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Personal Satisfaction, Cardiovascular Disease Risk, And Health Promoting Behavior Among Arab American Middle-Aged Women

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PERSONAL SATISFACTION, CARDIOVASCULAR DISEASE RISK, AND HEALTH PROMOTING BEHAVIOR AMONG ARAB AMERICAN MIDDLE-AGED WOMEN

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DEDICATION

To all of you my loved ones who inspired me:

My parents

My loved husband and wonderful kids

My sisters and brothers

I gratefully dedicate this work.

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Throughout the program, many people stood beside me and helped me in so many ways. I want to take this opportunity to acknowledge and to thank them. First and foremost, I would like to express my thankful to my family for their love and support. Special thanks to my mother. Her love, prayers, and support I have always had throughout my life continued throughout this program. She is constantly a source of my strength and determination. I am thankful to my husband who showed unlimited and unconditional caring, love, and support throughout these years. He believed in my ability to succeed and stood beside me in every step of this journey. He never stopped encouraging me to pursue my dream despite all the difficulties we went through. He patiently tolerated the periods of my absence from the family and covered both roles of father and mother. I truly believe that the phrase "thank you" is not enough to express my feelings of thankfulness for My husband. He is my hero. I am thankful to my kids Eyad and Mohannad. Their loving words and support were the light at the end of the tunnel. I am thankful to my sisters and brothers for their continuous support, encouragement, and prayers which continued throughout the program and were the source that I was drawing my strength and motivation from in the difficult moments.

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CHAPTER 1 INTRODUCTION AND BACKGROUND

Middle Adulthood Theoretical Perspectives

The most frequently used definition for middle adulthood is the period between 40 to 65 years (Hutchison, 2015). Middle-aged people usually have established a family, settled into a career, and have responsibility to their children, parents, and community. Several physical and psychological changes occur during this period of age that can affect their social functioning and impact their overall health. The most common physical changes occur during this period are changes in physical appearance, changes in mobility, changes in reproductive system and sexuality, and changes in health status (Polan, E., & Taylor, 2007; Specht & Craig, 1987).

Midlife adults begin to have changes in their skin such as sag, wrinkle, and skin pigmentation as it losses its firmness and elasticity and becomes drier. Hair on the head becomes thinner and grayer. The ability to focus on near objects decreases which will require them to wear glasses for the first time. Midlife adults begin to lose height as a result of loss of bone material in the vertebrae and gain weight as a result of body fat accumulation (Hutchison, 2015).

Changes in mobility starts to occur in the beginning of the 40s as a result of losses in muscle, bone, and joints (Specht, R., & Craig, G. J., 1987). These changes will also increase risk for osteoporosis and fractures. It is estimated that 1 in 3 women and 1 in 5 men over age 50 will experience osteoporotic fractures (International Osteoporosis Foundation, 2017). Changes in the reproductive system are very often noted during middle adulthood. Reproductive capacity gradually declines in women until menopause around age 50, while in men, there is no rapid change in fertility as they age (Hutchison, 2015).

During perimenopause, ages in the 40s, women experience biological changes that lead to menopause stage, and these changes reduce their ability to conceive and bear children gradually.

Some of these changes are: decreased estrogen, decreased in uterus size, decreased in blood supply to vagina and surrounding nerves, and decreased ovulation (Polan, E., & Taylor, 2007).

In men, changes occur mostly in testes with decreasing testicular tissue. Problems in erectile function may occur, and the quantity of sperm begins to decrease as well (Hutchison, 2015). Changes in the general health status become significant in the middle adulthood. Chronic diseases, persistent symptoms, and functional disability begin to increase during this period of age (Specht, R., & Craig, G. J., 1987). In addition, the death rate increases continuously over the adult years with the chronic diseases being the leading causes of death for this age group (CDC, n.d.). All these physical changes in midlife adults are interconnected with other psychological changes.

According to Erikson's theory of psychosocial development, the main challenge during middle adulthood is generativity versus stagnation (Hutchison, 2015). Men and women fulfill multiple social roles in midlife with family and work being the most central roles. They focus their goals on the future of their children and societal engagement and play an active role to make the world a better place for future generations. Midlife adults set goals that involve changing the self to adjust to the environment. Unsuccessful resolution of this stage results in a sense of stagnation, self-indulgence, or feeling of unproductiveness (Robbins, Susan, Chatterjee, & Canda, 2012).

From a moral perspective, the Kohlberg's third level of moral development, postconventional level, is defined as an understanding of social mutuality and an interest in the welfare of others (Yahaya, n.d.). Adults at this moral level are more autonomous and have self-accepted moral maturity. Kohlberg opined most adults do not achieve this level before the middle adulthood, which is consistent with the Erikson's concept of generativity in midlife stage. Daniel Levinson is a theorist who disagrees with the idea of personality stability in adulthood. Instead, he proposed a series of stages in midlife (Robbins et al., 2012). Levinson proposed a model of adult

development based on challenges and crisis, and he described midlife adulthood as a transitional period in one's life (Robbins et al., 2012). As middle adulthood begins, people experience new challenges in relationships, family, and career. This transition may cause a serious crisis for some people, yet for others, it is uneventful.

Levinson's work on stages of adult life provided the basis for Sheehy's (1995) work on midlife crisis. Sheehy (1995) proposed three age-based adulthood stages: first adulthood, second adulthood, and third adulthood which are based on transitions and predictable crisis. The midlife is a second adulthood in person's life in which people are progressing through entirely new passages into lives of deeper meaning and creativity beyond menopause and physiological declining. More recent research on midlife crisis, however, indicated it is not universally stressful and relatively few people experience a crisis in the middle adulthood (Robbins et al., 2012). Those crises are attributed to challenging life events rather than aging and can occur earlier or later than midlife (Robbins et al., 2012).

From the Life Span Theory perspective, development in midlife involves both gains and losses and the balance shifts from a dominance of developmental gains in early middle adulthood to a dominance of developmental losses in late middle adulthood (Hutchison, 2015). For example, they may be gaining in self-esteem and emotional maturity and losing in biological functioning. As age increases in midlife adults, there will be a reduction in overall resources, so cultural support is essential to provide a positive meaning for the experience of gains and losses. For instance, in a culture that associates middle age with political power or higher position in the family or society, loss of youth will be not given any importance. Even though challenges increase, there is still possibility for change (Hutchison, 2015) when middle-aged adults exert effort to manage resources.

From the ecological perspective, midlife adults may become stressed by the need to provide care to the oldest and the youngest family generations (Hutchison, 2015). This may lead to ignoring self needs in order to provide the needed care for the loved one. Several studies about health promoting behavior (HPB) among middle-aged women found that having children is associated with lower engagement in health promoting behaviors (Enjezab, Farajzadegan, Taleghani, Aflatoonian, & Morowatisharifabad, 2012; Sehhatie, Fahimeh, Mojgan, & Kafiyeh, 2015). This may be associated with increasing their risk for cardiovascular disease (CVD).

Both physical and psychological changes occur during midlife adulthood are not universal and can vary according to sociocultural factors. Gender and ethnicity are just examples of these factors that were found to affect several physical and psychological changes among midlife adults. Although both men and women experience changes in the middle adulthood, there is significant gender differences in some of these changes. Middle aged men have higher death rates compared with middle aged women (Hutchison, 2015), but middle-aged women are more susceptible to depression and anxiety than men (World Health Organization [WHO], 2013). CVD develops 7 to10 years earlier in men than in women (Maas, & Appelman, 2010), but it is the main cause of death for both midlife men and women. In related to ethnicity, Arab American middle-aged women have higher prevalence of CVD compared to other ethnic groups in the United States (Al Suwaidi, 2016). They are also more likely to be diagnosed with chronic diseases before the age of 50 than American women of other ethnic groups (Mellon, Gauthier, Cichon, Hammad, & Simon, 2013). Each person may have a unique pathway to travel to reach middle adulthood. The psychological reaction to age related changes is significant during this period of age to understand the adaptation pattern and to provide the needed care.

Personal Satisfaction and Middle Adulthood

Personal satisfaction is defined as an individual's experience of feeling of being content with one's self, health, and life during this specific period of age. Based on the previously discussed midlife theories, there is considerable agreement regarding the biopsychosocial changes during this period of age. Therefore, the psychological reaction to these changes is critical to maintain health and to function in socially respective roles. Physical and psychosocial changes occur during middle adulthood may result in lowering women's personal satisfaction as a form of psychological reaction.

Menstrual cessation, changes in physical appearance, changes in mobility, and changes in reproductive capacity may have an impact on women's self-satisfaction, life satisfaction, and health satisfaction. Middle-aged women are expected to have different social roles and functions in their families and their communities. In some cultures, they are stressed by the need to provide care to the oldest and the youngest family generations at the same time (Hutchison, 2015), which may affect their self-satisfaction, life satisfaction, and health satisfaction. Therefore, personal satisfaction during middle adulthood could reflect the psychological reaction to the biopsychosocial changes during this specific period of age, and it needs to be considered in order to understand CVD risk among this age group.

Cardiovascular Disease Risk and Middle-Aged Women

CVD risk is the probability that an individual may develop CVD within the next ten years (American Heart Association, 2013). CVD is a group of disorders of the heart and blood vessels, which is related to the process of plaque builds up in the walls of the arteries (WHO, 2017). It is the leading cause of death worldwide, and the leading cause of death for middle-aged women (Center for Disease Control and Prevention [CDC], 2017). Women's risk for CVD increases about 50% during the middle-age period (WHO, 2017). It was estimated CVD causes 1 in 3 deaths each

year, or one woman each minute (American Heart Association, 2015).

Behavioral, biological, and psychological factors have been linked strongly with CVD (WHO, 2017). Smoking, unhealthy diet, obesity, physical inactivity, alcohol drinking, hypertension, diabetes, hyperlipidemia, and depression are few examples of CVD risk factors (WHO, 2017). These risk factors become more apparent among midlife women due to the biological and physical changes that occur during this specific period of age. Body fat begins to accumulate in middle adulthood and accounts for greater percentage of weight than in adolescence and in early adulthood (Hutchison, 2015). Beginning in the 40s, changes in muscles, bones, and joints start to occur which may have an impact on mobility and physical activity (Hutchison, 2015). Middle-aged women will be then at greater risk for physical inactivity and therefore CVD. Thus, the psychological reaction to the physical changes during middle adulthood is an important factor to achieve a state of health and to function in social roles. Psychological maladaptation may result in symptoms such as depression, insomnia, or stress, and these symptoms are strongly associated with increased CVD risk. Adopting health promoting behavior (HPB) early in life is imperative to prevent CVD and decrease its associated mortality among middle-aged women.

Health Promoting Behavior, a Method to Prevent Cardiovascular Disease

The World Health Organization (WHO) defined health promotion as a process of helping people to improve their health (WHO, 2017). Health promotion is not only about disease prevention, but also includes behaviors an individual can do to bring greater quality of life (Pender & Pender, 1996). Health promoting behavior is a multidimensional pattern that includes six dimensions: nutrition, physical activity, spiritual growth, health responsibility, stress management, and interpersonal relations (Pender & Pender, 1996). Healthy lifestyle is the one which incorporates these dimensions and helps maintain and improve individuals' health and well-being.

Timely and sustained healthy lifestyle reduces the risk of CVD events, premature morbidity, mortality, and disability (WHO, 2007).

The 2013 American Heart Association/American College of Cardiology (AHA/ACC) Guideline on lifestyle management to reduce CVD risk provided recommendations for healthy lifestyle choices based on only two lifestyle factors, diet and physical activity (Goff et al., 2014). However, when Chu, Pandya, Salomon, and Goldie (2017) compared the effectiveness of four lifestyle management interventions (i.e., group therapy for stopping smoking, Mediterranean diet, walking, and yoga) to determine their rank order in reducing the 10-year CVD risk, they found smoking cessation and yoga to be the most effective forms of CVD prevention.

Willis et al. (2012) conducted a systematic review of primary prevention programs to reduce CVD risk with the aim of assessing the efficacy of lifestyle interventions in reducing CVD risk or CVD mortality and morbidity. It found that health behavior change interventions effectively reduced CVD risk in non-urban individuals. Significant change in blood pressure, body mass index, physical activity, diet, and cigarette smoking was reported across reviewed studies; however, the efficacy of the intervention was highly influenced by the setting for applying the prevention program and by study design (Willis et al., 2012). Rodrigues, Ball, Ski, Stewart, and Carrington (2016) conducted another systematic review to assess the effectiveness of primary prevention programs aimed at reducing risk factors for CVD and type II diabetes. They found that, in addition to reduction in CVD risk factors, 1 out of 16 studies reported a reduction in CVD risk score, and another 1 out of 16 studies reported a reduction in CVD mortality (Rodrigues et al., 2016). These findings pinpointed the significant role of HPB to prevent CVD and reduce its associated risk factors, morbidity, and mortality. Therefore, it is imperative to understand the psychological factors that affect people's adoption of these behaviors into their lifestyle.

Problem Statement

Although CVD is the major threat to middle-aged women's health, the causes for increased risk during this specific age period are still not fully understood. Many physiological, psychological, and social factors have been linked with CVD, yet most of them are not specific to middle-age stage nor to women. Cessation of estrogen and progesterone have not been confirmed as a cause for the increased risk of CVD among middle-aged women (Yang & Reckelhoff, 2011). This implies there are other developmental factors need to be identified to understand why CVD risk increases dramatically during this age period.

Several physical, psychological, and social changes occur during middle adulthood that can increase women's risk for diseases and impact their overall health. At age 40, several physical declines begin to occur gradually in most women. By age 50, these changes become noticeable, and the psychological reactions to these physical changes become important.

A possible consequence of these reactions is impact on personal satisfaction. Personal satisfaction is associated with CVD risk factors such as depression; inflammatory response to acute stress; and preterm birth (O'Donnell, Brydon, Wright, &Steptoe, 2008; Ornat et al., 2013; Orr et al., 2012). Thus, it could have a role in predicting HPB among middle-aged women, which would lead to a change in CVD risk. However, no studies published to date focused on personal satisfaction as a psychological reaction to age related developmental changes. Given that psychological symptoms were significantly associated with CVD symptoms among middle-aged women (Im, Kim, Chee, & Chee, 2016), there is a need to examine the impact of personal satisfaction on adopting HPB and CVD risk.

Arab American Women

The prevalence, relative burden, and determinants of diseases among Arab American

middle-aged women compared with other ethnic groups in the U.S. suggested the health of Arab American middle-aged women may differ from that of other ethnic and racial groups in the U.S. (El-Sayed & Galea, 2009). According to El-Sayed, Tracy, Scarborough, and Galea (2011), life expectancies among Arab American women were found to be 1.4 years lower than among non-Arab and non-Hispanic White women. Arab American middle-aged women were found to have a higher mortality risk than other ethnic groups due to chronic diseases (El-Sayed et al., 2011). They were also found to have higher prevalence of CVD and other chronic diseases compared to other racial groups (Al Suwaidi, 2016). Most importantly, they were more likely to be diagnosed with CVD before the age of 50 than American women of other racial groups (Mellon et al., 2013). Understanding the impact of personal satisfaction on CVD risk and HPB among Arab American middle-aged women would provide some explanation for the increased risk of CVD, which would help in predicting at risk Arab American women and inform preventive programs and interventions to reduce their CVD risk.

Specific Aims and Hypothesis

The purpose of this study is to examine the impact of personal satisfaction on HPB and CVD risk among Arab American middle-aged women.

The specific aims of this study are:

1. To describe the prevalence of personal satisfaction (self-satisfaction, life-satisfaction, and health-satisfaction), HPB, and CVD risk among Arab American middle-aged women.

2. To investigate the relationship among personal satisfaction, HPB, and CVD risk among Arab American middle-aged women.

Hypothesis 2a: there is direct relationship between personal satisfaction and adoption of HPB.

Hypothesis 2b: there is an inverse relationship between personal satisfaction and CVD risk.

Hypothesis 2c: growth and development factors (age, menstruation status, roles within the family, job status, and social support) predict personal satisfaction in middle-aged women.

Hypothesis 2d: personal satisfaction and growth and development factors predict HPB.

Hypothesis 2e: personal satisfaction, growth and development factors, and HPB predict CVD.

Significance to Nursing

The proposed study is innovative in that it focuses on the concept of personal satisfaction and its relationship with CVD risk and HPB among middle-aged women which has not been previously studied in the literature. The findings from this study would help to understand the impact of personal satisfaction on HPB and CVD risk as a foundation for developing interventions to promote satisfaction and prevent CVD in this population.

The American Nurses Association (ANA) defines nursing as "the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and populations" (ANA, 2010, p. 13). Nurses are concerned with human experience of health and illness across life span to maintain, restore, or improve health. The main goal of nursing is to help individuals, families, groups, and communities maintain and restore health so they can function in their respective roles (King, 1990).

Arab American middle-aged women have an increased prevalence of chronic diseases compared to American women of other ethnic groups (Mellon et al., 2013). Among all chronic diseases, CVD is the main threat for women's health, and the risk increases dramatically during the middle-age stage of a woman's life (WHO, 2017). Personal satisfaction is a psychological factor that may be influenced by developmental changes in middle-aged women. Personal satisfaction sub-concepts (self-satisfaction, life-satisfaction, and health-satisfaction) have been

studied among middle-aged women as outcome variables for several predictors (Kalka, 2016; Rauch et al., 2010; Song, Kim, & Park, 2015; Steca et al., 2013). These sub-concepts were investigated for its indirect association with CVD risk through its association with CVD risk factors such as depression, inflammatory response to acute stress, and preterm birth (O'Donnell, Brydon, Wright, &Steptoe, 2008; Ornat et al., 2013; Orr et al., 2012). However, personal satisfaction sub-concepts and their relationship to CVD risk and HPB have not been investigated in the population of Arab American middle-aged women. Using personal satisfaction as a predictor for CVD risk among Arab American middle-aged women would help to understand the psychological reaction to this transitional age period and its influence on increasing women's risk for CVD. Because HPB is essential to prevent CVD and predict future CVD risk, it is necessary to examine the relationship between personal satisfaction and HPB.

The proposed study will advance the discipline of nursing and nursing science. Understanding the impact of the developmental related factors on HPB and CVD risk among middle-aged women would advance the nursing science by generating new knowledge. Focusing on the psychological impact of the developmental related changes during this period of age could explain the increased risk of CVD among middle-aged women. The new generated knowledge would impact the discipline of nursing by improving the practice of CVD prevention and incorporating personal satisfaction in preventive nursing services and interventions. In addition, testing the existence of the relationships between these concepts would be the first step toward theory development for the impact of personal satisfaction on CVD risk prediction, and would be the first step that may guide other researchers to test causal relationships through experimental studies, cohort studies, or case-control studies. By considering psychological reaction to developmental related changes to understand CVD risk and HPB among middle-aged women,

nurses would be able to help those women to maintain, restore, and/or improve their health and to function within their socially respective roles.

CHAPTER 2 LITERATURE REVIEW AND THEORITICAL FRAMEWORK

Cardiovascular Disease Risk Disparities among Middle-Aged Women

Cardiovascular Disease Risk Factors among Women

CVD is the main threat for middle-aged women's health. Women's risk for CVD increases dramatically as they reach their middle-age stage (WHO, 2017). Numerous studies have been conducted to understand the impact of the physiological changes, female-related factors, and psychosocial factors on women's CVD risk. The physiological changes, mainly menstrual cessation and hormonal changes, were debated for a long time to be the main cause for the increased CVD risk among middle-aged women. However, research evidence did not support this claim.

Using hormonal replacement therapy (HRT) either near menopause or post-menopause has been positively linked to heart attack, stroke, breast cancer, ovarian cancer, and many other complications (Gebbie, 2007; Hulley et al., 1998; "The Women's Health Initiatives Steering Committee," 2004; Welnicka-Jaskiewics & Jassem, 2003). Hulley et al., (1998) conducted a randomized control trial to test whether estrogen plus progestin would prevent a second heart attack among 2,700 women with existing coronary heart disease. During the first year of HRT, women in the study had a 50 percent increased incidence of heart attack and stroke. After two years of treatment, women on HRT had less heart disease and fewer heart attacks and strokes compared with women not taking HRT. After five years of follow-up, Hulley and others (1998) concluded that there was no significant effect of HRT on decreasing heart disease or heart attack risk after five years. The Women's Health Initiatives Steering Committee (2004) conducted a large randomized control trial that involved more than 160,000 women to assess the effects of HRT in postmenopausal women ("Women's Health Initiatives Steering Committee," 2004). They found

that long-term use of HRT increased the risk of heart attack and stroke ("Women's Health Initiatives Steering Committee," 2004). Both RCTs, Hulley et al., (1998) and Women's Health Initiatives Steering Committee (2004), concluded that HRT should not be used as primary prevention for CVD in menopausal women.

In addition to menstrual cessation and hormonal changes, several female related factors were examined for its impact on women's risk for CVD. Parker et al. (2014) examined the association between the history of pregnancy loss and CVD among a cohort of menopausal women. It was found that pregnancy loss, stillbirth, and miscarriage were significantly associated with increased risk of future CVD (Parker et al., 2014). Moreover, women with a history of menstrual cycle irregularity or preeclampsia were found to be at increased risk of future CVD complications (Ahmed, Dunford, Mehran, Robson, Kunadian, 2014; Arslanian-Engoren, 2011).

Similarly, several psychosocial factors were linked with CVD risk in middle-aged women. May-Ling, Loxton, and McLaughlin (2015) stated that women who had a history of physical, mental, emotional, or sexual abuse or violence early in life were more likely to experience CVD later in life. Depression, anxiety, stress, and psychological symptoms were positively associated with increased CVD risk factors, CVD incidence, and/or mortality (Castañeda et al., 2016; Im et al., 2016; Kershaw et al., 2014; Rutledge, Kenkre, Thompson, Bittner, & Whittaker, 2016; Rutledge et al., 2012; Rutledge et al., 2014). In addition, perceived social support was found to have a direct and buffering impact on CVD risk. Kershaw et al. (2014) noted that the lower rates of perceived social support had a direct association with higher CVD incidence among middle-aged and older women. Perceived social support was found to moderate anger associations with CVD risk (Puterman et al., 2014). Among women with lower perceived social support who reported higher levels of anger, CVD risk was significantly higher than those who reported high

perceived social support (Puterman et al., 2014). Although these findings are important to understand CVD risk among women and to identify at risk women, none of these factors are specific for middle-age period nor did these studies included only middle-aged women. To understand the CVD disparities among middle-aged women, researchers need to consider the developmental changes that they go through and its impact on their health.

Cardiovascular Disease Risk among Minority Versus Non-Minority Racial Populations

The risk for CVD increases as women age across all racial groups, and it is the leading cause of death among women across all racial groups as well (WHO, 2017). Yet, there are continuous CVD risk disparities across racial groups (American Heart Association, 2014). Many racial minority populations have higher risk for CVD events, higher risk for related risk factors, or higher risk for mortality due to CVD compared to non-minority populations. African Americans are nearly two times more likely to have a first stroke than White Americans (American Heart Association, 2014). Survival to 30 days after discharge among African Americans and Hispanic is lower than White Americans (American Heart Association, 2014). Diabetes and obesity which are among the main risk factors for CVD are higher among African Americans and Hispanic (American Heart Association, 2014). Arab Americans were found to have higher prevalence of CVD and other chronic diseases compared to other racial groups in the USA (Al Suwaidi, 2016). Arab American middle-aged women were more likely to be diagnosed with chronic diseases including CVD before the age of 50 than American women of other racial groups (Mellon et al., 2013). These statistics pinpoint the increased CVD risk factors, CVD morbidity, and CVD mortality among middle-aged women of racial minority populations.

The increased CVD risk disparities among middle-aged women of racial minority populations does not only affect their personal health and wellbeing but also affects their social

functioning in their families and communities. For example, having a high CVD risk means being obese, smoker, diabetic, hypertensive, and/or having high cholesterol level. A middle-aged woman with such risk factors may not be able to provide social roles, resulting in dynamic tension in the family system and social system. Brittain, Taylor, and Wu (2010) found family functioning, especially family adaptability, was significantly associated with blood pressure among African American women and suggested routine assessments of family functioning among African American women to prevent high blood pressure and reduce its complications. Moreover, women with diabetes were found to have family impairment more than women without diabetes resulting in lower quality of life in women with diabetes compared to women without diabetes (Azmoude, Tafazoli, & Parnan, 2016). These findings emphasized the need to handle the problem of CVD risk disparities and advocate for health equality.

Arab American Middle-Aged Women

Arab population in the United States (U.S.) is a growing population due the wars and other economic factors in the middle east countries. According to the Arab American Institute (2015), it is estimated that about 3.7 million Americans trace their roots to an Arab country. They are found in every state, but 94% of them live in Metropolitan Los Angeles, Detroit, New York, Chicago, and Washington (Arab American Institute, 2015). Arab Americans are diverse in their countries of origin, social cultures, and immigration experiences that have shaped their ethnic identity in the U.S. While the first waves of Arab immigrants were mostly Christian Arabs, Arab American Muslims represent the fastest growing segment of the Arab American population (Arab American Institute, 2015). Despite the fact that Arab Americans are diverse in their cultures and beliefs, they are not recognized as an ethnic category on the U.S. Census. Thus, demographic and other related information is always limited.

Arab American middle-aged women play unique roles in their families as mothers, sisters, daughters, or wives, and those roles are mainly acquired from their culture. For example, they often manage family members' health and serve as the home care provider. They may need to provide care for their children, their adult children, and their parents simultaneously. Arab American middle-aged women also play a role model for individuals younger than them in their families and their communities. Therefore, they have an important role in transitioning healthy lifestyles and healthy behaviors to next generations.

Several sociocultural factors have been found or suggested to affect the health and disease risk of Arab American women. El-Sayed and Galea (2009) suggested that immigration, acculturation, and discrimination could contribute to several diseases including CVD and risk factors among Arab Americans. Cultural beliefs and personal experiences were found to influence Arab American women's perspective regarding chronic diseases' risk (Mellon et al., 2013). For example, they may underestimate their risk due to knowledge deficit or avoid preventive services due to cultural beliefs. Moreover, stigma, fears, and misconceptions about the disease risk were barriers that affected Arab American women's participation in preventive services (Mellon et al., 2013).

Because Health Promoting Behavior (HPB) is a key to prevent CVD and other chronic diseases, Aqtash and Servellen (2013) explored HBP among Arab American adults. The mean score for HPB was 2.73 (range 1–4), with spiritual growth and interpersonal relations were the most frequently reported dimensions, and physical activity was the least frequently practiced dimension of HPB (Aqtash & Servellen, 2013). Health insurance, acculturation, self-efficacy, and social support were significantly found to be determinants of HPB among Arab American adults

(Aqtash & Servellen, 2013). Unfortunately, these data were not analyzed by gender so we cannot generalize the findings on Arab American women.

Although the current literature related to the health of Arab American women is limited, the need to eliminate the health disparities among this population is clearly noted. Classifying Arab American under the category of White American may hide the reality regarding the health of this specific population.

Strategies to Ameliorate CVD Risk Disparities

Numerous studies have been conducted to explore CVD risk disparities among middle-aged women of minority populations. Previous studies suggested that population-based approach is the key to understand and mitigate racial and ethnic disparities in CVD (Graham, 2014). Public health care providers should be culturally competent to work with middle-aged women of minority populations. Being knowledgeable about their specific beliefs and values could help health care providers to produce culturally sensitive interventions and consultations which is expected to lead to effective outcomes. Understanding social as well as cultural factors that prevent these women from participating in preventive care or HPB would provide some explanation for the CVD disparities and help planning for most effective interventions to reduce these disparities and ensure health equity.

There are number of primary preventive programs that were designed to reduce CVD risk among specific racial groups of minority populations. For example, the Community Health Worker Health Disparities Initiative has developed over the years since its starting in 1994 (National Heart, Lung, and Blood Institute [NIH], 2014). The initiative started as a pilot project in Washington, DC, to raise awareness about CVD risk factors in Hispanic/Latino populations. It has gone through a multicultural expansion in the U.S. to reach African American, American Indian, Alaska Native,

Filipino American communities, and low-resource communities in Argentina, Chile, Guatemala, and Mexico (NIH, 2014). This expansion has been possible through partnerships with several national and community-based organizations to establish a strong network to implement the community-based heart health programs in underserved and minority communities. Through such initiative, many factors associated with CVD risk disparities could be resolved. For example, access to health services, access to screening and preventive health care, and communication between community members and health providers should be enhanced by implementing this initiative.

Because lack of knowledge and misleading information about women's risk of CVD can delay seeking treatment and increase the incidence of sudden death (Koniak-Griffin & Brecht, 2016), many health institutions and organizations focused on the domain of increasing CVD knowledge among minority populations. For example, the National Heart, Lung, and Blood institute (NIH) provides materials and resources for CVD risk and prevention that are specific for each racial group of the minority populations. Such resources should help in advancing and enhancing the knowledge base of those populations regarding CVD risk and preventive strategies.

Affordable Care Act and CVD Risk Disparities

ACA puts great emphasis on the preventive care, accessibility to primary care, and disparities in health care and health outcomes. Several new provisions in the ACA will help reduce and eliminate CVD risk disparities among middle-aged women of racial minority populations. For example, ACA included preventive services as essential health benefits that must be provided by all qualified plans (Lynch, Greeno, Teich, & Delany, 2016). Therefore, those women will be able to get primary prevention services such as periodic blood pressure screening with no copayment. Another provision is that insurance companies cannot reject people with pre-existing conditions.

Being rejected just because they already have preexisting condition accelerates the consequences and increases CVD related morbidity and mortality. According to the ACA, people with preexisting condition will be able to get covered and to receive the appropriate care when needed. In addition to these new provisions, ACA addresses programs to increase the number of primary care providers to be ready to provide primary and preventive care for all populations which will improve availability of health care providers for those women. These programs will promote training, recruitment, and retention methods such as scholarships and assistance with repayment of student loans. Overall, ACA is expected to reduce CVD risk disparities among minorities as they will have equal access to preventive care compared with non-minorities.

Strategies to Ameliorate CVD Risk Disparities in Michigan

Several Strategies to ameliorate CVD risk disparities in Michigan have been established to ensure equal health care access and equal health care quality. For example, the Michigan Department of Health and Human Services (MDHH) created Cardiovascular Health, Nutrition, and Physical Activity section with a vision of creating a heart-healthy and stroke-free Michigan. The mission of Cardiovascular Health, Nutrition, and Physical Activity section is to increase physical activity and healthy eating, reduce CVD disparities, and prevent and control CVD risk factors. This section of MDHH provides integrated efforts on education, policy, and environmental change to meet its vision and mission. The goals of this section of the MDHH can be summarized in the following points: increasing awareness and control of blood pressure, increasing the quality of stroke care, increasing the number of people who have access to healthy foods, increasing fruit and vegetable consumption, increasing physical activity participation, addressing the social determinants of health, increasing health equity, and reducing health disparities among high risk populations. In addition, the Cardiovascular Health, Nutrition, and Physical Activity section

provides several resources for individuals, professionals, and communities regarding CVD risk and prevention strategies in several languages, English, Spanish, and Arabic. The success of this section was achieved by the ability to coordinate interventions with multiple partners in the community of racial minorities.

Community Change Initiatives is one example of primary prevention programs implemented by Cardiovascular Health, Nutrition, and Physical Activity section. It focuses on working with local partners to facilitate community changes that support healthy behaviors such as increasing physical activity and healthy food. Five A Day for Better Health Program is another prevention program by Cardiovascular Health, Nutrition, and Physical Activity section aimed to reduce CVD risk disparities in Michigan. The section collaborated with over 200 agencies to increase consumption of fruits and vegetables to an average of five or more servings a day. Youth Initiatives is a program in which the section partnered with schools, communities, and health care providers to implement interventions that promote healthy weight and healthy eating and increase physical activity. Lastly, Priority Population Projects is a preventive program aimed to reduce CVD risk disparities in Michigan. The section Collaborated with community agencies, faith-based organizations, and hair salons to implement healthy eating, physical activity and obesity prevention strategies tailored to the needs of African American, Latino, and elderly populations ("Cardiovascular Health, Nutrition and Physical Activity Section," n.d.).

In addition to Cardiovascular Health, Nutrition, and Physical Activity section initiatives and collaborations, the Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN) program was created through CDC to help women understand and reduce their risk for CVD by providing services to promote heart-healthy lifestyles. The program provides CVD risk factor screenings and services that promote healthy behaviors for low-income,

uninsured, and underinsured women aged 40 to 64 years. The WISEWOMAN program currently consists of 21 programs in 19 states including Michigan and 2 tribal organizations (CDC, 2018a).

In regard to racial-targeted CVD prevention programs in Michigan, the Cardiovascular Health in the African American Population (CHAAP) program was designed to reduce CVD risk disparities among African Americans. CHAAP focuses on reducing CVD risk through optimal prevention and increasing awareness ("Grand Rapids African American Health Institute", 2017). The goals of CHAAP are to track the prevalence, incidence, and progression of CVD and its risk factors in the African American population in Kent County/West Michigan, and to use the data to examine the effectiveness of current care.

In short, the initiatives and collaborations in Michigan regarding CVD risk disparities are clearly working toward eliminating CVD risk disparities among middle-aged women of racial minority populations. Implementing the ACA provisions and providing preventive programs targeted to racial minority populations are such examples. Although some of these programs do not focus on middle-aged women in particular, they are still included in the population of interest for those programs. Efforts are still needed, however, to consider and reach all underserved minority populations, particularly Arab Americans as there is no published research for CVD preventive program or intervention in Arab Americans.

Personal Satisfaction and Health Outcomes

The concept of personal satisfaction is defined in this study as an individual's experience of being content with one's self, health, and life during this specific period of age. The sub-dimension self-satisfaction was found to have an association with heart rate and inflammatory responses to acute stress which suggest that self-satisfaction protects against the development of CVD (O'Donnell, Brydon, Wright, &Steptoe, 2008). This sub-dimension of personal satisfaction

was investigated as a dependent variable for several predictors (Song et al., 2015; Sorenson, 1990; Zhao et al., 2015), but has not been investigated as in-dependent variable for health outcomes. Several predictors of self-satisfaction were highlighted from the literature including affirmatory communication and pregnancy timing among pregnant women (Sorenson, 1990); meditation practicing among Indian population (Ramesh, Sathian, Sinu, & Kiranmai, 2013); parent-adolescent conflict frequency among Chinese adolescents (Zhao et al., 2015); and class-based task-oriented circuit training (CTCT) among patients who had been diagnosed with hemiplegia due to stroke (Song et al., 2015). Although all these predictors are not related to middle-aged women, they pinpoint the fact that self-satisfaction could be affected by individual experiences. The experience of the developmental changes that occur during the middle-age stage may have a role in predicting self-satisfaction. However, self-satisfaction has not been examined among Arab American middle-aged women to predict health outcomes.

Life-satisfaction has been studied among middle-aged women. Kalka (2016) assessed the general level of life-satisfaction and the frequency and effectiveness of proactive coping strategies in a group of middle-aged women with type 2 diabetes. It was found that middle-aged women were more likely to be dissatisfied about their life and health (Kalka, 2016). Life satisfaction and its improvement predicted reduced bone loss (Rauma et al., 2014) and sexual functioning (Ornat et al., 2013) in middle-aged women. In addition, life satisfaction was significantly associated with preterm birth (Orr, 2012); total quality of life, sexual quality of life, depression (Ornat et al., 2013); and self-rated health (Daroudi, Rashidian, Zeraati, Oliyaeemanesh, & Sari 2016). These findings imply that life satisfaction has an indirect association with CVD risk through its direct impact on CVD risk factors such as depression and preterm birth. Therefore, examining the direct association of personal satisfaction with CVD risk among middle-aged women is needed.

Health-satisfaction is often utilized in the literature as an outcome rather than a predictor. Some studies assessed health satisfaction under life satisfaction by evaluating women's perceptions of their physical health. Other studies used the concept of health-related quality of life, perceived health status, or subjective health to assess individuals' satisfaction with their health. Among patients with CVD, health satisfaction was associated with illness perception and self-efficacy beliefs (Greco et al., 2015; Steca et al., 2013). Health related quality of life was associated with CVD risk among adult Koreans (Ko, lee, Shin, & Jo, 2015). In addition, perceived health status, which was defined as either self-rated health (Rutledge et al., 2016) or self-reported physical and mental health (Saquib et al., 2013), was a significant predictor for CVD events and mortality among women. Social factors such as the capacity to work, opportunities for leisure activities, and enough money to meet needs were significant predictors for health satisfaction among adults over the age of 60 in Canada and Brazil (Paskulin & Molzahn, 2006), while being divorced was significant predictor of health dissatisfaction in adult population of Iran (Daroudi et al., 2016). Among combat veterans with post-traumatic stress disorder, depression was a significant predictor of health dissatisfaction (Rauch et al., 2010). These findings, therefore, support the need to investigate the impact of personal satisfaction, as an independent factor, on CVD risk in middle-aged women.

PRIOR WORK

Psychosocial Predictors for Cardiovascular Disease Risk

A brief definition of psychosocial was given by the Merriam-Webster Dictionary as "involving both psychological and social aspects" (Merriam Webster Dictionary, n.d.). Psychosocial factors include- but are not limited to- feelings, perceptions, psychological symptoms, stress, and stressors in the environment, workplace, and social context (Yammine,

Kang, Baun, & Meininger, 2014). Psychosocial factors affect the quality of life and the causal pathway to somatic disease (Singh-Manoux, 2003). The link between psychosocial factors and CVD risk has been established in the literature (Hur, Cho, & Kim, 2014). Psychological symptoms, particularly depression and anxiety, were inversely associated with HPB and quality of life among women (McMahon et al., 2017; Savoy & Penckofer, 2015). Psychosocial stressors, particularly those are related to workplace, account for more than 120,000 deaths per year and about 5%–8% of annual healthcare costs in the United States (Goh, Pfeffer, & Zenios, 2015). Understanding the effects of psychosocial factors are of particular important during the middle-age of woman's life due to the developmental related changes that accompany this stage of life (Polan & Taylor, 2007).

A systematic review was conducted to explore the psychosocial factors that contribute to CVD risk in middle-aged women and to determine if there are racial or ethnic disparities based on those psychosocial factors. The intent of the review was to identify themes from the research regarding the psychosocial factors in order to better understand CVD risk among minority and nonminority middle-aged women. Through a greater understanding of these factors, public health nurses would be able to provide meaningful and effective care to this population. Incorporating the significant psychosocial factors in preventive programs and intervention and considering racial differences would help health care professionals to ameliorate CVD risk disparities among middle-aged women.

Finding Relevant Studies. To search for relevant studies, three databases were used CINAHL, Psych-Info, and Web of Science. The Keywords "*Cardiovascular risk among women AND psychosocial factors, Psychological symptoms AND CVD, Psychological affects AND CVD, Stressors AND CVD, and Perceptions AND CVD*" were used to find studies. In all the three databases used, the search was limited by being peer-reviewed articles, written in English

language, prospective or retrospective correlational study or experimental study, and done in the United States. A study was included in this review if it reports gender-based results. For the purpose of capturing all studies on middle-aged women, the inclusion criteria accepted all studies that included female participants as long as the middle-aged group was included in the sample or the mean age was from 40 to 65 years to allow comparing studies and to find gaps in literature. In addition, the inclusion criteria were not limited to studies that report racial-based analysis or have racial based participants due to the limited number of studies in this regard. The preliminary search revealed 62 articles from the three databases. However, after screening titles and removing duplicates, only 17 studies met the inclusion criteria. The excluded studies were not related to the topic, didn't report gender-based data analysis, did not include middle-aged women, was done in countries other than the United States, was written in languages other than the English language, and/or was qualitative approach. The search process ended up with a final of 17 articles were included in the review (see Figure 1 for more details on study selection process).
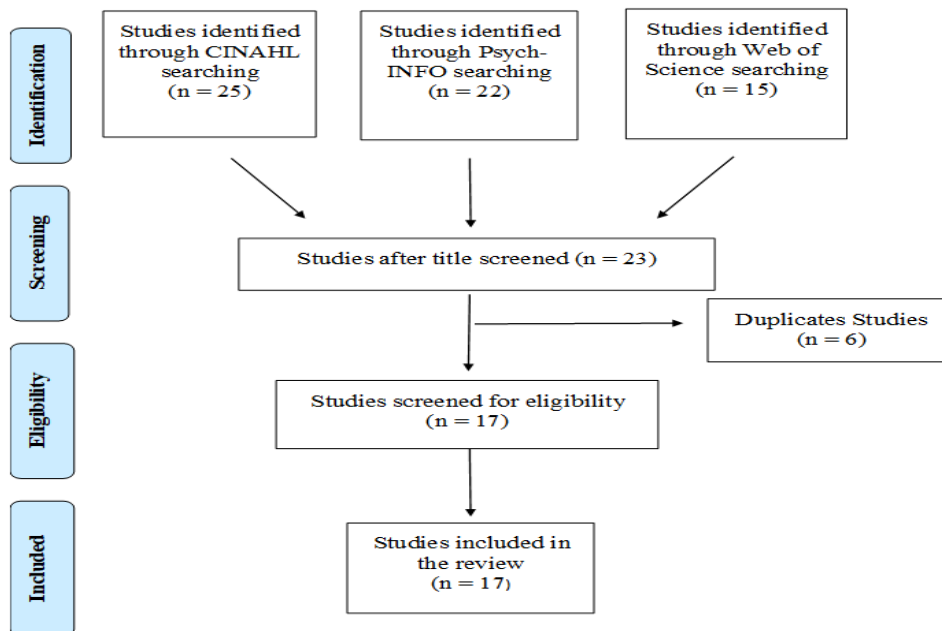
Figure 1. Summary of Study Selection Process for the Psychosocial Predictors Review

Description of Included Studies. The majority of the studies (*n* = 13) were secondary data analysis for cohort and longitudinal data. The remaining studies (*n* = 4) were two cross-sectional studies, one longitudinal study, and one quasi-experimental study. Most of the studies (*n* = 11) included different racial groups in the sample with the majority being White Americans. Three studies didn't provide detailed information about racial groups of the participants, and few studies (*n* = 5) were racial-based studies focusing on Hispanic Americans, Arab Americans, or African Americans. Importantly is that only one study focused mainly on middle-aged women and did not mix this age group with other ages when studying psychosocial factors and CVD risk in women. Although most of the studies mixed middle-aged women with other age groups, middle-aged women were included in each study and/or the mean age was within the middle-age range (40-65 years). See Appendix A for summary of reviewed studies for the psychosocial predictors of CVD risk.

Results. Several psychosocial factors have been correlated with CVD events, risk factors, or mortality among middle-aged women across different racial groups in the reviewed studies. Those factors were classified into two main themes: (1) negative affect and psychological symptoms; (2) social and personal stressors. See Appendix B for summary of the psychosocial themes and the major findings for each theme.

Negative Affect and Psychological Symptoms. Multiple negative affect and psychological symptoms have been correlated with CVD events, risk factors, or mortality across reviewed studies including depression, anxiety, anger, fear, hostility, and psychological symptoms. All these factors were studied among different racial groups in which no racial differences were reported. Consistent findings across all reviewed studies were noticed which highlight the importance of

considering those negative affect and psychological symptoms when assessing CVD risk or planning to reduce its disparities.

Depression as defined by high depression symptoms score, antidepressant use, or depression treatment was adversely associated with CVD events, CVD mortality, and CVD risk factors among women across the reviewed studies (Castañeda et al., 2016; Rutledge et al., 2016; Rutledge et al., 2014; Rutledge et al., 2012; Tailakh et al., 2016; Whittaker et al., 2012; Windle and Windle, 2013; Zambrana et al., 2016). Depression not only predicted CVD risk factors and CVD outcomes, it also mediated the relationship between modifiable CVD risk factors and CVD outcomes. For example, a secondary data analysis of longitudinal-observational study revealed that diabetes and smoking status, which are main CVD risk factors, were more strongly associated with CVD outcomes among participants with lower depression symptoms scores, whereas waist–hip ratio values were more associated with CVD outcomes only among those with higher depression symptoms scores (Rutledge et al., 2012). Moreover, the relationship between depression and CVD varies depending on other factors. Depression symptoms were identified to be higher among Latino women who were obese and smoker (Castañeda et al., 2016) making them at higher risk for CVD compared to women with lower depression symptoms who were less likely to be obese or smoker. Similarly, Zambrana et al. (2016) reported that, among Latino women, higher depression scores were also associated with higher systolic blood pressure (SBP), and Whittaker et al. (2012) added that depression was associated with higher body mass index (BMI) and diastolic blood pressure (DBP). Dietary habit was another factor that mediated the relationship between depression and CVD. Fiber intake and fruit and vegetable consumption mediated associations between depression and time to CVD events (Rutledge et al., 2014).

Moreover, recurrent depression state was investigated against single depression episode to predict CVD and its risk factors. Results of secondary data analysis from longitudinal study (five-year interval) found that single episode of depression did not predict CVD event or risk factors after controlling for eight covariates (age, education, BMI, alcohol use, cigarette use, lifetime anxiety disorder, stressful events [past 12 months], and stressful events [3 years prior to past 12 months]), whereas recurrent depression significantly predicted CVD risk factors and diabetes (Windle & Windle, 2013). Unfortunately, single episode versus recurrent depression state was investigated in only one study which limits the comparability of the findings.

In addition to depression, anxiety was another negative affect that was significantly correlated with CVD mortality and CVD risk factors, but not CVD events. Unlike depression, anxiety was investigated for only direct association with CVD event, CVD risk factors, and CVD mortality but not for mediating effect. Only one study investigated anxiety was racial-based study focusing on Hispanic Americans (Castañeda et al., 2016); the remaining studies ($n = 3$) were multiracial studies with the majority of the participants being White Americans. Anxiety significantly predicted time to CVD mortality among women with suspected coronary artery disease (Rutledge et al., 2016), and was associated with CVD risk factors such as dyslipidemia, obesity, diabetes, current smoking, and hypertension among Latino women (Castañeda et al., 2016). Anxiety was investigated along with other affect state such as anger and fear, for its correlation with the proinflammatory cytokine interleukin-6 (IL-6) which has been proven to predict CVD morbidity and mortality.

Puterman et al. (2014) conducted a quasi-experimental study to examine the relationship between negative affect (anger, anxiety, and fear) and IL-6 stress reactivity and to determine whether perceived social support mitigates that relationship among postmenopausal women.

Perceived feeling of anger was the only affect that was found to be significantly associated with IL-6 stress reactivity (Puterman et al., 2014). Those participants who reported experiencing high anger after the stressor had significant increases in IL-6 (Puterman et al., 2014). Moreover, perceived social support was found to mitigate anger associations with IL-6 stress reactivity (Puterman et al., 2014). Among women with lower social support who reported higher levels of anger, IL-6 stress reactivity was significantly higher than those who reported high perceived social support (Puterman et al., 2014). That means the higher level of IL-6 which is predicted previously to be associated with higher CVD mortality is not influenced by anxiety or fear feeling. However, these findings should be taken with caution because it is based on only one study and it was not a randomized control trail design.

Similar to anxiety, hostility and aggression were found to have significant correlations with CVD risk factors but not CVD events (Whittaker et al., 2012). These two affects, in addition to fear, were associated with higher SBP, DBP, and BMI (Whittaker et al., 2012). Only one study used the concept of psychological symptoms as a whole, without dividing it into the previously described negative affect. Im et al. (2016) investigated the relationship between psychological and cardiovascular symptoms in a multiethnic group of middle-aged women. They operationalize the psychological symptoms by using the Midlife Women's Symptom Index, psychological subscale. They found that the total numbers and total severity scores of psychological symptoms were significantly related to those of cardiovascular symptoms as a whole and in each racial/ethnic group (Im et al., 2016). An important aspect of this study is that it was the only study focused particularly on middle-aged women, and the only study emphasized racial differences across the participants. However, there are some points limit the transferability of these findings. For example; although the tool was described in detail, no information was given about the symptoms

measured by that tool. Even in the results section, only the total number of psychological symptoms in correlation with the total number of CVD symptoms was reported, no descriptive analysis was given. Although, these findings spotlight the significance of the psychological health during middle-age period of women's life regardless their racial/ethnic background, more studies are needed to support these findings and to allow the generalizability.

Social and Personal Stressors. Social and personal stressors is the second theme for the psychosocial factors studied across the reviewed studies. This theme includes social support, perceived personal health, spiritual activity, stress, acculturation, and rotating night shift. These factors were investigated for their correlations with CVD events, CVD risk factors, and/or CVD mortality. Social and personal stressors were studied in different racial groups studies as well as racial-based studies.

In addition to the indirect effect of social support on CVD risk (Puterman et al., 2014), social support had direct association with CVD incidence among middle-aged and older women (Kershaw et al., 2014). However, after controlling for other psychosocial factors, Rutledge et al. (2016) found that social support was not a significant predictor of mortality among women with suspected coronary artery disease. Similarly, perceived health status which was defined as either self-rated health (Rutledge et al., 2016) or self-reported physical and mental health (Saquib et al., 2013) was a significant predictor for CVD events and mortality. But, as with social support, after controlling for other psychosocial factors, Rutledge et al. (2016) found that perceived health status to not be a significant predictor for CVD mortality among women with suspected coronary artery disease. In addition, Saquib et al. (2013) reported that only perceived physical health was a strong predictor of CVD events and mortality in postmenopausal women but not perceived mental health.

Stress and stressful life events was another personal and social stressor that predicted CVD risk across the reviewed studies. Among African American women and Latino women, a secondary data analysis revealed that higher stress levels were positively associated with CVD risk factors hypertension, diabetes, obesity (Gebreab et al., 2012), and current smoking (Castañeda et al., 2016). In addition, stress was found to contribute to the associations of income level with diabetes, hypertension, and obesity in African American women (Gebreab et al., 2012). After adjusting for stress status, the association between income and diabetes, hypertension, and obesity reduced indicating the indirect effect of stress in CVD risk factors (Gebreab et al., 2012). Stress was also correlated with CVD events in multiracial-based study. Kershaw et al. (2014) found that in addition to social support, higher stressful life event was associated with higher CVD events independent of sociodemographic factors and depressive symptoms. There are consistent findings regarding the contribution of stress to CVD events and risk factors regardless of the racial groups of the participants. Thus, it reinforces the critical role of health care providers to evaluate and consider the stressors in women's life to reduce their CVD risk.

In addition to stress, acculturation as personal and social stressor was found to have an association with CVD risk among middle-aged women. Acculturation, defined as a process of cultural and psychological change resulting from adopting the cultural traits or social patterns of another group, was correlated with CVD risk factors among Latino and Arab American populations. López, Peralta, Lee, Zeki Al Hazzouri, and Haan (2014) and Tailakh et al. (2016) both conducted cross-sectional studies to investigate the relationship between acculturation and CVD risk factors among two different racial groups. Among both racial groups, women were less likely to be acculturated with the American culture than men (López et al., 2014; Tailakh et al., 2014). Acculturation was found to have positive correlations with CVD protective factors and

negative correlations with CVD risk factors which highlight its role as a social and personal stressor. For example, among Latino women, López et al. (2014) found that acculturation was negatively associated with SBP and low-density lipoprotein (LDL), and positively associated with high-density lipoprotein (HDL). The same study found that acculturation was associated with lower prevalence of CVD among Latino women (López et al., 2014). Among Arab Americans, acculturation was positively significantly associated with physical activity and body mass index across the whole participants (male and female), and negatively, but not-significantly, associated with blood pressure control, DBP, and age (Tailakh et al., 2014). When women were analyzed separately, however, they did not find significant correlations between being female and acculturation, diastolic BP, BP control, BMI, nutrition, and physical activity (Tailakh et al., 2014). These findings are consistent with the Latino study in which they found no association between acculturation and diabetes, BMI, or physical exercise among Latino women (López et al., 2014).

It seems that among Latino women, acculturation was found to have more significant correlations with CVD risk factors than with Arab American women. Many factors could contribute to this variation but important factors to be noted here are the number of the participants and their age groups. In the Latinos study, the total number of the participants was 1789 aged 60 or older (López et al., 2014). While in the Arab Americans study, the total number of the participants was only 126 aged 18 years or older (Tailakh et al., 2014). Therefore, the results from Latino study should be interpreted cautiously for middle-aged women because the participant age included only six ages (60, 61, 62, 63, 64, and 65) of the middle-age stage. Overall, both studies supported the association between acculturation, as a social and personal stressor, and CVD risk and provide some explanations for the increased CVD risk among middle-aged women of minority groups, Hispanic Americans and Arab Americans in particular. In addition to acculturation, one

study from the 17 reviewed studies identified spiritual activity as another stressor that increases women's risk for CVD (Salmoirago-Blotcher et al., 2013).

Spiritual activity, operationalized by self-reporting the frequency of spiritual activity: prayer, Bible reading, and meditation, was another personal and social stressor correlated with CVD risk among middle-aged women (Salmoirago-Blotcher et al., 2013). Women who reported daily spiritual activities had a significantly increased risk for CVD events compared with women who did not report such activity, and the risk increased as the frequency of spiritual activity increased (Salmoirago-Blotcher et al., 2013) which is consistent with the other personal and social stressors discussed earlier in this section. This finding is inconsistent, however, with the view of that during middle adulthood, spirituality and religious faith become a way to cope with stress, losses, disappointment, and difficulties (Hutchison, 2015). Therefore, more studies are needed to reach a valid conclusion regarding spiritual activity and CVD risk with rigorous control for other confounding factors.

Lastly, job stressor was another psychosocial factor classified as personal and social stressor and was found to have an association with CVD risk among middle-aged women (Slopen, Glynn, Buring, Lewis, & Williams, 2012; Vetter et al., 2016). High strain jobs (defined as low demand and high control) and active jobs (defined as high demand and high control) were associated with increased CVD risk among women while job insecurity was significantly associated with CVD risk factors (Slopen et al., 2012). Similarly, rotating night shift work, conceptualized as ≥ 3 night shifts per month plus day and evening shifts, was significantly correlated with CVD risk among women (Vetter et al., 2016). Vetter et al. (2016) reported that increasing years of baseline rotating night shift work was correlated significantly with higher CVD

risk, and CVD risk decreased after cessation of night shift work. These findings are consistent with the other social and personal stressors discussed earlier in this section.

The findings from the reviewed studies pinpoint the significant role of the psychosocial factors in predicting CVD events, risk factors, and mortality. Those factors do not only cause death, but can also cause long-term debilitating effects on the health of middle-aged women such as increasing their risk for other chronic diseases and reducing the quality of their life (McMahon et al., 2017; Savoy & Penckofer, 2015). Therefore, the findings reinforce the importance of measuring those factors and controlling them when planning to reduce CVD risk and mortality. Importantly, psychosocial predictors should be considered in research related to CVD risk and chronic disease prevention.

The current literature, however, provides limited evidence for the effect of psychosocial factors on CVD risk disparities among middle-aged women. There is consistency across the reviewed studies regarding the association between these psychosocial factors and CVD events, risk factors, or mortality among women. Nevertheless, most of these studies were secondary data analysis from cohort and longitudinal studies in which the participants were not limited to middle-aged group. Middle-aged women across all reviewed studies except Im et al. (2016) were mixed with younger or older women. In addition, across those secondary analysis studies, the psychosocial factors were measured at baseline while the outcomes were measured many years after the initiation of the study. Because at the baseline some participants from some studies were younger than 40 or older than 65 years we cannot generalize the findings of these studies on middle-aged women in particular.

Middle-aged women need to be studied in separation from other age groups to understand the impact of the psychosocial factors on their CVD risk and to explain the CVD risk disparities.

Middle-age stage in women's life involves not only physiological changes but also social changes that may affect their perceptions regarding themselves and their overall functioning (Specht & Craig, 1987). Given that psychological symptoms were significantly associated with CVD risk among middle-aged women (Im et al., 2016), there is a need to examine the impact of psychosocial factors that are significant during this transitional age period and test their associations with CVD risk among middle-aged women. Doing so would help to ameliorate CVD disparities among middle-aged women.

CVD Disparities among Racial Minority Groups. Although CVD risk disparities across racial groups are apparent in the statistics (American Heart Association, 2014), it was underemphasized in the reviewed studies. Im et al. (2016) was the only study that stratified the participants by race and analyzed data by race. Across the reviewed studies, five studies were racial-based studies focusing on Arab Americans, Hispanic Americans, or African Americans, compared to 12 studies had a combination of racial groups. Three of the twelve studies did not provide description of the participants' racial background, and nine of them had the majority of the participants being non-Hispanic White Americans. Therefore, the reviewed studies revealed the underrepresentation of the racial minorities on CVD research. While those racial minorities were found to have greater risk to CVD compared to White Americans (American Heart Association, 2014), the findings of the current literature seem to represent, mostly, White Americans. CVD risk disparities across racial minorities would be underestimated until they are equally involved in CVD research.

Health Promoting Behavior Among Middle-Aged Women

Although getting older was identified to be the main risk factor for CVD (WHO, 2017), up to 80% of chronic diseases including CVD, stroke, and type 2 diabetes could be prevented by

adopting a healthy lifestyle (Enjezab et al., 2012). Middle-aged women are in need to adopt health promoting behavior (HPB) to overcome age-related diseases such as CVD. The physical and psychosocial changes that occur during middle adulthood may impact the women's ability to participate in HPB. For example, beginning in the 40s, changes in muscles, bones, and joints start to occur which may have an impact on mobility and physical activity (Hutchison, 2015). Middle-aged women would be then at greater risk for physical inactivity and therefore CVD. Therefore, paying attention to HPB among middle-aged women to decrease their disease risk is an undeniable necessity.

A scoping review of HPB among middle-aged women was done to explore research on the topic and to identify key concepts, gaps in the literature, and implications for future research. Inclusion criteria included: (a) female participants only, (b) middle-age group was included in the sample, (c) written in English language, and (d) used the concept of HPB generally and not being limited with one particular behavior such as exercise or diet. A total of 11 articles were extracted from three databases, CINAHL; Pub-Med; and Psych-INFO (see Figure 2 for summary of study selection process).
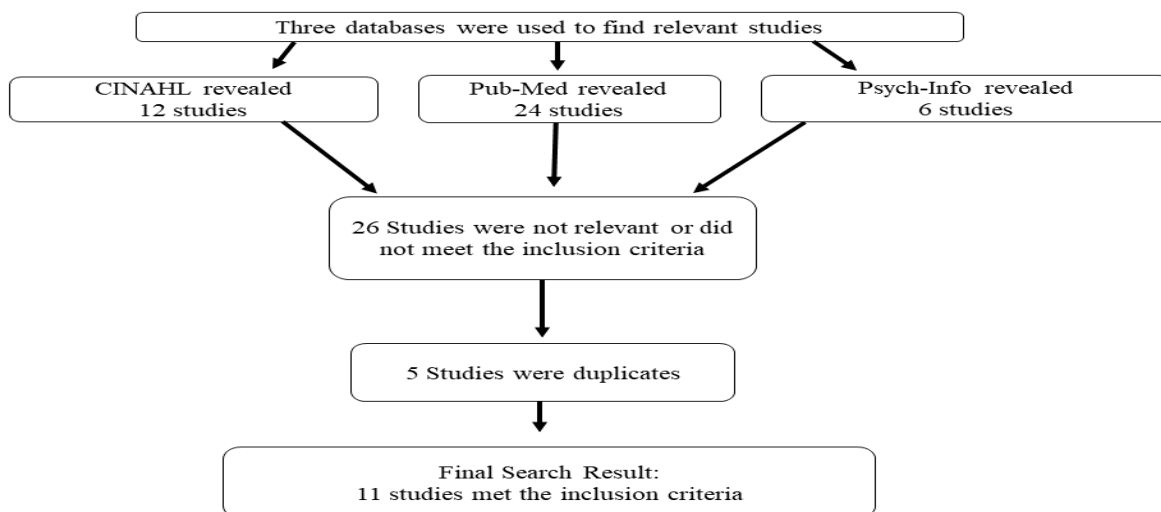
Figure 2. Summary of the Study Selection Process for Health Promoting Behavior Review

The results revealed consistency in the current literature about HPB among middle-aged women in regard to the definition of HPB, the aims of the studies, and the instrument to measure this concept. Pender's definition was used consistently in the literature which encompasses spiritual growth, health responsibility, interpersonal relationships, stress management, physical activity, and nutrition (Pender, Murdaugh, & Parsons, 2011). The Health-Promoting Lifestyle Profile-II (HPLP-II) was used consistently across the studies to measure HPB among middle-aged women (see Appendix C for summary of the reviewed studies on HPB). However, most of the studies did not use or identify a theoretical framework to guide the study which could influence the advancement of nursing knowledge (Barrett, 2002). Many studies (n= 5) did not provide statistical description for the dimensions of HPB. Instead, they provided only demographic description of the participants and inferential statistics to estimate the relationships between the predictors and HPB's dimensions.

Several factors were found to be associated with HPB among middle-aged women. Some of these factors had inconsistent correlations with HPB across the studies. For example, being employed was found to have a negative correlation with HPB in one study (Enjezab et al., 2012) and a positive correlation in another study (Kim et al., 2011). The two studies were conducted in different countries; the first study was conducted in Iran while the second study was conducted in China. Enjezab et al. (2012) had only middle-aged women while Kim et al. (2011) included women younger than 40-year-old. In addition, body mass index, being married, and higher education were found to have positive correlations with HPB in one study (Sehhatie et al., 2015) and no significant correlations in another study (Edmonds, 2010). Sehhatie et al. (2015) and Edmonds (2010) were conducted in different countries and included different age groups. Similarly, having children was found to have a negative correlation with HPB in two studies (Enjezab et al. 2012; Sehhatie et al.,

2015) but no significant correlation in another study (Kim et al., 2011).

There was consistency in the correlations of age, income, and stress level with HPB. Age was examined in four studies, and in all of them, there were positive correlations indicating that HPB increases as age increased (Enjezab et al., 2012; Eshah, 2011; Kim et al., 2011; ŚLusarska et al., 2010). Income was addressed in two studies, and both of them found positive correlations of income with HPB which means that increased HPB was associated with increased income (Eshah, 2011; Sehhatie et al., 2015). Stress level had consistent correlations across reviewed studies. It was examined in two studies and both of them found negative correlations which means that decreased level of stress was associated with increased HPB among women (Cho, Jae, Choo, & Choo, 2014; Edmonds, 2010).

Several other factors were investigated in single studies including health literacy, body image, perceived benefits, role participation, health-related quality of life, health educational program, having chronic disease, interpersonal support, spiritual well-being, and self-efficacy (Hurlbut, Robbins, & Hoke, 2011; Nazari, Farmani, Kaveh, & Ghaem, 2016; Tsai, Cheng, Chang, Yang, & Wang, 2014). All of them showed positive correlations with HPB except health literacy which showed a negative correlation.

In general, growth spirituality had the highest scores compared to all other HPB dimensions across the reviewed studies, and physical activity had the lowest scores compared to all other HPB dimensions across the reviewed studies (a detailed description for HPB dimensions is given in Appendix D). These findings indicate that growth and spirituality behaviors were the most practiced form of HPB, while physical activity was the least practiced form of HPB among women.

Several gaps were noted in the literature regarding HPB among middle-aged women. The current literature focused on examining the relationships between demographic and/or personal

factors and HPB but did not consider the developmental related factors that are specific to the middle-age stage. Most importantly, middle-aged women were mixed with other age groups which limit the generalizability of the findings on middle-aged women.

Cardiovascular Awareness among Middle-Aged Arab American Women

Descriptive cross-sectional pilot study was conducted on a convenience sample of 30 Arab American middle-aged women. The aims of the study were: (1) to describe the CVD and risk factors knowledge among Arab American middle-aged women, and (2) to test the hypothesis of that the mean score of CVD and risk factor knowledge among Arab American middle-aged women is less than the half of the total possible score of the Heart Disease Knowledge Questionnaire (HDKQ). The study was approved by the Institutional Review Board of Wayne State University. Women were recruited from a family clinic, located in Dearborn, MI. Inclusion criteria were: (a) Arab American women, (b) 40 to 65 years old. Women were excluded if they were: (a) pregnant, or (b) diagnosed with CVD. Women who meet the inclusion criteria were introduced to the study, and a research information sheet was given to them to read it carefully before participation and kept with them. Those who accepted participation were given the questionnaires and were required to fill it out before leaving the clinic.

Participants had to fill out two questionnaires: personal/sociodemographic questionnaire to describe personal and sociodemographic data, and Heart Disease Knowledge Questionnaire (HDKQ) to measure CVD and risk factors knowledge. Both questionnaires were provided in the English language. However, due to language limitation of this specific population, the principal investigator (PI) had to interview some participants who were interested to participate but have language barrier. The PI asked them individually each question in the questionnaires using the

Arabic language. All interviews were done in the examination room to insure privacy and confidentiality.

Personal and sociodemographic questionnaire includes questions related to: Age, marital status; having children; family history of CVD; personal chronic disease; health history; educational level; employment status; and menopause status. HDKQ is a scale of 30 items of true, false, and I don't know answers. It was developed based on five dimensions of CVD knowledge: dietary, epidemiology, medical, risk factors, and symptoms which were confirmed by factor analysis (Bergman, Reeve, Moser, Scholl, & Klein, 2011). The overall 30-item scale had an acceptable internal reliability of .73 for examining group level scores on heart disease knowledge (Bergman et al., 2011). The total possible score is 30; higher score indicates higher knowledge level. Data were analyzed using SPSS program version 24. Descriptive statistics: mean, frequencies, and percentages were used to describe the participants and to describe the results of the HDKQ (aim 1). Inferential statistics, one sample *t*-test, was used to test the hypothesis of that the mean score of CVD and risk factor knowledge among Arab American middle-aged women is less than the half of the total possible score (aim 2).

Results. The mean age of the participants was 49.80 years. Most of them were married (66.7%); had less than high school education (43.3 %); not employed (73.3%); had children (96.7 %); did not have any chronic disease (50%), did not have a history of pregnancy loss, stillbirth, or miscarriage (63.3%); did not have a history of preeclampsia (100 %); did not have a history of violence or abuse (96.7 %); had their last menstrual period this month, last month, or within the three months ago (53.4 %). A detailed description for sociodemographic data of the participants is given in Appendix E.

The total number and the percent of the correct answers of each item of the Heart Disease Knowledge Questionnaire is given in Appendix F. The mean total score of the scale was 12.97 which is less than the half of the total possible score. Sub-scales scores were also computed and illustrated in Figure 3. Dietary sub-scale was the only sub-scale that has mean score slightly above the half of the possible total score (3.33 out of 6) which is equivalent to 55.5%. Medical sub-scale had the lowest mean score (2.30 out of 7) which is equivalent to 32.86 %.

Figure 3. Total Scale and Sub-Scales Score for CVD Knowledge
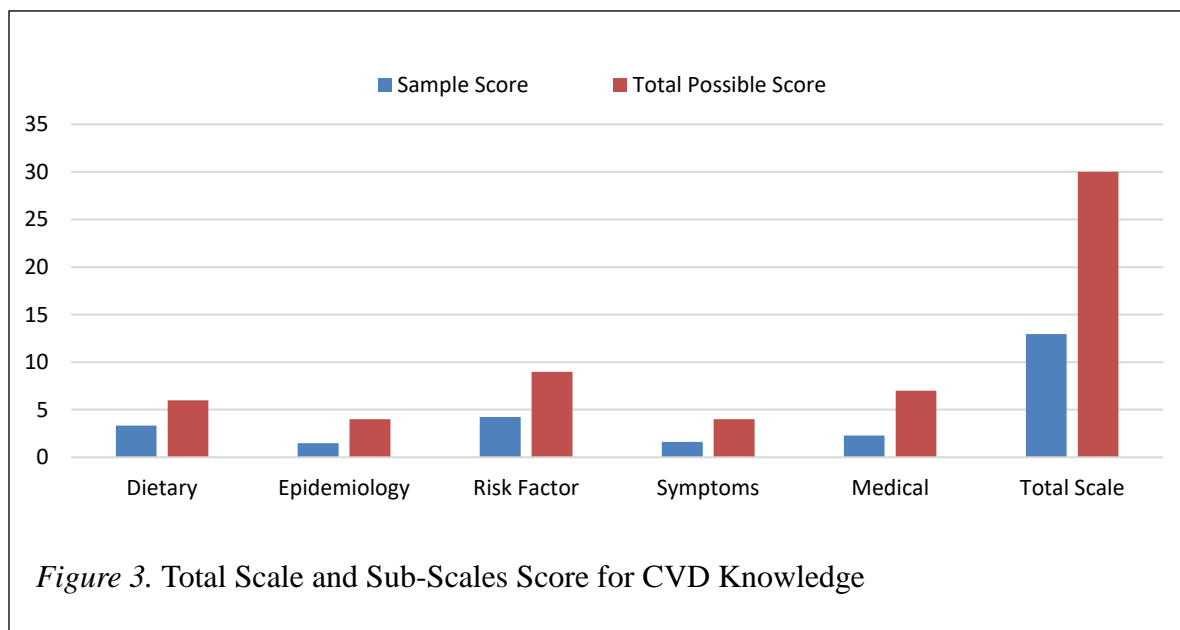
From the dietary sub-scale, more than half of the participants were not aware that polyunsaturated fats are healthier for the heart than saturated fats (53.3%), trans-fats are not healthier for the heart than most other kinds of fats (56.7%), and margarine with liquid safflower oil is healthier than margarine with hydrogenated soy oil (56.7%). On the other hand, more than half of the participants were aware of most of the cholesterol in an egg is not in the white part of the egg (66.7%), dietary fiber lowers blood cholesterol (53.3%), and vegetables are not high in cholesterol (66.7%).

From the Epidemiology sub-scale, more than 60% of the participants believe their risk for CVD decreases after menopause, and 76.7% of them believe women are more likely to die from breast cancer than heart disease. In addition, 63.3% of them believe heart disease is a short-term illness rather than a chronic or long-term illness, and more than 46% of them were not aware of that CVD is the leading cause of death in the USA.

In the risk factor sub-scale, more than 76% of the participants did not know having had chicken pox does not increase the risk of getting heart disease, and more than 93% of them believe stress is the main risk factor of CVD. In addition, 83.3% of them believe smokers are more likely to die of lung cancer than heart disease. Importantly is that only half of the participants believe diabetes increases the risk of getting CVD, and 43.3% of them believe eating high fiber diet increases the risk of getting CVD. From the other side, most of the participants were aware of that eating a lot of red meat increases heart disease risk (73.3%), walking and gardening are considered types of exercise that can lower heart disease risk (80%), and taking an aspirin each day decreases the risk of getting heart disease (66.7%).

In the symptoms sub-scale, less than half of the participants were aware that turning pale or gray is a symptom of having a heart attack (43.3%), feeling weak, lightheaded, or faint is a common symptom of having a heart attack (33.3%). Seventy percent of the participants believe sudden trouble seeing in one eye is a common symptom of having a heart attack. Slightly more than the half of the participants (56.7%) were aware of that men and women experience many of the same symptoms of a heart attack.

In the medical sub-scale, most of the participants (70%) believe most people can tell whether or not they have high blood pressure. Seventy percent of the participants didn't know that the healthiest exercise for the heart involves rapid breathing for a sustained period of time. Most

of the participants were not aware of the main purpose of the cardiopulmonary resuscitation (80%) and atrial defibrillation (96.7%). Only 33.3% of them were aware of that HDL refers to "good" cholesterol and LDL refers to "bad" cholesterol, and 36.7% of the participants were aware of high versus normal blood pressure. From the other hand, 76.7% of them were aware of that a healthy person's pulse should return to normal within 15 minutes after exercise.

Using the one-sample t-test, the findings indicated that the mean CVD Knowledge score among Arab American middle-aged women was significantly less than 15, the half of the total possible score of the HDKQ ($p = 0.044$).

Discussion. The results of the current study revealed the limited CVD knowledge among Arab American middle-aged women. The mean total scale score and sub-scales (risk factor, medical, epidemiology, and symptoms) scores were all lower than 50% of the possible scores. The dietary sub-scale score was the highest score and slightly above the half of the total possible score. Although their knowledge on the dietary sub-scale was better than their knowledge on the other sub-scales, it still needs to be improved. Because diet has direct influence on the blood pressure and can affect the risk for CVD (CDC, 2018b), health care professionals need to improve dietary related knowledge among this population.

From the Epidemiology sub-scale, their misperception regarding their CVD risk could limit their participation in preventive activities as they age and may influence their decision regarding seeking care. Their perceptions in this sub-scale were consistent with previous studies on CVD knowledge among other ethnic groups. Mochari-Greenberger, Miller and Mosca (2012) reported that women younger than 55 years were less likely to be aware that CVD is the leading cause of death in women, and Koniak-Griffin and Brecht (2016) found baseline knowledge that CVD is the leading cause of death in women was low among immigrant Latinos. Moreover, Hart (2005)

concluded on the integrated review that women's perceptions of their CVD risk were underestimated.

In the risk factor sub-scale, their mean score was better than the epidemiology sub-scale but lower than the dietary sub-scale. Their perceptions in this sub-scale were consistent with Hart (2005) findings in which she concluded that women's perceptions of CVD risk factors were underestimated. The limited knowledge on the risk factors of CVD could delay women participation in preventive measures and increase their risk of developing sudden CVD events. For example, believing that high fiber diet increases the risk for CVD may lead to avoid eating fiber diet, and believing that chicken pox increases the risk for CVD means that they may wait for chicken pox until they start to participate in preventive measures. Importantly, perceiving stress as a main risk factor for CVD may prevent them from checking their blood pressure regularly.

In the symptoms sub-scale, the results showed that Arab American middle-aged women have limited knowledge regarding CVD symptoms. These findings were consistent with the previous studies. For example, Mochari-Greenberger, Miller, and Mosca (2012) reported that women have limited knowledge of CVD symptoms across all racial groups, including White, Black, and Hispanic Americans. Previous studies indicated that immigrant Latinos also were less likely to recognize that men and women may experience same sign and symptoms of heart attack (Koniak-Griffin & Brecht, 2016).

In the medical sub-scale, Arab American middle-aged women had very limited knowledge regarding the medical aspect of CVD. Most of the participants (70%) believe people can tell whether or not they have high blood pressure, which may delay checking their blood pressure until they experience specific sign and symptoms. Most of them also (70%) didn't know the healthiest exercise for the heart involves rapid breathing for a sustained period of time which may lead to

avoid such exercises.

The feasibility of measuring cardiovascular risk among Arab American middle-aged women. Most of the Arab American middle-aged women included in this study had language barrier to read or fill out the English survey. The PI had to interview them individually to get their responses for each item in the survey. The PI had to be very objective in translating each item from English to Arabic language during the interview to avoid bias. Some participants asked for more clarifications which were related to the scientific level of the items such as trans-fat, polyunsaturated fat, CPR and Atrial defibrillation. The PI explained to them why she cannot give more clarification during the interview and would be happy to explain any needed information after the interview. The limited CVD knowledge highlighted in the current study reveals the need to measure CVD risk among this specific population. Language barrier seems to be important factor that need to be considered for future studies on this specific population to ensure no bias introduced on the data collection.

Limitations and recommendations. A major limitation in this pilot study is using only English language survey. The HDKQ is currently not available in Arabic language so researchers may need to translate it to the Arabic language and test its validity and reliability among this population. Another limitation is the limited number of the participants included in the study which limited the ability to use other inferential statistics. However, because this study is pilot descriptive study, no specific number of the participants was required, and using the one-sample *t*-test was appropriate with the 30-women participants. Future studies need to increase the sample size to allow for multiple regression analysis and to predict the effect of personal and social factors on CVD knowledge.

Conclusion. CVD knowledge was very limited among Arab American middle-aged women. Nurses need to improve CVD knowledge particularly those related to diet, risk factors, epidemiology, symptoms, and medical knowledge. Culturally tailored interventions and preventive programs are needed to increase the knowledge of this population regarding CVD.

Gaps in the Literature

Although the current literature on the topic of personal satisfaction, CVD risk, and HPB provides some explanation for the phenomenon, it is limited in several points. First, personal satisfaction dimensions were investigated, in most cases, as dependent variables or as neither dependent nor independent (such as in correlational studies). While such studies provide some explanation to understand the dimensions of personal satisfaction and their predictors, the full picture for the impact of personal satisfaction on health outcomes generally and on CVD risk particularly was not found in the literature. The second limitation is that there is no empirical evidence to describe the combined effect of these dimensions of personal satisfaction on middle-aged women's health. Previous studies showed that the middle-age stage of women's life involves psychological changes as evidenced by being more likely to be dissatisfied with their health and life (Kalka, 2016), yet no studies focused on examining the impact of personal satisfaction on HPB and CVD risk in middle-aged women. Given that psychological symptoms were significantly associated with CVD symptoms among middle-aged women (Im et al., 2016), there is a need to examine the impact of personal satisfaction on CVD risk among middle-aged women. In addition, because HPB is essential to prevent CVD and predict future CVD risk, it is imperative to examine the relationship between personal satisfaction and HPB.

Similarly, the literature related to CVD risk and HPB in middle-aged women is limited in several points. First, middle-aged women are under-represented in the CVD and HPB research.

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Most studies combined different age groups of women in one study to investigate the effect of specific factors on predicting CVD risk or HPB which limit the generalizability of the findings on middle-aged women. Another limitation is that the current literature on CVD risk and HPB among middle-aged women, in most cases, compares their current state of HPB or CVD risk based on some demographic factors or predictors that are not specific to the middle-age stage. Except for menstrual cessation as a predictor for CVD risk, none of the studies analyzed CVD risk or HPB based on the developmental changes that occur for women during this specific period of their life. Cessation of estrogen and progesterone have not been confirmed as a cause for the increased risk of CVD among middle-aged women (Yang & Reckelhoff, 2011). This implies that there are other developmental factors that need to be identified to understand why CVD risk increases dramatically during this age period. Lastly, Arab American women are rarely involved in studies examining CVD risk and HPB. Research on Arab Americans, in most cases, combines male and female participants and different age groups which limit the generalizability of the findings on Arab American middle-aged women.

Theoretical Limitations

In addition to the discussed limitations, the review of the literature on the topic of personal satisfaction, CVD risk, and HPB highlighted the limited theoretical explanation of the phenomenon. Only one theoretical framework was used as an explanation for the phenomenon of HPB, Pender's Health Promotion Model (HPM). The literature on the other two concepts, personal satisfaction and CVD risk, did not yield an explicit theoretical framework to explain the phenomenon, and there is no published research to date investigating the relationships among these three concepts. Although HPM has been used extensively in the literature to explain the phenomenon of HPB, the model is not sufficient to examine the association among the three

concepts, personal satisfaction, HPB, and CVD risk, for two reasons.

First, the HPM was not developed from a nursing conceptual model, so it would not advance nursing knowledge. To advance nursing knowledge, researchers need to use nursing theories that were originated from nursing conceptual models (Fawcett & Alligood, 2005; Parse, 2000). Although the model may be known by some people as a nursing theory because it was developed by a nurse, the model was constructed from two behavioral theories, expectancy-value theory and social cognitive theory, with using the nursing perspective of holistic human functioning (Pender & Pender, 1996). Parse (2000) noted that if a research was done by a nurse, it does not mean it advances nursing knowledge. Similarly, if a theory was developed by a nurse, it does not mean it is a nursing theory nor advance nursing knowledge. Cody (1999) advocated the view of using nursing theories and nursing conceptual frameworks in nursing research and noted that focusing on non-nursing theories or what is known as borrowed theories "do not contribute to the distinct core knowledge of nursing science; nor can practice guided by these theories be distinguished as uniquely nursing practice" (p. 12). Therefore, it is imperative to build theories based on nursing conceptual models to advance nursing science and practice before leaning on non-nursing theories.

The second reason that limits the usefulness of the HPM in the current phenomenon is the concrete level of its concepts. Although the concept of personal satisfaction can fit under the concept of the personal factor from the HPM, the concept of CVD risk does not fit in the model. The endpoint of this model is the HPB. Thus, the impact of personal satisfaction and HPB on CVD risk cannot be tested under this model. Because the relationships among these three concepts have not been investigated previously, there is a need to develop a new theoretical framework that originates from a more abstract level than middle-range theories. A level that describes generally

the four nursing metaparadigm concepts and the goal of nursing from the reciprocal interaction worldview of nursing.

Developing a new theoretical framework that originates from a nursing conceptual model would advance nursing science and practice. It would address the gaps in the current literature to provide an explanation for the increased CVD risk among Arab American middle-aged women. Therefore, a new theoretical framework was developed to describe the relationships among these concepts from a nursing philosophical perspective.

Theoretical Framework

The proposed theoretical framework was developed deductively based on King's Conceptual System and a synthesis of the current literature related to the phenomenon. While the concepts of the nursing conceptual model provided the logical base to hypothesize the relationships between the concepts and set the assumptions, the synthesis of the literature provided a comprehensive understanding of each concept and how it relates to middle-aged women. In addition, the synthesis of the literature helped to define each concept, theoretically and empirically.

Overview of King's Conceptual System

King's Conceptual System was developed by Imogene King at a time when nursing was striving for status as a science and a legitimate profession (Fawcett & DeSanto-Madeya, 2012). It consists of three systems; personal system, interpersonal system, and social system (King, 2007). Personal system is each individual-well or ill; interpersonal system is when two or more individuals are engaged in interaction; social system is a group or organization such as family or community (King, 2006). The linkage between these three systems is described as an interaction that represents social and physical environments in which individuals, families, and communities perform daily activities to achieve their goals (King, 2006). The main goal of nursing within King's Conceptual System is to help individuals, families, groups, and communities maintain and restore health so they can function in their respective roles (King, 1990). King's Conceptual System has one relational proposition that links all the four nursing metaparadigm concepts together: "The focus of nursing is human beings interacting with their environment leading to a state of health for individuals, which is an ability to function in social roles." (Fawcett & DeSanto-Madeya, 2012).

The Philosophical Tenets of the Model

King's Conceptual Model represent a reciprocal-interaction worldview (Fawcett & DeSanto-Madeya, 2012). The unique focus of this model is human behavior, social interaction, and social movement. More specifically, the interaction of human beings with their environment is the central focus of the model (Fawcett & DeSanto-Madeya, 2012; King, 1990; King,2006; King, 2007). Human being is viewed as an active participant who interact with other individuals and interact with internal and external environment in continuous bases to meet their basic needs so they can function in their socially defined roles (King, 1990). King's (1990) statement that health is a function of persons interacting with environment, and environment is a function of balance between internal and external interactions indicates that human being is in continuous interaction with their environment. Environment is viewed by King as internal environment and external environment. Internal environment can be inferred as the factors and stressors in the person him/herself that enables or inhibit him/her to adjust to external environmental change (Fawcett & DeSanto-Madeya, 2012), and external environment is the stressors around the person within which a person grows, develops, and performs daily activities of living (Fawcett & DeSanto-Madeya, 2012). The concept of health is represented by King as "a person dynamic life experiences that involve continuous adjustment to internal and external environmental stressors and that support the ability of the person to function in social roles" (King, 1990). King viewed disease as one kind of illness (Fawcett & DeSanto-Madeya, 2012) which implies that health is not mere absence of disease from her perspective. Nursing is viewed by King as an action, reaction, and interaction process between a nurse and a client (Fawcett & DeSanto-Madeya, 2012). She also viewed nursing as a helping profession that provides services to meet social needs (Fawcett & DeSanto-Madeya, 2012).

From the ontological assumptions of King regarding nursing metaparadigm concepts, the epistemic assumption for her can be inferred as valuing both objective and subjective phenomenon and using both quantitative and qualitative methods of inquiry. However, emphasis is placed on empirical observations within methodologically controlled situations and objectively analyzing data. King's Conceptual System has been used to guide nursing practice, nursing research, nursing administration, and nursing education with several problems of interest. However, much of King's Conceptual System-based research is limited to a single study on a single phenomenon of interest (Fawcett & DeSanto-Madeya, 2012). Several practice tools and middle-ranged theories, including the Theory of Goal Attainment, have been developed directly from King's conceptual System (Fawcett & DeSanto-Madeya, 2012).

Conceptual-Theoretical Concepts

King (2006) stated that when the phenomenon of nursing is concerned with the health of individuals, it calls personal system. Therefore, in this study, the personal system of King's Conceptual System was used to examine the association among personal satisfaction, HPB, and CVD risk. Personal system dimensions from King's conceptual system that are meaningful to this phenomenon are perception and growth and development. The middle-aged woman is viewed as personal system who is multidimensional and in constant interaction with their environment - internal and external- to achieve a state of health and to be able to function in their socially respective roles. Therefore, environmental and health are also two main concepts from King's Conceptual System that were utilized in this theoretical framework. Figure 4 depicts the substruction of the theoretical framework from King's Conceptual System.

Conceptual System	Concept	Personal System		Environment	Health
	Dimension	Growth and Development	Perception	External Stressor	
Theoretical Framework	Concept	○ Age ○ Menstruation status ○ Job status ○ Roles within the family. ○ Social support	Personal Satisfaction: ○ Self-satisfaction ○ Health-satisfaction ○ Life satisfaction	HPB	CVD risk
Operational System	Empirical indicator	○ Self-report using sociodemographic questionnaire ○ MSPSS	○ Rosenberg self-esteem scale ○ Single item health satisfaction ○ SWLS	HPLP-II	ACA/AHA 10-year ASCVDR
Score/Scaling		Interval and categorical	Interval	Interval	Interval

MSPSS: Multidimential Scale of perceived Social Support. SWLS: Satisfaction With Life Scale. HPB: Health Promoting Behavior. HPLP-II: Health Promoting Lifestyle Profile II. ACC/AHA 10-year ASCVD: the American College of Cardiology/American Heart Association 10-year Atherosclerotic Cardiovascular Disease Risk

Figure 4. Substruction of the Theoretical Framework from King's Conceptual System

Perception is a major concept in the personal system and defined as each person's awareness of what is real in his/her life and environment (King, 1981). Perception was proposed as a dimension of personal system and a way of knowing that organizes, interprets, and transforms information into meaningful understanding (May, 2007). According King (1981), "it is through perception that an individual comes to know self, to know other persons, and to know objects in the environment" (p. 19). Cognitions, feelings, and intentions are encompassed within the concept of perception (Killeen, 2007). According to King's Conceptual System, an individual's perception influences the way he or she responds to persons, objects, and events in his or her life (Fawcett & DeSanto-Madeya, 2012). As individuals grow and develop through the life span, experiences with

changes in structure and function of their bodies over time influence their perceptions of self (Fawcett & DeSanto-Madeya, 2012). Therefore, personal satisfaction, which is defined as an individual's experience of being content with one's self, health, and life during this specific age period, is consistent with the concept of perception from King's Personal System.

Growth and Development are another dimension in the King's personal system. Growth and development are defined by King as consistent changes that occur within each individual at the cellular, molecular, and behavioral levels of existence (Fawcett & DeSanto-Madeya, 2012). Influenced by the stage theorists (such as Freud, Erikson, and Piaget), King conceptualized growth and development as an orderly process with predictable patterns and subject to individual variation (King, 1981). The environment could help or prevent individuals move toward maturity. So, the way in which a person grows and develops is influenced by other people and objects in the environment (King, 1981). This concept therefore is consistent with the physical and psychosocial changes that occur for women during the middle-age stage. Age, menstruation status, roles within the family, job status, and social support are the five factors that encompassed growth and development concept in this study. It is hypothesized in this study that growth and developmental factors predict personal satisfaction in middle-aged women.

According to King (2006), a personal system is in constant interaction with the environment, internal and external environment. It is inferred that the internal environment refers to the dimensions of the personal system which are, in this theoretical framework, perception and growth and development concepts. External environment is the stressors around the person within which a person grows, develops, and performs daily activities of living (Fawcett & DeSanto-Madeya, 2012). Therefore, external environmental stressors should be any factor in the environment of middle-aged women with which they need to interact to achieve a state of health.

Because Health promoting behavior (HPB) is an action taken by the individual when he/she decides to do so, and because middle-aged women need to adopt HPB to reduce their risk for age related diseases HPB concept is consistent with external environmental stressor. It is hypothesized that there is a direct relationship between personal satisfaction and HPB, and the level of personal satisfaction a long with growth and developmental factors predict HPB among middle-aged women.

Health from King's perspective is a state of being able to function in socially respective roles (King, 2007). It is the outcome of the interaction between internal and external environment. Therefore, CVD risk is consistent with the concept of health from King's Conceptual System. It is hypothesized in this study that personal satisfaction has inverse impact on CVD risk in middle-aged women, and personal satisfaction, growth and developmental factors, and HPB predict CVD risk in middle-aged women.

Overall, King's conceptual System would help to predict the relationships between internal environmental factors (personal satisfaction and growth and development factors) and external environmental stressor (HPB) that affect the health of middle-aged women (CVD risk). Figure 5, the Theoretical framework, depicts the hypothesized relationships among the concepts.
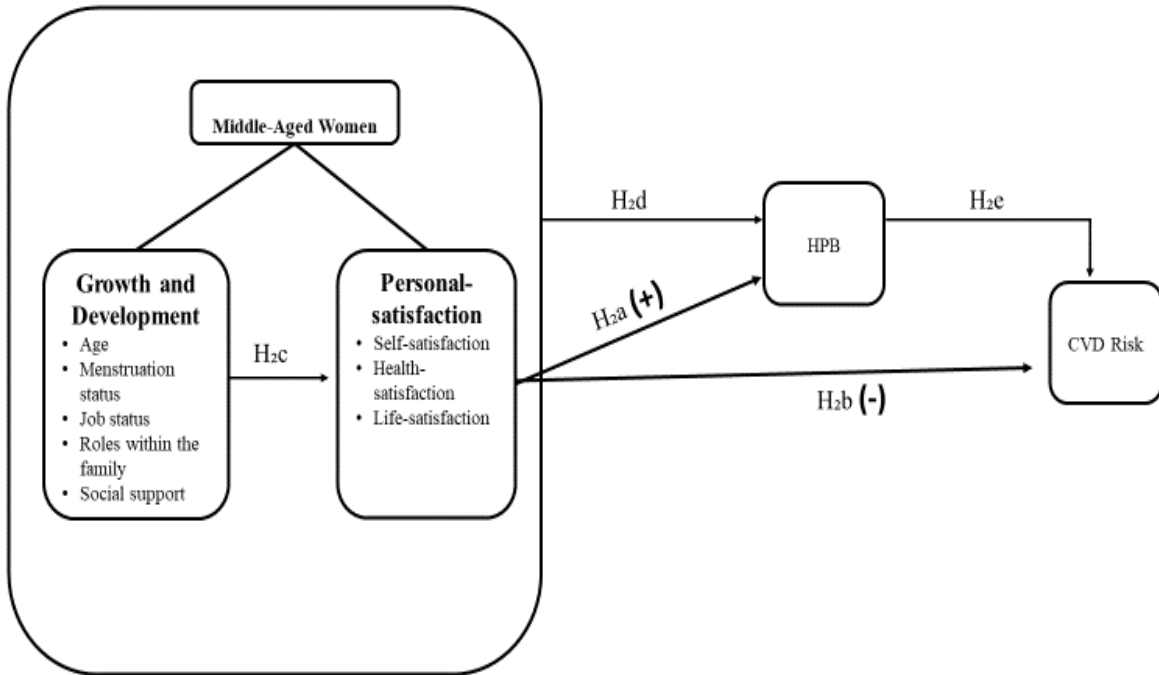
Figure 5. Theoretical Framework

Assumptions of the Proposed Theoretical Framework

The assumptions underlie the proposed theoretical framework are summarized in the following points:

1) Middle-aged women are multidimensional and in constant interaction with their environment -internal and external- to achieve a state of health and to be able to function in their socially respective roles.

2) As women travel through the middle adulthood, their experiences with changes influence their perceptions, and their perceptions influence the way they respond to environmental factors.

3) Middle-aged women experience bio-psycho-social changes specific to this age period, and those changes occur in predictable patterns and subject to individual variation.

4) HPB is an external environmental stressor that middle-aged women need to interact with due to the physical changes that accompany this age stage.

5) Middle-aged women will adopt HPB when they decide to do so and based on other internal environmental factors.

6) CVD risk among middle-aged women is the result of the interaction between the internal environmental factors and external environmental stressors.

7) Middle-aged women generally wish to preserve life and avoid CVD.

Significance of the Proposed Theoretical Framework to Nursing

The discipline of nursing is advanced through the development of nursing knowledge that derived from a nursing conceptual model or theories. The proposed theoretical framework offers a new direction to research on the phenomenon of HPB and CVD risk among middle-aged women. Testing the proposed relationships would enhance understanding the phenomenon of HPB and CVD risk among middle-aged women from a nursing philosophical perspective. The theoretical framework is not restricted to a specific ethnicity or a specific geographical area. Therefore, using this framework to test its proposed hypothesis among Arab American middle-aged women would provide some explanation for the increased CVD risk among this ethnic group. This will advance nursing knowledge because no studies published to date focused on the impact of personal satisfaction, as a psychological reaction to age-related developmental changes, on HPB and CVD risk among middle-aged women generally and Arab American middle-aged women particularly.

Research based on this theoretical framework would impact the discipline of nursing by improving the practice of CVD prevention and incorporating personal satisfaction in preventive nursing services and interventions. Thus, nurses would be able to help those women maintain, restore, and/or improve their health and to function within their socially respective roles. In

addition, testing the existence of the relationships between these concepts would be the first step toward theory development for the impact of personal satisfaction on CVD risk, and it would be the first step that may guide other researchers to test causal connections through experimental studies, cohort studies, or case-control studies.

CHAPTER 3 METHODS

Study Design

The relationships among personal satisfaction, HPB, and CVD risk have not been investigated in previous research. Therefore, the design for the proposed study was a non-experimental correlational descriptive design. According to Gravetter and Forzano (2016), non-experimental designs may be used when the aim of the study is to demonstrate the existence of relationships between two or more variables, although it cannot establish a causal connection. Using this design is useful for examining relationships among the variables in a more natural setting (Gravetter & Forzano, 2016).

Sample and Setting

The target population was Arab American middle-aged women. Participants were recruited from two clinical sites: Dr. Raad Al-Saraf primary care clinic and the Arab Community Center for Economic and Social Services (ACCESS) in Dearborn, MI. Participants from ACCESS were recruited from the Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN) program and the primary care clinic. WISEWOMAN program was started at ACCESS in 2015 through the CDC to help Arab American middle-aged women understand and reduce their risk for CVD by providing services to promote heart-healthy lifestyles. The program provides CVD risk factor screenings and services that promote healthy behaviors for low-income, uninsured, and underinsured middle-aged women. The primary care clinic at ACCESS serves all age groups, insured and uninsured people, and provide bilingual healthcare, Arabic and English.

Inclusion criteria for the study were: (a) female between 40 and 65 years old, (b) self-identify as Arab American, (c) have the following biomarker measurements in their medical records within the last six months or it was measured on the day when they responded to the

questionnaires: systolic blood pressure (SBP), diastolic blood pressure (DBP), fasting blood glucose level, total cholesterol level, and high-density lipoproteins (HDL), (d) not diagnosed with CVD, (e) and not diagnosed with, or taking medication for, mental illness or disorder. Women were excluded if they have chronic diseases other than diabetes or were pregnant. For those who have their biomarker data prior to the day of filling the questionnaires, they were asked if they have had major changes in their life (i.e., a change in the marital status, a change in the family system, or diagnosed with a chronic disease other than diabetes or hypertension) after the date when the biomarker data was measured. If they have had such changes, they were excluded.

Statistical Power Analysis

A power analysis was conducted to determine adequate sample size for this study using G power software which calculates the require sample size (Faul, Erdfelder, Buchner & Lang, 2009). A total of 114 women were needed to participate in the study to detect a medium effect size (ES = .15) at a power of 0.80 and for nominal alpha set at 0.05.

Incentive

Each participant received a $20-dollar-gift card incentive.

Dependent Variables

1. Cardiovascular Disease Risk: defined as the probability that an individual may develop CVD within the next ten years.

2. Health Promoting Behavior (HPB): defined as a multidimensional pattern that includes six dimensions: nutrition, physical activity, spiritual growth, health responsibility, stress management, and interpersonal relations (Pender & Pender, 1996).

Independent Variables

1. Personal satisfaction: defined as an individual's experience of being content with one's self,

health, and life during this specific period of age.

2. Growth and development factors: defined as consistent changes that occur within each individual at the cellular, molecular, and behavioral levels of existence and subject to individual variation (King, 1981). Growth and development factors in this study include: age, menstrual status, roles within the family, job status, and social support.

Potential Extraneous Variables

The time period between measuring the study concepts may be a source of error. The biomarkers were taken from participants' medical records. The study variables were measured using a self-report questionnaire. However, this may be a source of error. For example, a woman may have her biomarkers measured eight months prior to the study. She may have had a baby and experienced postpartum depression after the date of measuring her biomarkers which could impact her personal satisfaction and HPB in the current time. Therefore, the biomarker data may not represent the current CVD risk and would be not appropriate to correlate that CVD risk (from the eight months ago before the experience of the postpartum depression) with the current state of personal satisfaction or HPB (after she has experienced postpartum depression).

To control for this potential confounding error, women who have their biomarker data more than six months ago were not included in the study. Moreover, those women with biomarker data measured before completing their questionnaires were asked if they have had any major change in their life after the day when their biomarkers were measured. Major changes include (a) changes in the marital status such as became married, widowed, divorced, or separated, (b) changes in the family system such as getting new baby or death of a family member, (c) and diagnosed with a chronic disease such as cancers, renal diseases, or any chronic disease other than diabetes or hypertension. These changes may impact their current state of personal satisfaction or HPB.

Although diabetes and hypertension are considered chronic conditions, it is not appropriate to prevent women who have these two chronic conditions to participate in the study. Such restriction would lead to an exclusive sample of only low CVD risk participants. If a woman had her biomarkers measured on the day of filling the questionnaires, only those measurements were considered for the study regardless whether she had the biomarkers in her medical record within the last six months.

Other potential confounding variables were stress, depression, anxiety, or mental disorder. To control for these potential extraneous variables, those who were diagnosed with or taking mental or psychiatric medication within the last six months were excluded from the study. In addition, excluding women who report experiencing major life changes after the day of measuring the biomarkers would control for the effect of this extraneous variable on the personal satisfaction and HPB variables.

The language barrier could be a confounding variable. Therefore, all tools and forms for this study were available in both languages, English and Arabic.

Recruitment Procedure

The recruiting phase took a total of three months. Approval from the ACCESS site and Wayne State's Institutional Review Board were attained prior to implementation of the study. After approval is attained, participants were recruited from the WISEWOMEN program and the primary care clinic at ACCESS. In addition, flyers were distributed in ACCESS buildings with the name and phone number of the PI.

A total of 75 files of WISEWOMEN program 2018 were screened for SBP, DBP, fasting blood glucose level, total cholesterol level, and HDL to be considered for potential participation. 20 women had these data on their WISEWOMEN files within the last six months and were

contacted via phone by the PI to introduce them to the study and to screen for the other eligibility criteria. From the 20 women, 2 women were having family issues and therefore were not eligible to participate in the study, and seven women either didn't respond to the phone call or had incorrect phone number in their files. Only 11 women met the inclusion criteria and showed interest to participate in the study. They were given an appointment to come to ACCESS to sign the informed consent and fill out the questionnaire. Six women could not make it due to transportation issues while only five women showed up and completed the questionnaire.

In addition, files of the primary care clinic were screened to find potential participants. A total of 135 middle-aged Arab American women had their biomarker data in their medical charts and were contacted via phone to introduce them to the study and to screen for the other eligibility criteria. 39 women refused participation because they don't have time or were not interested; 15 women had incorrect phone numbers in their medical charts or did not respond to the phone calls; 13 women could not participate because they had transportation issues; and six women were recently diagnosed with medical conditions and taking medications for certain diseases (heart disease, surgery, bone disease, cancer, and depression). This recruiting procedure provided 62 women who consented and completed the questionnaire.

Moreover, women who came to the primary care clinic were screened for eligibility, and eligible women were introduced to the study. A total of 7 women were eligible and interested to participate. They consented and completed the survey on the same day they came to ACCESS. Although flyers were distributed in ACCESS buildings, no one responded to the flyers.

After six weeks of recruitment from ACCESS, another private clinical site was added to accelerate recruitment. Physicians in the private clinic referred potential participants to the PI who was available on site. The PI screened each woman for eligibility and introduced them to the study.

All the referred women were eligible and interested to participate. A total of 40 women were recruited from the private clinic. Every submitted questionnaire was reviewed to ensure complete data before women leave the clinical site.

Data Collection Procedure

Participants responded to the questionnaires in the clinical site. All the scales were self-reported, except the ACC/AHA 10-year ASCVD risk (the CVD risk calculator). The biomarker data of the ACC/AHA 10-year ASCVD risk was collected using participant's medical records. After calculating CVD risk score, each participant received a phone call from the PI informing her about her risk score and suggestions to prevent CVD.

Instruments

The constructs in this study were operationalized in order to test the proposed relationships as follows:

1. CVD risk was measured using the American College of Cardiology/American Heart Association 10-year Atherosclerotic Cardiovascular Disease Risk (ACC/AHA 10-year ASCVD).

2. Health promoting behavior (HPB) was measured using the *Health-Promoting Lifestyle Profile-II* (HPLP-II).

3. Personal satisfaction is operationalized by measuring self-satisfaction, health-satisfaction, and life satisfaction. It was measured using the *Rosenberg Self-Esteem Scale* (RSES), the *Satisfactory With Life Scale* (SWLS), and the single item for health-satisfaction: "How satisfied are you with your health?".

4. Growth and development factors in this study include age, menstrual status, roles within the family, job status, and social support. The first four variables (age, menstrual status,

roles within the family, and job status) were measured in the demographic questionnaire on categorical scales except for age which was measured on an interval scale.

- o Menstrual status was analyzed as either having their menstruation at least within three months ago, or more than three months ago.

- o Roles within family: women were asked to identify their roles within their family to evaluate stressful family roles. A total of six family roles were listed for women to select all the applicable roles. Those who identified three or more roles from the six listed roles, or had to provide care for two different generations (e.g, grown up children, and parental care) were classified as having stressful family roles.

- o Job status was measured as a dichotomous variable with yes or no responses.

- o The variable social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS).

Reliability and Validity of the Instruments

ACC/AHA 10-year ASCVD. This tool was developed by the American College of Cardiology (ACC) and the American Heart Association (AHA) based on the 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk (Ozen, Sunbul, Atagunduz, Direskeneli, Tigen, & Inanc, 2016). The work group developed Pooled Cohort Equations to estimate the 10-year risk of developing a first ASCVD event. They used the best available data from community-based cohorts of adults, with adjudicated endpoints for coronary heart disease death, nonfatal myocardial infarction, and fatal or nonfatal stroke. Cohorts that included African-American or White-American participants with at least 12 years of follow-up were included. Taken together, nearly 25,000 participants between ages 40 to 79 and free of CVD, contributed to the derivation dataset (American Heart Association, 2013). The variables that statistically merit inclusion in the

risk assessment equations are age, gender, race, total cholesterol level, HDL cholesterol level, smoking status, diabetes history, SBP, DBP, and antihypertensive therapy status. The ACC/AHA 10-year ASCVD was found to be a better estimator for CVD risk than the SCORE and Q Risk II indices (Ozen et al., 2016).

The work group evaluated the internal consistency of the discrimination and calibration performance measures using a 10x10 cross-validation technique. The internal consistency results yielded average discrimination C-statistics and calibration chi-squared statistics that were in agreement with the full model (American Heart Association, 2013). The calibration slope was near 1 for all race-sex groups, but highest in African American females, with a slight tendency to underestimate risk. Variation in the discrimination C-statistic, calibration chi-squared, and calibration was notably higher in African American men compared to the other race-sex groups (American Heart Association, 2013). The work group also evaluated the performance of the algorithms in predicting ASCVD events in two external cohorts and in the most contemporary available data. The external validation results yielded discrimination C-statistics that were lower than those observed for the 10-year prediction in the derivation data. Overestimation of risk was noted in all validation groups (American Heart Association, 2013).

Rana et al., (2017) evaluated the predictive validity of the 2013 ACC/AHA risk equation within a large multiethnic population by comparing predicted versus observed 5-year ASCVD risk in which overestimation of the actual 5-year risk in adults without diabetes was noted (Rana et al., 2017). Predictive validity of the 10 year ASCVD score was noted by its association with CVD-specific mortality. ASCVD risk score of 7.5% or higher had a 3-fold increased risk of CVD-specific mortality (Loprinzi & Addoh, 2016). Convergent validity of the ACC/AHA 10-year ASCVD was observed through its association with health-related quality of life (Nooe, Edwards,

Addoh, & Loprinzi, 2016). An ASCVD score of >20% was associated with a 0.53-unit (95% CI: 0.34-0.71) higher health-related quality of life score (Nooe et al., 2016). Content validity of the ACC/AHA 10-year ASCVD was developed by conducting systematic literature reviews and expert opinion by the work group (American Heart Association, 2013). There is not empirical data evaluating the validity or reliability of the ACC/AHA 10-year ASCVD among Arab-American population. However, Arab Americans are classified legally as non-Hispanic White Americans; therefore, using the ACC/AHA 10-year ASCVD with this specific population would be appropriate and congruent with ACC/AHA recommendations for the use of ACC/AHA 10-year ASCVD (American Heart Association, 2013).

Health-Promoting Lifestyle Profile-II (HPLP-II). The 52-item HPLP-II is composed of a total scale and six subscales to measure behaviors in the theorized dimensions of health-promoting lifestyle: spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management (Walker, Sechrist, & Pender, 1987). HPLP-II scores can range from 52 to 208, and the total score is calculated by calculating the mean of the 52 items (Walker et al., 1987). Higher scores indicate greater participation in HPB.

Coefficient alpha, a measure of internal consistency, for the total scale was high (.922); and the subscales ranged from .702 to .904 (Walker et al., 1987). The 3-week test-retest stability coefficient for the total scale was .892 (Walker & Hill-Polerecky, 1996). Content validity was developed by literature review and content experts' evaluation (Walker & Hill-Polerecky, 1996). Convergent validity was indicated by significant correlations with concurrent measures of perceived health status and quality of life (r's = .269 to .491) (Walker & Hill-Polerecky, 1996). HPLP-II was used widely among middle-aged women across different racial and ethnic groups.

Reliability and validity of the Arabic version of HPLP II were established in several studies

(Al-Khawaldeh, 2014; Haddad, Al-Ma'aitah, Cameron, & Armstrong-Stassen, 1998). Cronbach alpha for the total scale was between .92 (Al-Khawaldeh, 2014) and .89 (Haddad et al., 1998); and the sub-scales were 0.70 to 0.88 (Al-Khawaldeh, 2014) and 0.85 to 0.60 (Haddad et al., 1998). Content validity was ascertained by the evaluation of the translated version of the HPLP II by four experts who were selected for their experience in public health and nursing education in Jordan (Haddad et al., 1998). All of the items in the HPLP II achieved a 70% to 100% interrater agreement (Haddad et al., 1998). Construct validity was assured by factor analysis that confirms the six sub-scales (Haddad et al., 1998).

Rosenberg Self-Esteem Scale (RSES). The RSES was used to measure self-satisfaction, a dimension of personal satisfaction. The RSES is a 10-item scale which measures global self-worth by measuring both positive and negative feelings about the self. All items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree. The scores could range from 0 to 30 with higher scores indicating higher levels of self-esteem.

The reliability of the positive Self Esteem subscale with a separation index was .65 and the reliability of the negative self-esteem subscale was .70 (McMullen & Resnick, 2013). The scale was validated in several studies and used among a variety of cultures including Arab populations (Azaiza, Ron, Shoham, & Gigini, 2010; Rosenberg, Schlegel, Hicks, Davis, Hirsch, & Smith, 2013). The RSES was used with middle-aged women with internal consistencies were very good (ranged from .89 to .92) (Elavsky & McAuley, 2007). The RSES was used to assess self-satisfaction with internal consistency was $\alpha= 0.85$ (Song, Kim, & Park, 2015).

Validity evidence for the positive and negative subscales of the RSES was based on a confirmatory factor analysis using structural equation modeling via Amos software and via a Rasch measurement model (McMullen & Resnick, 2013). The conceptual definition of self-esteem

reflects the conceptual definition of self-satisfaction in the proposed study.

The Arabic Version of RSES was used across multiple studies among Arabic women with internal consistency Alpha level ranging from .77 (Azaiza et al., 2010), .80 (Carmel, 2001), and .81 (Manor-Binyamini & Abu-Ajaj, 2012; Savaya, 1998). Content validity was ascertained by the evaluation of the translated version of the RSES by an expert who is a native speaker of Arabic and a research professional (Azaiza et al., 2010).

The Satisfactory With Life Scale (SWLS). The SWLS will be used to measure life-satisfaction, a dimension of personal satisfaction. The SWLS is a 5-item scale designed to measure global cognitive judgments of one's life satisfaction. This instrument was first appeared in the literature in 1985. The scale was designed around the idea that one must ask participants for an overall judgement of their life in order to measure the concept of life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985). The original scale had 48 items reflecting life satisfaction and well-being. An initial factor analysis indicated three factors: Life Satisfaction, Positive Affect, and Negative Affect (Diener et al., 1985). Ten items had loadings on the Life Satisfaction factor of 0.60 or above (Diener et al., 1985). This group of 10 items was further reduced to 5, to eliminate redundancies of wording (Diener et al., 1985).

Respondents indicate how much they agree or disagree with each of the 5 items using a 7-point scale that ranges from 7 strongly agree to 1 strongly disagree. The SWLS has been shown to be a reliable measure with evidence of validity in measuring life satisfaction. It is suited for use with a wide range of age groups and applications (Diener et al., 2013). Scores range from 5 to 35, higher scores indicate better life satisfaction. It remains sensitive to changes in life satisfaction due to life events (Diener et al., 2013).

The SWLS has shown strong internal reliability with a Cronbach alpha of 0.89 for the scale,

and a 2-week test-retest stability coefficient of 0.83 (Pavot & Diener, 1993). The validity of the SWLS was confirmed by factor analysis from which a single factor emerged (Pavot & Diener, 1993). Discriminant validity was obtained, differentiating it from emotional well-being measures (Diener et al., 2013). For example, the SWLS was strongly negatively ($r =-0.72$) associated with the Beck Depression Inventory and negatively (-0.31) associated with a measure of negative affect (Pavot & Diener, 1993).

Reliability and validity of the Arabic version of SWLS were established by Abdullah (1998), who tested the Arabic version of SWLS among a group of Palestinian college students. Cronbach alpha was somewhat low at $\alpha=.79$, but test-retest reliability was .83. Concurrent validity of the Arabic version of the SWLS was observed by its correlation with the Life Satisfaction Index .85 (Abdullah, 1998). Discriminant validity was observed by its correlation with the Beck Depression Inventory -.75 and with the Symptom Checklist-90 scale -.75 (Abdullah, 1998). Factor analysis supported the one-dimensional factor structure of the SWLS (Abdullah, 1998). Al-Darmaki et al. (2015) reported internal consistency of the Arabic version of .84, higher than the internal consistency reported by Abdullah (1998) but the factor structure analysis replicated the original uni-dimensionality of the SWLS (Al-Darmaki et al., 2015).

The single item for health-satisfaction. The single item for health-satisfaction was used to measure health-satisfaction: "How satisfied are you with your health?". The participants rated their health satisfaction using a 10-point Likert scale ranging from 0, completely dissatisfied, to 10 completely satisfied. It is common to use a single item as a quick screen to measure health satisfaction or other similar constructs (e.g., Aqtash & Servellen, 2013; Greco et al., 2015). Using a single item rating appears to be valid as evidenced by the strength of their association with other measures of health status (Aqtash & Servellen, 2013). For example, the single item for health

satisfaction was significantly and positively associated with illness perception and life satisfaction, and significantly and negatively associated with depression (Steca et al., 2013).

Multidimensional Scale of Perceived Social Support (MSPSS). The MSPSS was developed in 1988 by Zimet, Dahlem, Zimet, and Farley as a brief self-report measure of social support. It includes 12 items that cover three dimensions: family, friends, and significant other. Each item is rated on a seven-point Likert-type scale (1 = very strongly disagree; 7 = very strongly agree) (Zimet, Dahlem, Zimet, &. Farley, 1988). A total score is calculated by summing the results for all items. Scores range between 12 and 84; higher scores indicate higher perceived social support.

The MSPSS has been has been found to be reliable and valid in several studies and across several populations. Cronbach Alpha, a measure of internal reliability, for the total scale ranged from .88 (Zimet et al., 1988) and .92 (Zimet, Powell, Farley, & Werkman, 1990), and the subscales ranged from .91 to .85 (Zimet et al., 1988) and .98 to .90 (Zimet et al., 1990). A test-retest stability for the total scale was .85, and for the Significant Other, Family, and Friends subscales were .72, .85., and .75 respectively (Zimet et al., 1988). Factor analysis revealed three factors which support the three subscales of the measure: perceived support from Family, from Friends, and from Significant Other (Zimet et al., 1988; Zimet et al., 1990). Construct validity was ascertained by the negative correlations between the MSPSS and depression and anxiety subscales (Zimet et al., 1988).

The Arabic version of the MSPSS was evaluated for use in Arab immigrant women with a sample of 539 Arab immigrant women living in the United States (Aroian, Templin, & Ramaswamy, 2010). Confirmatory factor analysis supported the proposed three factors (Aroian et al., 2010). Internal consistency reliability estimates for the total scale and for the three subscales

ranged from good to very good. Cronbach's alpha for the total scale was α = 0.74, for the Husband subscale was 0.89, for the Friends subscale was 0.80, and for the Family subscale was 0.73 (Aroian et al., 2010). Construct validity for the Arabic version was ascertained by the negative correlations between MSPSS and emotional distress and two coping strategies -blaming self and avoidance- and the positive correlations with two additional coping strategies -seeking social support and problem focused coping (Aroian et al., 2010).

Data Management and Analysis

Data entry and management. Data were kept with and accessible only by the PI. The PI encoded each participant's forms with a same numerical code starting from the informed consent. All the questionnaires were encoded from 1 to 114 (the total number of the participants) when they were received and before creating the database in SPSS. This number became the identifier of records for each participant.

Each questionnaire included all the scales and represented one participant. The given number for each questionnaire matched its rank in the database to facilitate data evaluation and correction. To ensure the integrity and quality of the data, the PI double checked each participant's data and compared the data in the database with the paper form questionnaire. After ensuring that data on the database matches the paper form questionnaires, all the paper form questionnaires were saved in a safe locker at the College of Nursing, Wayne State University.

Data analysis. Data were analyzed using SPSS version 25. Descriptive analysis, mean, standard deviation (SD), minimum, maximum, and percentages were used to describe the participants' sociodemographic data and to describe each key variable. In addition, a 95% confident interval for each key variable was calculated to estimate the interval limits for the sample

means. The descriptive statistics were another way to check the accuracy of the data. It helped to identify any observation that was out of the range of the data points, outliers.

The Shapiro-Wilk test for the assumption of normality was conducted to ensure the appropriate use of parametric inferential statistics for variables measured on interval scales. Only health promoting behavior (HPB) score was normally distributed in this sample ($p= .13$). However, the histogram for normality distribution for all the outcome variables (CVD risk, health satisfaction, life satisfaction, self-satisfaction, and HPB) showed that the data in this sample were approximately normally distributed. Some variables in the growth and development concept were measured on categorical scales and were not tested for normality. Data were also analyzed for symmetry, skewness, and kurtosis.

Internal consistency reliability of the instruments for this sample was evaluated using Cronbach's α. All the scales in this study showed acceptable internal consistency reliability. The results of the overall Cronbach's alpha, Cronbach alpha for the Arabic versions, and Cronbach alpha for the English versions are presented in Table 1.

Table 1
Reliability Testing for the Scaled Variables (N=114)

Variable	Scale	Cronbach's Alpha		
		Overall Sample (N=114)	Arabic Version (n=100)	English Version (n=14)
Social Support	MSPSS	0.875	.858	.978
Life Satisfaction	SWLS	0.889	.884	.909
Self-Satisfaction	RSES	0.827	.819	.860
HPB	HPLP-II	0.926	.925	.956

Analysis strategy by aim. A detailed description of the data analysis strategies for each specific aim is summarized below:

Specific aim 1. To describe personal satisfaction, HPB, and CVD risk among Arab American middle-aged women. In this specific aim, descriptive statistics, as mentioned above, were conducted to describe each key variable. One sample *t*-test was utilized to estimate population means and 95% CI.

Specific aim 2. To investigate the relationship between personal satisfaction, HPB, and CVD risk among Arab American middle-aged women. Hypothesis 2a: There is a direct relationship between personal satisfaction and adoption of HPB. To test this hypothesis, the correlation one-tailed Pearson r was conducted at the alpha = .05 level to test the magnitude and direction of the association.

Hypothesis 2b: There is an inverse relationship between personal satisfaction and CVD risk. The correlation one-tailed Pearson r was conducted to determine the magnitude and direction of the association.

Hypothesis 2c: Growth and development factors (age, menstruation status, roles within the family, job status, and social support) predict personal satisfaction in middle-aged women. To test this hypothesis, three separate multiple regression analysis, one for each personal satisfaction sub-concept, were conducted. The three nominal variables (roles within the family, job status, and menstruation status) were dummy coded to allow incorporating them into regression analysis.

Hypothesis 2d: Personal satisfaction and growth and development factors predict HPB. To test this hypothesis, a multiple regression analysis was conducted to estimate the impact of personal satisfaction and growth and development factors on HPB.

Hypothesis 2e: Personal satisfaction, growth and development factors, and HPB predict

CVD risk. To test this hypothesis, an ordinary least squares multiple regression was conducted to test the effect of personal satisfaction, growth and developmental factors, and HPB on CVD risk. The adjusted R^2 were used to evaluate the model, and each independent variable was assessed with a t-test for the null hypothesis Ho: $\beta = 0$.

Chapter 4 Results

The purpose of the study was to describe personal satisfaction, HPB, and CVD risk among Arab American middle-aged women, and to investigate the relationship between personal satisfaction, HPB, and CVD risk. This chapter describes the results of the statistical analyses and is structured according to the study specific aims.

Sample Characteristics

A total of 114 Arab American middle-aged women participated in this study. Sample characteristics are presented in Table 2, Table 3, and Table 4. Women in this study had a mean age of 49.90 (SD= 6.99). Almost 65% of them were recruited from ACCESS and 35% from the private primary clinic. Most of them had their last menstrual period this month, last month or within three months ago (53.3%), and had a regular menstrual cycle before the age of forty (73.7%). The majority of women were married (74.6%), had less than $20,000 annual income (67.5%), had less than high school education (56.1%), had children (94.7%), were not smoker (80%), were not employed (78.1%), and preferred the Arabic language for the survey (87.7%).

In regard to their previous medical history, women were asked to identify if they were diagnosed with any of the health conditions or issues that are known to be related to or risk factor for CVD. Among all the listed health conditions and issues, pregnancy loss, stillbirth, or miscarriage and rheumatoid arthritis were the most reported (39.5% for each) followed by high cholesterol level (33.3%), depression (26.3%), hypertension (25.4%), and diabetes (24.6%). However, women were not on medications for any of these conditions (except diabetes and hypertension) for at least six months before they completed the questionnaire. Majority of women (77.2%) reported being diagnosed with one or more health conditions or issues that are associated with CVD risk, and 43% of them had a family history of CVD. Most women had their CVD risk

score lower than 7.5% (88.6%). For roles within the family, most women reported having three or

more roles in their families and/or provide care for two different generations (54.4%).

Table 2
Socio-demographic Characteristics (N=114)

Variable	Mean (SD)
Age	49.90 (6.985)
Number of children	3.82 (1.956)
Number of people in the household	4.25 (2.094)
Variable	Number (Percent)
Site of recruitment:	
ACCESS	74 (64.9)
Private clinic	40 (35.1)
Language preference:	
Arabic	100 (87.7)
English	14 (12.3)
Country of origin:	
Iraq	44 (38.6)
Lebanon	27 (23.7)
Yemen	28 (24.6)
Others	15 (13.1)
Marital status:	
Married	85 (74.6)
Divorced	9 (7.9)

Single	4 (3.5)
Separated	7 (6.1)
Widow	9 (7.9)
Annual income:	
Under $20,000	77 (67.5)
$20,000 - $34,999	14 (12.3)
$35,000 - $49,999	6 (5.3)
≥ $50,000	2 (1.8)
Prefer not to answer	15 (13.2)
Level of education:	
Less than high school	64 (56.1)
High school	28 (24.6)
2 to 4 years college education	19 (16.9)
Masters' degree	1 (0.9)
Doctoral degree	2 (1.8)
Length of residence in USA:	
Less than five years	32 (28.1)
5 to 10 years	14 (12.3)
11 to 15 years	15 (13.2)
16 to 20 years	18 (15.8)
More than 20 years	35 (30.7)
Currently employed	25 (21.9)
Currently smoker	23 (20)

Have children	108 (94.7)

Table 3
Previous Medical History and Menstrual Status (N=114)

Variables	Frequency	Percent
Have a previous medical history of:		
Pregnancy loss, stillbirth, or miscarriage	45	39.5
Rheumatoid arthritis	45	39.5
High cholesterol level	38	33.3
Depression	30	26.3
Hypertension	29	25.4
Diabetes	28	24.6
Anxiety	24	21.1
Gestational diabetes	20	17.5
Chronic pulmonary disease	16	14
Peptic ulcer disease	15	13.2
Renal disease	12	10.5
Any cancer	9	7.9
Liver disease	6	5.3
Gestational hypertension	6	5.3
Violence or abuse (physical, sexual, or emotional)	5	4.4
Preeclampsia	1	.9
Acquired Immunodeficiency Syndrome (AIDS)	0	0

Dementia	0	0
Have more than one of the above listed medical conditions	88	77.2
Have a family history of Heart Disease	49	43.0
Have CVD risk score greater than 7.5	13	11.4
Last Menstrual Period:		
This month, last month, or within three months ago	61	53.5
More than three months ago, last year, last year, or they don't remember	53	46.5
Menstrual regularity before the age of 40:		
Regular cycle	84	73.7
Irregular cycle	25	21.9
Don't remember	5	4.4

Table 4

Family Characteristics and Roles within the Family (N=114)

Variable	Frequency	Percent
Roles within the family:		
A housewife	109	95.6
A breadwinner	14	12.3
Taking care of their own children	70	61.4
Taking care of their grownup children	70	61.4
Taking care of their parents, parents in law, or elderly relative.	13	11.4
Taking care of their grandchildren.	18	15.8

Have 3 or more family roles and/or provide care for two different generations	62	54.4

Description of Key Variables

Specific Aim 1: *To describe the prevalence of personal satisfaction (self-satisfaction, life-satisfaction, and health-satisfaction), HPB, and CVD risk among Arab American middle-aged women.* Table 5 provides a detailed description for each of these variables. On average, women in this study reported a moderate level of health satisfaction (M= 6.39, range 0-10), moderate level of life satisfaction (M= 25.26, range= 5-35), and a moderate level of self-satisfaction (M=21.79, range 0-30). Moreover, women in this study reported engaging in HPB sometimes (M= 2.66, range 1-4), and had low CVD risk score (M= 3.1, range= ≥0). All the estimated population means were significant at the alpha level.05 (*p*< .0001).

Table 5
Descriptive Statistics for Social Support, Health Satisfaction, Life Satisfaction, Self-Satisfaction, HPB, and CVD Risk (N=114)

Variable	Actual Range					Possible Range	
	Minimum	Maximum	Mean	SD	95% CI	Minimum	Maximum
Social Support	12	84	63.20	16.56	60.13 – 66.28*	12	84
Health Satisfaction	0	10	6.39	2.65	5.90 – 6.88*	0	10
Life Satisfaction	5	35	25.26	8.02	23.78 – 26.75*	5	35

Self-Satisfaction	9	30	21.79	4.91	20.88 – 22.70 *	0	30
HPB	1.63	3.60	2.66	.47	2.58 – 2.75*	1	4
CVD risk	.2	18.0	3.11	3.89	2.39 – 3.83*	0	-

*p< .0001

HPB sub-scales were further analyzed to determine the mostly practiced domain of HPB among middle-aged Arab American women. Table 6 provides mean, minimum, and maximum for each sub-scale. Spiritual growth (3.08 ± .59) and interpersonal relationships (3.04 ± .61) were the most practiced dimensions of HPB among this sample.

Table 6
Descriptive Statistics for HPB Sub-Scales (N=114)

| HPB sub-scale | Actual Range | | | | Possible Range |
	Minimum	Maximum	Mean	SD	0 - 4
Health Responsibility	1.44	4.00	2.83	.59	0 - 4
Physical Activity	1.00	3.63	1.68	.70	0 - 4
Nutrition	1.33	4.00	2.75	.55	0 - 4
Spiritual Growth	1.67	4.00	3.08	.59	0 - 4
Interpersonal Relationships	1.78	4.00	3.04	.61	0 - 4
Stress Management	1.25	4.00	2.47	.59	0 - 4

Furthermore, Table 7 provides a detailed description for selected items of ACC/AHA 10-year ASCVD. In general, women had high level of fasting blood glucose (M= 102.86, SD= 27.13), and normal level of total cholesterol (M=186.61, SD= 31.75), HDL (M= 53.65, SD= 14.63), and systolic blood pressure (M=119.70, SD 13.43). All the estimated means were significant (*P< .0001*).

Table 7
Description of Selected CVD Risk Factors (N=114)

Variable	Actual Range				Normal Range
	Mean	SD	t	95% CI	
Fasting blood glucose level	102.86	40.48	27.13	95.35 - 110.37 *	< 100 mg/dL (NIH)
Total cholesterol level	186.61	31.75	62.76	180.72 - 192.50 *	125 mg/dL - 200 mg/dL (NIH)
HDL	53.65	14.63	39.15	50.93 - 56.36 *	50 mg/dL or higher (NIH)
Systolic blood pressure	119.70	13.43	95.17	117.21 - 122.19 *	< 120 (AHA)

 P< .0001 (2-tailed)
 NIH: National Heart, Lung, and Blood Institute
 AHA: American Heart Association

Relationships among Variables

   Specific Aim 2*: to investigate the relationship among personal satisfaction, HPB, and CVD risk among Arab American middle-aged women.* Hypothesis 2a: there is a direct relationship between personal satisfaction and adoption of health promoting behavior (HPB). Pearson r

correlation coefficient was used to examine the relationship between the three personal satisfaction sub-concepts (self-satisfaction, health satisfaction, and life satisfaction) and HPB. HPB was significantly correlated with all the three personal satisfaction sub-concepts. Self-satisfaction had the highest correlation with HPB ($r= .54$, $p< .0001$) followed by health satisfaction ($r= .45$, $p< .0001$), and lastly life satisfaction ($r= .41$, $p< .0001$). The correlations were significant at 0.01 level on one-tailed test (see Table 8). Therefore, the increase in personal satisfaction was associated with an increase in HPB in this sample.

Table 8
Pearson's Correlation for Health Satisfaction, Life Satisfaction, Self-Satisfaction, HPB and CVD Risk (N=114)

Variables	Health Satisfaction	Life Satisfaction	Self-Satisfaction	HPB	CVD Risk
Health Satisfaction	1				
Life Satisfaction	.60**	1			
Self-Satisfaction	.49**	.50**	1		
HPB	.45**	.41**	.54**	1	
CVD Risk	-.18*	-.27**	-.17*	.34	1

*. Correlation is significant at the 0.05 level (1-tailed).
**. Correlation is significant at the 0.01 level (1-tailed).

Hypothesis 2b: there is an inverse relationship between personal satisfaction and CVD risk. Pearson r correlation coefficient was used to examine the relationship between the three personal satisfaction sub-concepts and CVD risk score. CVD risk score was negatively correlated with all the three personal satisfaction sub-concepts. Life satisfaction had the highest correlation with CVD

risk score ($r= -.27$, $p= .002$) and was significant at the 0.01 level. Health satisfaction correlation with CVD risk score ($r= -.18$, $p= .029$), and self-satisfaction correlation with CVD risk score ($r= -.17$, $p= .039$) were significant at the 0.05 level (see Table 8). Therefore, the increase in personal satisfaction was associated with a decrease in CVD risk score in this sample.

Hypothesis 2c: growth and development factors (age, menstruation status, roles within the family, job status, and social support) predict personal satisfaction in middle-aged women. To test this hypothesis, three separate multiple regression analysis (one for each personal satisfaction sub-concept) were used. For health satisfaction, the model explained 13% of the variation and was significant ($F = 4.307$, $p =.001$). However, only social support and being employed had significant partial impact on health satisfaction ($B= .05$, $t= 3.44$, $p= .001$), ($B= 1.46$, $t= 2.59$, $p= .01$) respectively. A step-type regression model was used to estimate the optimal model. The optimal model is presented in Table 9a. Social support and being employed significantly predicted 14% of the variance in health satisfaction ($F = 10.11$, $p< .0001$).

Table 9a
Regression Analysis Predicting Health Satisfaction (N=114)

Variable	B	SE B	Beta	t	P
Employment Status	1.43	.56	.23	2.57	.01
Social Support	.05	.01	.33	3.78	< .0001
$R^2= 0.14$, $F = 10.111$, $p< .0001$					

Note: *B*: Unstandardized Regression Coefficient
       SEB: Standard Error
       Beta: Standardized Regression Coefficient

For life satisfaction, multiple regression analysis was conducted with including age, menstruation status, roles within the family, job status, and social support as independent variables

and life satisfaction as a dependent variable. The model explained 26% of the variance in life satisfaction ($F = 8.94$, $p < .0001$), but only social support had significant partial impact on life satisfaction ($B = .24$, $t = 5.95$, $p < .0001$). A step-type regression model was used to estimate the optimal model. The optimal model is presented in Table 9b. Social support significantly predicted 26% of the variance in life satisfaction ($R^2 = 0.26$, $F = 41.45$, $p < .0001$).

Table 9b
Regression Analysis Predicting Life Satisfaction (N=114)

Variable	B	SE B	Beta	t	p
Social Support	.25	.04	.52	6.44	< .0001
$R^2 = 0.26$, $F = 41.45$, $p < .0001$					

Note: B: Unstandardized Regression Coefficient
        SEB: Standard Error
        Beta: Standardized Regression Coefficient

For self-satisfaction, multiple regression analysis was conducted with including age, menstruation status, roles within the family, job status, and social support as independent variables and self-satisfaction as a dependent variable. The model explained 5% of the variance in self-satisfaction ($F = 2.295$, $p = .05$), and only social support had significant partial impact on self-satisfaction ($B = .09$, $t = 3.22$, $p = .002$). A step-type regression model was used to estimate the optimal model. The Optimal model is presented in Table 9c. Social support significantly predicted 8% of the variance in self-satisfaction ($F = 11.06$, $p = .001$).

Table 9c
Regression Analysis Predicting Self-Satisfaction (N=114)

Variable	B	SE B	Beta	t	p
Social Support	.09	.03	.30	3.33	.001

R²= 0.08, F = 11.06, p= .001

Note: B: Unstandardized Regression Coefficient
     SEB: Standard Error
     Beta: Standardized Regression Coefficient

Hypothesis 2d: personal satisfaction and growth and development factors predict HPB. Multiple regression analysis was conducted with including age, menstruation status, roles within the family, job status, social support, health satisfaction, life satisfaction, and self-satisfaction as independent variables and HPB as a dependent variable. The model explained 32% of the variance in HPB (*F*= 7.568, *p*< .0001). Only self-satisfaction had significant partial impact on HPB (*B*= .036, *t*= 4.064, *p*< .0001). A step-type regression model was used to estimate the optimal model. The optimal model (presented in Table 10) included self-satisfaction and health satisfaction, and it explained 32% of the variance in HPB (*F*= 27.99, *p*< .0001). The optimal model showed that, on average, HPB increased by .040 for a unit increase in self-satisfaction (*t*= 4.76, *p*< .0001), and HPB increased by .042 for a unit increase in health satisfaction (*t*= 2.68, *p*= 0.009).

Table 10
Regression Analysis Predicting HPB (N=114)

Variable	B	SE B	Beta	t	p
Self-Satisfaction	.040	.008	.42	4.76	< .0001
Health Satisfaction	.042	.016	.24	2.68	.009
R²= .32, F= 27.99, p< .0001					

Note: B: Unstandardized Regression Coefficient
     SEB: Standard Error
     Beta: Standardized Regression Coefficient

Hypothesis 2e: personal satisfaction, growth and development factors, and HPB predict CVD risk. Multiple regression analysis was conducted with including age, menstruation status,

roles within the family, job status, social support, health satisfaction, life satisfaction, self-satisfaction, and HPB as independent variables and CVD risk score as a dependent variable. The model explained 49% of the variance in CVD risk (F= 12.84, p< .0001). Age and life satisfaction had significant partial impact on CVD risk score (B= .40, t= 7.00, p< .0001), (B= - .16, t= - 3.34, p= .001) respectively. A step-type regression model was used to estimate the optimal model. The optimal model (presented in Table 11) included age and life satisfaction, and it explained 50% of the variance in the CVD risk score (F= 58.28, p< .0001). The optimal model showed that, on average, CVD risk score increased by .37 for a unit increase in age (t= 9.99, p< .0001), and CVD risk score decreased by .13 for a unit increase in life satisfaction (t= - 4.14, p< .0001).

Table 11

Regression Analysis Predicting CVD Risk (N=114)

Variable	B	SE B	Beta	t	p
Age	.37	.04	.66	9.99	< .0001
Life Satisfaction	-.13	.03	-.28	-4.14	< .0001
R^2= 0.50, F= 58.28, p< .0001					

Note: B: Unstandardized Regression Coefficient
      SE B: Standard Error
      Beta: Standardized Regression Coefficient

Summary of Findings

Data analysis of this study yielded the following findings:

1) Specific Aim 1: to describe personal satisfaction, HPB, and CVD risk among Arab American middle-aged women. The sample means, minimum, maximum, and 95% CI were described. On average, women in this study had moderate levels of personal satisfaction, practiced HPB sometimes, and had a low score of CVD risk.

2) Specific Aim 2: to investigate the relationship between personal satisfaction, HPB, and CVD risk among Arab American middle-aged women.

   a) Hypothesis 2a: there is a direct relationship between personal satisfaction and adoption of HPB was supported by the results of this study.

   b) Hypothesis 2b: there is an inverse relationship between personal satisfaction and CVD risk was supported by the results of this study.

   c) Hypothesis 2c: growth and development factors (age, menstruation status, roles within the family, job status, and social support) predict personal satisfaction in middle-aged women was partially supported by the data of this study because only social support and being employed had significant partial impact on personal satisfaction.

   d) Hypothesis 2d: personal satisfaction and growth and development factors predict HPB was partially supported by the data of this study because not all the independent variables were significant.

   e) Hypothesis 2e: personal satisfaction, growth and development factors, and HPB predict CVD risk was partially supported by the data of this study because not all the independent variables were significant.

A discussion of the findings, recommendations for future research, clinical implication, and implications for theory are presented in chapter 5.

Chapter 5 Discussion

This is the first known study that examined the relationships among personal satisfaction, health promoting behavior (HPB), and cardiovascular disease (CVD) risk in Arab American middle-aged women. The relationships among the study variables were developed deductively based on King's Conceptual System and a synthesis of the current literature related to the phenomenon. This chapter provides the discussion of the study findings as well as recommendations for future research, clinical implications, and implications for theory.

The study involved a convenience sample of 114 Arab American middle-aged women residing in the Detroit metropolitan area who were recruited over a period of three months. Majority of participants in this study were originally from Iraq (38.6%), followed by Lebanon (23.7%), and Yemen (24.6%), a finding that differs from the findings of the Baker et al. (2004) that stated Arab Americans in Detroit area trace their ancestry predominantly to Lebanon/Syria (37 %), followed by Iraq (35 %), Palestine/Jordan (12%), and Yemen (9 %). However, census data indicated that the largest number of new Arab immigrants to Michigan came from Iraq, Yemen, and Lebanon, and two-thirds of the Arab Americans in Michigan are from Lebanon and Iraq (AAI, 2015). In addition, previous research with Arab Americans in the Detroit area had the majority of their participants from Iraq, Lebanon, and Yemen (Albodour, 2017; Alhasanat, 2017).

Women in this study were more likely to be married (74.6%) and less likely to be divorced (7.9%), widowed (7.9%), separated (6.1%), or single (3.5%) which is consistent with census data in which Arab Americans were found more likely to be married, and married-couple households were more common among Arab Americans compared to the total population (Brittingham & Cruz, 2005). Other demographic characteristics of the participants were consistent with previous studies. For example, Arab American middle-aged women in this study were more likely to prefer

the Arabic language (87.7%), as in Alhasanat (2017) and Aqtash (2013), be not employed (78.1%) as in Alhasanat (2017), and have low annual income (< \$20,000) (67.5%) as in Alhasanat (2017) and Jadalla, Hattar, and Schubert (2015).

On the other hand, women in this study were more likely to have less than high school education (56.1%), a finding that is inconsistent with the census data that indicated more than 40% of Arab Americans had a bachelor's degree or more education (Brittingham & Cruz, 2005). The difference in the percent can be attributed to the fact that the census data included Arab population 25 and older, whereas participants in this study were limited to be 40 to 65 years. It is possible that people who are younger than 40 have a tendency to get a higher education than older people.

Personal Satisfaction among Arab American Middle-Aged Women

Women in this study were assessed for health satisfaction, life satisfaction, and self-satisfaction to describe their personal satisfaction level as being in this transitional age period and to investigate its impact on HPB and CVD risk. On average, women in this study were more likely to be satisfied with their health, life, and self as evident by significant sample means that were closer to the maximum possible scores than the minimum possible scores. In addition, women who reported high health satisfaction level reported a high level of life and self-satisfaction. Prior studies have examined the association between health satisfaction, life satisfaction, and self-satisfaction. For example, Daroudi et al. (2016), found that life satisfaction in people who rated their health status as poor was 3.83 times lower than in those who rated their health status as excellent. Similarly, Kalka (2016) found that middle-aged women who were less satisfied with their lives were also less satisfied with their health, and Sorenson (1990), found an association between self-satisfaction and self-reported physical symptoms.

Previous research indicated that personal satisfaction sub-concepts have been studied among middle-aged women mostly as outcome variables for several predictors (Kalka, 2016; Song, Kim, & Park, 2015; Steca et al., 2013; Rauch et al., 2010) but have not been investigated against specific developmental related changes. In this study, we investigated the impact of growth and developmental factors (age, employment status, roles within the family, menstrual status, and social support) on personal satisfaction. We found that only social support and being employed had significant partial impact on personal satisfaction. For example, while controlling for age, menstrual status, and roles within the family, being employed and social support predicted health satisfaction. Life satisfaction and self-satisfaction were predicted only by social support while controlling for age, employment status, menstrual status, and roles within the family. This implies that growth and developmental changes mainly age, being in the menopause stage, and having three or more roles in the family and/or providing care for two different generations in the family did not predict personal satisfaction in this group of women.

Although personal satisfaction was associated with several CVD risk factors such as depression; inflammatory response to acute stress; and preterm birth in prior research (e.g.; O'Donnell, Brydon, Wright, & Steptoe, 2008; Ornat et al., 2013; Orr et al., 2012), no studies have examined the association between personal satisfaction and HPB or CVD risk. We found that personal satisfaction was positively associated with HPB; that is, as personal satisfaction (health satisfaction, life satisfaction, and self-satisfaction) increased, women in this study were more likely to adopt HPB. Similarly, personal satisfaction was negatively associated with CVD risk which means that, as personal satisfaction increased, women's risk for CVD decreased. Therefore, in addition to the indirect association between personal satisfaction and CVD risk which was

supported by previous research, this study adds the direct association between personal satisfaction and CVD risk and between personal satisfaction and HPB.

Health Promoting Behavior among Arab American Middle-Aged Women

Several studies have described health promoting behavior (HPB) among women of different ethnic and minority groups or among Arab Americans. Smith, Tucker, Arthur, Wippold, and Tran (2017) studied HPB among African American women and reported that, on average, African American women sometimes engage in HPB (M = 2.25, range 1-4). Hispanic Americans and Korean Americans were also found to have very close means of HPLP-II (Hispanic M= 2.70, Korean M= 2.60, range 1-4) (Duffy, Rossow, & Hernandez, 1996; Eun, Ae, & Kyung, 2010). Moreover, Fisher and Kridli (2014) studied HPB in middle-aged American women in Michigan and found that on average, middle-aged women sometimes perform HPB (M= 2.55, range 1-4).

Similarly, Aqtash and Servellen (2013) reported that on average, Arab American adults (males and females) sometimes practice HPB (M= 2.73, range 1-4). Khalil (2014) in which the sample was limited to Arab American women but was not limited to middle-aged, found that the mean score of HPLP-II was 2.71. Despite the difference in the population focus, the mean scores of HPLP-II in the current dissertation research and as found by Aqtash and Servellen (2013) and Khalil (2014) are very close. In addition, Aqtash and Servellen (2013) and Khalil (2014) reported that spirituality growth and interpersonal relations were the most practiced dimensions of HPB which is consistent with what was found in this study. The current study exclusively addressed middle-aged Arab American women, while the fact that women made up only 41.5% of the study population in Aqtash and Servellen (2013), and mean age of the participants in Khalil (2014) was 38 make generalizing their findings to middle-aged Arab American women impractical.

The current dissertation study also investigated the impact of some growth and developmental factors (age, being employed, having three or more roles in the family and/or providing care for two different generations, menopause status, and social support) on HPB. According to previous research, age was found to have a positive correlation with HPB indicating that HPB increases as age increased (Enjezab et al., 2012; Eshah, 2011; Kim et al., 2011; ŚLusarska et al., 2010). The findings of this study did not support this claim. In this study, age had insignificant partial impact on HPB.

Being employed was found to have inconsistent correlations with HPB across previous studies. For example, it was found to have a negative association with HPB in one study (Enjezab et al., 2012) and a positive association in another study (Kim et al., 2011). The two studies were conducted in different populations; the first study was conducted among Iranian women while the second study was conducted among Chinese women. Enjezab et al. (2012) had only middle-aged women while Kim et al. (2011) included women younger than 40-year old. Being employed was also not a significant predictor for HPB among Arab American adults (Aqtash & Servellen, 2013) and among Arab American women (Khalil, 2014). In this dissertation research, we found that being employed did not predict HPB in middle-aged Arab American women.

According to Erikson's theory of psychosocial development, men and women fulfill multiple social roles in middle-age stage with family and work being the most central roles (Hutchison, 2015). A qualitative study was conducted among Iranian middle-aged women found that middle-aged Iranian women assumed multiple roles and responsibilities in their families and they gave priority to the needs of others which could limit their participation in HPB (Farajzadegan, Taleghani, & Aflatoonian, 2014). Consistent with Enjezab et al., (2014), we found that more than half of the participants in this study (54.4%) assumed multiple roles in their families

and/or were responsible to provide care for two different generations in their families. In addition, it was hypothesized in this dissertation research, that having multiple roles within the family and/or being responsible to provide care for two different generations in the family predict HPB in middle-aged Arab American women. However, after controlling for other growth and developmental factors, having multiple roles within the family and/or being responsible to provide care for two different generations in the family did not predict HPB.

Menopause status was another growth and developmental factor that was hypothesized to predict HPB in middle-aged Arab American women. Menopause is one of the main physiological changes that occur for women during the middle-age stage (Hutchison, 2015; Polan & Taylor, 2007; Specht & Craig, 1987). Therefore, understanding the impact of the developmental changes on HPB requires paying attention to menopause status. Several previous studies have investigated HPB among menopausal and/or middle-aged women (e.g.; Enjezab et al., 2012; Nazari et al., 2016; Sehhatie, et al., 2015; Slusarska, et al., 2010). However, these studies did not investigate the relationship between menopause status and HPB. In this dissertation research, 46.5% of women were menopaused. However, we found that menopause status did not predict HPB.

The last growth and development factor that was hypothesized to predict HPB in middle-aged Arab American women is social support. Social support directly influences the individual's physical and psychological wellbeing and health behaviors (Pender & Pender, 1996). Prior studies have examined the impact of social support on HPB among Arab American populations. For example, Aqtash and Servellen (2013) found that perceived social support significantly predicted HPB among Arab American adults. Similarly, Khalil (2014) supported the findings among Arab American women. In this dissertation research, however, we did not find a significant impact for social support on HPB among middle-aged Arab American women. This could be due to the fact

that this study was limited to middle-aged women (40-65-year-old) while Aqtash and Servellen (2013) and Khalil (2014) had adult participants (18-80-year-old). Future research is highly recommended to examine the impact of growth and developmental factors in a larger stratified sample to allow comparability.

In addition to growth and developmental factors, this study is exclusive in examining the impact of personal satisfaction on HPB. In fact, personal satisfaction, mainly self-satisfaction and health satisfaction, was the only significant predictor for HPB in this study and predicted 32% of the variance in HPB.

CVD Risk among Arab American Middle-Aged Women

Cardiovascular disease risk factors were investigated among Arab Americans in several studies. For example, the prevalence of hypertension among Arab American women was found to be 6.7% (Shara et al., 2010) and 26.1% (Tailakh et al., 2016). Diabetes prevalence was found to be 3.8%, and a high cholesterol level was 25% (Shara et al., 2010). Those prior studies, however, included women of 18 to 74 years which limit the generalizability of their finding to middle-aged women.

This dissertation study found that high cholesterol level (33.3%), depression (26.3%), hypertension (25.4%), and diabetes (24.6%) were highly prevalent among Arab American middle-aged women. However, the sample means for systolic blood pressure, total cholesterol level, and HDL level were within the normal ranges identified by the American Heart Association and the National Heart, Lung, and Blood Institute. Only mean fasting blood glucose level was slightly above the normal range (102.86 ± 40.48) that was identified by the National Heart, Lung, and Blood Institute. This implies that although diabetes prevalence in this sample was 24.6%, on

average, middle-aged women in this study were at high risk for diabetes. This dissertation research is also exclusive in describing the overall CVD risk score among Arab American women. CVD risk score of 7.5% or higher had a 3-fold increased risk of CVD-specific mortality (Loprinzi & Addoh, 2016). We found that on average women had a low score of CVD risk (M= 3.11 ± 3.89).

This is the first study that examined the impact of growth and developmental factors, personal satisfaction, and HPB on CVD risk. Growth and developmental factors included age, being employed, having three or more roles in the family and/or providing care for two different generations, menopause status, and social support. Personal satisfaction included health satisfaction, life satisfaction, and self-satisfaction. We found that only age and life satisfaction were predictors for CVD risk score in middle-aged Arab American women. The other variables did not predict CVD risk in our sample.

Age and life satisfaction predicted 50% of the variance in CVD risk score. Older women were more likely to have a higher CVD risk score, and women who have a higher level of life satisfaction were more likely to have a lower score of CVD risk. These findings are consistent with previous studies that showed a significant impact of age and life satisfaction on women's health. For example, getting older was identified to be the main risk factor for CVD among women (WHO, 2017). Life satisfaction and its improvement predicted reduced bone loss (Rauma et al., 2014) and sexual functioning (Ornat et al., 2013) in middle-aged women, and it was significantly associated with preterm birth (Orr, 2012); total quality of life, sexual quality of life, and depression (Ornat et al., 2013). Therefore, in addition to the indirect impact of life satisfaction on CVD risk among middle-aged women, this study added the direct effect of life satisfaction on women's risk for CVD.

Menstrual cessation was debated for a long time to be the main cause for the increased CVD risk in middle-aged women. However, research evidence did not support this claim. For example, using hormonal replacement therapy near menopause or post-menopause was positively linked to heart attack, stroke, and many other complications (Gebbie, 2007; Hulley et al., 1998; "The Women's Health Initiatives Steering Committee," 2004; Welnicka-Jaskiewics & Jassem, 2003). Our findings support the previous studies in that menstrual status (being menopause) did not predict CVD risk in middle-aged Arab American women.

Social support was another growth and developmental factor investigated in our study for its impact on CVD risk among middle-aged women. To be healthier and more active in society, middle-aged women need to have different kinds of support from people around them. Having strong social support can help them to cope with problems by improving their self-esteem (Reblin & Uchino, 2008). Evidence showed that social support has a positive impact on psychological health as well as physical health and survival in women. For example, previous research showed that social support had an impact on reducing morbidity and mortality rates, improving recovery from serious illness, improving the quality of life, and increasing the use of preventive health practices (Ahmadi, 2016; Hurdle, 2001; Reblin & Uchino, 2008; Toro & Oko-Riebau, 2015). In regard to its association with CVD risk, social support was directly associated with CVD incidence among middle-aged and older women (Kershaw et al., 2014). Those women who reported high social support were less likely to develop CVD event (Kershaw et al., 2014). Among women with CVD, high social support was associated with taking a more active role in self-management behaviors (Witt, Benson, Sillah, Campbell, & Berra, 2015). Moreover, social support was found to have a positive relationship with CVD protective factors and negative relationship with CVD risk factors. Rees, Karter, and Young (2010) found that social support was significantly associated

with controlling weight, exercising, controlling fat/calories, and lower DBP among blacks; and it was associated with lower LDL among whites. Our study was exclusive in measuring the impact of social support on CVD risk. In contrast to prior studies, we found that social support did not predict CVD risk score in this sample of middle-aged Arab American women. This could be attributed to the fact that, unlike the previous studies that included middle-aged and older women, this study included only middle-aged women. Middle-aged women are expected to have lower CVD risk compared to older women because CVD risk increases with increasing age as described earlier in this section. In addition, social support could change in each developmental stage based on other bio-psycho-social changes.

The variables of being employed, having three or more roles in the family and/or providing care for two different generations, health satisfaction, self-satisfaction, and HPB were not studied as predictors for CVD risk in previous research. The first two variables, being employed and having three or more roles in the family and/or providing care for two different generations, were highlighted in the middle adulthood theories as significant psychosocial changes in middle-aged women. To consider the impact of the developmental changes on CVD risk, these two variables were included in the model. Both variables did not predict CVD risk. So, although more than half of the participants in this sample had three or more roles in their families and/or were responsible to provide care for two different generations in their families (54.4%), and most of them were not employed (78.1%), their CVD risk was less than 7.5%. Similarly, health satisfaction and self-satisfaction were considered as a psychological reaction that may be impacted by developmental changes that middle-aged women experience. It was hypothesized in this study, that health satisfaction and self-satisfaction, along with the other previously discussed variables, predict CVD risk in middle-aged women. However, this hypothesis was not supported by the findings in our

sample; that is, health satisfaction and self-satisfaction did not predict CVD risk in middle-aged Arab American women. Lastly, HPB which is considered a basic requirement to prevent CVD, did not predict CVD in our sample. Future research is highly recommended to examine the impact of HPB on CVD risk on longitudinal studies.

Limitations

The previous findings should be viewed in the context of the following limitations:

1) The utilization of a convenience sample from only two sites in southeast Michigan might limit the generalizability of the study findings to middle-age Arab American women living in other parts of the U.S.

2) The sites of recruitment are predominantly Arab Americans and provide services to those who newly immigrated to the USA. So, the findings may not be similar to other parts of the U.S. where Arab Americans are a minority group or to those who were born and raised in the USA.

3) Cross-sectional data collection from relatively low income and low educated women may limit the generalizability of the findings to all middle-aged Arab American women in the USA. Obtaining access to participants from different social classes was challenging. A paucity of literature addressing exclusively the health of middle-aged Arab American women limits the possibility of comparing the findings.

4) Lastly, self-report data collection method may have increased the social desirability responses.

Strengths

Despite these limitations, this research has several strengths:

1) To the researcher's knowledge, this is the first study that focused on the concept of personal satisfaction and its relationship with CVD risk and HPB among middle-aged women.

2) Personal satisfaction, HPB, and CVD risk were described in relation to several growth and developmental factors that are specific to the middle-age stage to understand the influence of being in this transitional age period on their CVD risk.

3) This study is the first study that focused on middle-aged Arab American women in particular who were previously mixed with other age groups and/or with male participants which make it impossible to understand their health.

4) This study was guided by a theoretical framework that was developed deductively based on King's Conceptual System and a synthesis of the current literature related to the phenomenon. The concepts of the nursing conceptual model provided the logical base to hypothesize the relationships between the concepts and set the assumptions, and the synthesis of the literature provided a comprehensive understanding of each concept and how it relates to middle-aged women.

Recommendations for Future Research

This study provides initial data to describe and understand personal satisfaction, HPB, and CVD risk among middle-aged Arab American women. The findings of this study will be foundational of future research to understand the factors affecting CVD risk among middle-aged Arab American women. Future longitudinal design studies are highly recommended to gain a comprehensive understanding of the impact of personal satisfaction and growth and developmental factors on HPB and CVD risk among middle-aged Arab American women. Utilizing CVD event or incident as an outcome variable instead of CVD risk score would be even more recommended and yield more reliable data. In addition, comparing personal satisfaction, HPB, and CVD risk of

middle-aged women with younger and older women would provide more understanding of the impact of this transitional age period on women's health and CVD risk. Lastly, further work should consider other personal factors such as body mass index and genetic predispositions to understand CVD risk in middle-aged Arab American women. Comparing CVD incidence based on other CVD risk factors and growth and developmental factors would provide more comprehensive understanding of CVD risk in middle-aged women.

Clinical Implications

Data from this study may help healthcare professionals and researchers to identify middle-aged Arab American women's unique health and CVD risk. In addition, it helps to have a more in-depth understanding of the critical role of personal satisfaction programs in promoting HPB and preventing CVD among this group. The results of this dissertation study indicate that women who have high personal satisfaction level participated more in HPB and have lower CVD risk score compared to women who have low personal satisfaction level. Therefore, personal satisfaction should be considered in each individual-based or population-based program or intervention that aims to promote HPB and/or reduce CVD risk among middle-aged Arab American women. In addition, assessment of personal satisfaction, HPB, and CVD risk in primary care settings would have a significant impact on women's health.

Primary care settings have a unique role in health promotion and disease prevention. It is important that nurses in primary care settings assess middle-aged women for their personal satisfaction, HPB, and CVD risk periodically. This implication should be part of middle-aged women's routine care to ensure good health and low CVD risk. Such implication would not only help to prevent or reduce CVD risk but also identify new cases as early as possible and prevent several other chronic age-related diseases. Finally, interventions to promote personal satisfaction,

HPB, and Cardiovascular health among middle-aged Arab American women are needed to raise their satisfaction level and restore health so they can function in their socially respective roles.

Implications for Theory

The findings of this research provide the first step toward theory development for the impact of personal satisfaction on middle-aged women's health. In this study, personal satisfaction was examined against participation in HPB and against CVD risk. The findings supported the impact of personal satisfaction on HPB and CVD risk which was hypothesized based on King's Conceptual System. Because the discipline of nursing is advanced through the development of nursing theories that derived from a nursing conceptual model, this study should lead to the development of nursing theory that explains the impact of personal satisfaction on middle-aged women's health. King's Conceptual System can be used to substructure the new theory. However, to build such theory, or to broadening the impact of personal satisfaction on middle-aged women's health, several steps are still needed.

First, replicating the findings of this study is essential. The impact of personal satisfaction on HPB and/or CVD risk has not been investigated in previous research. Therefore, these findings need to be replicated among other ethnic groups of middle-aged women which would provide a comprehensive theoretical base for understanding the impact of personal satisfaction on CVD risk and HPB among middle-aged women generally. Second, incorporating the significant predictors of personal satisfaction (social support and being employed in this study) and broadening the internal environmental factors within the theory would provide a more comprehensive understanding for personal satisfaction in middle-aged women. According to King (2007), internal environmental factors are those factors within the individuals themselves. Therefore, internal environmental factors could be any physiological factors, psychological factors, or social factors.

In addition, the external environmental factors within the theory may include any external stressors in women's life that could interact with their internal environmental factors leading to a state of health (King, 2007). In this study, HPB was examined as an external environmental factor with which middle-aged women need to interact to avoid age-related diseases. There are several other factors in middle-aged women's life that they need to interact with and could be identified under external environmental factors such as social class and educational level. Finally, the outcome of the theory could include any health outcome instead of only CVD risk. Health is the outcome of the interaction between internal and external environmental factors (King, 2007). Therefore, there is a need to examine the impact of personal satisfaction on other health outcomes. When such work is done, theorist can build a solid base to construct the theory. Such theory will provide a new direction to research and practice on the phenomenon of health promotion and disease prevention among middle-aged women.

Conclusion

This is the first study that examined personal satisfaction, HPB, and CVD risk among middle-aged Arab American women. The impact of some developmental factors was investigated as well. The results indicated that personal satisfaction was associated with HPB and CVD risk. Only social support and being employed impacted personal satisfaction level. Personal satisfaction impacted HPB while age and personal satisfaction impacted CVD risk. These findings can inform nursing researchers and health care professionals to further explore this phenomenon among middle-aged Arab American women. Future research should consider longitudinal design studies and comparative groups. Incorporating personal satisfaction, HPB and CVD risk assessment in middle-aged women's routine care in primary care settings is recommended to promote HPB and prevent CVD among middle-aged Arab American women.

APPENDIX A

Summary of Reviewed Studies for the Psychosocial Predictors of CVD Risk

Author & Year	Type of the Study	Participants Age (mean age)	Participants Race	Psychosocial Factor	Findings
Castañeda et al. (2016)	SDA-Cohort study	18–74 years (N/A)	Hispanic	Psychological distress (distress, anxiety, and depression).	• Greater psychological distress was significantly related to obesity and current smoking. • Mean depressive symptomatology was higher among females classified as obese (versus non-obese) and higher among those who were current smokers.

- Obesity, diabetes, and current smoking were significant with greater psychological distress.

- Elevated depression and anxiety symptoms were associated with cardiovascular disease risk factors for Hispanic/Latino women.

Gebreab et al. (2012)	SDA-Cohort study	21 - 95 year (55.13)	African American	Stress	• Higher stress levels were positively associated with hypertension,

diabetes, and

obesity.

- Adjustment for

the stress

measures

reduced the

associations of

income with

hypertension,

diabetes, and

obesity.

Im et al. (2015)	SDA-Cohort study	Only middle-aged women (49)	Different racial groups	Psychological symptoms.	• The total numbers and total severity scores of psychological symptoms were significantly related to those of cardiovascular symptoms as a whole and in each

						racial/ethnic group.
Kershaw et al. (2014)	SDA-Cohort study	50 to 79 years old (63.6)	Different racial groups, but the majority were White American	Stressful life events (SLE) and social strain	•	Higher Stressful Life Event and social strain were associated with higher incident cardiovascular disease independent of sociodemographic factors and depressive symptoms, but not behavioral and biological risk factors.
López et al (2014)	Cross-sectional study	60 or older (69.8)	Hispanic	Acculturation	•	Women were less likely to be high acculturated compared to men, less likely

to be smokers, more likely to have a history of cardiovascular disease, and more likely to have higher body mass index category compared to the normal category.

- Higher acculturation was associated with lower systolic blood pressure, lower low-density lipoprotein, higher high-density lipoprotein, and lower prevalence

					of cardiovascular disease after age and sex adjustment.
					• Acculturation was not significantly associated with diabetes, current smoking status, or body mass index level.
Puterman et al. (2013)	Qusi-Experimental	54 - 82 year (63.33)	No information was given about participant's racial groups.	Social support and Affect state (anger, anxiety, and fear)	• Only anger was associated with IL-6 stress reactivity. • The change in IL-6 across time that occurs as a function of anger varies at different levels of social support.

					• Greater social support was associated with lower fear and IL-6.
Rutledge et al (2012)	Longitudinal study	18 or older (57.8)	Different racial groups, but the majority are White American	Depression	• Diabetes and smoking status were more strongly associated with cardiovascular outcomes among participants with lower depression symptoms scores, whereas waist–hip ratio values predicted outcomes only among those with higher depression

						symptoms scores.
Rutledge et al. (2014)	SDA-Longitudinal study	18 or older (58.3)	No information was given about participant's racial groups.	Depression	•	Depression symptoms score, antidepressant use, depression treatment, smoking status, fiber intake, and fruit and vegetable consumption were adversely associated with time to cardiovascular disease outcomes.
					•	Fiber intake and fruit and vegetable consumption were associated

						with a decreased time to cardiovascular disease event risk.
Rutledge et al (2016)	SDA-Cohort study	18 or older (58.3)	Different racial groups, but the majority are White American	Depression and anxiety symptoms, social network size, and self-rated health	•	Depression and anxiety symptoms, and very good self-rated health each independently predicted time to mortality outcomes.
					•	Social network and other self-rated health categories were not significant mortality predictors after adjusting for other

						psychosocial factors.
Salmoirago-Blotcher et al. (2013)	SDA-Cohort study	50 - 79 years (67.96)	Different racial groups, but the majority are White American	Private spiritual activity (prayer, Bible reading, and meditation) as self-reported.	•	Women who reported daily private spiritual activity had a significantly increased risk for cardiovascular events compared with women who did not reported such activity.
					•	Further adjustment for psychosocial measures and depression and emotional well-being did not

					modify these associations.
					• Trend analysis showed that the risk of cardiovascular events increased with rising frequency of private spiritual activity
Saquib et al. (2013)	SDA-Cohort study	50 - 79 years (N/A)	Different racial groups, but the majority are White American	Perceived physical and mental health.	• Self-report of physical functioning was a strong predictor of cardiovascular disease incidence and death in postmenopausal women; similar self-assessment

					of mental health was not.
Slopen et al. (2012)	SDA-Cohort study	(57)	No information was given about participant's racial groups.	Job Strain and Job Insecurity	• High strain and active jobs were related to increased cardiovascular disease risk among women.
					• Job strain and job insecurity were significantly related to cardiovascular disease risk factors.
					• Women in passive jobs, active jobs, and high strain categories had elevated risk for

cardiovascular

disease risk.

(passive jobs =

low demand and

low control,

active jobs =

high demand and

high control, low

strain jobs = low

demand and high

control, and high

strain jobs =

high demand and

low control).

Tailakh et al. (2014)	Cross-sectional	18 or older. (47.6)	Arab American	Acculturation	• Acculturation was significantly associated with physical activity and body mass index. • Women were less likely to report

					Medication adherence than men.
					• No other significant correlations were found between being female and acculturation, diastolic blood pressure, blood pressure control, body mass index, nutrition, and activity.
Vetter et al. (2016)	SDA- 2 Cohort studies NHS and NHS2	30 - 55, (54.9) 25 – 42, (35.4)	Different racial groups, but the majority are White American	Rotating night shift work	• Increasing years of baseline rotating night shift work was associated with significantly higher cardiovascular

disease risk in both studies.

- In the NHS, the association between duration of shift work and cardiovascular disease was stronger in the first half of follow-up than in the second half, suggesting waning risk after cessation of shift work.

- Longer time since quitting shift work was associated with decreased cardiovascular disease risk

					among ever shift workers in the NHS2.
Whittaker et al. (2012)	SDA-longitudinal study.	(58.3)	Different racial groups, but the majority are White American	Psychosocial factors (depression, anxiety, cynicism, hostile affect, and aggression)	• Greater negative Affect (anxiety, depression, panic attack and autonomic perception) and hostility factor scores were both associated with higher systolic blood pressure, diastolic blood pressure, and body mass index. • Depression and Cynicism were significantly predictive of

					cardiovascular events.
					• No significant relationships were seen with cardiovascular events and anxiety, hostile affect, or aggression.
Windle et al (2013)	SDA-Longitudinal study	(57.8)	Different racial groups, but the majority are White American	Single and recurrent depression	• After controlling for a range of important covariates (e.g., body mass index, smoking, alcohol use), recurrent depression, but not single episode depression, significantly

					predicted cardiovascular risk and diabetes.
Zambrana et al. (2016)	SDA-Cohort Study	50–79 years (N/A)	Hispanic	Depression	• Women with depression were more likely to be hypertensive. • Depression at baseline in normotensive Hispanic women was associated with incident hypertension at year 3 follow-up.

Note.

SDA = Secondary data analysis

N/A = Not Available.

APPENDIX B

Psychosocial Themes and Summary for Major Findings

Theme 1: Negative Affect and Psychological Symptoms		
Psychosocial Factor	Number of studies	Main Findings
Depression	7 Studies	• Depression symptoms score, antidepressant use, depression treatment, were adversely associated with CVD risk, events, and mortality. • Fiber intake and fruit and vegetable consumption each partially mediated associations between depression and time to CVD events. • Diabetes and smoking status were more strongly associated with CVD outcomes among participants with lower depression symptoms scores, whereas waist–hip ratio values predicted outcomes only among those with higher depression symptoms scores. • Single episode depression did not significantly predict CVD. However, recurrent depression significantly predicted increases in CVD and diabetes. • Elevated depression symptoms were associated with CVD risk factors (SBP, DBP, and BMI) for Hispanic/Latino women.

Anxiety	4 Studies	• Anxiety was not associated with IL-6 stress reactivity.
		• Anxiety symptoms predicted time to CVD mortality.
		• Elevated anxiety symptoms were associated with CVD risk factors for Hispanic/Latino men and women.
		• Greater anxiety scores were associated with higher SBP, DBP, and BMI.
		• No significant relationships were seen with CVD events and anxiety.
Hostility, aggression, anger, and fear	1 Study	• Only anger was associated to IL-6 stress reactivity.
		• The change in IL-6 stress reactivity across time that occurs as a function of anger varies at different levels of social support.
		• Aggression and hostility scores were associated with higher SBP and DBP, and BMI.
		• No significant relationships were seen with CVD events and hostile, aggression, anger, and fear.
Psychological symptoms	1 Study	• Psychological symptoms were significantly related to cardiovascular symptoms in each racial/ethnic group among middle-aged women.

Theme 2: Social and Personal Stressors

Social support	3 Studies	• Greater social support was associated with lower fear and IL-6 stress reactivity.
		• Social support mediated the relationship of anger to IL-6 stress reactivity.
		• Social network was not significant mortality predictors after adjusting for other psychosocial factors among women with suspected coronary artery disease.
		• Low social support was associated with higher incident CVD independent of sociodemographic factors and depressive symptoms.
Perceived health status	2 Studies	• Very good self-rated health predicted time to CVD mortality outcomes.
		• Self-rated health categories were not significant mortality predictors after adjusting for other psychosocial factors among women with suspected coronary artery disease.
		• Self-report of physical functioning was a strong predictor of CVD incidence and death in postmenopausal women, but self-rated mental health was not.
Stress	3 Studies	Among African American women:
		• Higher stress levels were positively associated with hypertension, diabetes, and obesity.

- Stressors may partially contribute to associations of income with diabetes and possibly hypertension and obesity in African American women.

Among Latino women:

- Greater stress was significantly related to obesity and current smoking.

- Dyslipidemia and hypertension were not associated with stress after adjusting for other factors.

Among different racial groups:

- Higher stressful life event was associated with higher incident CVD independent of sociodemographic factors and depressive symptoms.

Acculturation	2 Studies	Among Latinos:

- Women were less likely to be high acculturated compared to men, less likely to be smokers, more likely to have a history of CVD, and more likely to have higher BMI.

- Higher acculturation was associated with lower SBP, lower LDL, higher HDL, and lower prevalence of CVD after age and sex adjustment.

- Acculturation was not significantly associated with diabetes, current smoking status, or BMI level.

Among Arabs:

- Those with low acculturation were most likely to be female, to have less than a college degree, and to be unemployed.

- Acculturation was significantly associated with physical activity and BMI across the whole participants (male and female).

- No significant correlations were found between being female and acculturation, diastolic BP, BP control, BMI, nutrition, and activity.

Spiritual activity	1 Study	• Women who reported daily spiritual activity had a significantly increased risk for cardiovascular events compared with women who did not reported such activity. • Further adjustment for psychosocial measures, depression, and emotional well-being did not modify these associations. • The risk of cardiovascular events increased with rising frequency of private spiritual activity.
Job stressors	2 studies	• Increasing years of baseline rotating night shift work was associated with significantly higher CVD risk. • Longer time since quitting shift work was associated with decreased CVD risk. • High strain jobs, active jobs, and passive jobs were related to increased CVD risk among women.

- Job strain and job insecurity were significantly related to CVD risk factors.

  (passive jobs = low demand and low control, active jobs = high demand and high control, low strain jobs = low demand and high control, and high strain jobs = high demand and low control).

APPENDIX C

Summary of the Reviewed Studies on HPB

Author &Year	Country where the study was done	Sampling	Theoretical Framework	Participants' Age	Participants' Condition
Cho et al (2013)	South Korea	SRS	None	Included women < 40 y	Abdominal Obesity
Edmonds (2010)	USA	CON	None	40 y > Included women > 65 y	Finished 4-years college education
Enjezab et al (2012)	Iran	SRS	None	Included only 40-65 y	None
Eshah (2011)	Jordan	CON	None	Included women < 40 y	None
Hurlbut et al. (2011)	USA	CON	Pender's HPM	Included women < 40 y	Sheltered Homeless
Kim et al (2011)	China	CON	None	Included women < 40 y	None
Nazari et al (2016)	Iran	SRS	Pender's HPM	Included only 40-65 y	None

Sehhatie et al (2015)	Iran	SRS & ClS	None	Included only 40-65 y	None
Slusarska et al (2010)	Poland	SRS	None	Included only 40-65 y	None
Tsai et al (2013)	Taiwan	CON & snowball	None	40 y > Included women > 65 y	None
Tyszka & Farber (2010)	USA	CON	None	Included women < 40 y	Multiple Sclerosis

Note. SRS= Simple Random Sampling, ClS = Cluster Sampling, CON= Convenience

Sampling, and Pender's HPM= Pender's Health Promotion Model.

APPENDIX D

The Mean or Percentages of HPB Dimensions in the Selected Studies

Author & year	spiritual growth (PD 1 –4)	health responsibility (PD 1 –4)	interpersonal relationships (PD 1 –4)	stress management (PD 1 –4)	physical activity (PD 1 –4)	nutrition (PD 1 –4)	smoking	alcohol consumption once a week	maintaining normal body mass
Nazari et al (2016)	Not Provided								
Slusarska et al (2010)					58.26 % *	63.64 % ** 58.68 % *** 70.24 % ****	24.38 %	14.46%	28.51%
Sehhatie et al (2015)	**3.60**	2.20	3.20	2.60	1.60	2.60			

Enjezab et al (2012)	3.60	2.14	3.23	2.99	1.70	2.82	
Tsai et al (2013)	Not Provided						
Tyszka & Farber (2010)	Not Provided						
Kim et al (2011)	2.81	2.55	2.88	2.56	2.33	2.72	
Cho et al (2013)	2.40	1.80	2.50	2.10	**1.50**	2.40	
Edmonds (2010)	Not Provided						
Eshah (2011)	2.78	2.11	2.65	2.30	1.82	2.29	

Hurlbut et al. (2011)	3.00	2.50	2.80	2.50	2.20	2.30	
Note.							
*= Walks once a day.							
** = Diet rich in fruits,							
*** = Diet rich in vegetables							
**** = Avoiding fat animals.							
PD = Possible Domain.							

APPENDIX E

Sociodemographic Data for the Pilot Study

Age: mean (SD)	49.80	(8.568)
Marital Status:	number	%
Married	20	66.7
Divorced	5	16.7
Single	2	6.7
Widow	3	10.0
Educational Level:		
less than high school education	13	43.3
high school education	10	33.3
college education	4	13.3
master's education	1	3.3
doctoral degree	2	6.7
Employed	8	26.7
Having children	29	96.7
Family history of chronic disease	15	50
Personal chronic disease:		
None	15	50.0
Heart disease	1	3.3
Diabetes	2	6.7
High cholesterol level	3	10.0
other diseases	4	13.3

more than one disease	5	16.7
Health History:		
Pregnancy loss, stillbirth, or miscarriage	11	36.7
Violence or abuse	1	3.3
Preeclampsia	0	0
Last menstrual period:		
This month	11	36.7
Last month	2	6.7
Within three months ago	3	10.0
More than three months ago	1	3.3
More than one year ago	8	26.7
I don't remember	5	16.7

APPENDIX F

Scores of Each Item of the Heart Disease Knowledge Questionnaire

Items	Number of Correct Answer	%
1. Polyunsaturated fats are healthier for the heart than saturated fats.	14	46.7
2. Women are less likely to get heart disease after menopause than before	10	33.3
3. Having had chicken pox increases the risk of getting heart disease.	7	23.3
4. Eating a lot of red meat increases heart disease risk.	22	73.3
5. Most people can tell whether or not they have high blood pressure.	9	30
6. Trans-fats are healthier for the heart than most other kinds of fats.	13	43.3
7. The most important cause of heart attacks is stress.	2	6.7
8. Walking and gardening are considered types of exercise that can lower heart disease risk.	24	80
9. Most of the cholesterol in an egg is in the white part of the egg.	20	66.7
10. Smokers are more likely to die of lung cancer than heart disease.	5	16.7

11. Taking an aspirin each day decreases the risk of getting heart disease.	20	66.7
12. Dietary fiber lowers blood cholesterol.	20	66.7
13. Heart disease is the leading cause of death in the United States.	16	53.3
14. The healthiest exercise for the heart involves rapid breathing for a sustained period of time.	9	30
15. Turning pale or gray is a symptom of having a heart attack.	13	43.3
16. A healthy person's pulse should return to normal within 15 minutes after exercise.	23	76.7
17. Sudden trouble seeing in one eye is a common symptom of having a heart attack.	9	30
18. Cardiopulmonary resuscitation (CPR) helps to clear clogged blood vessels.	6	20
19. HDL refers to "good" cholesterol, and LDL refers to "bad" cholesterol.	10	33.3
20. Atrial defibrillation is a procedure where hardened arteries are opened to increase blood flow.	1	3.3
21. Feeling weak, lightheaded, or faint is a common symptom of having a heart attack.	10	33.3
22. Taller people are more at risk for getting heart disease.	15	50
23. "High" blood pressure is defined as 110/80 (systolic/diastolic) or higher.	11	36.7

24. Most women are more likely to die from breast cancer than heart disease.	7	23.3
25. Margarine with liquid safflower oil is healthier than margarine with hydrogenated soy oil.	13	43.3
26. People who have diabetes are at higher risk of getting heart disease.	15	50
27. Men and women experience many of the same symptoms of a heart attack.	17	56.7
28. Eating a high fiber diet increases the risk of getting heart disease.	17	56.7
29. Heart disease is better defined as a short-term illness than a chronic, long-term illness.	11	36.7
30. Many vegetables are high in cholesterol.	20	66.7

APPENDIX G

IRB Expedited Approval

WAYNE STATE UNIVERSITY

IRB Administration Office
87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
FAX: (313) 993-7122
http://irb.wayne.edu

NOTICE OF EXPEDITED APPROVAL

To: Rnda Ibrahim Ashgar
College of Nursing

From: Sabrina Heidemann, M.D. or designee _R. Yost, Pharm D / 8C_
Chairperson, Medical/Pediatric Institutional Review Board (MP4)

Date: September 10, 2018

RE: IRB #:   081018MP4E

Protocol Title: Personal Satisfaction, Health Promoting Behavior, and Cardiovascular Disease Risk among Arab American Middle-Aged Women

Funding Source: Sponsor: Blue Cross Blue Shield of Michigan
Unit: College of Nursing

Protocol #:   1808001633

Expiration Date: September 09, 2021

Risk Level / Category: Research not involving greater than minimal risk

The above-referenced protocol and items listed below (if applicable) were **APPROVED** following *Expedited Review* (Category (5)* (7)*) by the Chairperson/designee *for* the Wayne State University Institutional Review Board (MP4) for the period of 09/10/2018 through 09/09/2021. This approval does not replace any departmental or other approvals that may be required.

- Revised Protocol Summary Form (revision received in the IRB Office 09/05/2018)
- Research Protocol (received in the IRB Office 07/25/2018)
- HIPAA Summary Form and HIPAA Authorization with consent (received in the IRB Office 07/25/2018)
- A waiver of HIPAA Authorization has been granted in accordance with the Privacy Rule and Justification provided by the Principal Investigator in the HIPAA Summary Form. This waiver satisfies: 1) the use or closure of PHI involves no more than minimal risk to the privacy of individuals, 2) the research could not be practicably conducted without the waiver, 3) the research could not be practicably conducted without access and use of the PHI, 4) adequate steps taken to protect identifiers from improper use of disclosure and 5) adequate plan for destroying identifiers or links.
- A waiver of consent has been granted for screening according to 45CFR46.116(d). This waiver satisfies: 1) risk is no more than minimal, 2) the waiver does not adversely affect the rights and welfare of research participants, 3) the research could not be practicably carried out without the waiver, and 4) the participants will not be given information.
- Medical Research Informed Consent (revision dated 09/07/2018) – English Version
- Medical Research Informed Consent (revision dated 09/07/2018) – Arabic Version
- Study Flyer
- Data Collection Tool (2): (I) Research Questionnaire – English Version and (II) Research Questionnaire – Arabic Version
- Please note: This submission was reviewed under the IRB Administration Office Flexible Review and Oversight Policy, therefore the expiration date is 09/10/2021.

° Federal regulations require that all research be reviewed at least annually. You *may* receive a *"Continuation Renewal Reminder"* approximately two months prior to the expiration date; however, it is the Principal Investigator's responsibility to obtain review and continued approval *before* the expiration date. Data collected during a period of lapsed approval is unapproved research and can never be reported or published as research data.

° All changes or amendments to the above-referenced protocol require review and approval by the IRB **BEFORE** implementation.

- ° Adverse Reactions/Unexpected Events (AR/UE) must be submitted on the appropriate form within the timeframe specified in the IRB Administration Office Policy (http://www.irb.wayne.edu//policies-human-research.php).

NOTE:

1. Upon notification of an impending regulatory site visit, hold notification, and/or external audit the IRB Administration Office must be contacted immediately.
2. Forms should be downloaded from the IRB website at **each** use.

*Based on the Expedited Review List, revised November 1998

Notify the IRB of any changes to the funding status of the above-referenced protocol.

APPENDIX H

Expedited Amendment Approval

WAYNE STATE UNIVERSITY

IRB Administration Office
87 East Canfield, Second Floor
Detroit, Michigan 48201
Phone: (313) 577-1628
FAX: (313) 993-7122
http://irb.wayne.edu

NOTICE OF EXPEDITED AMENDMENT APPROVAL

To: Rnda Ibrahim Ashgar
College of Nursing

From: Sabrina Heidemann, M.D. or designee _K. Schwartz_
Chairperson, Medical/Pediatric Institutional Review Board (MP4)

Date: December 05, 2018

RE: **IRB #:** 081018MP4E

Protocol Title: Personal Satisfaction, Health Promoting Behavior, and Cardiovascular Disease Risk among Arab American Middle-Aged Women

Funding Source: Sponsor: Blue Cross Blue Shield of Michigan
Unit: College of Nursing

Protocol #: 1808001633

Expiration Date: September 09, 2021

Risk Level / Category: Research not involving greater than minimal risk

The above-referenced protocol amendment, as itemized below, was reviewed by the Chairperson/designee of the Wayne State University Institutional Review Board (MP4) and is APPROVED effective immediately.

- Protocol (version2)- Protocol modified to reflect the addition of Dr.Raad Al- Saraf primary care clinic as a research site to recruit participants. Receipt of Letter of support from Dr. Al- Saraf.
- Funding Source- Funding status for Blue Cross Blue Shield of Michigan and University: Graduate School and College of Nursing have been approved and received.

Notify the IRB of any changes to the funding status of the above-referenced protocol.

APPENDIX I

Research Questionnaire (English Version)

Personal Satisfaction, Health Promoting Behavior, and Cardiovascular Disease Risk

among Arab American Middle-Aged Women

Research Questionnaire

Principal Investigator: Rnda Ashgar

Wayne State University

#

I appreciate your acceptance to participate in this study. All the information you provide will be confidential and will be used only for the research purpose. We hope the information you share helps health care providers to promote heart health of Arab American middle-aged women. your identifier information (e.g., your name, address, date of birth, telephone number, and medical record number) will not be shared with others and will be destroyed after ensuring complete and accurate data.

The questionnaire will take approximately 20 to 25 minutes. It includes four parts: demographic/personal information, social support, personal satisfaction, and health promoting behavior. Please answer each question and if you have any concern do not hesitate to talk with the researcher.

Name	
Date of birth	
Address	
Telephone number	
Medical record number	
WISEWOMEN Program	YES NO

#
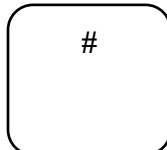
The information for the following table will be taken from your medical record. **Go directly to Part I.**

Age		Total Cholesterol level	
Gender		HDL cholesterol level	
Race		SBP	
Smoking Status		DBP	
Diabetes Status		Antihypertensive Therapy Status.	
Fasting B.Glucose		Date of the Lab value	

Part I: Demographic/Personal Information

Please answer all the following questions:

1) What is your marital status? (Select only one)

Single ☐   Divorced ☐   Widow ☐

Married ☐   Separated ☐

2) What is your highest educational level? (Select only one)

- o Less than high school education

- o High school education

- o 2 to 4 years college education

- o Masters' degree

- o Doctoral degree

3) What is your country of origin?

- o Lebanon

- o Yemen

- o Syria

- o Jordan

- o Palestine

- o Iraq

- o Egypt

- o Other: Please specify: ………………………………………………………………

- o Prefer not to answer

4) How long have you been in the United States?

- o Less than five years.

- o 5 to 10 years.

- o 11 to 15 years.

- o 16 to 20 years.

- o More than 20 years.

5) Which one of the following ranges includes your total yearly household income before taxes?

- o Under $20,000

- o $20,000 - $34,999

- o $35,000 - $49,999

- o $50,000 - $64,999

- o $65,000 - $79,999

- o $80,000 - $94,999

o $95,000 - $109,999

o $110,000 or more

o   Prefer not to answer

6) Has anyone in your Family (mother, father, brother, sister) been diagnosed with heart disease?

Yes   No ☐   Do not know ☐

7) Have you been diagnosed with any of the following diseases? Please check all what apply.

o   High blood pressure

o   Gestational hypertension

o   Diabetes

o   Gestational diabetes

o   Liver disease

o   Renal disease

o   Any cancer

o   Acquired Immunodeficiency Syndrome (AIDS)

o   Dementia

o   Peptic ulcer disease

o   Chronic pulmonary disease

o   Rheumatoid arthritis

o   High cholesterol level

o   Depression

o   Anxiety

o   Preeclampsia

8) Do you have a history of the following conditions? Please check all what apply.

o Pregnancy loss, stillbirth, or miscarriage.

o Violence or abuse (physical, sexual, or emotional).

9) Are you currently employed?

o Yes (it could be self-employed, private sector, or government)

o No (it includes not employed and retired)

If yes, do you work full-time (more than 35 hour per week) or part-time?

Full-time ☐ Part-time ☐

10) What is your role(s) within your family? Please select all that apply

o A housewife (cooking, cleaning, and doing other house chores).

o A breadwinner (earns the money that the family needs).

o Taking care of your own children (example is you being the caregiver for your children who are in the school age or younger).

o Taking care of your grownup children (examples: having children older than school age and you are responsible for preparing their foods, cleaning their rooms, helping them with their social problems, taking care of them if they are ill or sick, …. etc).

o Taking care of your parents, parents in law, or elderly relative.

o Taking care of your grandchildren.

o Other roles: Please specify:

………………………………………………………………………………………………………

………………………………………………………………………………………………………

11) Do you have children?

Yes ☐ No ☐

If yes, please answer the following questions:

a) How many are they? (Please write the number) ……………………..…….……..…

b) What are their ages? (Please write the numbers) …………….….…….……….…..…

c) Are you the primary caregiver for your children or grandchildren?

Yes ☐ No ☐

12) How many people live in your household? (Please write the number)

……………………………………………………………………………………………

13) When was your last menstrual period?

o This month

o Last month

o Within three months ago

o More than three months ago

o Last year

o More than one year ago.

o I don't remember

14) How do you describe your menstrual cycle regularity before your 40th birth day?

o Regular cycle (It means that the time between each period was 24 to 35 days, you lose same amount of blood during each period, and the number of days that your period lasts was almost the same for each period).

o Not regular cycle (It means that the time between each period was less than 24 days or more than 35 days, and you lose more or less blood during a period than usual, the number of days that your period lasts varies a lot)

o I don't remember

Part II: Social Support

We are interested in how you feel about the following statements. Read each statement carefully.

Indicate how you feel about each statement.

Circle the "1" if you Very Strongly Disagree

Circle the "2" if you Strongly Disagree

Circle the "3" if you Mildly Disagree

Circle the "4" if you are Neutral

Circle the "5" if you Mildly Agree

Circle the "6" if you Strongly Agree

Circle the "7" if you Very Strongly Agree

1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3. My family really tries to help me.	1	2	3	4	5	6	7
4. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6. My friends really try to help me.	1	2	3	4	5	6	7
7. I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8. I can talk about my problems with my family.	1	2	3	4	5	6	7

9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10. There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11. My family is willing to help me make decisions.	1	2	3	4	5	6	7
12. I can talk about my problems with my friends.	1	2	3	4	5	6	7
Part III: Personal Satisfaction							

a) **Health satisfaction:** On a scale from 0 to 10 can you indicate how satisfied are you with your health? A score of 0 refers to completely dissatisfied and a 10 refers to completely satisfied. Circle the appropriate number.

| **completely dissatisfied** | | | | | | | | | | **completely satisfied** |

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
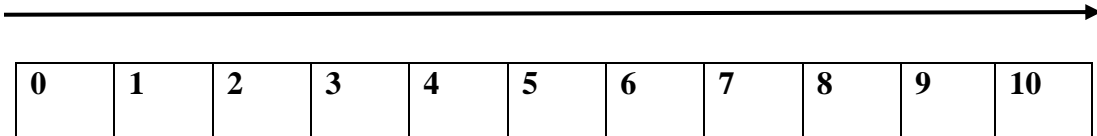
b) **Life satisfaction:** Below are five statements that you may agree or disagree with. Using the 1 to 7 scale below, indicate your agreement with each item by circling the appropriate number in front that item. Please be open and honest in your responding.

7 - Strongly agree

6 - Agree

5 - Slightly agree

4 - Neither agree nor disagree

3 - Slightly disagree

2 - Disagree

1 - Strongly disagree

1. In most ways my life is close to my ideal.	1	2	3	4	5	6	7
2. The conditions of my life are excellent.	1	2	3	4	5	6	7
3. I am satisfied with my life.	1	2	3	4	5	6	7
4. So far, I have gotten the important things I want in life.	1	2	3	4	5	6	7
5. If I could live my life over, I would change almost nothing.	1	2	3	4	5	6	7

c) **Self-satisfaction:** Below is a list of statements dealing with your general feelings about yourself.

If you strongly agree, circle SA. If you agree with the statement, circle A. If you disagree, circle D. If you strongly disagree, circle SD.

1. On the whole, I am satisfied with myself.	SA	A	D	SD
2. At times, I think I am no good at all.	SA	A	D	SD
3. I feel that I have a number of good qualities.	SA	A	D	SD
4. I am able to do things as well as most other people.	SA	A	D	SD
5. I feel I do not have much to be proud of.	SA	A	D	SD
6. I certainly feel useless at times.	SA	A	D	SD

7. I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8. I wish I could have more respect for myself.	SA	A	D	SD
9. All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10. I take a positive attitude toward myself.	SA	A	D	SD

Part IV: Health Promoting Behavior

This section contains statements about your present way of life or personal habits.

Please respond to each item as accurately as possible and try not to skip any item. Indicate the frequency with which you engage in each behavior by circling:

N for never, S for sometimes, O for often, or R for routinely

1. Discuss my problems and concerns with people close to me.	N	S	O	R
2. Choose a diet low in fat, saturated fat, and cholesterol.	N	S	O	R
3. Report any unusual signs or symptoms to a physician or other health professional.	N	S	O	R
4. Follow a planned exercise program.	N	S	O	R
5. Get enough sleep	N	S	O	R
6. Feel I am growing and changing in positive ways.	N	S	O	R
7. Praise other people easily for their achievements.	N	S	O	R
8. Limit use of sugars and food containing sugar (sweets).	N	S	O	R
9. Read or watch TV programs about improving health.	N	S	O	R

10. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).	N	S	O	R
11. Take some time for relaxation each day.	N	S	O	R
12. Believe that my life has purpose.	N	S	O	R
13. Maintain meaningful and fulfilling relationships with others.	N	S	O	R
14. Eat 6-11 servings of bread, cereal, rice and pasta each day.	N	S	O	R
15. Question health professionals in order to understand their instructions.	N	S	O	R
16. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week).	N	S	O	R
17. Accept those things in my life which I cannot change.	N	S	O	R
18. Look forward to the future.	N	S	O	R
19. Spend time with close friends.	N	S	O	R
20. Eat 2-4 servings of fruit each day.	N	S	O	R
21. Get a second opinion when I question my health care provider's advice.	N	S	O	R
22. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	N	S	O	R
23. Concentrate on pleasant thoughts at bedtime.	N	S	O	R
24. Feel content and at peace with myself.	N	S	O	R
25. Find it easy to show concern, love and warmth to others.	N	S	O	R
26. Eat 3-5 servings of vegetables each day	N	S	O	R

27. Discuss my health concerns with health professionals.	N	S	O	R
28. Do stretching exercises at least 3 times per week.	N	S	O	R
29. Use specific methods to control my stress.	N	S	O	R
30. Work toward long-term goals in my life.	N	S	O	R
31. Touch and am touched by people I care about.	N	S	O	R
32. Eat 2-3 servings of milk, yogurt or cheese each day.	N	S	O	R
33. Inspect my body at least monthly for physical changes/danger signs.	N	S	O	R
34. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking).	N	S	O	R
35. Balance time between work and play.	N	S	O	R
36. Find each day interesting and challenging.	N	S	O	R
37. Find ways to meet my needs for intimacy.	N	S	O	R
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	N	S	O	R
39. Ask for information from health professionals about how to take good care of myself.	N	S	O	R
40. Check my pulse rate when exercising.	N	S	O	R
41. Practice relaxation or meditation for 15-20 minutes daily.	N	S	O	R
42. Am aware of what is important to me in life.	N	S	O	R
43. Get support from a network of caring people.	N	S	O	R

44. Read labels to identify nutrients, fats, and sodium content in packaged food.	N	S	O	R
45. Attend educational programs on personal health care.	N	S	O	R
46. Reach my target heart rate when exercising.	N	S	O	R
47. Pace myself to prevent tiredness.	N	S	O	R
48. Feel connected with some force greater than myself.	N	S	O	R
49. Settle conflicts with others through discussion and compromise.	N	S	O	R
50. Eat breakfast.	N	S	O	R
51. Seek guidance or counseling when necessary.	N	S	O	R
52. Expose myself to new experiences and challenges.	N	S	O	R

The End of the Questionnaire

Thank you again for taking the time to complete this questionnaire. Wishing you good health and

happiness always.

Rnda Ashgar

APPENDIX J

Research Questionnaire (Arabic Version)

الرضا الشخصي، وسلوك تعزيز الصحة، وخطر أمراض القلب بين النساء العرب الأمريكيات في متوسط العمر

استبانة بحث

الباحث الرئيسي: رندة أشقر

جامعة واين ستيت

```
┌─────────────┐
│             │
│      #      │
│             │
└─────────────┘
```

أقدر لك موافقتك على المشاركة في هذه الدراسة. جميع المعلومات التي ستقدمينها ستكون سرية وسيتم استخدامها فقط لغرض البحث. نأمل أن تساعد المعلومات التي تشاركيها مقدمي الرعاية الصحية في تعزيز صحة القلب لدى النساء الأمريكيات في منتصف العمر. لن تتم مشاركة معلوماتك الخاصة (مثل اسمك وعنوانك وتاريخ ميلادك ورقم هاتفك ورقم السجل الطبي) مع أي جهة أخرى وسيتم اتلافها بعد التأكد من أن جميع البيانات كاملة ودقيقة.

يستغرق الاستبيان من 15 إلى 25 دقيقة تقريبًا ويتضمن أربعة أجزاء: المعلومات الشخصية، والدعم الاجتماعي، والرضا الشخصي، وسلوك تعزيز الصحة. يرجى الإجابة على كل سؤال، وإذا كان لديك أي استفسار لا تترددي في التحدث مع الباحثة.

الاسم	
تاريخ الميلاد	
العنوان	
رقم الهاتف	
رقم السجل الطبي	
برنامج الوايزومن (WISWOMEN)	نعم لا

#

المعلومات المطلوبة للجدول ادناه سوف تأخذ من الملف الطبي. انتقلي الى الجزء الأول

	مستوى الكوليسترول الكلي		العمر
	مستوى ال HDL		الجنس
	SBP		العرق
	DBP		هل انت تدخن
	هل تأخذ دواء لضغط الدم		هل انت مصاب بالسكري
	تاريخ الفحص		جلوكوز الدم صائم

الجزء الأول: معلومات شخصية

الرجاء الإجابة على جميع الأسئلة التالية:

1) ماهي حالتك الاجتماعية؟ (الرجاء اختيار خيار واحد فقط)

أرملة ☐   منفصلة ☐   عازبة ☐

مطلقة ☐   متزوجة ☐

2) ماهي أعلى شهادة تعليمية حصلتي عليها؟ (الرجاء اختيار خيار واحد فقط)

- o أقل من الثانوية.

- o شهادة الثانوية.

- o 2 الى 4 سنوات شهادة جامعية.

- o ماجستير.

- o دكتوراه.

3) ماهو بلدك الأصلي:

- o لبنان

- o اليمن

o سوريا

o الأردن

o فلسطين

o العراق

o مصر

o غير ذلك: الرجاء التوضيح ....

o أفضل عدم الإجابة

4) منذ متى وانت تعيشين في الولايات المتحدة الأمريكية؟

o أقل من خمس سنوات

o 5 الى 10 سنوات

o 11 الى 15 سنة

o 16 الى 20 سنة

o أكثر من 20 سنة

5) أي من النطاقات التالية يتضمن دخلك السنوي الإجمالي قبل الضرائب:

o أقل من 20,000 $

o $20,000 - $34,999

o $35,000 - $49,999

o $50,000 - $64,999

o $65,000 - $79,999

o $80,000 - $94,999

o $95,000 - $109,999

o $110,000 أو أكثر

o أفضل عدم الاجابة

6) هل يوجد أي شخص في عائلتك (الأم أو الأب أو الأخ أو الأخت) مصاب بمرض من أمراض القلب والأوعية الدموية؟

□ نعم   □ لا   □ لا أعلم

7) هل سبق لك التشخيص بأي مرض من الأمراض التالية؟ الرجاء اختيار جميع الأمراض التي سبق لك التشخيص بها.

- ○ ارتفاع ضغط الدم
- ○ ارتفاع ضغط الدم أثناء الحمل
- ○ السكري (سكري الدم)
- ○ سكري الحمل
- ○ أمراض الكبد
- ○ أمراض الكلى
- ○ أي نوع من السرطان
- ○ الإيدز (مرض نقص المناعة المكتسب)
- ○ الخرف
- ○ قرحة الجهاز الهضمي
- ○ الأمراض الرئوية المزمنة
- ○ التهاب المفاصل
- ○ مستوى كوليسترول عالي
- ○ الاكتئاب
- ○ القلق
- ○ تسمم الحمل

8) هل لديك تاريخ سابق بالحالات التالية؟ الرجاء اختيار جميع الحالات التي تنطبق عليك.

- ○ إسلاب حمل، أو ولادة جنين متوفي، أو الإجهاض.
- ○ العنف أو الإيذاء الجسدي، أو العاطفي، أو الجنسي.

9) هل أنت موظفة حاليا؟

○ نعم (وظيفة حكومية، وظيفة في القطاع الخاص، أو أعمال حرة)

○ لا (غير موظفة أو متقاعدة)

إذا كانت الإجابة نعم، هل وظيفتك دوام كامل (أكثر من 35 ساعة في الأسبوع) أو دوام نصفي:

☐ دوام كامل   ☐ دوام نصفي

10) ماهي وظيفتك أو مسؤوليتك داخل أسرتك: الرجاء اختيار جميع الإجابات التي تنطبق عليك:

○ ربة منزل (طبخ، تنظيف، والقيام بالأعمال المنزلية الأخرى).

○ المعيل للأسرة (الشخص الذي يكسب المال للأسرة).

○ رعاية أطفالك (مثال: كونك المسؤولة عن أطفالك من هم في سن المدارس أو أقل وتربيتهم ورعايتهم).

○ رعاية أبنائك البالغين (كونك المسؤولة عن أبناءك من هم في سن ما بعد المدارس لتحضير الطعام لهم، تنظيف

غرفهم، مساعدتهم في المشاكل الإجتماعية، ورعايتهم أثناء المرض،... الخ).

○ رعاية والدتك، والدك، والدة الزوج، والد الزوج، أو أي قريب مسن.

○ رعاية أحفادك (أبناء الأبناء)

○ غير ذلك: الرجاء التوضيح:

....

....

11) هل لديك أطفال؟

☐ نعم   ☐ لا

إذا أجبت بنعم، الرجاء الإجابة على الأسئلة التالية:

a) كم عدد أطفالك؟ (الرجاء كتابة الرقم ....

b) ماهي أعمارهم؟ (الرجاء كتابة الرقم) . ...

c) هل أنت المعيل الرئيسي لهم؟

☐ نعم   ☐ لا

12) كم عدد الأشخاص الذين يسكنون معك في نفس المنزل؟ (الرجاء كتابة الرقم)

....

13) متى كانت أخر دورة شهرية لك؟

- o هذا الشهر

- o الشهر الماضي

- o في خلال الثلاثة الأشهر الماضية

- o أكثر من ثلاثة أشهر

- o السنة الماضية

- o منذ أكثر من سنة

- o لا أذكر

14) كيف تصفين إنتظام الدورة الشهرية قبل سن الأربعين؟

- o منتظمة (يعني أن الفترة بين كل دورة والأخرى 24 الى 35 يوما، وكنت تفقدين نفس كمية الدم تقريبا في كل دورة، وعدد الأيام التي تستمر فيها الدورة هو نفسه تقريبا لكل دورة)

- o غير منتظمة (يعني أن الفترة بين كل دورة والأخرى كان أقل من 24 يوما أو أكثر من 35 يوما، كنت تخسرين دما أقل أو أكثر من المعتاد في دورة عن الأخرى، وعدد الأيام التي تستمر فيها الدورة قد يختلف بشكل كبير في دورة عن الأخرى)

- o لا أ

الجزء الثاني: الدعم الاجتماعي

يحتوي هذا الجزء على عدد من الإقتراحات التي تتعلق بالدعم الإجتماعي، استعملي المقياس أدناه من 1 الى 7 لتقييم كل بند من البنود من خلال وضع دائرة حول الرقم المناسب:

1 = أعترض بشدة

2= أعترض بإعتدال

3= أعترض قليلا

4= حيادي

5= أوافق قليلا

6= أوافق باعتدال

7= أوافق بشدة

7	6	5	4	3	2	1	
7	6	5	4	3	2	1	1. هناك شخص مميز بجانبي عندما أحتاجه.
7	6	5	4	3	2	1	2. هناك شخص مميز أستطيع أن أشارك أفراحي وأحزاني معه.
7	6	5	4	3	2	1	3. عائلتي تحاول مساعدتي.
7	6	5	4	3	2	1	4. أنال مساعدة عاطفية ودعم من عائلتي.
7	6	5	4	3	2	1	5. هناك شخص مميز هو/هي مصدر حقيقي للراحة لي.
7	6	5	4	3	2	1	6. أصدقائي يحاولون مساعدتي.
7	6	5	4	3	2	1	7. بإمكاني الإعتماد على أصدقائي عندما تجري الأمور بشكل سيىئ.
7	6	5	4	3	2	1	8. بإمكاني التحدث عن مشاكلي مع عائلتي.
7	6	5	4	3	2	1	9. عندي أصدقاء أستطيع أن أشارك أفراحي وأحزاني معهم.
7	6	5	4	3	2	1	10. هناك شخص مميز في حياتي يهتم بمشاعري.
7	6	5	4	3	2	1	11. عائلتي ترغب في مساعدتي لإتخاذ القرارات.
7	6	5	4	3	2	1	12. أستطيع أن اتحدث عن مشاكلي مع أصدقائي.

الجزء الثالث: الرضا الشخصي

a. **الرضا عن الصحة:** على مقياس 0 الى 10، كيف تقيمين مدى رضاك عن صحتك؟ الرقم 0 يشير الى عدم الرضا نهائيا والرقم 10 يشير الى الرضا التام. الرجاء اختيار الرقم المناسب أدناه.

| عدم الرضا نهائيا | | | | | | | | | | الرضا التام |

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

b. **الرضا عن الحياة:** فيما يلي خمسة عبارات ممكن أن توافقي عليها أو لا توافقي. نرجو منك قراءة كل عبارة من العبارات

ثم وضع دائرة حول درجة موافقتك أو معارضتك عليها وفق الاختيار على مقياس 1 الى 7 كما هو محدد أدناه. نأمل

منك أن تختاري ما يلائمك فعليا وأن تتوخي أعلى درجات الصدق والأمانة في إجابتك:

1= غير موافق على الإطلاق

2= غير موافق

3= غير موافق إلى حد ما

4= لست موافق ولست معارض

5= موافق إلى حد ما

6= موافق

7= موافق جدا

7	6	5	4	3	2	1	1. بشكل عام تبدو الحياة التي أعيشها قريبة مما أتمناه لنفسي.
7	6	5	4	3	2	1	2. أعتبر ظروف حياتي ممتازة.
7	6	5	4	3	2	1	3. أنا راض عن الحياة التي أعيشها.
7	6	5	4	3	2	1	4. حتى الآن لدي الأشياء المهمة التي أردتها.
7	6	5	4	3	2	1	5. إذا قدر لي أن أعيش من جديد فلن أبدل الكثير في حياتي.

c . **الرضا عن النفس:** فيما يلي قائمة ببعض البنود التي تتعلق بمشاعرك العامة نحو نفسك، ضعي إشارة بجانب الإجابة

الصحيحة.

	البند	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
1.	بشكل عام انا راض عن نفسي	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
2.	أحيانا أشعر بعدم جدواي	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
3.	أعتقد أنني امتلك العديد من الصفات الجيدة	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
4.	أستطيع القيام بالأشياء التي يقوم بها الاخرون	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
5.	أشعر بعدم وجود شيء يجعلني فخور بنفسي	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
6.	بالتأكيد، أشعر بعدم فائدتي احيانا	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
7.	أشعر بأنني شخص ذو قيمة، على الأقل، بشكل متساو مع غيري	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
8.	أتمنى أن أكن لنفسي احتراما أكبر	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
9.	بشكل عام، انا أميل الى الشعور بأنني فاشل	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة
10.	لدي سلوك إيجابي تجاه نفسي	أوافق بشدة	أوافق	لا اوافق	لا أوافق بشدة

الجزء الرابع: سلوك تعزيز الصحة

يحتوي هذا الجزء على فقرات تتعلق بعاداتك الشخصية أو طريقتك الحالية في الحياة – الرجاء الإجابة على البنود جميعها بأقصى دقة ممكنة، وعدم ترك أي بند بدون إجابة.

أشيري إلى أي مدى التزامك بالسلوك المشار إليه بوضع إشارة (x) في المربع الذي ترينه مناسباً من وجهة نظرك.

		لا	أحياناً	غالباً	دائماً
1	أناقش المشكلات والاهتمامات الشخصية مع أناس قريبين لي.	لا	أحياناً	غالباً	دائماً
2	أختار وجبة الطعام التي تحوي أقل ما يمكن من الدهون والدهون المشبعة والكوليسترول.	لا	أحياناً	غالباً	دائماً

دائماً	غالباً	أحياناً	لا	أقوم بإعلام الطبيب أو أحد أعضاء الفريق الصحي عن أي علامات مرضية أو عرض غير عادي.	3
دائماً	غالباً	أحياناً	لا	أقوم بإتباع برنامج تمارين رياضية منتظم.	4
دائماً	غالباً	أحياناً	لا	أنام بقدر كاف.	5
دائماً	غالباً	أحياناً	لا	اشعر بأنني أنمو وأتغير شخصياً بشكل إيجابي.	6
دائماً	غالباً	أحياناً	لا	أمدح الآخرين ببساطة لإنجازاتهم.	7
دائماً	غالباً	أحياناً	لا	أخفف من استهلاكي للسكريات والأطعمة التي تحوي السكر (الحلويات).	8
دائماً	غالباً	أحياناً	لا	أطالع أو أتابع البرامج التلفزيونية المتعلقة بتحسين الصحة.	9
دائماً	غالباً	أحياناً	لا	أمارس تمارين رياضية شاقة لمدة 20 دقيقة أو أكثر على الأقل ثلاث مرات أسبوعيا (مثل المشي السريع وركوب الدراجات والتمارين الهوائية).	10
دائماً	غالباً	أحياناً	لا	أمضي بعض الوقت يومياً بالاسترخاء.	11
دائماً	غالباً	أحياناً	لا	أؤمن أن حياتي ذات مغزى وذات قيمة.	12
دائماً	غالباً	أحياناً	لا	أواظب على إجراء علاقات شخصية ذات هدف ومعنى.	13
دائماً	غالباً	أحياناً	لا	أتناول من الخبز والحبوب والأرز والمعكرونة يومياً ما يعادل رغيف خبز عربي كبير، 3 أكواب من الأرز أو الفريكة أو المعكرونة.	14
دائماً	غالباً	أحياناً	لا	أستوضح من أعضاء الفريق الصحي لفهم تعليماتهم بشكل أكبر.	15
دائماً	غالباً	أحياناً	لا	أجري قسطاً من التمارين الرياضية الخفيفة والمتوسطة (مثل المشي المستمر من 30-40 دقيقة 5 مرات أو أكثر أسبوعياً.	16
دائماً	غالباً	أحياناً	لا	أقبل بالأشياء التي لا يمكن تعديلها في حياتي.	17
دائماً	غالباً	أحياناً	لا	أتطلع بأمل إلى المستقبل.	18
دائماً	غالباً	أحياناً	لا	أقضي بعض من الوقت مع أصدقائي المقربين.	19
دائماً	غالباً	أحياناً	لا	أتناول ما يعادل ثلاث حبات من الفواكه أو صحن سلطة فواكه يوميا.	20
دائماً	غالباً	أحياناً	لا	ألتمس رأياً طبياً آخر عند اشتباهي في النصيحة المقدمة لي من الفريق المعالج.	21

	دائماً	غالباً	أحياناً	لا		
	دائماً	غالباً	أحياناً	لا	أقوم بممارسة النشاطات البدنية الترفيهية الممتعة (مثل السباحة أو ركوب الدراجات)	22
	دائماً	غالباً	أحياناً	لا	أركز على الأفكار والأمور السارة وقت النوم.	23
	دائماً	غالباً	أحياناً	لا	أشعر بالرضى والطمأنينة في قرارة نفسي.	24
	دائماً	غالباً	أحياناً	لا	أجد أنه من السهولة على التعبير عن اهتمامي ومحبتي ومشاعري الدافئة نحو الآخرين.	25
	دائماً	غالباً	أحياناً	لا	أتناول صحنين إلى ثلاثة صحون من الخضار يومياً.	26
	دائماً	غالباً	أحياناً	لا	أناقش استفساراتي واهتماماتي الصحية مع العاملين في الحقل الصحي.	27
	دائماً	غالباً	أحياناً	لا	أمارس التمارين الخفيفة (تمارين المرونة) ثلاثة مرات على الأقل أسبوعياً.	28
	دائماً	غالباً	أحياناً	لا	أستخدم طرقاً معينة للسيطرة على القلق والتوتر.	29
	دائماً	غالباً	أحياناً	لا	أعمل لتحقيق أهداف بعيدة المدى في حياتي.	30
	دائماً	غالباً	أحياناً	لا	أتأثر وأؤثر في الأشخاص المقربين مني.	31
	دائماً	غالباً	أحياناً	لا	أتناول كوب إلى إثنين من الحليب واللبن، صحن لبنة أو قطعة من الجبن يوميا.	32
	دائماً	غالباً	أحياناً	لا	أتفحص جسمي مرة شهرياً على الأقل من أجل إكتشاف التغيرات والأعراض غير العادية في جسمي.	33
	دائماً	غالباً	أحياناً	لا	أقوم بالتمارين خلال الأعمال اليومية (مثل المشي ما أمكن وخصوصاً للأماكن القريبة بدلاً من الركوب في السيارة، واستخدام الدرج بدل المصعد).	34
	دائماً	غالباً	أحياناً	لا	أنسق وقتي بين العمل والتسلية.	35
	دائماً	غالباً	أحياناً	لا	أجد في كل يوم جديد ما يدعو للاهتمام والاستمتاع.	36
	دائماً	غالباً	أحياناً	لا	أجد الطرق المناسبة لتحقيق حاجاتي من الألفة والود.	37
	دائماً	غالباً	أحياناً	لا	أتناول ما لا يزيد عن قطعة من لحم الدجاج، قطعة من لحم الخروف، قطعة من السمك، بيضتان، صحن صغير من المكسرات يوما.	38
	دائماً	غالباً	أحياناً	لا	أستفسر من العاملين في الحقل الصحي عن كيفية الاعتناء بصحتي.	39
	دائماً	غالباً	أحياناً	لا	أفحص معدل نبضات القلب عند ممارسة التمارين الرياضية.	40
	دائماً	غالباً	أحياناً	لا	أمارس الاسترخاء والتأمل يومياً ما بين 15-20 دقيقة.	41

	لا	أحياناً	غالباً	دائماً		
أعي ما هو مهم لي في حياتي (أعرف الأولويات في حياتي).	لا	أحياناً	غالباً	دائماً	42	
أتلقى الدعم من خلال سلسلة العلاقات مع الناس الذين يهتمون لأمري.	لا	أحياناً	غالباً	دائماً	43	
أقرأ الملصقات على الأطعمة المعلبة حتى أتعرف على المواد المغذية، الدهون والأملاح التي تحويها.	لا	أحياناً	غالباً	دائماً	44	
أحضر برامج تعليمية وتثقيفية حول العناية بالصحية الشخصية.	لا	أحياناً	غالباً	دائماً	45	
أصل إلى الحد المطلوب من ضربات القلب خلال ممارسة التمارين الرياضية.	لا	أحياناً	غالباً	دائماً	46	
أنظم حياتي ونفسي لمنع حدوث التعب والإرهاق.	لا	أحياناً	غالباً	دائماً	47	
أشعر بالارتباط بقوة عليا أعظم من قوتي (مثلا الإرتباط بالخالق).	لا	أحياناً	غالباً	دائماً	48	
أبث في الخلافات والتصادمات مع الآخرين من خلال النقاش والتفاهم والحلول الوسطى.	لا	أحياناً	غالباً	دائماً	49	
أتناول طعام الإفطار.	لا	أحياناً	غالباً	دائماً	50	
أطلب الإرشاد والاستشارة عند الضرورة.	لا	أحياناً	غالباً	دائماً	51	
أعرض نفسي لتجارب وتحديات جديدة بالحياة.	لا	أحياناً	غالباً	دائماً	52	

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ABSTRACT

PERSONAL SATISFACTION, CARDIOVASCULAR DISEASE RISK, AND HEALTH PROMOTING BEHAVIOR AMONG ARAB AMERICAN MIDDLE-AGED WOMEN

by

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MAY 2019

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Purpose and Background/Significance: Cardiovascular disease (CVD) is the number one leading cause of death among middle-aged women. It was estimated that CVD causes 1 in 3 deaths each year, or one woman each minute. The purpose of this study was to examine the impact of personal satisfaction on CVD risk and health promoting behavior (HPB) among Arab American middle-aged women. The specific aims of this study were:

1) Specific Aim 1. To describe the prevalence of personal satisfaction (self-satisfaction, life satisfaction, and health satisfaction), HPB, and CVD risk among Arab American middle-aged women.

2) Specific Aim 2. To investigate the relationship among personal satisfaction, HPB, and CVD risk among Arab American middle-aged women.

Theoretical Framework: King's Conceptual System was used to examine the association among personal satisfaction, HPB, and CVD risk. Personal system dimensions from King's conceptual system that were meaningful to this phenomenon are perception and growth and development. The middle-aged woman was viewed as personal system who is multidimensional

and in constant interaction with their environment -internal and external- to achieve a state of health and to be able to function in their socially respective roles. Therefore, environmental and health were also two main concepts from King's Conceptual System that were utilized in this theoretical framework. Personal satisfaction was consistent with the concept of perception from King's Personal System, growth and developmental factors were consistent with growth and development dimension, HPB was consistent with the external environmental factors, and CVD risk was consistent with health from King's Conceptual System.

Method: The design was a non-experimental correlational design. A convenience sample of 114 Arab American middle-aged women was recruited from two clinical sites: a private primary care clinic and the Arab Community Center for Economic and Social Services (ACCESS) in Dearborn, MI to detect a medium effect size (ES = .15) at a power of 0.80 and for Alpha of 0.05. Inclusion criteria were: (a) female between 40 and 65 years old; (b) self-identify as Arab American; (c) having the following information in their medical records within the last six months: SBP, DBP, fasting blood glucose level, total cholesterol level, and HDL, (d) not diagnosed with CVD; (e) and not diagnosed with or taking medications for mental illness or disorder. Participants completed a demographic questionnaire, the Health-Promoting Lifestyle Profile-II, the Multidimensional Scale of Perceived Social Support, the Satisfactory with Life Scale, the Rosenberg Self-Esteem Scale, and the single item for health-satisfaction. Biomarker data for ACC/AHA 10-year ASCVD were taken from participants' medical records. Data were analyzed using correlational and multiple linear regression analyses.

Results: Women in this study had a mean age of 49.90 (SD= 6.99). Most of them had their last menstrual period this month, last month or within three months ago (53.3%), and had a regular menstrual cycle before the age of forty (73.7%). The majority of women were married (74.6%),

had less than \$20,000 annual income (67.5%), had less than high school education (56.1%), had

children (94.7%), were not smoker (80%), were not employed (78.1%), and preferred the Arabic

language for the survey (87.7%). For roles within the family, most women reported having three

or more roles in their families and/or provide care for two different generations (54.4%).

Specific Aim 1. On average, women in this study reported a moderate level of health

satisfaction (M= 6.39, range 0-10), moderate level of life satisfaction (M= 25.26, range= 5-35),

and a moderate level of self-satisfaction (M=21.79, range 0-30). Moreover, women in this study

reported engaging in HPB sometimes (M= 2.66, range 1-4), and had low CVD risk score (M= 3.1,

range= ≥0). All the estimated population means were significant at the alpha level.05 ($p<$ .0001).

Spiritual growth (3.08 ± .59) and interpersonal relationships (3.04 ± .61) were the most practiced

dimensions of HPB among this sample. Women had high level of fasting blood glucose (M=

102.86, SD= 27.13), and normal level of total cholesterol (M=186.61, SD= 31.75), HDL (M=

53.65, SD= 14.63), and systolic blood pressure (M=119.70, SD 13.43). All the estimated means

were significant (P< .0001).

Specific Aim 2. The increase in personal satisfaction was associated with an increase in

HPB. HPB was significantly correlated with self-satisfaction (r= .54, $p<$ .0001), health satisfaction

(r= .45, $p<$ .0001), and life satisfaction (r= .41, $p<$ .0001). Similarly, the increase in personal

satisfaction was associated with a decrease in CVD risk. Life satisfaction had the highest

correlation with CVD risk score (r= - .27, p= .002) and was significant at the 0.01 level. Health

satisfaction correlation with CVD risk score (r= - .18, p= .029), and self-satisfaction correlation

with CVD risk score (r= - .17, p= .039) were significant at the 0.05 level.

Growth and development factors (age, menstruation status, roles within the family, job

status, and social support) predicted 13% of health satisfaction. A step-type regression model was

used to estimate the optimal model. Social support and being employed significantly predicted 14% of the variance in health satisfaction ($F = 10.11$, $p< .0001$). Growth and development factors predicted 26% of the variance in life satisfaction. Using a step-type regression model, social support alone significantly predicted 26% of the variance in life satisfaction ($R^2= 0.26$, $F = 41.45$, $p< .0001$). In regard to self-satisfaction, growth and development factors predicted 5% of the variance in self-satisfaction. Utilizing a step-type regression model, social support significantly predicted 8% of the variance in self-satisfaction ($F = 11.06$, $p= .001$).

Multiple regression analysis was conducted with including growth and development factors and personal satisfaction as independent variables and HPB as a dependent variable. The model explained 32% of the variance in HPB ($F= 7.568$, $p< .0001$). Using a step-type regression model, 32% of the variance in HPB was explained by self-satisfaction and health satisfaction ($F= 27.99$, $p< .0001$). Lastly, multiple regression analysis was conducted with including growth and development factors, personal satisfaction, and HPB as independent variables and CVD risk score as a dependent variable. The model explained 49% of the variance in CVD risk ($F= 12.84$, $p< .0001$). Using a step-type regression model, 50% of the variance in the CVD risk score was explained by age and life satisfaction ($F= 58.28$, $p< .0001$).

Conclusions: Personal satisfaction was associated with HPB and CVD risk. Only social support and being employed predicted personal satisfaction level. Personal satisfaction predicted HPB while age and personal satisfaction predicted CVD risk. These findings can inform nursing researchers and health care professionals to further explore this phenomenon among middle-aged Arab American women. Future research should consider longitudinal design studies and comparative groups. Incorporating personal satisfaction, HPB and CVD risk assessment in middle-

aged women's routine care in primary care settings is recommended to promote HPB and prevent

CVD among middle-aged Arab American women.

AUTOBIOGRAPHICAL STATEMENT

Education

Present- Doctor of Philosophy in Nursing, Wayne State University, Detroit, Michigan.

2013- Master of Science in Nursing with a major in Community Health Nursing, Wayne State University, Detroit, Michigan.

2008- Bachelor of Science in Nursing, King Abdul-Aziz University, Jeddah, Saudi Arabia.

Awards

2018 Dissertation Research Support, WSU Graduate School

2018 Blue Cross Blue Shield of Michigan Foundation Student Award Program grant.

Scholarship from the Saudi government to get a Ph.D. degree in Nursing, 2016 - 2019.

Scholarship from the Saudi government to get a master's degree in Nursing, 2010- 2013.

Memberships in Professional Societies

Golden Key International Honor Society, since 2012.

Sigma Theta Tau International Honor Society of Nursing, since 2016.

Presentations:

Health Promoting Behaviors Among Middle-Aged Women: A Scoping Review. Poster presentation at the Graduate and Postdoctoral Research Symposium, Wayne State University, Detroit, MI, March 2017.

Middle-Aged Women and Vulnerability for Cardiovascular Disease: A Systematic Review for Psychosocial Factors. Poster presentation at the College of Nursing Urban Health Conference, Wayne State University, Detroit, MI, April 2018.