010).

c. Body Mass Index. Also known as the Quetelet Index. BMI is a measure used to assess obesity; it was calculated using the following formula (BMI = weight in pounds/height in inches squared x 703) or (Kg/m^2). As there are no definite cut-off points for fat mass or fat percentage, the Expert Committee at the World Health Organization recommends the use of the different levels of high BMI as degrees or levels of overweight rather than obesity. Based on BMI cut-off points, an individual was considered as overweight or obese if their BMI was 25 kg/m^2, and 30 kg/m^2, respectively (WHO, 2010). A high BMI was linked to many diseases, such as cerebro-vascular accidents, hypertension, hyperlipidemia, diabetes and cardiovascular disorders. BMI was used in many research studies to determine body fatness (Kwagyan et al., 2005; Lorber et al., 2003; WHO; 2010).

The BMI has shown reliability and validity for assessing and screening overweight and obesity with decision validity coefficients above .80 of BMI cut-points for obesity in different ethnic and gender groups (Keller & Thomas, 1995; Ocker & Melrose, 2008). BMI data exhibited appropriate reliability to be used among middle-aged women (Liu & Schutz, 2000). Among premenopausal and

postmenopausal women, the intraclass correlation of BMI was found to be .94 and .93 respectively (Liu & Schutz, 2000). Blew et al. (2002) found that BMI has a strong association with the percentage of body fat in postmenopausal women. BMI was found to have a moderately high relationship with the percentage of body fat ($r = 0.81$; $y = 1.41x + 2.65$) with SE around 3.9%. The true positive and false positive rates were 84.4% and 14.6% respectively.

Patient Health Questionnaire-9 (PHQ-9) (Appendix G). This is a brief self- reported depression scale that contains 9 items for diagnosing major depression. This questionnaire asks the participants questions about their experience of major depressive symptoms during the past 2 weeks. Each item in this questionnaire is answered by choosing a score of: 0 (not at all); 1 (Several days); 2 (More than half the days); and 3 (nearly every day). Scores can range from 0 (absence of any depression-related symptoms) to 27 (major depression). PHQ-9's internal reliability is excellent with a Cronbach's alpha score = 0.89. The scores of 5, 10, 15 and 20 are considered as mild, moderate, moderately severe and severe depression respectively (Kroenke, Spitzer & Williams, 2001). For the purpose of the proposed study, a score of 15 or higher excluded a potentional participant from the study.

Before starting the interview. Several demographic variables have an effect on weight gain during menopausal transition. As a result, it was necessary to initially assess these variables. For this reason, a demographic questionnaire (Appendix F) was designed. These variables were: a) Age; b) Educational status; c) Marital status and length of partnership; b) Number of children and their ages;

c) Religion; d) Socioeconomic status (income/year); e) Employment status and nature of work; and f) Any chronic diseases. In addition, each participant was asked to describe theirs and their partner's role in the family.

Interview. At this stage, the investigator started the process of building rapport. As apprehension was the first stage of building rapport, the investigator asked a broad question to induce relaxation in the environment (Whiting, 2008). For example, the investigator asked: "We know that different societies view weight gain in women differently. What views do you think GCC society has about weight gain in premenopausal women?" Then, within this conversation the investigator created some prompt questions as appropriate. For example: "Could you describe what might go on during this period that makes a woman gain weight?"

The subsequent questions were based on the Kleinman's Explantory Models (EMs), the Socio-Ecological Model (SEM) and the Health Belief Model (HBM) eliciting information and elaboration to find out these women's explanations of midlife weight gain in GCC women. A semi-structured interview protocol (Appendix H) was used in order to guide this interview process during data collection. The credibility of this study was strengthened by using audiotapes and asking the participants to review and authenticate the verbatim interview and transcripts (Miles & Huberman, 1994). All interviews were conducted either in Arabic or Balushi, as all the participants spoke one of these two languages. The investigator is a citizen of one of the GCC countries and is fluent in four languages. This made the process of data collection and transcription of audio-

tapes easy. All interviews were transcribed in Arabic and then translated to English. Both of the Arabic and Enlish transcripts were read by an Arabic and English speaking person.

DATA ANALYSIS

All recorded interview data was transcribed as soon as it was obtained from the participants and then analyzed using conventional content analysis (Berelson, 1952; Hsieh & Shannon, 2005; Krippendorff, 1980; Miles & Huberman, 1994; Stemler, 2001; Weber, 1990). Conventional content analysis is one of three approaches of content analysis: an analytical technique used to find out the meaning of data collected in a form of text or words, i.e. qualitative. Conventional content analysis is used when knowledge about the phenomenon of interest is scarce (Hsieh & Shannon, 2005). It obtains the codes from the text of the data collected from the informants, enabling the generation of new knowledge (Hsieh & Shannon, 2005). Hsieh and Shannon (2005) explained that the conventional content analysis process starts with the investigator immersing him/ herself into the data and reading it repeatedly as a whole. Then, he/she reads the data again word by word to form the codes (Hsieh & Shannon, 2005). Codes are "tags or labels" used to assign meaning to a group of data (Miles & Huberman, 1994, p56). This is done by highlighting the key words that capture the main thoughts. Codes are then grouped into categories based on similarities. Exemplars for each code and category from the data obtained are added (Hsieh, Shannon, 2005). After that, categories are grouped and organized based on similarities and

differences into clusters. Usually, the number of clusters does not exceed 10–15 broad clusters.

This approach has the advantage of obtaining direct information from participants without limiting oneself to preconceived thoughts or categories. Not being able to obtain a complete picture of the phenomenon, and, accordingly, not being able to identify the main categories, as well as confusing it with grounded theory or phenomenology, are considered two challenges faced when using conventional content analysis (Hsieh & Shannon, 2005).

Conventional content analysis is used to understand a specific phenomenon of interest (Hsieh & Shannon, 2005). In this study, conventional content analysis was used to allow understanding the phenomenon of perimenopausal obesity in GCC women and generating new knowledge that was not pre-planned or pre-conceived directly from the participants (Hsieh & Shannon, 2005). This was consistent with the aim of this qualitative descriptive study which aimed to increase the knowledge base regarding the phenomenon of obesity among perimenopausal GCC women.

In this study, each participant was given a number code, and, according to the same code, their data was entered into the computer. The demographic data of each participant was entered and analyzed individually. The means, frequencies and percentages of the data was calculated using SPSS as well.

Each data transcript was read from beginning to end. Then, sentence by sentence and line by line. The culturally specific views of causes and processes of midlife weight gain were highlighted. A key word was written in the margin to

describe the highlighted text. These key words were used to create codes after reading three to four transcripts. These codes were then used to label the remaining transcripts. New codes were added if data did not fit into the preliminary codes. After coding, all data within each code were read, similar codes were merged and broad codes were divided. The final codes were assessed, organized and assigned to the five main categories of EM and the different levels of the socio-ecological model and HBM. Means, frequencies and percentages were calculated for the demographic and anthropometric data.

The Coding Process. In this study, all interviews were audio-recorded and were first transcribed to Arabic. Then, they were translated to English by another person who was an Arabic-English speaking person (not the investigator). The analysis process started with the investigator and the dissertation director reading the transcripts separately and repeatedly. Each data transcript was read from beginning to end. Then, sentence by sentence and line by line and the culturally specific views of causes and processes of midlife weight gain were highlighted. A key word was written in the margin to describe the highlighted text. These key words were used to create codes after reading three to four transcripts. Then, these codes were used to label the remaining transcripts. New codes were added if data did not fit into the preliminary codes. Exemplars for each code and category from the data obtained were added (Hsieh & Shannon, 2005).

Initially, the investigator and dissertation director separately coded one interview then compared results until there was agreement on coding of the data.

Similarly, all transcripts were coded and sent to the dissertation director for obtaining approval on the codes used. If any changes or additions were requested, it was discussed and the changes made following agreement from both the investigator and the dissertation director.

Once all transcripts were coded, data was examined for barriers, benefits, consequences, cues to action, enablers and motivators, onset, pathophysiology and treatment. The data was further examined and organized in four levels of the socio-ecological model, i.e. individual, interpersonal, organizational and community level factors.

TRUSTWORTHINESS AND AUTHENTICITY OF DATA

Trustworthiness and authenticity of naturalistic research is equated to validity and reliability of quantitative research (Miles & Huberman, 1994). They evaluate the rigor of the study's methodology. Objectivity or confirmability; reliability or dependability or auditability; credibility or authenticity and transferability;or fittingness or applicability are some of the main issues that should be considered when evaluating the validity and reliability of a qualitative study (Miles & Huberman, 1994). The details of Trustworthiness and authencitiy of data will be discussed later in Chapter 5.

Chapter 4

FINDINGS AND DISCUSSION

This study proposed a qualitative descriptive design (Sandelowski, 2000) that used semi-structured interviewing (Fontana & Frey, 1998) and conventional content analysis (Berelson, 1952; Hsieh & Shannon, 2005; Krippendorff, 1980; Miles & Huberman, 1994; Stemler, 2001; Weber, 1990). The purpose of this study was to examine the culturally specific views of perimenopausal GCC women concerning the causes and processes of mid-life weight gain. In this chapter, we used constructs derived from the health belief and explanatory models to identify and sort themes into conceptual categories. Findings are presented in concert with discussion, a conventional approach in qualitative research (Hsieh & Shannon, 2005). In this chapter, we included a description of the sample and the setting and discussed the findings for this study.

Sample Description

Nineteen perimenopausal women who met the inclusion criteria were enrolled in this study. The participants were women 45 to 55 years old. Among these, 74% (N=14) were born in Oman, 11% (N=2) in Bahrain, 5% (N=1) in Kuwait and 5% (N=1) was born in Tanzania. Only one of the participants completed a university bachelor program and one completed secondary school. The other seventeen women did not complete their secondary education or were illiterate. Approximately 68% (N=13) of the sample was married; 21% (N=4) were widowed; and 11% (N=2) were divorced. All of the participants had children. The mean number of children was 6.95 and the range of the number of

children extended from 1 to 12. All participants were Muslim. Most of the participants were not employed (84.2%, N=16). However, most of the participants' husbands were working (73.7%, N=14) or retired (26.3%, N=5). The mean yearly income of these participants was Omani Rial (OR) 9 378.95 ($24, 356.80) ranging from OR 2400- OR 36 000 ($6, 233.28- $93, 499.20). These were women from poor, middle-class and high-class families, as the average income of an average family in Oman is OR 8196 ($21, 285.82). More than half of the women (57.9%, N=11) had at least one chronic disease. These included: hypertension (52.6%, N=10), diabetes (47.4%, N=9), hyperlipidemia (26.3%, N=5), arthritis (5.3%, N=1) and asthma (5.3%, N=1). Over half of the participants were obese (57.9%, N=11); 31.6% (N=6) were overweight and 10.5% (N=2) were morbidly obese (BMI > 40). The scores of the women on PHQ-9 ranged from 0 (no symptoms) to 14 (moderate). None of the participants scored higher than 14. The frequencies and percentages of the demographic data are reported in Table (2) and the scores of PHQ-9 are reported in Table (3) in the appendix.

Setting Description

The participants of this study were recruited from the twenty nine primary healthcare centers in Muscat Region. Muscat is the capital city of Oman which is one of the six countries of Gulf Cooperation Council for the Arab States (GCC). The participants were asked to choose the interview setting that is most convenient for them. The interviews were conducted either in a private, closed office or examination room in a health center or in the houses of these women based on their individual preference.

The goal of the analysis was to provide a rich, straightforward description of an event or experience (Neergaard et al., 2009; Sandelowski, 2000), to facilitate a clear description of perimenopausal obesity in GCC women. It was anticipated that obtaining information about women's perspectives would provide a clear picture of the factors related to this phenomenon and provide a better understanding of perimenopausal obesity in GCC women for future interventions by practitioners and policy makers.

Etiology and perceived barriers. Two concepts categorized data that described etiology or cause of obesity and barriers to managing obesity. According to the EM, etiology is the cause of the problem perceived by the individual. Barriers, according to HBM, are the perceived problems that one might face while adopting the specified behavior. The factors that explicate this category included: physical health problems, busy and no time, denial of experiencing any negative consequences of obesity, lack of awareness of obesity complications, laziness, sedentary lifestyle, "let go" syndrome, strong emotions, developmental transitions and internal motivation. Additional factors included self control and will power, socioeconomic status, hormonal changes, birth control methods, age and genes, men's preference of larger body size, ability to eat as a sign of being healthy for old mothers, lack of external motivation or support, leaving everything to God, traditional and religious dresses, not allowing women to go out alone or in public places, nature of work, eating and cooking values, respecting older adult and not allowing them to move, needing to walk as a group. Cultural practices, media, hot weather and air conditioning, places for

physical activity, safety issues, modernization, frozen food, restaurants, view of obesity among the menopausal and those who are approaching menopause as acceptable, view of obesity among the premenopausal women as giving strength were further data based factors. These factors are discussed below.

Physical health problems. The participants thought that due to their health problems they were not able to be physically active. This made their health problem a barrier to performing any physical activity to manage their weight. Further, these health problems caused them to reduce their activity level, causing them to gain weight. Because the majority of the women interviewed had multiple health problems, they were considered as barriers to weight management and were causing obesity.

Six women stated health problems as barriers to weight management. One of them said: "If someone is sick and tired they won't go [out for a walk]. Due to my back problem, I can't walk for a long time and that is it" (Participant 5). Another woman said: "I don't think it [weight gain] is a good thing. However, due to my health problem I cannot go walking nor do any physical activity. I have screws in my legs and cannot walk properly after the accident, which has really affected me" (Participant 16).

Perimenopausal women experience fat accumulation in visceral and upper parts of the body (Ley, Lees & Stevenson, 1992; Lovejoy et al., 2008). Accordingly, four women from this study reported changes in their abdomen and upper and lower limbs. As Carr (2003) reported, these women experience changes in glucose and insulin level; nine of the 19 participants were diagnosed with

diabetes. These women reported inability to follow any diet or exercise programs due to their health problems which they perceived as a barrier to weight management. Similarly, Ali, Baynouna and Bernsen (2010) exploring the perception of weight management among the women from United Arab Emirates, reported physical health problems as barriers to weight management behavior among these women.

Busy and no time. Being busy and not having time to do physical activity was considered an etiology for not performing physical activity and it acted as an obstacle when a woman wanted to engage in any weight-management activity. Being too busy to manage weight was considered both an etiology and a barrier to weight management.

Being busy and lack of time were reported by three different women as barriers to weight management. For example, one of the women stated: "I think inability to leave the house due to the house chores is a problem. If a woman is not able to go out of her home because she is very busy with her children then, she won't be able to move or do anything for herself" (Participant 16). Another participant said: "I could not do anything about it because I did not have time and this was not my priority at that time" (Participant 12). In another study, women from United Arab Emirates reported being busy with social obligations, leaving no time for exercise (Ali, Baynouna & Bernsen, 2010)

Denial of experiencing any negative consequences of obesity in their life. Denial of the negative consequences of obesity in their lives led these women to ignore the consequences of being overweight and obese. They did not perceive

the need for a weight management because they did not view obesity as a problem. The denial of experiencing negative consequences of obesity was considered a barrier to participating in any weight-management program and an etiology as the consequence of obesity weight gain among these women.

Seven of the participants in this study stated that they did not need any weight-management activities. For example, one of the women said: “I didn’t think about it at all. I don’t think I am obese and that I need to lose weight except that my tummy is big, so I don’t think I need to lose weight” (Participant 6). Another one said: “Why should I [get involved in any weight-management programs]? I don’t think it [weight-management activities] is needed” (Participant 9). Accepting self as they were was another factor that was reported. One of the women said: “People get used to the way they look and adapt to it. They don’t attempt to reduce except when there will be something which affects them, like deterioration in their health” (Participant 19).

Some women in this study accepted themselves as being overweight and obese. They denied experiencing any consequences related to obesity in their life. This lack of perception of susceptibility and severity acted as a barrier to weight management for them. They reported lack of will to be involved in any weight-management program, denying the need for it. Lack of will to lose weight was reported by Allan (1998) as a barrier among perimenopausal women in the United States of America. This is also applicable to the women in this study who denied being obese or that obesity was a problem in their life.

Allan (1988) reported that all women create their own norms and categories of their physicality and criteria to know if they are overweight or underweight. They do not use professional assistance to create these norms and the cultural pressure to be thin does not affect their decisions. For example, Allan stated that for those who were overweight or obese, the acceptable and overweight weight range was considered overweight and obese in biomedical weight norm, i.e. the Metropolitan Life standards. This notion was applicable to the women interviewed in this study. They reported perceptions of being of normal weight but the data showed that six of the nineteen women were overweight, eleven were obese and two were morbidly obese. The women who participated in this study had a very broad definition of acceptable weight unrelated to the biomedical definition. This was one of the individual barriers to weight management, as these women did not perceive their susceptibility to weight gain and its consequences.

Lack of awareness of obesity complications. When a person does not perceive the severity of an illness or a condition, they might not act to prevent it. This lack of awareness or knowledge can become a barrier to weight management.

Some of the women interviewed thought that lack of awareness was one of the factors that acted as a barrier to weight management. For example, participant 16 stated that: "I think because they do not know about the complications of obesity and that's why they do not attempt to do anything for weight management".

Some of the women interviewed called for programs that increase the awareness of the public regarding obesity and its consequences because they thought if more people were aware of such consequences, there would be greater effort made to overcome the problem of obesity and overweight. This finding is consistent with the literature that reports individuals with more knowledge are more likely to lose weight than those without (Klohe-Lehman et al., 2006; Roach et al., 2003; Swift et al., 2008; Thornton et. al, 2006; Wardle & Waller, 2000). It is recommended that healthcare providers empower their clients with appropriate knowledge regarding obesity and its consequences (Swift et al., 2008).

Laziness. Some participants admitted that they felt lazy about weight management. Laziness acted as a barrier, leading a person to be inactive, and was an additional etiological factor leading to obesity. Laziness was the most commonly cited barrier to weight management among the participants. A participant said: "Even if you are sick you can still walk and be active, but it's the laziness which does not allow us to move" (Participant 16). Another participant stated that a person can find time if they are not lazy: "You can make time if you want to, but if you are lazy, you won't go walking and you won't try to do so" (Participant 12). Similarly, laziness was reported by the Mexican-American women as a barrier to physical activity in an earlier study (Gonzales & Keller, 2004; Juarbe et al., 2002).

Sedentary lifestyle. People who live a sedentary lifestyle do little or no physical activity, possibly accumulating body fat resulting in overweight/obesity. Sedentary lifestyle was considered as a barrier to weight management and caused

weight gain, i.e. etiological factor. Sedentary lifestyle and lack of physical activity were cited by many participants as an etiological factor related to their obesity. For example, one of them said: "I think they [perimenopausal women] sleep a lot and eat a lot and live a sedentary lifestyle" (Participant 8).

Sedentary lifestyle leads to disequilibrium between energy intake and output leading to weight gain. Ali and Lindstrom (2005) reported sedentary lifestyle as one of the common individual factors found among overweight/obese women compared to normal-weight women.

"Let go" syndrome. Some women in this study "let go" their beauty and looks as they grew older, leading them to gain weight. As a result, "letting go" of one's beauty was considered an etiological factor for weight gain because when women no longer valued their beauty, they also ceased to care about the negative changes in their appearance caused by weight gain. It was considered a barrier as well, because women did not give their beauty or looks a priority; they did not seek any weight-management program or advice. As a result, "letting go syndrome" was considered an etiological factor that acted as a barrier to weight management as well. One of the participants said: "I think they have no interest and they live in a 'let go' syndrome. Some don't have the motivation to do something and some accept themselves as they are [as they look] even though they are fat" (Participant 19).

Strong emotions. There were different effects of emotions reported by women in this study. Negative emotions led to obesity because women reported eating more or becoming inactive when sad or upset or losing weight due to

decreased food intake. On the other hand, women became careless about their weight when they were happy and satisfied with their lives. Strong and extreme emotions acted as a barrier to weight management because these women were pre-occupied with their emotions and did not consider weight management a priority. Strong emotions were considered an etiological factor and a barrier to weight-management interventions.

Five women reported that being upset or sad made them eat more and gain weight. For example, a woman said: "I feel that I eat. I am talking about myself, I don't know about others. There are many people who do not eat when they are sad or thinking. I am not like them. I feel that I am hungry. Like I was fasting. I just feel like eating. [I eat] anything... anything including fruits and vegetables as if I have never had food before. Even my house food as long as it is food" (Participant 2). Another woman described a similar experience saying: "I was thin but I gained more weight when I got divorced. You know people in our society blame a woman when she gets divorced more than the man, even if he is the devil. So, I started eating more. Maybe because I put all my sadness in my food and I continued like that for a year or so" (Participant 18).

Five of the participants thought that a person can either gain or lose weight due to emotions. They said it all depends on the person and the situation. For instance, one of these women said: "Some people might lose weight if they are sad and some might gain weight. There are two types of emotional responses" (Participant 7). Another one explained the same situation by saying: "I think there are people who are upset and when they want to reduce their anxiety they start

eating. Alternatively, there are people who get upset and never touch that food at that time. This type will reduce with their emotion but the first type will increase" (Participant 19).

Two women said that their activity level declined when they were sad and that caused them to gain weight. One of them said: "I was sad and sitting at home all the time [after divorce]. I was lazy and did not have interest in anything. I started having hypertension and had gases. I started having shortness of breath with minimum movement" (Participant 11). Another one said: "They say if you are upset about something, you will gain more weight. When our life situations changed after my husband's retirement, I felt that I gained more weight… I eat the same amount and I don't gain because of food. I gain because I don't move. So, maybe when I am upset I don't move a lot" (Participant 17). Similarly, Juarbe eta l., (2006) reported that women gain more weight when depressed, as their physical activity reduces and energy intake is increased. However, there is no study that clearly states the effect of mood on weight gain (Keller et al., 2010).

One of the women reported that when a woman is happy and satisfied with her life, she will be least bothered about her weight. One of the participants corroborated that by saying: "I think because of being relaxed and happy in life. We did not care about what we eat. We just had what we wanted." She emphasized that by saying: "If I am relaxed and happy with my family, obesity or weight gain won't be a priority. So, people go careless about their weight and have anything that they want to have" (Participant 14).

Two women thought that being upset or sad made them stop eating and lose weight. One of them described her personal experience by saying: "When he died, the responsibility shifted to me. Now, men cannot carry it all, then how can a woman? It's just too hard. So, I lost weight because of thinking about different life matters… because I didn't eat much" (Participant 13).

Developmental transitions. Developmental transitions such as changes in occupation, marriage, pregnancy and child birth we cues to action, barriers and etiological factors. For example, marriage was a cue to action in some of these women but pregnancy and delivery and getting divorced were barriers to weight management. As a result, developmental transitions were considered as a barrier or as a cue to action, depending on the type, and were considered as an etiological factor related to obesity.

Marriage was reported as being a cue to adopting weight-management activities. One of the women reported: "Like when my nephew wanted to get married to a girl and when going for their engagement we saw her and we were regretting how he can get married to such an obese woman. She joined a gym and now she is really slim and beautiful" (Participant 5). However, pregnancy and change of occupation were reported by 14 participants as the onset of their obesity. One of these fourteen women said: "I was not obese before getting married. I got the first child and I still was normal but I gained weight after the second child. I think after using birth-control pills. I stopped the pills but still gained more. I don't know how. Maybe because I was happy, because they say happiness makes you gain weight as you go careless of what you eat, and enjoy

life instead" (Participant 10). Another one reported noticing her weight gain when she changed her occupation: "After working in Royal Oman Police, I worked in a factory and a year or two after the factory I started gaining weight… because I started my private work and opened a restaurant. This made me gain weight because I have to try everything cooked as I don't want to sell bad things to my customers" (Participant 12). One more woman reported gaining weight after delivery: "I think I started gaining weight after getting my first child. I noticed it when I was wearing my clothes and I found them being tight on me. So, I knew that I was gaining weight" (Participant 14).

The literature substantiates that developmental transitions disturb the equilibrium in the life of the perimenopausal women (Perrig-Chiello, Hutchison & Hoepflinger, 2008), causing them to adopt an unhealthy lifestyle resulting in weight gain. This is similar to the finding reported by Allan (1998) when she interviewed perimenopausal women from United States of America. She reported that weight gain among these women later in life was thought to be related to lifestyle changes, life transitions, life-stress and emotional responses. This suggests that obesity later in life among perimenopausal women is most often linked with these factors in both Western and Eastern women.

Internal motivation, self-control and will power. The women in this study considered lack of motivation, self-control, and will power as both etiological factors to obesity and as barriers to weight management. For example, if women were unmotivated and lacked self-control and will power, they did not take part in or adhere to any weight-management intervention, and gained more weight.

Supporting this view, 14 of the participants believed that a person's internal motivation, self-control and will power acted as major enablers for them to participate in weight-management activities. One of them said: "I think it's the person's internal motivation that makes him able or motivated to move and do something about his/her weight" (Participant 5). Another one compared weight management to fasting in Ramadhan to support her opinion and said: "I think nothing other than my own self [motivates me]. If it is Ramadhan for example, you tolerate all the hunger because you want to do so. Other than yourself, there is nothing that can lower your weight" (Participant 9). Similarly, lack of motivation was reported as a perceived barrier to weight management in another study done in the United Arab Emirates among women who were at high risk for type II diabetes (Ali et al., 2010).

On the other hand, being motivated and having will power were cues to action. For example, one of the women shared her personal experience by saying: "Motivation and control as well as determination that you do something. For example, if you are determined that you will do something, you will do it even if it's the heat or whatever wants to prevent you from doing it. I walk during the cold season and go to the gym in hot weather" (Participant 18).

External motivation or support. If these women lacked support and external motivation, they did not attempt or did not sustain a healthy behavior that prevented weight gain. Consequently, lack of external motivation and support was considered an etiological factor and a perceived barrier to weight management.

A person motivating these women was an important enabler for three of the women interviewed. One of them said: “If someone encourages me I will definitely go and participate” (Participant 1). Another one said: “Motivation… I think we need motivation. We know the benefits are a lot but we need someone to encourage us… I can get involved and get some others to be involved. I will get encouraged when someone motivate me and encourage me to do some physical activity” (Participant 2).

This finding was similar to what was reported by Keller & Hargrove (1993) when they studied the health beliefs and cardiovascular health behavior in young African-American women who were 18 to 40 years old. They found that these women reported that lack of support from their family and friends sabotaged healthy behavior. This was due to the acceptance of larger body sizes. Further, social support is one of the factors that was reported by Ali and Lindstrom (2005) as a common factor among overweight and obese women compared to normal-weight women. This finding is also similar to that reported by Gonzales and Keller (2004) when reporting the barriers to weight management among Mexican American women. They reported lack of support as a barrier to weight management among these women. Lack of support was also noted by women from United Arab Emirates as a perceived barrier to weight management (Ali et al., 2010).

The walking groups or partners were also considered among the external motivating factors. Lack of these groups or partners discouraged some women

from walking or being motivated for weight management and the availability of walking groups enabled and motivated some to perform physical activity.

Three of the interviewed women preferred to walk or perform physical activity in a group and specified this as a motivating factor. One of them described this by saying: "I will get involved if I see people who I know like my neighbors get involved" (Participant 15). Another one further described this by saying: "Group effort. I get motivated when I join a group of friends and all and start doing physical activities. Teams encourage me. This program should consider the time and place as well as the age groups of the participants" (Participant 19). Similar findings were reported in a survey conducted studying social support's effect on middle- and older-age American women's physical activity level by Eylera et al. (1999). The survey emphasized the importance of social support in enhancing physical activity in sedentary women of different racial and ethnic backgrounds. As a result, external motivation and support from family and friends and the availability of walking groups and partners can lead to adoption of a healthy lifestyle or behaviors that can prevent weight gain or reduce weight among these perimenopausal women. A lack of external motivation and support can become barriers to weight management and etiologies for weight gain.

Socio-economic status. Socio-economic status was considered an etiology because it promoted physical inactivity due to the availability of housemaids and those who can assist her with home-making. In addition, it was considered as a barrier especially in those who were poor: they were not able to afford the

expensive weight-management programs, making it difficult for them to manage their weight.

Socio-economic status was found to have varying effects on individuals' weight-management behavior. In this study, some thought that rich people are heavier due to their lifestyle; others thought that poor are heavier; some others thought that the poor are thinner and some thought that socio-economic status was irrelevant. These findings are similar to the ones discussed in a review (Keller et al., 2010) where SES was considered an important factor that exposes a person to the risk of weight gain. Women of lower SES, especially if they were Hispanic or African-American, preferred a larger body size than those who were from higher SES. However, no difference in dissatisfaction with body weight, self-esteem and inconsistencies between the ideal and actual body weight among middle- or high-SES African-American women was reported (Keller et al., 2010).

The rich are heavier due to being relaxed, having parties and gatherings and prone to inactivity. Ten out of the nineteen women interviewed thought that women from high-SE status are heavier due to reasons such as being relaxed, hosting parties, having maids at home and being inactive. For example, one of the interviewed women said: "Some people gain weight regardless of their socio-economic status. However, those who are rich are more overweight or obese. They are careless about their body. They never move and they are mostly dependent on their housemaids. They don't bother about going to walk or do any activity" (Participant 9). Another one added: "Women who are rich gain weight

because they eat and never move. They have housemaids at home making them become lazy and gain weight" (Participant 11).

Poor are thin because of worry. Two women thought that poor people are thinner because of worry. One of them said: "I think most of the poor are thin because they worry about a lot of things but they eat more than the rich people" (Participant 7). Another one said: "For those who are poor, they lose weight due to thinking and being worried about their life" (Participant 14).

Rich can become slimmer if they go to the gym or control themselves. Two of the participants said that women from higher socio-economic status can go to the gym or apply sufficient self-control to lose weight. One of them said: "Those who have money can go to gyms and exercise with advanced equipments and lose more weight" (Participant 17). Another one noted the importance of self-control as a method of avoiding weight gain among those who are from high-SE status: "I think if you are from a high socio-economic status you will be happy and tension-free. In this way you might gain weight but you need to control yourself" (Participant 10).

No effect. Four of the women interviewed said that there is no link between a person's socio-economic status and weight gain. For instance, one of them said: "It does not have an effect. There are poor who are heavy and there are rich who are thin. It depends on the person" (Participant 13). Another one discussed further by saying: "There is no one who is hungry in this part of the world. We all have food to eat. However, some people eat a lot and some people

eat less as well as there are people who eat healthy and those who don't. This might contribute to their weight gain, not their status" (Participant 15).

Hormonal changes. Hormonal changes were considered a cause of obesity by these women. These were thought of as increasing the likelihood of gaining weight and were perceived as barriers when women thought about weight management. As a result, hormonal changes were considered etiological factors and perceived barriers.

From the 19 women interviewed, 7 reported hormonal changes, especially after marriage, pregnancy or delivery, as a physiological factor contributing to weight gain. For example, one of these women said: "I gained when I became pregnant and I continued. And I gradually gained more and more till I became what I am" (Participant 4). Another one described a similar situation by saying: "My weight was in 50s before getting married. However, after marriage, and especially with my deliveries, I gained more and more weight" (Participant 19).

Many of the symptoms that menopausal women experience are thought to be due to the hormonal changes and decreased ovarian function (Ellen et al., 2007). Women were found to gain visceral fat when going through menopause. This occurs at the time when their body's serum estradiol and energy expenditure decreases (Lovejoy et al., 1992). Further, premenopausal and early perimenopausal women experience an increase in their fat mass and waist circumferences and these changes are very often associated with the changes occurring to the level of follicle-stimulating hormone, the ovarian age and the chronological age of these women (Sowers et al., 2007).

Birth-control methods. . The use of contraception was thought of as an etiological factor. They were thought of as not allowing women to lose weight for obesity and barriers to weight management.

Birth control methods, including hormonal therapies, such as pills or intrauterine devices (IUD), were discussed by three women. For instance, one of these women said: "Pills make you gain weight" (Participant 1). Another woman added that using some kinds of medicine can cause weight gain and stated: "Some other things that cause obesity are birth spacing or using some kind of medicine will make you gain weight…I used to be very thin. However, when we moved here, like around 13 to14 years ago, I used IUD for birth spacing, as birth-spacing pills gave me problems like bleeding and all. The IUD made me gain weight and become obese" (Participant 5).

Age and genes. Age and genetic make-up are non-modifiable factors. They were perceived to act as an obstacle for these women's weight loss and were considered a perceived barrier. In addition, as women thought about these non-modifiable factors as obstacles, they did not attempt to lose weight. Age and genes were considered etiological factors and perceived barriers. Of the 19 women interviewed, four discussed this individual factor of the heritability of weight gain as causing obesity among them. One of these women said: "I think most of people gain weight due to genetic reasons. If their parents are obese they become obese too" (Participant 5). Another one said: "It might be the age…people say that when you age you gain weight" (Participant 6).

Men's preference of larger body size. Men's preference of larger body size was causing some women to work on increasing their body weight. So, this was thought of as an etiology and it was considered a barrier as women thought of it as an obstacle and that their men would not like them if they lose weight. Consequently, men's preference of larger body size was considered an etiological factor as well as a barrier to weight management.

Some men in the GCC culture prefer larger body size as reported by some women. Men's preference affected the weight of their wives. One of the women interviewed talked about her experience by saying: "I think all has their own ideas. Some men like overweight or obese women and some others not. Like for example, my second husband married me because his first wife was slim. I don't know about men now" (Participant 16). Another woman said: "Men usually tease these women and say to them …plywood. Like my daughter who is very skinny. I always say to her what is this? You look like a stick. Your head is huge and body is tiny" (Participant 3). The negative reaction of some men to those women who are thin acts a barrier to weight management. This supports the findings of Allan et al. (1988) and Keller and Hargrove (1993) that discussed men's preference of larger body size can act as a barrier to weight management among some Hispanic and African-American women.

Ability to eat as a sign of being healthy for these women's mothers. Mothers thought that the ability to eat was a sign of being healthy was thought to cause their children to eat more. It was perceived as an obstacle when a woman wanted to lose weight or control her weight. As a result, the ability to eat as a sign

of being healthy for these women's mothers was considered an etiology and barrier to weight management among these perimenopausal women.

For instance, one of the participants brought a new idea to the discussion. She emphasized that older mothers considered being able to eat as a sign of wellbeing. She stated that: "Like we say to my mother that you are the reason why we are overweight or obese. I don't know if because they are not educated they think that bringing up children is all about them being well fed. My mother until now, she feeds me when I go and visit her. However, now the mothers are different now as they are aware about obesity and its complications. Our mothers usually say if you are able to eat then you are healthy and if you cannot then you are sick" (Participant 18). Research literature supports this finding. For example, Allan (1998) reported that obesity later in life is often linked with early stages of life, i.e. childhood obesity in Mexican-America, African-American and Euro-American women that she interviewed. In addition, in some childhood research it was found that some mothers value larger body sizes in their children (Reifsnider, Flores-Vela, Dowdell-Smith, Keller, & Nguyen, 2006; Reifsnider, Keller, & Gallagher, 2006).

Leaving everything to God. This was an etiology because these women believed in Almighty Allah and believed that they have no input in the weight-gain process so did not do anything to manage it. As a result, this belief caused weight gain among them. It acted as a barrier because they did not do anything to prevent obesity or reduce their weight because they believed it all came from Almighty Allah. As a result, leaving everything to God was an etiology and a

barrier. One of the women expressed that being obese or gaining weight is God's will. She expressed it by saying: "I think God made me gain weight at that time but you know birth spacing is just an excuse" (Participant 5).

Traditional and religious dresses. The style of women's dress was thought of as an etiology as women did not notice their weight gain due to wearing wide dresses or those dresses which looked better on overweight women. It was considered as a barrier due to the fact as women were thinking that they will not look good if they lose weight in those traditional dresses or their weight did not show in those wide religious dresses. Traditional and religious dresses were considered an etiology and a barrier.

As traditional and religious dresses are wide, these women did not notice that they were obese or overweight and as a result might not do anything towards weight management. One of the participants said: "My auntie says you should gain weight for you to look good in traditional dresses" (Participant 10). Another one described her personal experience with the religious dress by saying: "I was not wearing hijab before getting divorced and after divorce I changed to covered and wide dresses. So, I was not noticing myself gaining weight" (Participant 18).

Not allowing women to go out alone or in public places. This cultural pattern of women being accompanied as she goes outside in public is reflected in the notion that society does not allow women to go out for physical activity causing them to gain weight. So it was considered as an etiology. Women perceived it as an obstacle to their weight loss, so it was considered a barrier to

weight management. Consequently, not allowing women to go out alone or in public places was considered an etiology and a barrier to weight management.

As part of the culture and religion in GCC countries, women are not supposed to leave their home alone. This made them require a companion without whom they cannot go out especially when they were from conservative families. Four women stated this as a cause for weight gain. One of these women said: "You are a woman you cannot go alone. You should have someone with you. You have [men] here and you have to have either your husband or your child with you and they might not always be available. And if they don't come with you then you have to walk in the front yard of your house". Another woman emphasized that by saying: "I think because some people feel it is bad for women to go and walk, they don't allow their women to move out and do some exercise…In the interior region, women cannot walk because it is not acceptable for them to be walking outside" (Participant 12). One of them described the situation in conservative families by saying: "There is no place for women to go and do exercise away from men and it might causes some women not to move or go out especially if they are from conservative families who do not allow women to go out" (Participant 19). This was a barrier reported in a previous study in another GCC country, i.e. United Arab Emirates. Ali et al. (2010) reported that some families do not allow their women to go and walk alone outside of the house, thereby creating a barrier to weight management among these women.

Nature of work. This was considered as a barrier to weight management as it acted as an obstacle to adhering or following weight-management programs

and was considered as both an etiology and barrier. The nature of work affected the activity level of these women. For example, one of them said: “Until my last child I was slim. I was continuously exercising and moving. I was employed in Royal Oman Police and my work was requiring me to move. After the retirement, I felt I started to gain weight because all my work is moving around with my car. I have no physical activity whatsoever” (Participant 12).

Eating and cooking values. The type of food and the way food was prepared was thought by some women in this study as” heavy” and causing weight gain, and an etiology to obesity. Eating and cooking values were considered a barrier to weight management as they act as an obstacle to some women who cannot control themselves and have heavy traditional meals. An example of the traditional heavy meal is “Maqbous”. This is one of the heavy traditional dishes that is made up of rice, tinged yellow with saffron and cooked over a spicy red or white meat. Eating and cooking values were considered an etiology and a barrier to weight management.

Five women described food as being an important part of all the celebrations in GCC culture. For example, one of the women interviewed said: “We have guests and we bring all types of food and drinks mixing the east and west together. If we get together as a family we eat and eat. And you know our food is really heavy. So, we gain weight” (Participant 18). They also described the food of the GCC country to be oily and heavy. For instance a woman described the type of food that they consume in GCC countries and said: “Most of our foods are fried and oily” (Participant 4). Another woman described a situation that is

practiced by some women that might be a contributing cultural factor to weight gain among these perimenopausal women by stating that: “There are women who are living in neighborhood. They sit outside their houses on a mat. They bring different types of food and have coffee with each other and talk without even feeling that what they are eating or anything and for a long time. Some of us eat very heavy food like honey and meat as well on occasions. When it is a wedding, people eat a lot and have heavy meals” (Participant 14). The interviewed women stated that the food in GCC countries is heavy and oily causing them to gain more weight. One of the women described the type of food in GCC saying that: “Most of our foods are fried and oily” (Participant 4). Another one, describing the preference of the type of food said: “We eat more and love heavy meals” (Participant 7).

This finding is similar to the findings presented by Keller, Fleury & Rivera (2007). These investigators studied seven Mexican-American women to assess the relevance of visual methods focusing on cultural and ethnic dietary intake. The women in this study took photographs of their food intake, food preparation and their food consumption context. One of the main findings of this study was that cultural food preparation contributed to the weight gain among these women because food was considered an important part of cultural gatherings and celebrations among these women.

Respecting older adults and not allowing them to move. Respecting older adults and not allowing them to move contributed to weight gain, was considered as an etiology. It was considered as a perceived barrier as the women in this study

thought that this might not allow them to move causing lack of physical activity and making them gain weight. As a result, respecting older adult and not allowing them to move was considered an etiology and barrier to weight management.

In the GCC culture, not allowing the adult to work at home or do anything and doing everything for them is a gesture of respect for them. Daughters show respect to their mothers by working at home instead of their mothers. Four of the women described this by saying: "They [mothers] may gain weight as they are sitting, relaxing, they do things for them and bring food and whatever they need to them. In our culture, even if we see an older women shopping, we say oh God, doesn't she have any body at home who can help her and do things for her?" (Participant 6). "Their [mothers'] daughters and children help them usually and do their work instead of them…Because they are their mothers and they are obliged by the religion to listen to their mothers' orders. They usually take care of their parents and respect them" (Participant 9). "I have seen old women in UK walking on the street but here older generation feels shy to walk. They don't go out and because of respect they are not allowed to do anything because their children do everything for them" (Participant 11).

Cultural practices. Cultural practices were considered an etiological factor as they caused obesity due to some practices that discouraged weight loss and encouraged weight gain. For example, reducing the activity level of a widow and encouraging high-calorie food ingestion in postpartum and pregnant women. It was considered a barrier, as these practices did not allow a woman to lose

weight, as women were obliged to follow them. As a result, cultural practices were considered an etiology and a barrier.

Cultural practices during special events such as the death of a husband, delivery of a child or gatherings play a major role in weight gain, as reported by five of the women interviewed. One of them described the practice after the death of the husband in their culture by saying: "I think in our culture if a woman's husband dies, they don't allow her to move. She is at home for 4 months and 10 days making it difficult for her to walk or do anything" (Participant 11). Another woman described these cultural practices and said: "I told you that I do think our culture has an effect. So, too much of something is bad but you know a bit will not hurt. For example, a woman when she delivers a child they bring her butter and honey on bread for her to have some energy. A bit of this won't hurt but they should not consume a lot of fat…Add to that the sweets that we serve or eat" (Participant 3). Another woman described this further by saying: "I think when we deliver we are given heavy meals and oily food. We are not allowed to move for the first 40 days and we are made to take care of the infant rather than something else. Even our food is brought to us and this food is usually very high in calorie. It is thought that women get tired and fatigued after delivery and she should not move otherwise she will be sick" (Participant 8). This is similar to the finding reported by Ali et al. (2010) studying 75 United Arab Emirates women (age = 20–60 years) who were at high risk of type II diabetes. Eight focus groups were conducted assessing weight-management behaviors and perceptions of these women. They found that cultural practices, such as invitations and guests, caused

over-eating among them, leading to weight gain. As a result, some cultural practices are considered barriers to weight management.

Media. Women in this study thought that media contributed to the process of weight gain and encouraged ingestion of high-calorie food and sedentary behavior. It was therefore an etiology. Media was reported by three interviewees as being one of the factors that causes obesity. One of these three women said that media has an effect on young children but not adults, as she said: "It [media] might affect children when they watch an advertisement for example of some fast food, and so they might ask for it and cry for that. However, I don't think adults are affected by that" (Participant 16). Another woman said: "We are watching TV, for example, and the advertisement of chocolate comes. You feel like having a bite, especially if you have it at home" (Participant 18).

Hot weather and air conditioning. The environmental climate was considered an etiology, as hot weather does not allow a person to tolerate the outside temperature to any extent or do any physical activity, thereby promoting a sedentary lifestyle, contributing to obesity and weight gain. This was considered a barrier to weight management, as women were discouraged from going out for physical activity or exercise due to the hot weather. Hot weather was reported by 14 interviewees. One of these participants said: "I think heat. When a woman feels it's hot and sunny weather, then she won't go out" (Participant 5). Another woman added that the heat makes a person lazy. She said: "It is the heat which does not allow you to walk and it makes you lazy" (Participant 9). One more woman reported air conditioning and the hot weather makes a person lazy to go

and walk by saying: “When you are sleeping in a cold environment, you feel lazy and you don’t want to walk under the sun and the heat” (Participant 3).

Places for physical activity. Lack of appropriate places for physical activity was an etiology for some women not exercising or doing any activity. As a result, this was considered as an etiology of obesity as well as a barrier as women perceived it as an obstacle that was faced by these women whenever they thought about weight management.

Three women emphasized the importance of having places for women only to exercise. For example, one of them said: “I think women should have places for physical activity and eat well and leave unhealthy food. Maybe a person can be better and healthier. They will reduce weight” (Participant 1). Another one said: “No, there is no place for women to go and do exercise away from men, and it might cause some women not to move or go out, especially if they are from conservative families who do not allow women to go out” (Participant 19). Another one described such a place by saying: “A place for women to go walking and exercising which can educate them about obesity and its consequences, as well as ways to reduce weight, will be a great help to all these women. They [Ministry of Health] should prepare a program for that which will be good” (Participant 8). Keller et al. (2010) discussed the environment and its effect on weight gain. Lack of access to nutritious food, physical inactivity and promotion of high-density food consumption were associated with higher BMI (Keller et al., 2010).

Safety issues. Worrying about safety caused some women not to go out to do physical activity, and was considered an etiology. Being worried about safety acted as an obstacle in front of some women who wanted to change their health behavior to more healthy ones, i.e. physical activity. Safety issues were considered as the barrier to weight management.

Safety for exercising outdoors and away from home was a major issue and was discussed by 13 women. Safety issues included having no footpath, in most of the areas, accidents and being followed by men. One of these 13 women said: "There is no place where women can exercise except walking on the streets. And you know walking on the streets is very dangerous due to cars and men who can disturb you while walking – but people are still walking who want to walk. But you still can't walk alone [due to safety issues]" (Participant 4). Another woman who is living in a new area added: "Currently, we don't even have a footpath at the road here in this area. As you walk, you will see cars coming and it is not good and not safe" (Participant 8). One more woman described safety issues by saying: "It is not safe to walk, as I said before. We hear about a lot of things like girls were followed by men or even accidents that happens on the road" (Participant 17). Similarly, Keller et al. (2010) discussed that high crime rates in the neighborhood and unsafe environment were associated with higher BMI.

Modernization. Modernization, including the availability of frozen food and restaurants, was an etiology to weight gain as the women who were interviewed thought that due to modernization the activity level and the type of food consumed changed, which led to weight gain. It was considered a barrier to

weight management, as it promoted a sedentary lifestyle and did not allow a person to move.

Modernization, like having cars and lifestyle changes, were described by 7 women as an environmental barrier. Having cars and housemaids were very often cited as barriers to weight management by these perimenopausal women. One of the women said: “Ideally, it is better to walk – for example, to the neighbors – and nearby houses, but we don’t. We always use cars and this is one of the things that made us lazy. We kept everything on the cars” (Participant 2). Housemaids were thought to be one of the barriers to weight management as well. One of the participants stated: “I think it is good to have housemaids for this reason: because they will look after the children while you go walking or exercising. However, housemaids are not good because they make you lazy. You won’t do anything. People depend on the housemaids and gain weight. I think it contributes to weight gain” (participant 8). Another woman said: “In Europe and all the other countries, people walk or use bicycles and all. This gives them a chance to practice some physical activity to lose more weight. However, in our GCC countries we are so dependent on cars that if it was possible for us to insert our cars in our bedrooms, we would have” (Participant 19). One of them even described the new lifestyle of these women by saying: “They eat but never move. Most of the women have housemaids who help them in house chores and I feel that is a good reason for not moving. They ask all to bring water, tea or anything. They don’t move, and gain weight” (Participant 9).

The availability of frozen food due to modernization was considered an etiology by these women as they believed it caused obesity and weight gain. It was also a perceived barrier to weight management as they felt there was difficulty in obtaining fresh food. Six of the nineteen women reported frozen food as an environmental factor. One of them said: "Food previously was not like this. Yes, there were freezers but you still will eat more vegetables and you will bring it today from the market and will bring some more 2 days later. Now, we keep them in fridges for 4 days. The meat and chicken are in the freezers and they are kept there [the shops] in freezers and here, too, we keep them in freezers. That's why we gain weight" (Participant 1). One of them added that there might be chemicals in these frozen foods that are making people gain weight. She said: "I think it [frozen food] does because all are frozen and may be it have some chemicals which affect us. In our childhood, our parents used to bring everything fresh, that's why women of olden days were not that obese or overweight" (Participant 8).

Modernization increased the availability of restaurants and promoted dining out. These restaurants serve high-calorie foods, contributing to weight gain. Restaurants were discussed by four women as a factor causing obesity in GCC countries. One of these four women said: "I think people dine out and that makes them gain weight" (Participant 10). Another one justified the reason behind dining out being a cause of increasing rate of obesity in GCC countries and said: "The food that is cooked in restaurants. For example, as I told you, we watch what we cook and the amount that we put. However, in the restaurants they don't watch

that. You don't even know what and how much they put of oil and other things" (Participant 19). A woman blamed modernization for bringing junk food into GCC countries, which caused weight gain and said: "I think its food that makes us gain weight. We eat junk food due to modernization and gain weight due to that" (Participant 14). Another woman added cars as part of modernization as environmental barriers.

View of obesity among the menopausal, and those approaching menopause, being seen as acceptable. The changing view of women's bodies as they grow older was suggested to be related to some women not attempting any weight management, and was considered an etiology. As women thought that the community accepted them the way they were, they did not attempt any weight management behavior gaining more weight, becoming both an etiology and barrier to weight management interventions.

Only four of the participants said that weight gain is acceptable among menopausal women. For instance, one of them said: "I think at this age it is more or less acceptable by our society. People don't look at the weight of these women" (Participant 15). In addition, six of the nineteen women expressed society's acceptance of those women who are approaching menopause to be overweight or obese. For example, one of these women said: "I don't think anyone looks at their weight" (Participant 18). Another one added: "They [people in the society] feel it is sort of normal and it is OK for them [women approaching menopause] to be obese" (Participant 19).

View of obesity among the premenopausal women as giving strength. This is considered as an etiology as some women might accept this notion and may try to gain more weight. It is a barrier to weight management as the women in this study believed that obesity is strength, rejecting all sorts of participation in any weight management program. As a result, this is an etiological factor that acts as a barrier to weight management. For example, one of the women interviewed thought obesity makes a person strong at all ages and said: "I think when I was obese; I did not have any problem. It's only after I lost weight I started being sick and having all these diseases. I used to run and go everywhere when I was obese. I was very strong and now that I lost weight I feel I cannot do anything" (Participant 7).

Onset and Cues to Action. According to EM, onset is the explanation of the onset of the disease by the participant. Cues to action is a "trigger" to alert the women to notice that they are gaining weight, causing them to consider taking part in weight-management activities or actually doing it. In this study, the factors that address this category are: body changes and clothes not fitting and advised by the doctor and family.

Body changes and clothes not fitting. Women in this study reported noticing body changes and their clothes not fitting them at the onset of weight gain. For some of them, this was considered a cue to action. As a result, body changes and clothes not fitting were considered as the onset of obesity, according to EM, and as cues to action based on HBM.

Among the nineteen women interviewed, four reported noticing body changes when they started gaining weight. One of them said: “I felt these [thighs] are becoming bigger. They were not this big. Yes, I was a bit overweight but my thighs were not this big. I gained more fat in my abdomen too. I was not able to wash myself after using the toilet too. Later, after my third daughter, I felt I gained more weight and became obese” (Participant 1). Another one added: “I gained weight after being diagnosed with diabetes. I first noticed it when my tummy became big and I started to be heavy on my legs. All my ailments started at that time” (Participant 9).

Seven women reported noticing that they gained weight after becoming conscious of their clothes becoming tighter. One of them described her situation by saying: “I knew that I gained weight when I tried my old dresses and they did not fit me. I weighed myself and I was increasing but I could not do anything about it because I did not have time and this was not my priority at that time” (Participant 12). Another woman discussed a similar situation by saying: “I think I started gaining weight after getting my first child. I noticed it when I was wearing my clothes and I found them being tight on me. So I knew that I was gaining weight” (Participant 14).

This means that women in this study reported their own methods of evaluation of their body weight and characteristics of obesity. They reported body changes and accumulations of fat, especially visceral fat, as well as dresses not fitting as their first cue for onset of obesity. This is similar to what was reported by Allan (1988) when she studied 37 white middle- and working-class women.

Allan reported that these women considered not fitting into their clothes as a sign of weight gain.

Advised by the doctor and family. This was considered as onset because these women's families, friends or physicians noticed that they were gaining a lot of weight, which caused them problems. So, they advised them to do something to manage this problem. It was considered a cue to action, as it instigated healthy behavior and weight management. As a result, doctors' or family members' advice were considered onset and a cue to action.

All of the nineteen women were asked about who advised them to do something about their weight. Among them, 13 were advised by their doctors and 2 by family. One of those who were advised by the doctor said: "As I said, the doctor told me about my risk of becoming hypertensive, so I started changing to a healthier lifestyle (Participant 18).

Pathophysiology and Perceived Susceptibility. Pathophysiology, according to EM, is the disease process perceived by a participant. Perceived susceptibility, a factor identified in the HBM is one's perceived probability of being affected with a condition.

Obesity pathophysiology. This was the process of developing obesity, making it the pathophysiology, and it was explained by these women as the one occurring in their body and increasing their likelihood of becoming obese. As a result, obesity pathophysiology was considered as an etiology and a perceived susceptibility to obesity.

All nineteen women described the pathophysiology as a combination of food, inactivity and physiological changes leading to fat accumulation in the body which causes overweight or obesity. One of the participants applied this on her own situation by saying: "Obesity comes from food. I eat, sleep and did not walk. Then, I had a housemaid that made the situation worse. Then, I had a lot of rice. So, what does food do to your body? It increases the fat in your body. This is what increases your weight" (Participant 10). Another one described the process by saying: "It is because of the food that we eat and we don't move that's why we gain weight…It is mainly due to fat or oil that is in the food. It gets into your blood and then rests in your body causing weight gain especially if you don't move. Fat causes a lot disease" (Participant 14).

Outcome and perceived severity. According to EM, outcomes include the consequences of a disease perceived by an individual. Perceived severity, according to HBM, is a person's awareness of the significance of the problem and its consequences. The factors under this category includes: changes in appearance; inability to walk, work or breath; diseases; disliked or disrespected by some community members; view of obesity among perimenopausal women as not good or a disease.

Changes in Appearance. Changes in appearance were an outcome of obesity and weight gain and they were the perceived severity that was felt by those individuals who were experiencing it. As a result, changes in appearance were considered an outcome of obesity that was considered among the perceived severity of obesity and weight gain.

Six of the interviewed women thought that a woman will have changes in her appearance as she grows older. They said she will lose her beauty and look ugly and older than her chronological age. One of those interviewed said: "I mean, when a person becomes obese their faces will look different and they look ugly. Their body change" (Participant 2). Another one added: "Don't forget that weight gives older-age features to you. It makes a person who is in 20s look like 30s" (Participant 18).

Inability to walk, work or breath. The inability to walk, work or breath were considered consequences of obesity and weight gain. They were perceived of as a gauge in the severity of weight gain. As a result, the inability to walk, work, or breath was both the consequences and perceived severity of obesity and weight gain.

Nine of the nineteen women interviewed said that obesity caused shortness of breath, inability to walk or work. They described obesity as a disease. When asked about gaining more weight on top of her current weight, one of them said: "I will be fatigued, heavy and breathless. I won't be able to walk or do anything" (Participant 14). Expressing obesity consequences in those who are obese, one of the women stated that: "They can't walk. They can't breathe. They walk a bit and start deep breathing. When they sit in a car, they cannot accommodate anyone next to them. They had to have an entire seat" (Participant 3). One of them further described the situation by saying: "Weight is increasing the problems. It is giving asthma and many other diseases. I am talking about myself. It has been 4-5 months that I am not walking. When I walk to the shop near my home, I feel I am

becoming short of breath. When I carry heavy weight I feel I am lost, as if something is holding my breath. I wasn't like this before" (Participant 1).

Diseases. Comorbidities in the women interviewed were the consequences of obesity and were considered the outcome of obesity. They were related to perceived severity of the outcome of obesity. Obesity was viewed by these women as a cause of many diseases. They described obesity as a cause of hypertension, diabetes, kidney stones, asthma and pain. One of the participants described the effect of weight gain by saying: "As I am gaining weight my blood cholesterol level is increasing and my tiredness is increasing. My skin is changing too. My eyesight is also becoming weak. These might also be due to my blood-sugar level or my blood pressure" (Participant 2). Another participant said that she had to face the chronic diseases once she gained weight and said: "Now that I gained weight, I have to worry about hypertension, cholesterol and heart disease. All of them came at once" (Participant 9). One of the interviewees said: "It [weight gain] is not good. Many things will come [like] diabetes, hypertension, heart disease, blood cholesterol and many more… If now my legs are painful what about if I gain more?" (Participant 13). One of the interviewed women stated hormonal imbalance as a consequence of weight gain. She said: "I have irregular menstruations due to the hormonal imbalance. Like I don't have my period for 2 months and then when I have it, I get it very heavy. I change every 2 hours…I usually don't have my period when I am breast feeding but after my last child, even after weaning, I did not get my period and when I got it, it was very heavy and it was continuing for 2 months and that caused anemia" (Participant 17).

The relationship between obesity and co-morbidities is well documented. Obesity causes or increases the risk for many diseases in these perimenopausal women, such as coronary heart disease, type II diabetes, cancers, hypertension, dyslipidemia, stroke, liver and gallbladder disease, sleep apnea, respiratory problems, osteoarthritis and some gynecological problems (CDC, 2009; Teede, Lombard & Deeks, 2010). However, effective interventions that are sustainable are lacking (Al-Zadjali et al., 2010; Teede et al., 2010).

Disliked or disrespected by some community members. Although some women reported that obesity encourages or gives strength to a woman, some other women thought that obese women are not respected or liked by many people. This dislikes and disrespect by some community members was an outcome of obesity. It was considered as a perceived severity by some women as these negative reactions made them think about weight management, and was considered as an outcome and perceived severity.

Two of the women stated that people dislike those who are obese or overweight and they do not respect them. For instance, one of them said: "I might feel bad about myself. I might get some diseases and it's not so good. People might not look at me with respect. I might not feel good about my health. My weight will increase and my knees will hurt as well as I might have heart disease" (Participant 4). Another one said that: "People observe them in a negative way" (Participant 8).

View of obesity among perimenopausal women as not good or a disease. Fifteen of the nineteen women thought it a bad thing for menopausal women to be

obese at this age. For example, one of these nine women said: “I don’t think it is good for them to gain weight. Not a lot. I think they should be in the middle. Not very obese and not very thin. Of course obesity causes problems because I can see myself” (Participant 2). Another one said: “They shouldn’t [gain weight]. It is a problem for them. They will get diseases more than the young ones” (Participant 17).

Thirteen of the nineteen women interviewed thought that obesity or weight gain is not good among those who are approaching menopause. They might lose their beauty; become lazy and/or not acceptable to society. For instance, one of these women said: “I don’t think they like them. Like one woman was saying, only obese women know how they feel. You see that all these women are trying to lose weight and join gyms and all for that” (Participant 5). Another participant added: “It is not good as obesity is a disease. They have complaints all the time. Sometimes, it is their legs and some other times it is their back, and so on” (Participant 12).

Seventeen of the women interviewed thought that GCC society does not accept obese or overweight premenopausal women. Some said they call them names and others thought that people have some stereotypical view about them. For example, one of them said: “I don’t think they [people in GCC society] like obesity. They usually advise them [premenopausal women] to go walk – to go and do something. I mean when a person becomes obese, their faces will look different and they look ugly. Their body change. This is what they advise them for: their own health” (Participant 2).

Treatment and behavior. Treatment of obesity includes the methods used by the participant to solve the problem or treat the disease, i.e. obesity or weight gain. Behavior is the action performed by an individual to solve a problem. There are many factors that were included in this category, such as physical activity, for example walking as a weight-management method, diet as a weight-management method slimming-tea and pills as a weight-management behavior surgery as a weight-management method, also diet combined with PA.

Physical activity, such as walking as a weight-management method. Physical activity was used as a treatment for weight management, as well as an action or behavior that resulted from perceiving the severity, the benefits, the seriousness, and overcoming the barriers to weight management. Consequently, physical activity – primarily – walking was reported as the treatment and the health behavior targeting obesity. Five of the nineteen women interviewed used physical activity –walking – as a treatment for being overweight or obese. When asked about what they used to prevent or decrease weight gain, the responses were primarily 'walking'. For example, a woman said: "I tried walking. Yes I walk. I don't even know how many kilometers? … I used to walk and my legs were not hurting me that much. I wasn't tired. My body aches were not there" (Participant 1). Another one tried walking as part of a group and said: "Walking, yes I did walk a lot and I am continuing doing so even now. I used to collect women from the neighborhood and go walking" (Participant 5).

Diet as a weight-management method. Diet was reported to be a treatment, as it was used for weight management. In addition, diet was a behavior

that followed the perception of the severity and its benefits in weight management, and was both a treatment and behavior. Four of the women tried diet only. Three of them said that it did not work. For example one of the three women said: "I feel when I reduced the amount of food that I have eaten, I did not reduce" (Participant 2). However, one of the four women said that it was helpful for her and talked about her experience saying: "Dieting. I started a good diet, like I stopped having heavy meals. I had brown bread and fruits and vegetables. So, I lost a lot. However, I cannot do the same because I get tired now due to hypertension and all these tablets" (Participant 10).

Slimming-tea and pills as a weight-management behavior. Some women reported using slimming adjuncts for weight management. The adjuncts were considered as treatments. The use of such methods for addressing weight gain was behaviors that occurred due to the perception of its benefits and perception of severity of weight gain or obesity. Of the nineteen women interviewed, 10 said they tried one of these methods. All but one said that they aware not effective. One of these women said: "These [pills] are not beneficial at all. They make you gain instead of losing" (Participant 6). One of the ten who used these products shared her experience, saying: "Yes [slimming pills worked]. I lost weight but the supplying agent stopped supplying. So, I stopped having it." When asked if she gained weight gain after quitting, she said: "Yes I did gain – and quickly" (Participant 16).

Surgeries as a weight-management method. Surgeries were used as a treatment for obesity and were an action taken after perceiving its benefits and the

severity of obesity, and this factor was considered as a treatment and behavior. Only one woman talked about weight-management surgeries. However, she said: "I think they are good but it should be done by an expert. I have seen people who did surgeries and I think they are good" (Participant 19).

Diet combined with PA. Diet combined with physical activity was used to solve the problem of obesity, and categorized as treatment, and was performed due to the perception of its benefits and the severity of obesity. Of the women interviewed, 12 tried diet in combination with physical activity as a treatment. All of them were satisfied with the results. For instance, one of them said: "I went to the gym. I lost a lot. If I make an effort and go to walk and have a healthy diet, I will lose a lot. Now, I am walking and eating normal food which does not have much fat and it is not high in calorie too" (Participant 10). Another one regained her weight soon after she quit her diet and exercise program and said: "I tried to lose by diet and exercise, and I did lose, but soon after that I gained everything back again as I did not continue" (Participant 19).

Treatment and perceived benefits. Treatment is characterized as the methods used by the participant to solve the problem or treat the disease, i.e. obesity or weight gain. Perceived benefits are the realization of the specified behavior's ability to produce positive outcomes or reduce negative consequences. These include factors such as: Physical activity promotes well-being; physical activity promotes emotional relaxation and control of anger; physical activity promotes weight loss; physical activity makes you look younger; need for awareness-raising efforts in schools and organizations.

Physical activity promotes well-being. Women in this study viewed physical activity as a weight-management activity. As a result, physical activity was considered a treatment, according to EM, as well as a perceived benefit within the HBM. Women thought that physical activity promoted well-being and this was one of its perceived benefits. Physical activity promoting well-being was a perceived benefit of the treatment of weight gain, i.e. physical activity.

Of the women interviewed, 3 said that physical activity improves blood circulation. One of them said: "I do feel that physical activity has many benefits. For example, if you move, your blood will move around your body. Your legs pain will reduce... also your blood circulation will be better and your menses will be regular. Some people say that they get tired when they have their period. Now, I can see in myself when I don't do much activity I became tired when I had my period" (Participant 1). Many studies reported health promotion and wellness as the benefits perceived by some of those who participate in physical activity programs such as Yoga (Atkinson & Permuth-Levin, 2009).

Physical activity promotes emotional relaxation and control of anger. While physical activity was considered as a treatment for weight gain, emotional relaxation and anger control were the benefits of physical activity by the women in this study. Physical activity promoting emotional relaxation and control of anger was viewed as the benefit perceived from the treatment.

Five women thought that physical activity would promote relaxation and improve anger management. One of the participants described this by saying: "Emotionally relaxed… I don't know, but I feel in that way, but yes, I feel relaxed

on the day that I walk. I even sleep well that night. It's not for losing weight only but I also become relaxed. If I walk for 5kms, I would be more relaxed" (Participant 2). Another one said: "I am not one of those who do a lot of physical activity and sports, but when I used to go for physical activity, I used to come back in a relaxed mood. It was helpful in controlling my emotions and my temper. You feel that you did something for yourself" (Participant 19).

Physical activity promotes weight loss. Physical activity was viewed as the treatment for weight gain – and promoting weight loss was the main perceived benefit of it. One of the seven women who stated that physical activity can enhance weight loss explained that: "Physical activity dissolves the fat and makes a person lose weight. I think your muscles will grow stronger and bigger" (Participant 6). Another one stated: "It moves your body and blood circulation. It maintains health and reduces your weight. It helps you in weight management" (Participant 15).

Physical activity makes you look younger. Physical activity was considered a treatment and looking younger was considered as a benefit of this treatment. For example, one of the participants added that physical activity helps in keeping a person look younger. She said: "I think they [women who exercise] are better than me. Even those who are older look younger than me" (Participant 17).

Need for awareness-raising efforts in schools and organizations. Awareness raising efforts were treatments for obesity, and factors related to awareness-raising efforts that may act as a preventive effort and a treatment for

the problem of obesity in GCC countries. Such efforts were thought to encourage people to adopt a healthier lifestyle to treat the problem of obesity in the community. Further, it was considered as perceived benefit, as raising awareness was thought to have the benefit of encouraging and facilitating weight management. The need for awareness-raising efforts in schools and organizations were both a treatment and perceived benefits.

Of the 19 women interviewed, eight believed that awareness should be raised regarding the benefits of weight-management activity and the consequences of obesity. This might motivate people to adopt a healthy lifestyle and lose weight. For example, one of them said: "I think if I get someone who advises and instructs me, I can definitely follow if I want to follow. Mainly, I think it is all about advising and educating people about weight management" (Participant 4). Another one described the content of what should be taught to people by saying: "Making people aware about obesity consequences and different types of physical activity" (Participant 9). Also, one said: "I think lack of knowledge is a big barrier to weight management, but once people know about obesity and its complications, they will definitely go and do something about it. They need to be educated" (Participant 16).

Chapter 5

CONCLUSIONS

In this chapter, the themes and initial interpretations are brought forward into the organizing and explanatory framework of the SEM for further exploration and elucidation. This chapter will also present a discussion of the strengths, limitations and clinical implications of the study. The discussion will follow the four levels of the socio-ecological model: individual, interpersonal, organizational and community factors that characterize women's management of perimenopausal weight management. Overarching these categories, the cultural and/or religious contributions that women from this Mideast sample might express which influence the HBM or EM variables. Each level will be discussed (Figure 1).

INDIVIDUAL LEVEL

The individual level's influence includes intrapersonal factors, such as knowledge, attitudes, behavior, self-concept and skills. There are several individual factors that are linked to obesity and weight gain during menopause. Some of these factors are modifiable and some are non-modifiable (Gambacciani et al., 1999). The women in this study reported both modifiable and non-modifiable factors that predisposed them to gain weight during this midlife transition. These factors acted as etiologies for weight gain and were also barriers to weight management.

Several modifiable factors associated with obesity were reported by the women interviewed as barriers to weight management and etiologies to weight gain. These included: being busy and having no time for weight management,

denial of experiencing any negative consequences of obesity in their life, lack of knowledge regarding obesity complications, being lazy and having a sedentary lifestyle, letting go of their beauty and looks, emotions, socio-economic status, developmental transitions, internal motivation, self-control and will power. These factors were similarly drawn from an extensive review of the literature underpinning this research study as factors contributing to weight gain of perimenopausal women (Keller et al., 2010). Our review of the multilevel perspective of weight gain including individual factors to the cultural or community factors that contribute to weight gain during menopause suggested that multilevel and multifactoral factors intersect at the menopause life-transition to contribute to weight gain (Keller et al., 2010). In this review, there were several individual factors discussed, such as changes in body-fat distribution and composition during menopause, genetic factors, hormonal changes, associations among SES, ethnicity, and overweight and life transitions.

In addition, the women in this study reported being busy and lacking the time for performing physical activity. Lack of time was reported as a barrier to using physical activity in weight management in other research studies in different ethnic and cultural groups, such as the Latina, Italian, Vietnamese, African-American and Mexican-American (Atkinson & Permuth-Levin, 2009; Bird et al., 2009; Gonzales & Keller, 2004; Kowal & Fortier, 2007; Walcott-McQuigg et al., 1995). Time was a perceived barrier among those women who practiced yoga (Atkinson & Permuth-Levin, 2009), among middle-age and older adults involved in physical activity at community centers (Kowal & Fortier,

2007), among Mexican-American women due to caregiver activities (Gonzales & Keller, 2004) and among the Vietnamese women (Bird et al., 2009). Time constraints to prepare low-calorie meals, participate in weight-management activities or engage in any exercise due to family and job responsibilities was also reported by African-American women (Walcott-McQuigg et al., 1995).

Some women in this study denied experiencing any negative consequences of obesity in their life, despite their suffering from chronic diseases such as hypertension, diabetes and arthritis. This might be due to the lack of knowledge regarding obesity and its relationship with such diseases, as some women reported. All of the participants expressed an understanding of the basic pathophysiology of obesity and also reported some of its complications. However, they failed to report all the consequences and identify the link between obesity and its complications. Some research reports that individuals with more knowledge are more likely to lose weight than those without such knowledge (Klohe-Lehman et al., 2006; Roach et al., 2003; Swift et al., 2008; Thornton et al, 2006; Wardle & Waller, 2000). Lack of knowledge about obesity and its complications might have caused these women to deny any negative experiences that resulted from their obesity. Thus, women did not perceive the severity of obesity leading them to live an inactive or sedentary lifestyle. This finding supports Musaiger's (2004) statement about obesity in the Eastern Mediterranean Region. He reported that lack of awareness of weight-gain consequences in this age can contribute to weight gain among these women (Musaiger, 2004).

Moreover, in spite of lacking knowledge of both obesity complications and the link between obesity and its complications, all of the women in this study perceived physical activity as beneficial to weight management during the life-transition of menopause. They thought that physical activity could promote well-being, emotional relaxation, control of anger, weight loss and a younger look. Health promotion and mental-health improvements, as well as physical attractiveness, are considered benefits of weight management that encourages or motivates individuals to lose weight (Riebe et al., 2003; Walcott-McQuigg et al., 1995). However, in this study, only a few participants reported being actively engaged in physical activity. This emphasizes the need for clarifying the picture of obesity, its pathophysiology and the process through which its complications are generated.

Sedentary lifestyle was also reported as a barrier to weight management. Sedentary lifestyle is one of the common factors apparent in obese/overweight individuals when compared to those who are of normal weight (Ali & Lindstrom, 2005). During the perimenopausal transition, the activity level of these women declined. They felt themselves 'lazy and unmotivated'. This may have contributed to their engaging in high energy intake and low energy output behaviors, increasing the weight of these perimenopausal women.

Many women lived a sedentary lifestyle and reported feeling too lazy to move and perform physical activity. Lack of motivation, being lazy and lack of time were reported as barriers to weight management among the interviewed women. They reported that they lacked motivation to get involved in any physical

activity. They were too lazy to move and they reported lack of time as they were taking care of their children and homes. This is similar to what was reported by the postmenopausal Mexican-American women as barriers to physical activity in an earlier study. They reported that not enough time, lack of social support, laziness, fatigue, lack of motivation, and health problems were barriers to their weight management (Gonzales & Keller, 2004).

Women in this study reported 'letting go' syndrome and being careless about their weight as a barrier to weight management. They reported 'letting go' their beauty and looks as they grow older. They were eating without thinking about the consequences of overeating or their inactivity. This might have been due to these women's satisfaction with life, in that the women had adequate material goods, e.g. food, shelter and had satisfying interpersonal relationships and children so that they were comfortable to 'let go' of their beauty and looks. As a result, they gained more weight. 'Letting oneself go' was previously reported to be associated with obesity and weight gain among menopausal women (Brogan & Hevey, 2009; Keski-Rahkonen et al., 2007; Ziebland, Robertson, Jay & Neil, 2002). The "letting go" might also be due to satisfaction with body image and larger body size. As Schwartz and Brownell (2004) discussed in a review of literature studying the relationship between body image and obesity, that body-image distortion is a good motivating factor for people to attempt weight management. However, in this study, some women exhibited satisfaction with their body image and denied the need for any weight-management intervention.

This prevented them from attempting to participate in any weight-management activity.

Internal motivation, self-control and will power were lacking in most of the women interviewed. This can be due to many factors, such as lack of knowledge, unperceived severity or unperceived benefits. Lack of will to lose weight was reported by Allan (1998) as a barrier among perimenopausal women from the United States of America. Internal motivation, self-control and will power were also reported as individual factors that motivate an individual to adopt a healthy lifestyle or get involved in a weight-management program. This finding is similar to that reported by Walcott-McQuigg et al. (1995) when they interviewed 36 African-American college-educated women. The women in that study described lack of control, lack of social support and lack of motivation as barriers to weight management.

Moreover, developmental transitions created an atmosphere that encouraged overeating, making these women gain more weight. Developmental transitions were reported as etiological factor that caused obesity among some women. For example, pregnancy, delivery and divorce were all linked with obesity. These changes disturbed the equilibrium in the life of these perimenopausal women (Perrig-Chiello, Hutchison & Hoepflinger, 2008) causing them to adopt an unhealthy lifestyle, resulting in weight gain. This is similar to the findings reported by Allan (1998) when she interviewed perimenopausal women from the United States. She reported that weight gain among these women later in life was thought to be related to lifestyle changes, life transitions, life-

stress and emotional responses. This suggests that obesity later in life among the perimenopausal women is most often linked with these factors in both western and eastern women.

Emotions had varying effects on different women interviewed for this study. Strong emotions made some of the participants eat more and some less. Some participants found that being upset and worried caused weight loss and others reported they ate more when upset or disturbed. Juarbe et al. (2006) reported that women gain more weight when depressed, as their physical activity reduces and energy is accumulated. In our research review, we discussed the contribution of the psychological factors to the problem of weight gain (Keller et al., 2010). We reported that there is extensive research on the relationship among obesity and menopause and its related psychological factors. The research reports several psychological contributors, but due to their interrelationship with each other, a causal relationship is difficult to determine. We further reported that although several psychological symptoms and factors were found to be contributing to the problem of weight gain in later life, similar findings were found in the younger population (Keller et al., 2010). This leads to a difficulty in determining a causal relationship among these factors and perimenopausal obesity. It is reported that heavier women experience more positive moods, but this association was based on correlational studies not exclusive to the problem of weight gain during menopause (Keller et al., 2010). There are no studies that clearly relate the effect of a woman's psychology or mood during menopause to her weight gain.

Like emotions, socio-economic status had different effects on different people, in these women's opinion. Women in this study had four different views of the effect of socio-economic status on weight gain. First, some participants believed that those women from high socio-economic status gain more weight due to overeating in parties and gatherings and not moving due to availability of housemaids at their homes. Second, some of the women in this study thought that women from poor families are thinner due to over-thinking about life problems. Third, other women thought that those who are rich can be slimmer if they seek professional help i.e., joining a gym or weight-management program. Last, some participants reported that there was no relationship between the socio-economic status of a woman and her weight. However, none of the women reported that those who are from low socio-economic status are heavier. Although unable to afford professional help, they were able to do other things, like walking in the neighborhood or eating a healthy diet. In other words, a woman's socio-economic status was not seen as a barrier to weight management, which contrasts what was earlier stated by researchers in western countries (Ali & Lindstrom, 2005; Fleury et al., 2003; Lahman et al., 2000).

The women in this study reported their own methods of evaluating their body weight and characteristics of obesity. They reported body changes and accumulations of fat – especially visceral fat – as well as dresses not fitting, as their first cue for onset of obesity. This is similar to what was reported by Allan (1988) when she studied 37 white middle- and working-class women. Allan reported that these women considered not fitting into their clothes as a sign of

weight gain. In addition, all the participants in this study perceived obesity as a disease with harmful consequences. Obesity was thought to cause changes in women's looks, inability to walk, work or breathe, diseases, fatigue and weakness, emotional problems, and lack of respect from others. However, despite being aware of these consequences, only a few of the women in this study reported being actively involved in weight-management interventions. This might be due to the barriers reported by these women. Hoke et al. (2006) reported similar findings in their study involving Mexican-American women. These women were found to be aware of obesity and its consequences, but failed to participate in any weight-management programs due to the following barriers: stress, lack of self-control, effort, control by others now and in the past, social influences, and cultural influences.

In contrast, some other women felt their body changes and not fitting into their clothes as their perception of their perceived severity of obesity, and tried weight-loss methods to manage their weight. This might have been due to dissatisfaction with one's body image and larger body size. These women attempted some weight-loss interventions. The most commonly reported weight-loss method was diet in combination with physical activity – that resulted in satisfying outcomes. However, some reported lack of control or regaining the lost weight. The other most commonly reported method was using slimming-tea or pills to lose weight. Most of the women who used these pills were not satisfied and reported either the pills were not effective or although they were effective, they regained the lost weight immediately after quitting them. Other weight-

management methods reported were dieting, physical activity (particularly walking) and surgery.

Women in this study acknowledged that age and genetic factors were non-modifiable factors that predisposed a person to obesity. They also reported being from a family that has obese people predisposes a person to obesity. While not completely elucidated, the genetic contributions associated with obesity in the general population might also contribute to the problem of obesity in menopause (CDC, 2010). Further, changes in the receptors that are associated with childhood obesity can also be the ones causing obesity in adults (Heid et al., 2008), as well as changes occurring in the genes of a person causing obesity in that person (Farooqi et al., 2007; Krude et al., 1998; Montague et al., 1997). Although some participants thought about weight management, being from families that has obese people made them think that they could not reduce weight due to non-modifiable factors in their body.

Further, many women reported hormonal changes due to aging or birth-spacing methods as a non-modifiable factor that acted as a barrier to their weight management and predisposed them to obesity. The women in this study discussed them as individual etiological factors predisposing a person to weight gain and obesity. They thought that they experienced hormonal changes due to aging process or the use of contraceptive pills, making them gain weight. Allan et al. (2007) reported that many of the symptoms experienced by menopausal women were due to hormonal changes and decreased ovarian function.

Physical-health problems were also reported as a non-modifiable factor that predisposes a person to obesity. They were seen as a barrier to weight management causing these women not to participate in any weight-management activity. Perimenopausal women experience weight gain in visceral and upper parts of the body (Lovejoy et al., 2008; Ley, Lees & Stevenson, 1992). Accordingly, four women from this study reported changes in their abdomen and upper and lower limbs. Carr (2003) reported that perimenopausal women experience changes in glucose and insulin levels; in this study, nine of the 19 participants were diagnosed with diabetes. These women reported inability to follow any diet or exercise programs due to their health problems. They perceived their health problems as a barrier to weight management.

INTERPERSONAL LEVEL

Factors at the interpersonal level describe social networks and social-support systems, such as families, friends, work groups, support groups and peer groups (Gregson et al., 2001). The interpersonal level is the level where all the family and friends of a person can play a role in their weight gain or weight management. The husband's preference for a larger body size and family and friends' acceptance of the way an obese perimenopausal woman looks were reported as barriers to weight management and etiology of weight gain. Some women in this study reported that their men accepted the way they look. This might be due to lack of awareness about obesity, obesity consequences and weight-management interventions discussed by these women earlier. This lack of awareness or perception of the consequences caused these women to 'let go'. As a

result, they gained more weight. This supports the findings of Allan et al. (1988) that discussed men's preference of a larger body size acting as a barrier to weight management among some women in United States of America.

Allan (1998) also reported that obesity was linked with early stages of life, i.e. childhood, by the American women that she interviewed. A similar finding was reported by the women in this study. Some women thought that their mother had contributed to their problem of weight gain. They thought that their mothers believed that their children's ability or willingness to eat was a sign of being healthy. The participants' own mothers continued in their maternal responsibilities of food preparation and ensuring food and meals for their adult children. This became a barrier to weight management and caused overeating and fat accumulation in the body of their children, i.e. the participants.

Some participants reported the lack of external motivators, such as lack of support from family and friends to lose weight or get involved in weight-management activities, as barriers to weight management. Women reported that due to their family and friends' acceptance of their body size, they did not motivate or help them to participate or comply with any weight-loss program. As a result, some of these women reported that they were busy with house chores. Their husbands did not help them and they did not have anyone to do things for them especially when their children were young and not able to take care of themselves or help at home. These women emphasized that there was no one to replace them do their work at home or baby-sit their children if they were not at home or busy doing some exercise. Compounding this, the families and friends of

some participants did not feel the need for them to lose weight. This finding is similar to what was reported by Keller and Hargrove (1993) when they studied the health beliefs and cardiovascular-health behavior in young African-American women who were 18 to 40 years old. They found that the women in their study reported that lack of support from their family and friends resulted in the sabotaging of healthy behavior. This was due to the acceptance of larger body sizes – and this finding was salient among the women in this study with Mideastern women.

The lack of social support was one of the factors that was reported by Ali and Lindstrom (2005) as common among overweight and obese women compared to normal-weight women. This finding is similar to what was reported by Gonzales and Keller (2004) when reporting the barriers to weight management among Mexican-American women. They reported lack of support as a barrier to weight management among these women.

Moreover, the participants in this study reported that not allowing older women to move or engage in physical activity is a sign of respect in GCC countries' culture and Islamic religion. For example, younger family members do the house chores instead of the older members. This is considered a sign of respect for older women. On the other hand, it helps in fat accumulation in the body of the older women due to reduced activity level.

The advice of doctors or family acted as a cue to action for some of the women interviewed. They started being more concerned about their weight following advice from healthcare professionals and family members. This finding

emphasizes the importance of the support and motivation that a woman can receive from those who are related to her, i.e. her friends, family or those who exert some influence, such as her healthcare providers. Some other women further elaborated by emphasizing the value of walking as a group. These women preferred to be involved in weight-management activities as a group as this further motivated, supported and controlled them to adhere to the program. Lambert et al. (2005) supported this finding, as they reported that many people think that those programs providing group support are motivating and beneficial.

ORGANIZATIONAL LEVEL

The organizational level includes institutions and organizations, such as religious organizations, worksites, schools and healthcare settings (Gregson et al., 2001). Factors in this level are associated with the organizations that a person belongs to, such as different community or religious organizations.

The women in this study reported that there was a general decrease in societal awareness related to obesity and sedentary-behavior consequences in schools and organizations, and was one of the main barriers to weight management. They believed that schools are the primary places that teach a person how to live a healthy life; they recommended that early interventions should be implemented in schools and colleges and imbed the habit of exercising and living a healthy life for the prevention of midlife or older-age obesity.

COMMUNITY LEVEL

The community level of influence describes relationships among organizations, community norms, and mass media (Gregson et al., 2001). In this

study, religious and cultural factors are combined under the community level, because the culture and religion are inseparable s in the GCC community.

All the participants in this study were Muslim women from Oman, one of the six GCC countries. Although different, GCC countries share similar culture and lifestyle. Islamic traditions and lifestyle and Bedouin values have a great impact on the lifestyle of the individuals living in GCC countries (Rice, 2003). The impact of both the culture with religious underpinnings impacted both health behaviors and lifestyles, and these impact obesogenic tendencies.

One of the participants believed and discussed that weight gain only takes place if Almighty Allah has planned it for you. Although Islam is the religion that believes that all that happens to you was previously planned by Almighty Allah, it also believes that Almighty Allah has given every person a choice not to put his/her life in jeopardy. This is supported by the Holy Quran: 'Do not cast yourselves into destruction by your own hands' (2:195). As a result, some women might misunderstand some religious concepts and become careless of their weight and obesity consequences. For example, they believe that their being obese is planned and caused by Almighty Allah's will. They believe that He will be the one who will plan and cause them to lose weight and become thin. They do not perceive the importance or the benefit of their input in this process or the need for doing anything contributing to their weight management, forgetting that Almighty Allah warned them against the factors that can destroy them or cause them any harm, such as overeating or ignoring one's health and giving them the choice to act for their own good.

Islam does not encourage weight gain and overeating. Al-Miqdaam ibn Maadiy-Karib [a companion of Prophet Mohammad (Peace Be Upon Him)] said on his authority that he heard Prophet Mohammad (Peace Be Upon Him) saying: 'No human ever filled a vessel worse than the stomach. Sufficient for any son of Adam are some morsels to keep his back straight. But if it must be, then one third for his food, one third for his drink and one third for his breath'[Ahmad, At-Tirmidhi, An-Nasaa'I, Ibn Majah – Hadith sahih]. In addition, the Prophet Mohammed (Peace Be Upon Him) also said: 'Food for one is enough for two and food for two is enough for three and food for three is enough for four'[Ahmad, At-Tirmidhi, An-Nasaa'I, Ibn Majah – Hadith sahih].

Many women reported some religious factors as being barriers to weight management. One of these factors is the religious obligation on women who reached puberty of covering all body parts except for the face and hands except in front of their fathers, brothers and husbands (Prophet Mohammad [Peace Be Upon Him]; Chapter 24, Verses 30-31). In addition, this attire should not be eye-catching, sheer or form-fitting to attract others or uncovers the shape of the body. Women reported dressing up in these loose clothes as being a barrier that they did not realize the weight gain that was taking place throughout these years. Some of the participants reported the difficulty of exercising or going for a walk in these types of dresses.

Cultural lifestyle constraints were salient contributors to obesogenic behaviors. For example, being part of conservative families, women were not allowed to go out alone. This acted as a barrier for these women. They were

unable to participate in physical activity when they needed as they had to have a companion with them. Many times, they failed to find a companion, often making them lose interest in physical activity or weight management. These women discussed the availability of health clubs and gyms in their neighborhood where they can go to exercise with other women. However, these health clubs are expensive compared to the cost of living and are not affordable by all.

In addition, some of these women did not prefer to go out alone. Women in this study reported that due to having no partners to go out with, they were unable to go for daily walking or exercise. This was due to cultural, religious and personal preferences. Some of them were not allowed to go walking alone due to cultural or religion reasons and some felt that they would be motivated when they go with a group. Some others felt that it was safer to walk with a partner than going alone. This finding is similar to what was reported by Gonzales and Keller (2004) studying the older Mexican-American women who reported the need for a companion in order to adhere to physical activity programs, as they felt the companion would help in motivating them to adhere to the program.

Several cultural factors were salient in the community that may have impacted on the women's perceptions about menopausal obesity. For example, some women thought that cooking and eating values have a major contribution to obesity among the perimenopausal women in GCC countries. Food is an important part of celebrations in GCC countries and generosity is an important value in its culture (Rice, 2003). Food is an important part of these women's cultural gatherings; the guests in this culture are fed out of courtesy. The women

interviewed described the food in GCC countries as heavy, oily and high in calories. This type of food leads to weight gain among people in GCC countries, increasing the prevalence of overweight and obesity, especially in such a culture that people visit each other almost every day.

Moreover, certain cultural practices during certain life events, such as pregnancy, delivery or death of a spouse, may cause obesity, as they are perceived as a barrier to weight management for a woman going through the same experience. Women reported that after delivering a child, the mother is fed heavy meals of high-calorie food and is not allowed to do heavy house chores. Similarly, those who experience the death of their spouse are not allowed to do any activity out of their houses for a certain period of time. These practices leads to the accumulation of fat and weight gain among these women, increasing their susceptibility to obesity and its complications.

Furthermore, the GCC's cultural acceptance of obesity among menopausal women and those who are approaching menopause further complicates the problem. This acceptance of a larger body size can make these women feel 'normal' and accepted even when they are overweight or obese. These women accept themselves as they are because the community and culture accepts them that way. As a result, they will not think about weight management as they do not perceive the value of it. This encourages these women to gain more weight without being aware of the consequences of obesity and overweight (Baturka, Hornsby & Schorling, 2000; Lynch et al., 2007). This acceptance by the society of larger body sizes among menopausal and premenopausal women might be due

to lack of awareness, which was discussed earlier. People are unable to see the link between weight gain and serious diseases.

However, one cannot conclude that the society within which the women in this study resided is accepting of obesity among perimenopausal women, because the societal view of perimenopausal obesity is conflicting. On one hand, the society accepts weight gain and obesity among those who are or are approaching menopause and viewing obesity as an indication of strength among those who are premenopausal. On the other hand, they consider obesity as a disease and not a good thing. This conflicting societal view further complicates the problem, as women from different environments might perceive weight gain differently: some might not view it as a problem and some others might view it as a severe one.

The media was thought to contribute to the problem of weight gain among these women. Some women reported the media was a barrier to weight management for them. They specifically discussed the effect of advertising junk food on children and adult dietary intake behaviors. They described these advertisements as motivating factors for eating high-calorie diet and gaining more weight.

In addition, modernization in GCC countries – evidenced by the availability of cars, housemaids, availability of frozen food and fast-food restaurants – was considered a barrier to weight management for women in this study. The World Health Organization (2010) considered modernization as a factor that produced changes in lifestyle leading to consumption of high-calorie

food and inactivity causing weight gain. This became a barrier to weight management. This availability of modern 'comforts' and conveniences among the Mideastern women in this study intersects with the social and cultural acceptance of larger body size and the cultural practices of older women having children and being relieved of their household tasks creates a 'perfect storm' or constellation of factors that contribute to obesity and poor weight management among these women.

Furthermore, several environmental factors served as barriers to physical activity in weight management and were reported by the women interviewed. These factors were: hot weather, lack of availability of fresh food, lack of places for women to exercise and an unsafe environment. Poor weather as well as poor safety in the communities were previously discussed in other studies as barriers to weight management (Bird et al., 2009; Fleury et al., 2009; Kowal & Fortier, 2007; Miles & Panton, 2006; Pepin et al., 2004;Wilcox et al., 2003). Women were unable to go out and walk on footpaths and in public places due to safety and environmental issues. This made them unable to perform regular physical activity, contributing to more weight accumulation and obesity.

The women in this study described several factors that they perceived to be impacting their accumulating weight during the perimenopause that were constructed around individual level beliefs. These included genetic contributions and personal motivation or lack of motivation that impacted individual choices related to healthy behaviors regarding weight. Of greater interest were the interpersonal and community or society factors that influenced the participant's

health behaviors regarding weight gain or weight management. These factors were shown to be inextricably entwined with the cultural beliefs and religious teachings among this particular cultural group. These factors included 1) conflict among women's knowledge of the ill health consequences of obesity and family and society's acceptance and values related to large body sizes, particularly among women who had accomplished life successes such as bearing and raising children and their position in society as older women 2) some level of conflict among religious teachings of bodily self respect for healthy behaviors and cultural values and sanctions about women exercising in public (for women) and engaging in culture specific clothing that reduced self and others awareness of weight accumulation, high fat food consumption as part of cultural practice, and 3) the somewhat more vague conflict of women partaking in a society/ community that enjoys the 'gains' of fast food and comfortable transportation in a severe weather environment that does not encourage out-of-doors activity. Clearly, women who express conflicting debate between cultural values, teachings and behavior patterns that involve eating and exercise patterns may require further exploration in motivation factors to manage weight that are enhanced by the health teachings within the culture .

These multiple factors that play a role in weight gain among perimenopausal women in GCC countries become increasingly important as we consider how entwined the perceptions are of women who have deep and enduring ties to their culture and religion. Data regarding the GCC women (reported earlier) acknowledge the social 'habits' of the GCC women that are

similar to other cultural and ethnic groups including dietary habits, consumption of high-calorie diets, lack of physical activity due to changes in environment, a modernized lifestyle and changes in socio-economic factors that contribute to the problem of weight gain in midlife women (Musaiger, 2004). Several other factors that contribute to the problem include beliefs and attitudes, cultural factors and lack of awareness of weight-gain consequences in this age (Musaiger, 2004).

The results of this study indicate that these attitudes and beliefs have a deep impact on the health behavior of women in GCC countries related to weight management. Perimenopausal women experience many changes in their lives, including physiological, psychological, social and economical changes that contribute to weight gain. The complexity of these changes and their effect on the perimenopausal women calls for more clarity in describing sources for intervention development.

Limitations. There were some limitations of this study. First, data was collected from only one of the seven GCC countries. Although similar, there might be some differences among these countries that might affect the transferability of the findings to women in other countries. In order to confirm or debate the findings of this study, replication of it should be done in other GCC countries. In order to ease the process of replications in the future, the study process and procedures were described in details.

Further, the sample was done using non-probability sampling technique: convenience and snowball-sampling techniques. For the convenience-sample recruitment, some health centers were contacted and a clear description of sample

recruitment and enrolment was provided to the Head of Nursing Departments of these health centers, who were met individually. Despite that, only one health center was cooperative in providing the information necessary for adequate recruitment. However, the snowball technique assisted in recruitment and most of the participants were recruited using this technique, and provided a diverse sample.

TRUSTWORTHINESS AND AUTHENTICITY

The trustworthiness and authenticity of this study is enhanced through: objectivity or confirmability; reliability, dependability or auditability; credibility or authenticity; and transferability, fittingness or applicability.

Objectivity or confirmability. Objectivity or confirmability is the extent to which the data collected can be confirmed and the conclusions generated are dependent on the research inquiry and the participant or the investigator (Miles & Huberman, 1994). The general procedure of data collection was described in detail so that a complete picture was obtained. The data collection, entry, transcription, analysis and conclusion-drawing process was described in detail so that an audit trail could be created. The source of the conclusions and the data from which they were drawn were exhibited. All the methods and procedures were described in detail and in sequence so that they could be followed easily. The investigator described personal assumptions, values and biases as they appeared and their role in, and effect on, the study. All other possible conclusions were considered. The applicant's research advisor actively reviewed the data collected and suggested areas of potential bias, distortion or any contradictory

thoughts not described. The study data was saved in a secure file and made available for any re-analysis (Miles & Huberman, 1994).

Reliability or dependability or auditability. Reliability or dependability or auditability is the extent of stability and consistency of data collection over time with different investigator and methods (Miles & Huberman, 1994). The research questions were stated clearly and the congruency of the study design with the questions was described. The role of the investigator was described clearly. The findings were described clearly. Paradigms and analytic constructs were specified. Data was collected from perimenopausal women in settings and times of their choice. The investigator's research advisor audited the data collected and the research process, such as the coding process, for any signs of bias and provided timely feedback (Miles & Huberman, 1994).

Internal validity, credibility or authenticity or truth value. Credibility or authenticity or truth value is the criterion that determines whether the research findings are believable (Miles & Huberman, 1994). The descriptions were detailed and meaningful so that the reader can understand and make sense of the narrative and the conclusions. The study design and methodology were congruent with the study questions. Data categories were related to the three models used in the study. The relationship between the concepts was described clearly. Any unclear or vague area was identified. All evidence collected and the process of managing it was clearly described. All negative evidence, if any, was described. After transcribing data obtained from the interview, each participant was asked to review the transcripts produced by the investigator for accuracy and if the

participant was unable to read, the investigator read the transcripts to the participant. All predictions and hypotheses were described and their accuracy was determined and clearly described (Miles & Huberman, 1994).

External validity, transferability or fittingness or applicability. Transferability or fittingness or applicability evaluates the transferability of study findings to other situations and the applicability of the findings in similar situations (Miles & Huberman, 1994). A complete description of the study sample, setting, methods, process and the role of the investigators and participants in the study was included. All possible threats to transferability were described. The sampling technique was suitable for study purpose and design and was expected to generate a diverse sample. The boundaries of transferability were described. The findings were described in details in order to permit transferability to different settings. Extensive quotations as well as comparison of the codes, themes and results with the literature available were used for enhancing transferability of results. The histories, stories and processes were described in sequence. Settings where the findings can be applicable or tested were suggested. The process and procedures of the study were described in details in order to simplify or ease the process of replication by others in future (Miles & Huberman, 1994).

Utilization, application or action orientation. Utilization, application or action orientation evaluates the 'goodness' of the study, or the effect of the study on the participants and the investigator (Miles & Huberman, 1994, p280). The findings of this study are made available to potential users. The findings were

described and future research topics and hypotheses were stated. The knowledge generated from this study may be used for raising awareness of the general public, investigators, decision makers and policy makers related to perimenopausal obesity. After stating the findings, a list of recommended action was specified. In addition, any special ethical concerns were described (Miles & Huberman, 1994).

Application to Clinical Research and Practice

This study examined the culturally specific views of perimenopausal GCC women concerning the causes and processes of midlife weight gain. It used semi-structured interviewing and conventional-content analysis. This study provides in-depth understanding and analysis of the perception of perimenopausal women of midlife weight gain among GCC women. The problem of overweight/obesity among the perimenopausal women in GCC countries was found to have many dimensions. These dimensions interacted at multiple levels (individual, interpersonal, organizational and community) and encompassed factors salient in both the HBM and Kleinman's model of disease and risk behaviors. The findings of this study suggest that weight-management programs targeting perimenopausal GCC women should be planned based on the multilevel factors that were cited by them. Obesity is a multifactorial problem and requires multilevel interventions to be directed towards solving this problem. This study is very important to the Omani healthcare system. To our knowledge, this is the first study done in Oman assessing specific views of perimenopausal GCC women concerning the causes and processes of midlife weight gain. The findings of this research can be used in clinical practice at different levels: individual, interpersonal, organizational and

community levels. The following section suggests some venues and situations in which the findings from this study can be used.

Clinical practice. Obesity is a problem that cannot be solved only by Omani nurses and their clients: different sections of the community should be involved. The findings of this study can be used in order to design weight-management programs that target the weight-gain problem and address the epidemic prevalence of overweight and obesity among perimenopausal GCC women. In order to produce sustainable weight-management interventions for their clients, nurses and healthcare professionals should design these programs to fit the socio-cultural and environmental life in which these women live. Further, the perception of these women of the weight gain, barriers and enablers should be assessed before planning these programs in order to motivate and encourage these women's participation in these programs. These programs should be developed in collaboration with different personnel: dietitians, physiotherapists, doctors, client and religious people. These culturally relevant weight-management programs should emphasize the importance of physical activity in managing these health problems. They should be tailored to meet the individual needs of these women. The women in these programs should be taught how to manage their time in order to find time for weight-management activities. Nurses should raise their clients' knowledge about obesity, its process and relationship with different chronic diseases. It should be clarified to these women that obesity does not only affect the look and beauty of a person. It is recommended that healthcare providers empower their clients with appropriate knowledge regarding obesity and

consequences to enable their clients to lose weight (Swift et al., 2008). For example, it is important to emphasize the importance of using a weighing scale rather than using their clothes as a scale. This will inform them about their weight gain earlier and will be easier for them to manage their weight.

It is also important not to concentrate only on the women who are interested in losing weight, but also involving their families and friends. This will create a motivating and supporting environment for continuing healthy behavior. This might also change the view of these women's husbands' regarding their preference for women with a larger body size. In addition to families and friends, healthcare workers should also take time to empower these women with the knowledge and skills necessary for weight management. They should encourage them to proactively and competently act in order to live a healthy life.

The notion of both cultural and religious influences on women's motivation and health behaviors is critical. Several considerations abound that are underpinned by this study results: 1) some women might have religious misconceptions about body size and cultural behaviors. For example, it is important to clarify the view of Islam in relation to obesity and weight management. These women should be reminded of the fact that the prophet Mohammad (PBUH) warned people against overeating and encouraged eating only one-third full of one's stomach. Women should be reminded that the religion discourages casting oneself to destruction and encourages physical activity and taking care of oneself; 2) The intersection of religion and cultural values and culture-based behavior, such as the behavior in some conservative families that do

not allow women to go out alone and not allowing older women to move as a sign of respect. Nurses need to educate the community about obesity complications, treatment and prevention and encourage families to support these women in adopting a healthier lifestyle. Nurses also need to explore ways to adapt healthy foods with traditional diet and safe and appropriate ways for women of differing cultures to exercise.

The findings of this study can be used in order to support weight-management programs in Omani schools and work places. School and occupational-health nurses can use the findings of this study to design weight-management programs which are suitable for their population in order to prevent weight gain in early life and manage weight in later life.

The findings of this study can be used in organizing societal awareness campaigns that raise public awareness regarding obesity and its complications. These campaigns can be organized by people from within communities in order to promote ownership and sustainability of the program. These programs should be culturally appropriate. They should focus on promotion of healthy lifestyle in the community, such as encouraging group walks and growing fresh fruits and vegetables in the neighborhood.

As the government is the only policy maker in these countries, the findings of this study suggest that all community stakeholders should be involved in designing a healthy community. For example: the police department can be used to provide safe places for physical activity; the municipality for designing and creating places for physical activity in the neighborhood; and shopkeepers for

increasing the availability of fresh and healthy food. It is also important to use the media to raise public awareness of the healthy lifestyle. There should be restrictions placed on junk- and fast-food advertising. Furthermore, restaurants should be encouraged to have special low-calorie food on their menus.

Clinical research. Findings from this study can be used for advancing obesity research to find a solution to the problem. For example, research is needed to design culturally relevant weight-management programs using the findings from this study and examining the outcome of such interventions. Due to cultural differences, it is expected that different cultures react variously to different types of treatment and the results of this study may serve as a basic guide for designing such programs. The findings from this study can be used in designing culturally relevant weight-management programs for perimenopausal women who are at risk for weight gain.

Specific factors were determined from this study that might serve as designated moderating factors, influencing designed-intervention effects, such as socio-economic status. Other factors gleaned from this study, such as mood states and emotions, might serve as mediating effects from which the design of interventions that modulate emotion and mood might be fruitful. In-depth exploration of these two factors is necessary to determine their effect on weight gain among these women.

Conclusion

This study was a qualitative descriptive study that examined the culturally specific views of perimenopausal GCC women concerning the causes and

processes of mid-life weight gain. The study used semi-structured interviewing (Fontana & Frey, 1998), and conventional content analysis (Berelson, 1952; Hsieh & Shannon, 2005; Krippendorff, 1980; Miles & Huberman, 1994; Stemler, 2001; Weber, 1990). To our knowledge this is the first study done in Oman assessing the causes and processes of midlife weight gain among the perimenopausal women. This study has presented the multilevel factors that influence weight gain among perimenopausal women in GCC countries. The study further assessed these factors based on HBM and EM. It discussed in-depth the relationship between these factors and obesity and suggested the situations and conditions in which the findings of this study will be used in clinical and research practice.

The findings from this research substantiate the utility of different models that were used to categorize the data. Women in this study defined etiological facets of obesity from hormonal to pathology; they identified and discussed barriers and cues to action, and they discussed significant cultural and some religious facets of weight gain and weight management. Interventions should be developed which employ approaches that employ theoretical models which are confirmed by research that builds upon these findings.

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Table 1.

Summary of Research Interventions in Weight Management in Menopausal Women

Study	Theoretical Framework, Sample & Setting	Problem Addressed	Study Design	Intervention Critical Inputs & Comparison Intervention	Outcome Measures	Effects
Aubertin-Leheudre, et al., 2007	No theory cited N=50 overweight/ obese, healthy PostM women; 50-70 yrs; Not on HRT, sedentary, wt stable for last 6months, nonsmoker, & moderate drinker, no medication affecting	WL with isoflavone supplement EX	Double-blind randomized study.	RCT 1-year intervention 3 one-hour sessions/week; isoflavones or placebo daily	Body composition, metabolic profile, BMI, percent abdominal fat	Significant effect of EX with isoflavone on body weight, total & abdominal fat mass, BMI, fat-free mass from baseline.

	glucose & lipid metabolism & absence of menses for 1year.					
Cussler, et al., 2008	No theory cited N=135 PeriM, age=40-55yrs; BMI=25-38 kg/m^2, nonsmoker & free from major illnesses.	To explore use of the Internet in long-term WL maintenance versus self-directed maintenance.	RCT	4-month behavioral WL intervention period followed by a 12-month WM period between internet vs. self-directed group.	Four components of behavioral change: physical activity, nutrition & healthy eating, social support, mind/body.	No significant WL changes between groups in the 4-month intervention.
Deibert, et al., 2007[26]	No theory cited N=72 women N= 22 preM, age= 43.7 +/- 6.4yrs; BMI= 31.0 +/- 2.4kg/m^2	WL intervention outcome on PreM vs. PostM women	Experimental Design	Meal-replacement & fat-reduced D. Meal replacement with soy-yogurt-honey preparation; guided PA program & comparison between PreM & PostM women.	BMI, fat mass, waist circumference, systolic B/P, triglycerides, glucose, leptin & cortisol	Both groups achieved WL (pre- vs. PostM: 6.7 +/- 4.9 vs. 6.7 +/- 4.4 kg). WL was due to a reduction of fat mass (-.3 +/- 5.1 vs. -6.6+/- 4.1kg,

	N= 50, PostM, age= 58.2 +/- 5.1 yrs, BMI=32.9 +/-3.7 kg/m^2					P<0.01).
Gallagher, et al., 2000[31]	No theory cited N=14 healthy weight-stable obese (30≤BMI≤40kg/m^2) PostM, age>55 & ≥5yrs since menopause; ambulatory, nonexercising, nonsmoking & maintained current body weight +/-3 kg in last 6 mo.	Dieting effect on FFM PostM women compared to FFM in younger women	Experimental Design	16 week WL treatment program; 1-2 year f/u on body composition of PostM women vs. younger women.	body weight, Fat mass	Mean WL was 9.6 +/- 3.0 kg (P<0.0001). FFM decreased 2.1 +/- 2.6 kg (P=0.006).

Giannopoulou et al.. 2005[24]	No theory cited N=33 PostM, age=50-70yrs, BMI>30 kg/m^2 & Type II DM & PostM $\geq$1	Effect of aerobic EX, hypocaloric high fat D; D plus EX on abdominal visceral fat loss	Counterbalanced Experimental Design.	One of three interventions: D, EX, D+EX.	Aerobic capacity, body composition, abdominal fat distribution	Decreased body weight (~4.5kg) & body fat percentage (~5%) with D & D+EX. This resulted in similar improvements in total abdominal fat, SAT & glycemic status. Only percent body fat decrease in EX. However, adding EX to D is important for VAT loss.
Hill, et al., 2007[27]	No theory cited N=38 obese PostM (FSH$\geq$25IU/L), age= 45-70yrs, BMI=25-39.9 kg/m^2.	Effect of EGCG supplementation combined with aerobic EX on reducing abdominal fat	RCT	3 X wk for 45 min EX at 75% MHR for a group receiving EGCG & control receiving placebo for 12 wk.	Body fat, Arterial Compliance, B/P, Heart Rate & Endothelial Function.	Waist circumference ($p<0.01$), total body fat ($p<0.02$), abdominal fat ($p<0.01$) & intra abdominal adipose tissue ($p<0.01$) reduced in both groups.
Irwin et	No theory	Effect of EX	RCT	4yr intervention,	Body weight,	Exercisers lost

al., 2003[17]	cited PATH Study N=168 sedentary, overweight, PostM women, age= 50-75 yrs; BMI≥ 24 & >33% body fat, nonsmoker & not on HRT.	& its level on total & intra-abdominal body fat.		treatment group (N=87) used EX facility & home-based moderate-intensity EX & control group (N=86) used stretching	waist & hip circumference, total body intra-abdominal & subcutaneous abdominal fat.	body weight, total body fat, intra-abdominal fat & subcutaneous abdominal fat. Significant dose response for greater body fat loss with increasing duration of EX.
Keller, et al., 2004[14]	Social Support N=29 sedentary PostM (surgical or reporting no menses > 6mo), age=45-70 yrs, African-American Women.	Effect of 2 intensities of walking on level of EX maintenance & cardiovascular risk factors on obese sedentary African-	RCT	For 36-wks group 1 walked for 3days/wk & group 2 walked for 5days/wk. Both walked at 65% target heart rate.	Total body fat, regional fat, blood lipids PAR & the Baecke	Mean BIA reduced ($p<.0001$); hip size reduced ($p<.03$) & significant differences among walking groups in body fat measures ($p=.01$) & WHR ($p=.03$).

		Americans				
Mohanka, et al., 2006[19]	No theory cited PATH Study N=173 sedentary, overweight/ obese (BMI=25–42 kg/m^2 or body fat >33% if BMI=24–25 kg/m^2), PostM, age= 50-75yrs nonsmokers, not on HRT & not suffering of diseases that affect PA.	Effect of 1 yr moderate intensity aerobic EX program on serum lipoprotein	RCT	Year long randomized moderate-EX vs. stretching trial	Total cholesterol, triglycerides, high-density lipoprotein, low-density lipoprotein.	Exercisers lost more body weight ($p<0.05$). % total body fat ($p<0.005$), intra-abdominal body fat ($p< 0.05$), & subcutaneous fat ($P<0.005$).
Nicklas, et al., 2003[22]	No theory cited N=124 sedentary, overweight/	Effect of lifestyle WL intervention in reducing	Experimental Design	6 month intervention hypo caloric D & low-intensity walking, 250-350 kcal deficit	Body fat distribution, body composition, abdominal fat areas, lipoprotein	WL was similar in Caucasians (25.4 +/- 3.6 kg) & African-Americans (23.9 +/- 3.6 kg)

	obese women, PostM (no menses for last 1yr), age=50-73yrs, healthy, nonsmoker, not on HRT. 72% Caucasian 28% African-American	total & abdominal obesity & improving CHD risk factors		D effect on Caucasian vs. African-American PostM women.	lipids, B/P	with Caucasian losing more fat mass ($p < .05$). Both groups decreased triglyceride & increased high-density lipoprotein cholesterol. Total & low-density lipoprotein decreased in Caucasian women ($p < .05$-$.0001$). No racial difference in abdominal fat lost, changes in lipids, fasting glucose & insulin, their responses during the oral glucose tolerance test & blood pressure.
Ryan, A., Nicklas, B, Berman,	No theory cited 63 overweight/	Effect of dietary induced WL &/or aerobic	Longitudinal, clinical interventio	6-month (3x/wk) program of WL only; WL + aerobic EX & WL+	Fat mass & Fat-free mass plasma insulin, leptin, & adiponectin.	In all women: BMI, body weight, & waist & hip circumference

D., & Elahi, D., 2003[23]	obese (BMI=25-41 kg/m^2), PostM (no menses >1yr & FSH >30 mIU/ml), age= 50-70yrs, weight stable & sedentary.	EX or resistive EX on Adiponectin levels	n study	resistive EX		decreased (P<0.001). Absolute decrease in percent body fat from 47 to 44%. Fasting concentrations of plasma adiponectin did not change but fasting plasma glucose, insulin, & leptin all decreased (P<0.001).
Tchernof, et al., 2001[30]	HBM variables & SE N=61 sedentary, obese (BMI= 35.6 +/- 5.0 kg/m^2) PostM (no menses >1yr), age= 56.4 +/- 5.2yrs	Effect of WL on C-Reactive Protein (CRP)	Experimental Design	1200 kcal AHA step 2 D.	Body weight, body fat & Plasma CRP levels	CRP positively associated with total body fatness (p<0.005), intra-abdominal body fat (p<0.02) & triglyceride levels (p<0.009) & glucose disposal (p<0.03). The average WL (14.5+/-6.2kg). CRP reduced with WL -32.3%.

Teixeira, et al., 2006[13]	self-determination theory N=136, age= 40-55yrs, BMI=25-38 kg/m^2, nonsmoker & free from major illness	Changes in psychosocial variables related to EX, eating, & body image during a weight reduction program	Experimental Design	4-month behavioral WL intervention period followed by 12-month maintenance.	Psychosocial variables: Eating, EX, EX Motivation	Initial intervention resulted in -6.2 +/- 4.6% (P<0.001) of their initial weight. In follow up, changes in eating restraint, disinhibition, & hunger; EX, self-efficacy, & intrinsic motivation; body shape concerns; & physical self-worth associated with weight change at 4 months (p<0.001). Eating variables were significant & independent correlates of short-term weight change, whereas changes in EX variables were stronger predictors of longer term weight outcomes.

Tworoger, et al., 2004[15]	HBM variables & SE PATH Study N=173 sedentary, overweight/ obese (BMI=25–42 kg/m^2 or body fat >33% if BMI=24–25) PostM, 50-75yrs nonsmokers, not on HRT & not suffering of any disease that affects physical activity.	Effects of CYP19 & COMT Polymorphisms on EX-Induced Fat Loss; 87 in Aerobic group; 86 in Stretching/Control group	Randomized intervention trial.	Year long randomized moderate-EX vs. stretching trial examined genetic polymorphisms in CYP19 modified BMI & total body fat.	BMI, total & percent body fat, & subcutaneous & intra-abdominal fat, fat distribution, immune function, adioplasty	Exercisers with two vs. no CYP19 11-repeat alleles had a larger decrease in total fat (p=0.01), & percent body fat (p=0.01). Exercisers with the COMT Met/Met vs. Val/Val genotype had smaller decrease in percent fat (p=0.05). Exercisers with COMT Val/Val genotype & at least one copy of CYP19 11-repeat allele had a larger decrease in BMI (p=0.009), total fat (p=0.004) & percentage body fat (p<0.001).

You, et al., 2004[33]	HBM variables & SE 50 sedentary, overweight/ obese (BMI=25-40kg/m^2) PostM (no menses≥1yr)	Effects of Hypocaloric D only & D with EX on Inflammation & Adipocyte Lipolysis	RCT	6-month intervention of hypocaloric D (N=26), hypocaloric D + EX (N=24)	Total, SC & abdominal body fat, inflammatory markers, Adipocyte lipolysis, body composition, maximal aerobic capacity (VO_2max) & fat mass.	Total & abdominal fat decreased to a similar degree in both groups. Fat-free mass & waist hip ratio did not change significantly in either group. D+ EX reduced CRP, IL-6, sTNFR1 & stimulated lipolysis in abdominal & gluteal region. The lipolysis in abdomen was significantly related to changes in IL-6 ($P<0.05$) & sTNFR1 ($P<0.01$).
Simkin-Silverman, et al., 2003[21]	Cognitive-behavioral approach. Women's Healthy Lifestyle Project.	Effect of D+PA on wt, body composition, PA, D & other CVD risk factors.	RCT	54 month intervention of D+PA (N= 260), assessment only (N=275)	Wt, body fat distribution, body composition, PA, nutrient intake, lipid, glucose & BP.	WL in intervention group was more than control in 6 and 18month f/up. After 54 months, intervention group's wt was

	N= 535 PreM (self report); Age= 44-50 yrs; not on HRT, lipid lowering meds, insulin, antihypertensive, thyroid meds or psychotropic meds; BMI= 20-34kg/m2; fasting total cholesterol= 140-260mg/dl, fasting LDL-c= 80-160mg/dl, fasting blood glucose > 140mg/dl, DBP>					below baseline & control group gained average of 5.2 lb. WC decreased more in intervention group ($p<.001$). Intervention group lost more body fat percentage than control group and the control group's FFM increased more. Intervention group reported being more active and eating less calories and fat than the control group.

	95mm Hg.					
Kuller et al., 2006[29]	No theory cited. WOMAN Study. PostM (N=508), Mean age=57. History of at least 2yrs HRT; WC ≥ 80cm, LDL-C=100-160 mg/dl, BMI= 25-39.9 kg/m2, BP<160/95 mm Hg at initial screening but<140/90 mm Hg at randomization on on or off drug therapy, a	Effect of aggressive D changes + increased PA to increase WL, reduce WC, glucose, insulin & lipoproteins reduces progression subclinical atherosclerosis, carotid intimal media Thickness & plaque, coronary artery calcification, & pulse wave velocity (PWV).	RCT	18months intervention including Health Education (HE) group (seminars) vs. Lifestyle Change (LC) group (PA+D).	Wt, WC, total cholesterol, HDL-C, Triglycerides, insulin, fasting glucose, lipoproteins	LC group: significant WL = 17 lb, WC decreased 10 cm, had lower SBP, triglycerides, LDL-C, insulin, blood glucose, large LDL and total LDL particles and their risk factors changed significantly. At 18 months, participants subdivided into those who stayed on HT, 125 (28%); stopped HT after randomization, 145 (33%); and not on HT at baseline but stopped an average of 7 months prior to randomization, 173 (39%). WL in

	Beck Depression Inventory (BDI) score of <20; able to walk 400m with HR= 40-135 beats & not complaining of any other diseases.					the LC was similar for all but LDL lipoprotein response was better for those who stopped HT after randomization or were not on HT at baseline.

Key: PreM: Premenopausal; PostM: Postmenopausal; PeriM: Perimenopausal; EX: Exercise; D: Diet; WL: Weight Loss; WM: Weight maintenance; BMI: Body Mass Index; HBM: Health Belief Model; SE: Self Efficacy; MHR: Maximum Heart Rate; PA: Physical activity (Al-Zadjali, Keller, Larkey & Albertini, 2010).

Table 2.

Frequency and Percentage of Sample Demographics (N=19)

Demographic	**Frequency (%)**
Mean Age	48.24
Country of Birth	
- Oman	14 (73.68)
- Bahrain	2 (10.53)
- Kuwait	1 (5.3)
- Tanzania	1 (5.3)
Years of Completed Education	
- Illiterate	7 (36.8)
- Elementary	8 (42)
- Preparatory	2 (10.5)
- Secondary	1 (5.3)
- Higher Education	1 (5.3)
Marital Status	
- Married	13 (68.4)
- Widow	4 (21.1)
- Divorced	2 (10.5)
Mean No. of Child.	6.95
Religion	
- Islam	19 (100)
- Other	0 (0)
Employment Status	
- Employed	1 (5.3)
- Housewife	16 (84.2)
- Retired	2 (10.5)
Partner's Employment Status	
- Employed	14 (73.7)
- Not working	0 (0)
- Retired	5 (26.3)
Mean Income/ Year	9378.95
Mean No. of Ch. Diseases	1.35
- Hypertension	10 (52.6)
- Diabetes	9 (47.4)
- Hyperlipidemia	5 (26.3)

- Arthritis	1 (5.3)
- Asthma	1 (5.3)
BMI	
- Overweight	6 (31.6)
- Obese	11 (57.9)
- Morbidly Obese	2 (10.5)

Table 3.

PHQ-9 Scores (N=19)

Depression Classification	**Frequency (%)**
No symptoms (0-4)	4 (21.1)
Mild (5-9)	10 (52.6)
Moderate (10-14)	5 (26.3)
Moderately Severe (15-19)	0 (0)
Severe ($\leq$20)	0 (0)

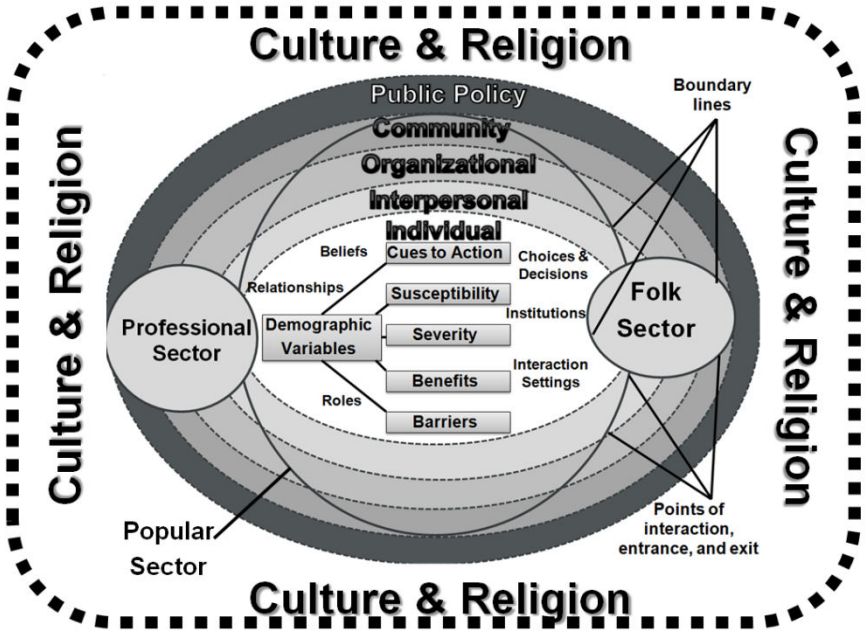

Figure 1. Synthesis of HBM, EMs and SEM

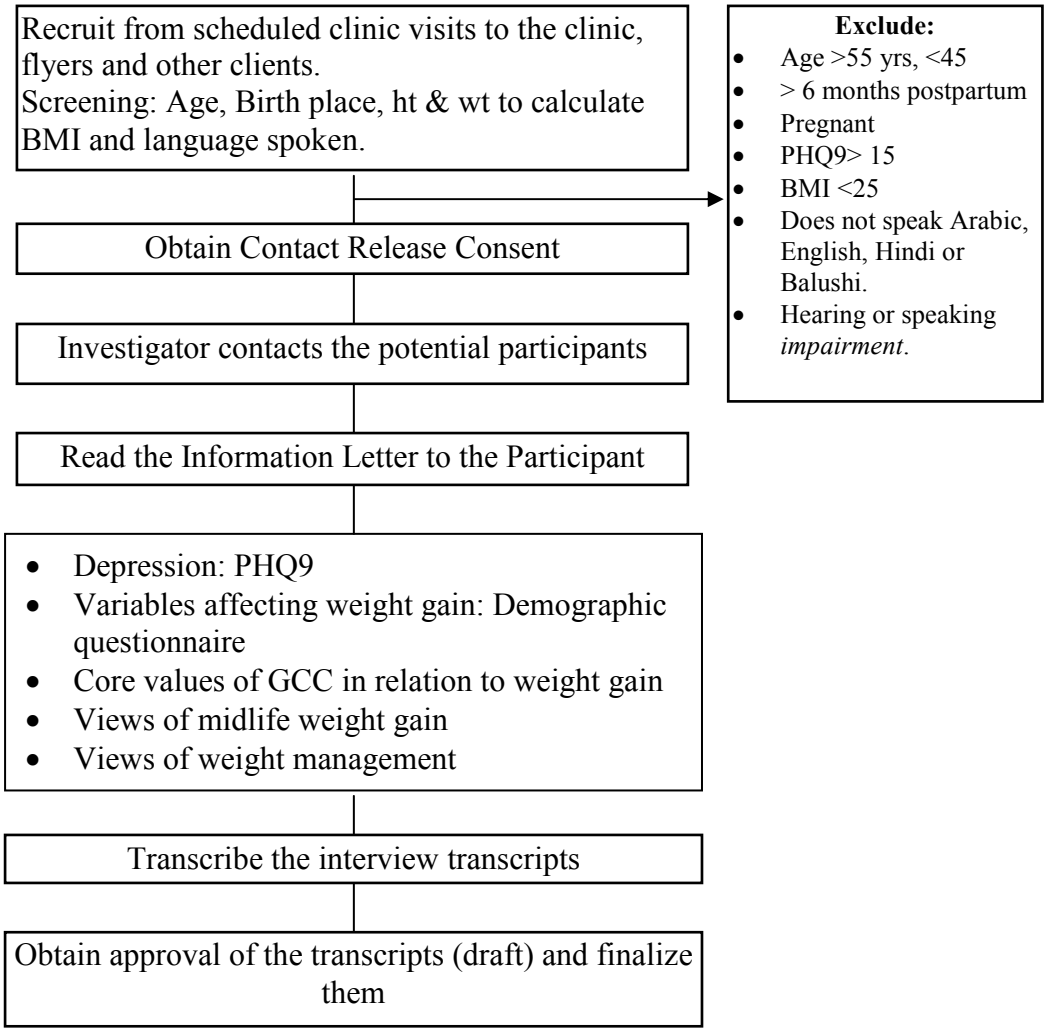

Figure 2. A Diagram Illustrating the Study Flow

Research Question	Data Collection Device	Concept/ Variable	Clinic Screen	Study Screen	Interview	Data Source
Screening	Clinic screening forms	Screening for age, birthplace, BMI	X			Participant/ Clinic
Screening	PHQ9	Depression		X		Participant
Participants Characteristics	Demographic Questionnaire	Variables affecting weight gain			X	Participant
1a- 1c	Interview Protocol	Core values of GCC in relation to weight gain			X	Participant
2a- 2c		Views of midlife weight gain			X	Participant
3a- 3c		Weight management			X	Participant

APPENDIX A

PERMISSION TO USE PREVIOUSLY PUBLISHED ARTICLES

The Evaluation of Intervention Research in Weight Reduction in Postmenopausal Women was a previously published article by the student and her mentors. The student was the first author of this article. The article was cited as a reference and included in the reference page. Permission to use the article in this dissertation was granted by all authors.

APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL

ASU Knowledge Enterprise Development

Office of Research Integrity and Assurance

To:	Colleen Keller NHI
From:	Mark Roosa, Chair Soc Beh IRB
Date:	03/31/2011
Committee Action:	**Exemption Granted**
IRB Action Date:	03/31/2011
IRB Protocol #:	1103006214
Study Title:	Perimopausal Obesity in GCC Countries: A Proposal

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(2) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

APPENDIX C

PERMISSION TO USE THE MUSCAT REGION'S AS RECRUITEMENT SITES

Sultanate of Oman
MINISTRY OF HEALTH
Directorate General of Health Services
GOVERNORATE OF MUSCAT

سلطنة عمان
وزارة الصحة
المديرية العامة للخدمات الصحية
لمحافظة مسقط

Ref: MH/DGHS/DPT/ ١٦٣/11
March, 2011

TO: Mrs. Manal Al-Zadjali
Assistant Tutor
Oman Nursing Institute

From: Dr. Fatma Al-Haini
Head of Research & Statistics
DGHS – Muscat

Re: Research and Ethics Committee feedback

After Compliments,

Reference to your letter regarding **"Permission to use health centers in Muscat Region as Recruitment Sites for A Research Study"**, we are delighted to inform you that the study is approved. It is a well designed and informative proposal. Kindly, make sure that the confidentiality of the participants is maintained.

Please send us a copy of final results for this study.

Your cooperation is highly appreciated.

With kind regards,

Cc:
- DG
- Members of regional research committee
- File

P.O. Box : 358, Mina Al-Fahal
Sultanate of Oman, Code : 116
Fax : 24782120

ص.ب : ٣٥٨ ميناء الفحل - مسقط
سلطنة عمان الرمز البريدي : ١١٦
فاكس : ٢٤٧٨٢١٢٠

APPENDIX D

CONTACT RELEASE FORM- ENGLISH AND ARABIC

ARIZONA STATE UNIVERSITY

College of Nursing and Health Care Innovation

Contact Release Form

Dear Participant,

Please note that all your data and information will be kept confidential in a secured place and will not be used except for the study purpose ONLY.

Name:

Signature/ Thumbprint:

Date:

1. Do you agree to be contacted by Ms. Manal Al-Zadjali who is interested in studying perimenopausal obesity in GCC countries? (Please circle one of the answers).
    a. Yes
    b. No
    c. If **yes**, how would you prefer to be contacted?
        a. Telephone. Please provide your telephone here:_____
        a. E-mail address: _____
2. This form is filled by:
    a. Client
    b. Nurse or any other person

i. Name: _____

ii. Relationship: _____

iii. Signature: _____

Thank you for completing this form. For more information, please contact:

Ms. Manal Al-Zadjali

Manal.al-zadjali@asu.edu

جامعة ولاية أريزونا

كلية التمريض والابداع في الرعاية الصحية

اقرار الافصاح عن المعلومات الشخصية

عزيزتي المشاركة،

يرجى ملاحظة أنه ستعامل كل بياناتك ومعلوماتك بسرية تامة وستحفظ في مكان آمن ولن تستخدم إلا لغرض الدراسة فقط.

الاسم :

التوقيع / بصمة الإبهام :

التاريخ :

- هل توافق على أن تتصل بكِ منال الزدجالي الباحثة العلمية المهتمة بدراسة البدانة في سن اليأس في دول مجلس التعاون الخليجي؟ (يرجى وضع دائرة على اجابتك)

أ. نعم

ب. لا

إذا كان الجواب نعم، ما هي أفضل طريقة للاتصال بكِ؟

أ. الهاتف: _____

ب. عنوان البريد الإلكتروني: _____

- تم تعبئة هذا النموذج من قبل:

أ. المشاركة

ب. ممرضة أو أي شخص آخر

الاسم: _____

العلاقة: _____

التوقيع:_____

شكرا لإكمال هذا النموذج. لمزيد من المعلومات، يرجى الاتصال ب:

منال الزدجالي

Manal.al-zadjali@asu.edu

APPENDIX E

AN INFORMATION LETTER-ENGLISH AND ARABIC

Perimenopausal Obesity in GCC Countries

Dear Participant,

I (Manal Al-Zadjali) am a student at Arizona State University under the supervision of Dr. Colleen Keller, Dr. Bronwynne C. Evans and Dr. Linda K Larkey. I would like to invite you to participate in a research study that assesses the culturally-specific views of perimenopausal GCC women concerning their perception of 'processes' and 'causes' and multilevel influences impacting these women's high prevalence of obesity at midlife.

If you decide to participate, then you will join a study of perimenopausal obesity in GCC countries. During your participation I will interview you for maximum of 2 hours at any location that you feel comfortable in. During this interview, I will ask you questions related to your personal experience and opinion regarding perimenopausal obesity and the factors that lead to perimenopausal obesity in GCC countries' women. You may skip any question that you do not want to answer and you may stop your participation in the study at any point that you feel to do so. Approximately 15 – 50 women will be participating in this study nationally.

There are no known risks from taking part in this study, but in any research, there is some possibility that you may be subject to risks that have not yet been identified. Although there may be no direct benefits to you, the possible benefits of your participation in the research are: knowing the factors that might have predisposed you or women at your age to obesity and designing programs that can prevent this condition and ultimately reduce the number of new cases of obesity comorbidities in GCC countries.

All information obtained in this study is strictly confidential. The results of this research study may be used in reports, presentations, and publications, but the researchers will not identify you. In order to maintain confidentiality of your records, I (Manal Al-Zadjali) will collect and store hard copies of your information in a locked cabinet in my office and the soft copies will be saved as a password-protected Microsoft Word file in my personal computer for use during the data collection and data authentication time. In order to maintain confidentiality, your data will be given a number or a code at the start of the data collection.

Participation in this study is completely voluntary. It is ok for you to say no. Even if you say yes now, you are free to say no later, and withdraw from the study at any time. Your data will not be used and the audio recording will be deleted from the recorder.

There is no payment for your participation in the study.

Any questions you have concerning the research study or your participation in the study, before or after your consent, will be answered by Manal Al-Zadjali, Manal.al-zadjali@asu.edu. Hanifa Al-Zadjali, will review the data to validate the transcripts, and her contact is hanifa1188@hotmail.com

If you have questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk; you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at 480-965 6788 or the Directorate General of Health Services of Governorate of Muscat, at 24782120.

a. Has the information letter been read to you?

b. Do you have any questions?

c. Have your questions been answered?

d. Do you understand that being in this study is voluntary and that you may quit the study at any time?

e. Do you understand that you may choose not to answer any questions at any time?

f. Do you agree to be in the study?

السمنة في سن اليأس بدول مجلس التعاون

عزيزتي المشاركة،

أنا (منال الزدجالي) طالبة لدى جامعة ولاية أريزونا تحت إشراف كلا من كولين كيلر وايفان براون وين وليندا لاركي ، يسرنا التقدم بدعوتكِ للمشاركة في هذا البحث الذي يهدف الى تقييم وجهات نظر النساء الخليجيات في سن اليأس حول الأسباب والعمليات المؤدية الى زيادة الوزن في منتصف العمر لدى النساء بدول مجلس التعاون.

إذا قررت المشاركة، فإنك سوف تنضمين الى دراسة السمنة في سن اليأس بدول مجلس التعاون الخليجي. خلال مشاركتكِ سأقوم باجراء مقابلة معكِ والتي سوف تستمر لمدة لا تزيد عن ساعتين في أي مكان تشعرين فيه بالراحة ، سوف يطلب منك الاجابة على بعض الأسئلة المتصلة بتجربتك الشخصية ورأيك حول السمنة في سنك او في سن اليأس والعوامل التي تؤدي إلى السمنة في هذه المرحلة من الحياة لدى النساء في دول مجلس التعاون الخليجي. يمكنك تخطي أي سؤال لا ترغبين في الرد عليه ويمكنك أيضا التوقف عن المشاركة في أية لحظة تشعرين فيها بذلك. هناك حوالي ١٥ الى ٥٠ إمرأة مشاركة في هذا البحث.

لا توجد مخاطر معروفة من المشاركة في هذه الدراسة، ولكن في أي بحث هناك بعض الاحتمال للمخاطر التي لم يتم تحديدها بعد، وعلى الرغم من عدم وجود أية فائدة مباشرة لكِ من المشاركة في هذه الدراسة الا ان مشاركتكِ سوف تسنح الفرصة لمعرفة الاسباب التي أدت بكِ وإلى من بسنكِ من النساء الخليجيات إلى السمنة مما يساعد على ايجاد برامج تساعد على حل مشكلة السمنة ومضاعفاتها لدى النساء الخليجيات.

جميع المعلومات التي سيتم الحصول عليها في هذه الدراسة هي سرية تماما. ويمكن استخدام نتائج هذه الدراسة البحثية في التقارير، والعروض، والمنشورات، ولكن معلوماتكِ الشخصية ستظل سرية. من أجل الحفاظ على سرية السجلات الخاصة بك، سوف نقوم بجمع وتخزين نسخ مطبوعة من المعلومات الخاصة بك في خزانة مقفلة في مكتب منال وسيتم حفظ النسخ الناعمة كملف محمي بكلمة مرور على هيئة مايكروسوفت وورد في حاسوبها الشخصي لاستخدامها خلال جمع البيانات ومصادقتها. ومن أجل الحفاظ على السرية، سوف تعطى البيانات رقم أو رمز في بداية عملية جمع البيانات.

المشاركة في هذه الدراسة هو عمل تطوعي تماما. وأنتِ تمتلكين ميزة الرفض عن المشاركة في أي وقت كان حتى وان كنتِ موافقة الأن، وان قمتِ بالانسحاب فسوف يتم حذف كافة بياناتك والتسجيل من المسجل.

ليست هناك أية تكاليف للمشاركة في هذه الدراسة.

سيتم الرد على أي أسئلة لديكِ بخصوص الدراسة أو مشاركتكِ في هذه الدراسة ، قبل أو بعد موافقتك بواسطة منال الزدجالي عن طريق الايميل الاتي : Manal.al-zadjali@asu.edu

إذا كانت لديك أسئلة عن حقوقك كمشارك في هذا البحث، أو إذا كنت تشعر انك قد وضعت في خطر فيمكنك الاتصال برئيس مجلس مراجعة الموضوعات المؤسسية، من خلال مكتب جامعة ولاية أريزونا قسم البحوث والضمان على رقم الهاتف :٤٨٠٩٦٥٦٧٨٨ أو المديرية العامة للخدمات الصحية لمحافظة مسقط على رقم الهاتف :٢٤٧٨١٢٢٠

أ. هل تمت قراءة هذه الرسالة الإعلامية بالنسبة لكِ؟

ب. هل لديكِ أي أسئلة؟

ج. هل تم الرد على أسئلتكِ؟

د. هل فهمتِي أن هذه الدراسة تطوعية وأن لكِ حق الإنسحاب من الدراسة في أي وقت؟

ه. هل فهمتِي أن لكِ اختيار عدم الرد على أي أسئلة في أي وقت؟

و. هل توافقين على أن تشاركي في هذه الدراسة؟

APPENDIX F

DEMOGRAPHIC QUESTIONNAIRE- ENGLISH AND ARABIC

DEMOGRAPHIC QUESTIONNAIRE

1. Age:
2. Country of birth:
3. Educational status:
4. Marital status and length of partnership:
5. Number of children and their ages:
6. Religion:
7. Employment status and nature of work:
8. Partner's employment status and nature of work:
9. Socioeconomic status (income/ year):
10. Role in family:
11. Partner's role in family:
12. Chronic diseases:
    a. Date of diagnosis:
    b. Medications:

المعلومات الديموغرافية

أ. السن:

ب. بلد الميلاد:

ت. الحالة التعليمية:

ث. الحالة الاجتماعية:

ج. عدد الأطفال وأعمارهم:

ح. الديانة:

خ. العمل وطبيعة العمل:

د. الوضع الوظيفي للزوج وطبيعة العمل:

ذ. الوضع الاجتماعي والاقتصادي (الدخل / سنة) :

ر. الدور في الأسرة:

ز. دور الزوج في الأسرة:

س. الأمراض المزمنة:

- تاريخ التشخيص:
- الأدوية:

APPENDIX G

PATIENT HEALTH QUESTIONNAIRE- ENGLISH AND ARABIC

PATIENT HEALTH QUESTIONNAIRE

For each question, please circle the one answer that comes closest to the way that you've been feeling.

Over the **last two weeks**, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things…….	0	1	2	3
2. Feeling down, depressed, or hopeless…….	0	1	2	3
3. Trouble falling asleep or staying asleep, or sleeping too much……	0	1	2	3
4. Feeling tired or having little energy….	0	1	2	3
5. Poor appetite or overeating……	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down…….....	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television…….....	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual……..……	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way..	0	1	2	3

استبيان صحة المريض

لكل سؤال، الرجاء الإجابة بوضع دائرة على الوصف الاقرب لشعورك.

على مدى الأسبوعين الماضيين، كم عدد المرات التي أزعجتكِ أياً من المشاكل التالية؟

	ليس على الاطلاق	عدة أيام	أكثر من نصف أيام	كل يوم تقريبا
قلة الاهتمام أو الاستمتاع في فعل الأشياء.....	٠	١	٢	٣
الشعور بالانحباط، والاكتئاب ، أو اليأس.....	٠	١	٢	٣
مشاكل في النوم كالبقاء نائمة، أو كثرة النوم.....	٠	١	٢	٣
الشعور بالتعب أو قلة الطاقة.....	٠	١	٢	٣
فقدان الشهية أو الإفراط في الأكل.....	٠	١	٢	٣
شعور سيئ عن نفسكِ، أو أنكِ قد أفشلتِ نفسكِ أو عائلتكِ.....	٠	١	٢	٣
الصعوبة في التركيز على الأشياء، مثل قراءة صحيفة أومشاهدة التلفاز.....	٠	١	٢	٣
التحرك أو التحدث ببطء بحيث لاحظك الآخرون. أو العكس، أي التحرك بسرعة أو بكثرة أكثر من المعتاد...	٠	١	٢	٣
التفكير في الموت وإيذاء النفس.....	٠	١	٢	٣

APPENDIX H

GCC COUNTRIES OVERWEIGHT/ OBESE WOMEN INTERVIEW

PROTOCOL - ENGLISH AND ARABIC

GCC COUNTRIES OVERWEIGHT/ OBESE WOMEN INTERVIEW PROTOCOL

- Read the information letter to the participant and ask her to answer the following questions:
    - Has the information letter been read to you?
    - Do you have any questions?
    - Have your questions been answered?
    - Do you understand that being in this study is voluntary and that you may quit the study at any time?
    - Do you understand that you may choose not to answer any questions at any time?
    - Do you agree to be in the study?
- Remind the participant about the following:
    - The purpose of the interview/ study.
    - Tapping the interview.
    - All information collected in this interview being confidential and will not be used except for study purpose.
- "Thank you for your consent to participate in this study. I have some question that will help me to explore the perceptions of weight gain and obesity in midlife GCC countries women. Remember there is no right or wrong answer to any of these questions."

1. We know that different societies view weight gain in women differently. What views do you think GCC society has about weight gain in premenopausal women? WAIT FOR RESPONSE, THEN ASK: Women approaching the menopause? WAIT, THEN, ASK: Menopausal women?
2. How have those views affected your own thinking about weight gain in premenopausal women? WAIT FOR RESPONSE, THEN ASK: Women approaching the menopause? WAIT FOR RESPONSE, THEN ASK: Menopausal Women?
3. Focusing now on the period of time surrounding your menopause, what do you think made you gain weight? How did it happen? EATIOLOGY
    a. Probes to elicit the participant's explanatory model, adapted from Kleinman's explanatory model questions:
        i. How did it happen that you first noticed weight gain? When did that occur? ONSET.
        ii. How does the process of weight gain work in your body? PATHOPHYSIOLOGY.
        iii. What have you used to prevent or decrease it? TREATMENT.
        iv. Who advised you to do that? TREATMENT.
        v. What do you think will happen if you continue to gain weight, or do not lose weight? OUTCOME.

vi. What do you think would make the weight situation better? OUTCOME.

4. How might your own emotions or feelings influence the way you think about your weight gain?
5. How might cultural factors have influenced the way you think about your weight gain? WAIT FOR RESPONSE, THEN ASK: Socioeconomic factors? WAIT FOR RESPONSE, THEN ASK: Environmental factors?
6. Given the influence of your feelings and emotions, along with the other factors we discussed, let's talk some more about how you manage your weight.
    a. Probes:
        i. What do you see as the most important barriers to your weight management?
        ii. What strategies are most helpful?
        iii. What strategies seem to have no effect?
        iv. How does physical activity affect your ability to manage your weight?
7. Describe a typical day of your life, including your meals and activities.
8. What might motivate you to get involved in a weight management program?

KEEP THE TAPE RUNNING FOR FEW MINUTES AFTER YOU ARE FINISHED

بروتوكول مقابلة النساء البدينات أو الزائدات الوزن بدول مجلس التعاون الخليجي

- بعد الموافقة على المشاركة ، ذكرها بالاتي:
  - الغرض من المقابلة / الدراسة.
  - تسجيل المقابلة.
  - جميع المعلومات التي سيتم جمعها في هذه المقابلة سرية ولن تستخدم إلا لغرض الدراسة .
- "شكرا لموافقتك على المشاركة في هذه الدراسة. لدي بعض الأسئلة التي سوف تساعدني لاستكشاف وجهات نظر النساء في زيادة الوزن والبدانة في منتصف العمر لدى المرأة في دول مجلس التعاون الخليجي. تذكري انه ليس هناك إجابة صحيحة أو خاطئة على أي من هذه الأسئلة. "
  - نحن نعلم أن المجتمعات المختلفة تنظر لزيادة الوزن لدى النساء بشكل مختلف. في رأيك ما هي آراء المجتمع في دول مجلس التعاون الخليجي في زيادة الوزن في النساء قبل انقطاع الطمث؟ تنتظر ردا على ذلك، ثم تسأل: وفي النساء اللاتي تقتربن من سن اليأس؟ الانتظار، النساء بعد انقطاع الطمث؟
  - في رأيك كيف أثرت تلك الآراء على رأيك الشخصي حول زيادة الوزن لدى النساء قبل انقطاع الطمث؟ تنتظر ردا على ذلك ، ثم تسأل: المرأة المقتربة من سن اليأس؟ تنتظر ردا على ذلك، ثم تسأل: النساء بعد انقطاع الطمث؟
    - التحقيقات

- بالتركيز حول سنك والمرحلة العمرية التي تمرين بها، في رأيك ما الذي أدى الى زيادة وزنك؟ كيف حدث ذلك؟ الأسباب
- كيف لاحظتِ بداية زيادة وزنكِ؟ متى حدث ذلك؟ البداية.
- كيف تتم عملية زيادة الوزن في الجسم في رأيك؟ الفيزيولوجيا المرضية.
- هل سبق لك أن استخدمتي طريقة تساعد على منع زيادة أو على فقدان الوزن؟ العلاج.

- من الذي نصحكِ بذلك؟ العلاج.
- في رأيك ما الذي سيحدث اذا كنتِ لا تزيدين في الوزن ولا تفقدين؟ النتيجة.
- ما من رأيك من شأنه أن يجعل الوضع أفضل بالنسب لاوزان النساء؟ النتيجة.

- كيف يمكن لعواطفكِ أو مشاعركِ أن تؤثر على الطريقة التي تفكرين بها في زيادة وزنكِ؟
- كيف يمكن أن تؤثر العوامل الثقافية في الطريقة التي تفكر بها في زيادة الوزن الخاص بك؟ تنتظر ردا على ذلك ، ثم تسأل: العوامل الاجتماعية والاقتصادية؟ تنتظر ردا على ذلك ، ثم تسأل: العوامل البيئية؟
- نظرا لتأثير المشاعر والعواطف، جنبا إلى جنب مع العوامل الأخرى التي ناقشناها، فلنتحدث قليلا حول كيفية إدارتكِ لزيادة وزنكِ.
  - التحقيقات
    - ما هي الحواجز التي يمكن أن تمنعك من إدارة وزنكِ؟
    - ما هي الاستراتيجيات التي تعتقدين انها مفيدة للغاية؟
    - ما هي الاستراتيجيات التي يبدو أن ليس لديها أي تأثير؟
    - كيف يمكن للنشاط البدني مساعدتكِ في إدارة وزنكِ؟
- صفي لي يومك الطبيعي، بما في ذلك وجبات الطعام والأنشطة التي تقومين بها.
- ماذا يمكن أن يحفزكِ للمشاركة في برنامج إدارة أو تخفيف وزنكِ؟

الرجاء ايقاف التسجيل بعد بضع دقائق من الحوار.