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Postpartum Depression And Acculturation Among U.s. Immigrant Women Of Arabic Descent

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by

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DEDICATION

To my husband Mohammad for his ongoing love and support through this journey that it would not have been possible without him supporting and encouraging. To my wonderful sons Amar and Tawfiq for filling my heart and life with joy and happiness. I am thankful to my parents for teaching me that hard work is worth the effort. To the mothers who opened their hearts and minds to share their feelings and experiences.

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Introduction

Becoming a mother is a stressful event for women, and involves a huge emotional, physical, and social adjustment, in addition to engagement in new developmental tasks (Stapleton et al., 2012). Life changes, new responsibilities, and unfamiliar childcare practices accompanied with the transition from pregnancy to motherhood can leave women isolated, lonely, and exhausted (Razurel, Bruchon-Schweitzer, Dupanloup, Irion, & Epiney, 2011). Therefore, a successful transition to motherhood is critical for women's and infant's health. Transitioning to motherhood may involve a loss of autonomy and independence; personal freedom; appearance; sexuality; social attachment and engagement; and occupational self (Darvill, Skirton, & Farrand, 2010; Lawler, Begley, & Lalor, 2015). The postpartum period is defined as a time of increased vulnerability during which mothers can experience mood disorders (Gauthier, Guay, Senécal, & Pierce, 2010). Of these mood disorders, postpartum depression (PPD) is the most common complication of childbirth (Miller, 2002). Immigrant mothers face additional significant and unique challenges due to cultural differences and variation in social constraints between their country of origin and their host country, such as language barriers, social isolation, and limited resources (Kim, Conway-Turner, Sherif-Trask, & Woolfolk, 2006; Tsai, Chen, & Huang, 2011; Tummala-Narra, 2004).

PPD affects approximately 12–20 % of United States (U.S.) mothers (Centers for Disease Control and Prevention [CDC], 2008). Based on a recent study of 10,000 women in an urban maternity hospital setting approximately 14% of new mothers in the U.S. may screen positive for PPD (Wisner et al., 2013). The reported incidence of PPD among Arabic women in the Middle East ranges from 10% to 37% (Alhasanat & Fry-McComish, 2015). However, no studies have

reported the incidence or prevalence of PPD among U.S. immigrant women of Arabic descent. In our cross-sectional design feasibility study with a sample of 50 U.S. immigrant women of Arabic descent from Dearborn, MI, we found that 18 (36%) of these women were at high risk for developing PPD [Edinburg Postnatal Depression Scale (EPDS) scores ≥ 10] (Alhasanat et al., 2017). PPD is one of the most important disabling mental health conditions that affects women during the childbearing years (O'Hara & McCabe, 2013). PPD has negative effects on the mother as well as on their children. Research has found that mothers who suffer from PPD express withdrawal, negative emotions, and insensitive unresponsive interactions with their infants (O'Hara & McCabe, 2013; Murray, Kempton, Woolgar, Hooper, 1993), inadequate parenting (Forman et al., 2007), impaired maternal–infant bonding, and attachment insecurity (Huang, Lewin, Mitchell, & Zhang, 2012). Children of mothers with PPD have negative behavioral and cognitive outcomes including internalizing psychopathology, externalizing psychopathology, negative emotionality, lower levels of positive emotionality (Goodman et al., 2011), and poorer language and IQ development (Brand & Brennan, 2009; Grace, Evindar, & Stewart, 2003; Sohr-Preston & Scaramella, 2006). Therefore, PPD affects the health and well-being of mothers and their children.

Three large meta-analyses of risk factors for PPD revealed that risk factors for PPD can be categorized into two groups: (1) risk factors with moderate and strong associations with PPD, and (2) risk factors with lower associations with PPD (Beck, 2001; O'Hara & Swain, 1996; Robertson, Grace, Wallington, & Stewart, 2004). Risk factors with moderate to strong associations with PPD include history of major depression, antenatal depression and anxiety, low self-esteem, postpartum blues, stressful life events, and low social support (Beck, 2001; O'Hara & Swain, 1996; Robertson et al., 2004). Risk factors with lower associations with PPD include

low socioeconomic status (SES), being single, unwanted pregnancy, obstetrical complications, and difficult infant temperament (Beck, 2001; Robertson et al., 2004). A meta-analysis conducted in Canada found that immigration status is an additional risk factor for PPD (Dennis, Janssen, & Singer, 2004). However, data are lacking on risk factors for PPD for U.S. immigrant women of Arabic descent.

Description of the Problem

Arab Americans Vs. Immigrant Arabs Vs. Refugee Arabs

The Arab American Institute (AAI) defines Arab Americans as those who have ancestry in any of the 22 Arab countries. Currently, the majority of Arab Americans report ancestry from Lebanon, Egypt, Syria, Palestine, and Iraq. Others have referred their ancestry to Bahrain, the Comoros Islands, Djbouti, Kuwait, Jordan, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Tunisia, Libya, Yemen, United Arab Emirates, and Mauritania (AAI, 2011). Some authors have argued that it is too narrow not to include those who do not speak Arabic but still share similar cultural attributes, for example, there are several Middle Eastern ethnic groups who do not identify themselves as Arab but share many of the same cultural values (e.g., Coptic Egyptians, Chaldeans, Iranians) (Al-Hazza & Lucking, 2005). Arab Americans are culturally, racially, or ethnically Arab; currently living in, but may not have been born in the U.S.; and may be of any religious background (Kakoti, 2012). Arab Americans and U.S. immigrants of Arabic descent are interchangeable concepts (Wrobel, Farrag, & Hymes, 2009). Immigration is an unique concept and depends on whether the relocation was voluntary or not. For example, some individuals have been motivated to immigrate in order to seek educational or occupational opportunities, while others did not have the choice in the decision to leave their country of origin (e.g. refugees from war torn countries or refugees seeking asylum from political persecution etc.)

(Wrobel et al., 2009). In this proposed study the concept of "U.S. immigrant women of Arabic descent" will be utilized to refer to women of Arabic descent who either voluntarily or involuntarily (refugee status) immigrated to the U.S.

PPD in Immigrant Women

Research suggests that PPD is prevalent among immigrant women. The prevalence of PPD among immigrant women has been reported as 11.2-37% in Canada (Gannan, Sword, Black, & Carpio, 2012; Mechakra-Tahiri, Zunzunegui, & Seguin, 2007; Sword, Watt, & Krueger, 2006), and 25.5% and 41.1%, respectively in Taiwan (Chien, Tai, & Yeh , 2012; Huang & Mathers, 2008). In the U.S., studies that reported prevalence of PPD among immigrants were mainly conducted among Hispanic women and reported the prevalence of PPD among immigrant Hispanic women as 43% - 60% (Heilemann, Frutos, Lee, & Kury, 2004; Kuo et al., 2004; Lucero, Beckstrand, Callister, & Birkhead, 2012; Shellman, Beckstrand, Callister, Luthy, & 2013). Another study found that 28% of a sample of 58 immigrant Asian Indian women in the U.S. reported PPD symptoms (Goyal, Murphy, & Cohen, 2006). In our pilot study with a sample of 50 U.S. immigrant women of Arabic descent, we found that 36% of these women were at high risk for developing PPD (Alhasanat, Fry-McComich, & Yarandi, 2017). These results suggest that immigrant women have high rates of PPD.

Data on risk factors for PPD for immigrant and refugee women is limited (Dennis et al., 2004; Stewart, Gagnon, Saucier, Wahoush, & Dougherty, 2008). Findings with samples of immigrant and refugee women suggest that these women experience serious mental health problems such as depression, post-traumatic stress disorders, and psychosis due to marginalization and minority status, pre-migration stress, painful memories, low socioeconomic status, poor physical health, and difficulty adapting to host cultures (Bhui et al., 2003; Dhooper

& Tran, 1998; Li & Browne, 2000). Limited data with postpartum immigrant women also suggest that risk factors of PPD are lack of social support, multiple roles, stressful life events, and language barriers (Katz & Gagnon, 2002, Small, Lumley, & Yelland, 2003; Dennis et al., 2004; Zelkowitz et al., 2004). In a systematic literature review, we found that lack of social support, stressful life events, low income, and intimate partner violence were risk factors associated with development of PPD among both Arab women and immigrant women (Alhasanat & Fry-McComish, 2015). In addition, immigration stress, lack of access to health care services, and lack of social support were more predominant in studies on immigrant women (Alhasanat & Fry-McComish, 2015). However, research on PPD among U.S. immigrant women of Arabic descent is almost non-existent. Only one qualitative study had been conducted to understand the experience of Arabic Jordanian immigrant women with PPD living in Sydney, Australia (Nahas & Amasheh, 2010). Nahas and Amasheh found a number of themes that emerged relative to the development of PPD, including traditional gender role fulfillment, family support and kinship ties, and the preservation of traditional childbirth customs. If the woman perceived herself as not coping well or as not being able to care for her baby or her husband, she felt guilt and reported low self-esteem (Nahas & Amasheh, 2010). Furthermore, women with PPD reported feelings of loneliness and homesickness (Nahas & Amasheh, 2010). No published studies were found about risk factors for PPD among U.S. immigrant women of Arabic descent. In our feasibility pilot study with 50 U.S. immigrant women of Arabic descent we found that antenatal anxiety ($r=.46$, $p=.001$), antenatal depression ($r=.45$, $p=.001$), life stress ($r=.30$, $p=.02$), maternity blues ($r=0.31$, $p=.02$) and lack of social support ($r=-.59$, $p <.0001$) were significant predictors of PPD symptoms (Alhasanat et al., 2017). These findings suggested the need to study

this U.S. minority group and address the risk factors associated with this potentially high risk for PPD.

Acculturative stress, Acculturation, and PPD

Acculturation and acculturative stress may be related to PPD. The literature makes a clear distinction between acculturation and acculturative stress. Acculturation refers to the process of adapting and adjusting beliefs, behaviors, and values as a result of interacting with other cultural groups (Berry, 1997). Four acculturation strategies have been identified by Berry (1997): (a) integration, a strong identification and deep involvement with the host society with the desire to maintain the original ethnic identity and culture; (b) assimilation, a positive relation with the host society and relinquish of all ties to their own culture; (c) separation, the tendency to focus exclusively on maintaining individual's own cultural values and the practices of their ethnic group, with little or no desire to be a part of the host society; and (d) marginalization, the loss or absence of contact with both the culture of origin and that of the dominant society (Berry, 1997). Acculturative stress, however, is a stress reaction in response to immigration and is manifested by uncertainty, anxiety, and depression (Berry, 1997).

Only seven published studies were found that examined the relationship between acculturation and PPD. Findings of these studies were inconsistent. In a systematic literature review, we found that acculturation was positively related to risk of PPD symptoms among immigrant Hispanic women (Alhasanat & Giurgescu, 2017). Of the seven studies included in the review, five of the studies reported that higher levels of acculturation were related to higher levels of postpartum depressive symptoms (Davila, McFall, & Cheng, 2009; Heilemann et al., 2004; Kuo et al., 2004; Martinez-Schallmoser, Telleen, & MacMullen, 2003; Sumner, Wong, Schetter, Myers, & Rodriguez, 2012). For example, U.S-born Hispanic women were more likely

to have higher Center for Epidemiological Studies –Depression (CES-D) scores compared with Mexican-born women (Davila et al, 2009). However, Heilemann et al., (2004) found that childbearing women who were exposed to the U.S. culture during childhood reported significantly higher levels of PPD symptoms compared with women who spent their childhood in Mexico, but country of birth was not related to higher risk of PPD symptoms (Heilemann et al., 2004). Low use of the Spanish language was also related to higher levels of PPD symptoms in two studies (Davila et al., 2009; Martinez-Schallmoser et al., 2003); however, other studies reported that language of the interview was not related to PPD symptoms or PPD (Beck, Froman, & Bernal, 2005; Heilemann et al., 2004; Valentine, Rodriguez, Lapeyrouse, & Zhang, 2011). A relationship between acculturation and PPD symptoms was not found in two studies included in the review (Beck et al., 2005; Valentine et al., 2011). While a study of immigrant mothers from China and Vietnam married to Taiwanese men in Taiwan was found it was not included in the systematic literature review due to the non-Hispanic sample. Still the study reported that higher levels of acculturation were related to higher levels of PPD symptoms (Chen, Hwang, Tai, & Chien, 2013). The inconsistencies of results among the studies may be due to different instruments used to measure acculturation, diverse ethnic/ minority samples, and small sample sizes. Of the seven studies included in the systematic literature review, only one study (Beck, 2006) used a diagnostic test to measure PPD (Alhasanat & Giurgescu, 2017). The remaining of the studies used screening tools to measure PPD symptoms (Alhasanat & Giurgescu, 2017). None of these studies utilized the same instrument to measure acculturation, and none of them utilized the Acculturation Rating Scale for Mexican-Americans-II (ARSMA-II) (Alhasanat & Giurgescu, 2017).

Little attention has been given to examining the relationship between acculturation and depression among U.S. immigrant women of Arabic descent. Amer and Hovey (2007) found that acculturation increased the risk for depression among second generation and early immigrant men and women of Arabic descent ages 18-46 from 19 states and the District of Columbia. Greater adherence to traditional Arab/religious family values (i.e. lower on the acculturation process) was one of the risk factors for depression (Amer & Hovey, 2007). For example, compared with individuals who did not retain their Arab family and religious values, those who retained their Arab family and religious values and engaged in Arab cultural practices (less integrated) reported greater acculturation stress such as discrimination and alienation from society, and higher levels of depression (Amer & Hovey, 2007). These results may be due to the fact that some Arabic values and practices conflict with those of the U.S. mainstream culture and thus increase chances for a person to be misunderstood or discriminated against. However, no published studies have reported the association between acculturation and PPD symptoms among U.S. immigrant women of Arabic descent.

Few studies have addressed the role of acculturative stress on PPD or maternal mental health. Some of these studies found that acculturative stress was positively related to depressive symptoms during pregnancy and postpartum periods in Mexican American women (D'Anna-Hernandez, Aleman, & Flores, 2015; Zeiders, Umana-Taylor, Updegraff, & Jahromi, 2014). Acculturative stress was also found to be a predictor of depression among a sample of Arab Americans between 60–92 years old (Wrobel et al., 2009). However, no published studies were identified that examined the relationship between acculturation and/ or acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.

Social Support and PPD

Social support is a facilitator of well-being during major life transitions and during stressful situations (Cohen & Wills, 1985). Childbirth is a major life transition, and immigration, acculturation, and acculturative stress are stressful life events; therefore, it can be assumed that social support may facilitate maternal well-being after childbirth among U.S. immigrant women of Arabic descent. Although stressful life events often have deleterious effects on psychological health, social support has been found to limit these negative effects in two ways (Cohen & Wills, 1985; House et al., 1988):

1. Main Effect Model: Social support has a direct positive effect on psychological health, thereby benefiting women during both stressful and non-stressful situations. According to this model, higher levels of social support are directly associated with higher levels of psychological well-being, irrespective of whether a person has experienced a stressor.

2. Stress- Buffering Hypothesis: Social support buffers the effects of stress on psychological health. The benefits of social support are most apparent when support is provided during times of high stress. According to the stress-buffering model, social support protects mental health by moderating the stressor's effect, or counteracting the harmful effect of a stressor on mental health. (Cohen and Wills, 1985). In other words in this study, the influence of acculturative stress on PPD may be attenuated at higher levels of social support.

Supporting the main effect, a study found that more frequent partner support during pregnancy predicted lower levels of maternal depression at 30 months postpartum controlling for maternal stress (Brock et al., 2014). Findings from other studies also revealed that higher levels of social support were related with lower risk of PPD among 181 first-time Chinese mothers at six weeks postpartum (Ngai & Chan, 2011). Furthermore, Dennis et al. (2004) found that lower

levels of social support were predictors of PPD among immigrant women living in Canada (Dennis et al. 2004, Dennis & Ross 2006). Lack of social support predicted higher PPD among immigrant women in industrialized countries such as Canada and Taiwan (Chien et al., 2012; Huang & Mathers, 2008; Mechakra-Tahiri et al., 2007; Small et al., 2003; Stewart et al., 2008; Stewart, Gagnon, Merry, & Dennis, 2012; Sword et al., 2006). Among women of Arabic descent living in their own countries of origin, lack of social support was a risk factor for PPD (Chaaya et al., 2002; Saleh, El-Bahei, El-Hadidy, & Zayed, 2013; Yehia, Callister, & Mansour, 2013). Lack of social support was found as a consistent important risk factor for PPD among immigrant women and Arabic women in the Middle East (Alhasanat & Fry-McComish, 2015). No published studies were found that addressed the relationship between social support and PPD symptoms in U.S. immigrant women of Arabic descent. Furthermore, no studies have examined the moderating effect of social support on the association between acculturative stress and PPD symptoms. Therefore, this study examined the moderating effect of social support on the association between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.

Significance

PPD is prevalent among women in the U.S. and has a negative impact on mothers and their children. Immigrant women are at higher risk of PPD compared with women from the native country. However, no published studies have examined risk factors for PPD symptoms among U.S. immigrant women of Arabic descent. Limited data suggest that acculturative stress and acculturation are related to higher risk for PPD among immigrant and Mexican (Hispanic White) American women. However, no published research has investigated the relationship between acculturative stress and/ or acculturation and PPD symptoms among U.S. immigrant

women of Arabic descent. Lack of social support predicted PPD symptoms among immigrant women living in other countries. However, no studies have examined the relationship between social support and PPD symptoms among U.S. immigrant women of Arabic descent. This study will advance nursing science by understanding how acculturative stress, social support and acculturation impact PPD symptoms among U.S. immigrant women of Arabic descent.

Purpose Statement

Despite the extensive research on PPD, the relationships among acculturative stress, social support, acculturation, and PPD symptoms have not been examined among U.S. immigrant women of Arabic descent. Therefore, the purpose of this dissertation research was to examine the impact of acculturative stress, social support and acculturation on PPD symptoms among U.S. immigrant women of Arabic descent. The specific aims were to:

Specific Aim 1. Examine the relationships among acculturative stress, social support, acculturation and PPD symptoms among U.S. immigrant women of Arabic descent.

H.1.a. Higher levels of acculturative stress are related to higher levels of PPD symptoms.

H.1.b. Lower levels of social support are related to higher levels of PPD symptoms.

H.1.c. Higher scores of attraction to the American culture (AAmC) and lower scores of attraction to the Arabic culture (AArC) are related to higher levels of PPD symptoms.

H.1.d. Higher scores of Marginality scale are related to higher levels of PPD symptoms

Specific Aim 2. Examine if social support moderates the associations between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.

H.2. Social support moderates the associations between acculturative stress and PPD symptoms.

Specific Aim 3. Examine if acculturation variables mediate the associations between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.

H.3. Acculturation variables (AAmC, AArC, and marginalization) mediate the associations between acculturative stress and PPD symptoms.

CHAPTER 2 THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Theoretical Framework

For the past three decades within the discipline of psychology, there has been a focus on acculturation as a major explanatory concept in the study of health effects on ethnic minorities. Acculturation is a direct consequence of an associated with immigration and cultural change. In the early 1900s, researchers proposed a linear and directional definition of acculturation; it was defined as the process by which loss of the original culture occurs through greater acculturation (Park, 1928). Since then the concept of acculturation has expanded to become multidimensional; Berry and others proposed that individuals change on more than one dimension in this process and measurement of these dimensions is needed (Berry, 2003). Redfield, Linton, and Herskovits (1936) presented the classical definition of acculturation as: "acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups" (p.149). Later the definition of acculturation was expanded by the Social Science Research Council (1954), in which acculturation was defined as:

> "Culture change that is initiated by the conjunction of two or more autonomous cultural systems. Acculturative changes may be the consequence of direct cultural transmission; it may be derived from non-cultural causes, such as ecological or demographic modification induced by an impinging culture; it may be delayed, as with internal adjustments following upon the acceptance of alien traits or patterns; or it may be reactive adaptation of traditional modes of life" (p.974).

Acculturation Framework

Berry's (1997) Acculturation Framework represents the pioneering and the most influential theory on acculturation. Berry's (1997) Framework of acculturation is grounded in Lazarus and Folkman's (1984) early work on stress and coping. According to Berry (1997), acculturation is similar to assimilation in two points: (1) it focuses on the attainment of the

majority group's culture by members of the minority group; and (2) it emphasizes a unidirectional relationship between the two cultures. An assimilation only model emphasizes that individuals or the cultural group will eventually become full members of the majority group's culture and lose identification with their culture of origin (Berry, 1997). In contrast, Berry's Acculturation Framework implies that the individual, while becoming a competent participant in the majority culture, will always be identified as a member of the minority culture of origin (Berry, 1997).

Berry (1997) identified acculturation as the process of cultural and psychological change that results after contact between cultures. Acculturation is considered to be the most generic and, preferable concept over assimilation. Berry (1997) provided two reasons for preferring the term acculturation over assimilation: (1) acculturation acknowledges the reciprocal influences that cultural groups have on each other during acculturation; and (2) acculturation involves a diversity of processes and outcomes at the group and individual level. According to Berry (1997), adaptation refers to individual's psychological well-being and how the individual manages socio-culturally. Therefore, adaptation is considered a consequence of acculturation. Key concepts in Berry's (1997) Acculturation Framework include: acculturation, acculturation strategies, acculturative stress, and adaptation.

Acculturation

Acculturation is the process of cultural and psychological change of an individual that results after contact with the new culture (Berry, 1997). Acculturation can be distinguished in terms of 'group-level phenomenon' and 'individual-level phenomenon' which is also called psychological acculturation. Group-level acculturation refers to the change in the culture of the group whereas psychological acculturation refers to the change in the psychology of the

individual (Berry, 1997). Berry provided this distinction between individual and group acculturation in order to understand the extent of individual participation in the general acculturation being experienced by their group, because not all individuals participate to the same extent (Berry, 1997). The general acculturation changes may be profound in the group; however, individuals are known to vary greatly in the degree to which they participate in these community changes (Berry, 1997).

Acculturation Strategies

Acculturation strategies refer to strategies used to acculturate in the new culture. Acculturation strategies are influenced by maintenance of the original culture and development of relationships with the new culture. According to Berry (1997) immigrants are faced with two fundamental questions in contact with the new culture: "Is it valuable to retain one's traditional culture?"; and "Is it valuable to have positive relations with the larger society?". Based on how individuals answer these questions, four acculturation strategies are used by individuals to adapt to the new culture. These strategies describe differences in individual attitudes and behaviors: integration, assimilation, separation, and marginalization (see Figure 1) (Berry, 2003). Integration represents people who have maintained many attitudes and behaviors from their culture of origin, but who have also adopted behaviors and attitudes from the new culture (Berry, 1997). Assimilation refers to those who have entirely adopted the attitudes and behaviors of the new culture (Berry, 1997). Separation occurs when a person rejects the new culture and turns entirely to their culture of origin (Berry, 1997). Finally, marginalization occurs when a person is not identified with either the culture of origin or the new culture (Berry, 1997).
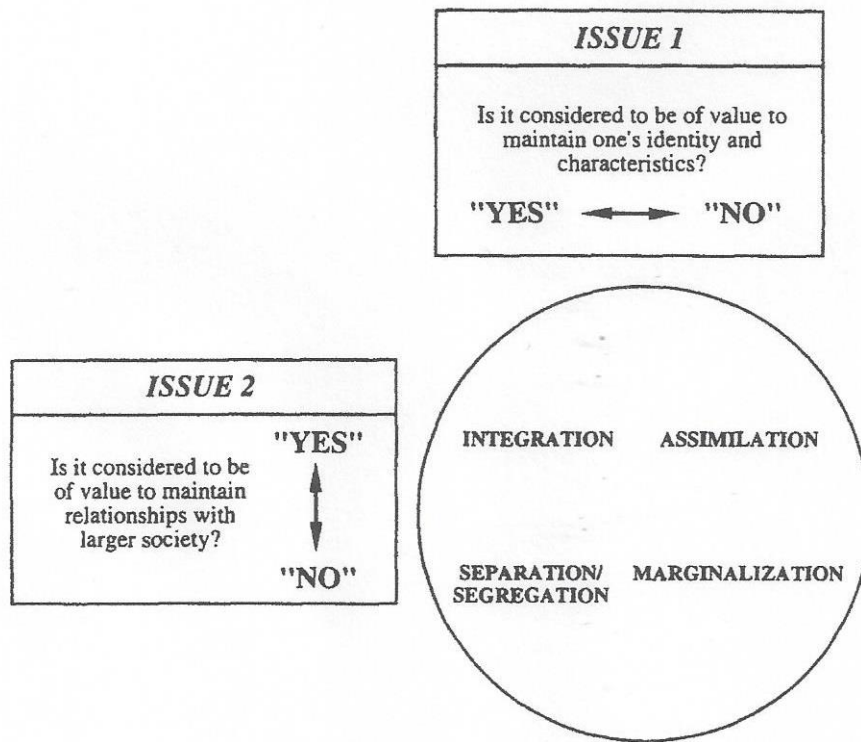
Figure 1: Acculturation Strategies (Berry, 1997)

Acculturative Stress

Acculturative stress refers to one type of stress that stems from the process of acculturation. According to Berry (1990), acculturative stress is a phenomenon that may underlie a reduction of health status, which include physical, psychological, and social health. Berry (1997) initially interpreted acculturation within a stress and coping framework with the emphasis of the negative psychological consequences of intercultural contact. Psychological changes that individuals experience and their eventual adaptation may range from simple behavioral shifts, such as the way of speaking, dressing, and eating, to more challenging experiences, such as difficulty fitting in the new culture and conflict with new and original cultural traditions, producing acculturative stress as manifested by uncertainty, anxiety and depression (Sam & Berry, 2010). Acculturative stress is a stress reaction in response to life events that are stemmed

from the moving from of individuals from their native culture to another culture (Berry, 1997). Acculturative stress and the extent of adaptation are assumed to be influenced by moderating factors that exist before acculturation starts (e.g., age, status, cultural distance, and personality) and moderating factors that occur during the acculturation process (e.g., phase, acculturation strategies, coping, social support, and societal attitudes) (Berry, 1997; Beck, 2006).

Adaptation

Adaptation refers to changes that take place in individuals or groups in response to environmental demands (Berry, 1997). Adaptation can occur immediately or over an extended period of time, and can be psychological and sociocultural (Berry, 1997). Psychological adaptation refers to a set of internal psychological outcomes, such as a clear sense of personal and cultural identity, and the achievement of personal satisfaction in the new cultural situation. Sociocultural adaptation refers to a set of external psychological outcomes that link individuals to their new culture, such as their ability to deal with daily problems related to family life, work, and school (Berry, 1997).

Berry's Framework of Acculturation

Berry (1997) provided a framework for the complex task of acculturation research (see Figure 2). According to Berry (1997) there are group-level and individual-level factors that influence acculturation. Group-level or cultural phenomena are mainly situational variables and represent the society of origin (e.g., political context, economic situation), group acculturation (e.g., social, cultural) and society of settlement (e.g., attitudes). Individual-level or also called psychological phenomena are predominantly person variables (e.g., age, gender, length of time in the new culture). Moderating factors exist prior to acculturation (e.g., age, language) and during the acculturation process (e.g., length of time in the new culture, societal attitudes). The

psychological acculturation phenomena begins with the cultural groups in contact with each other bringing changes and affecting the individual who is experiencing acculturation resulting in a number of psychological responses and changes, leading finally to a person's adaptation.
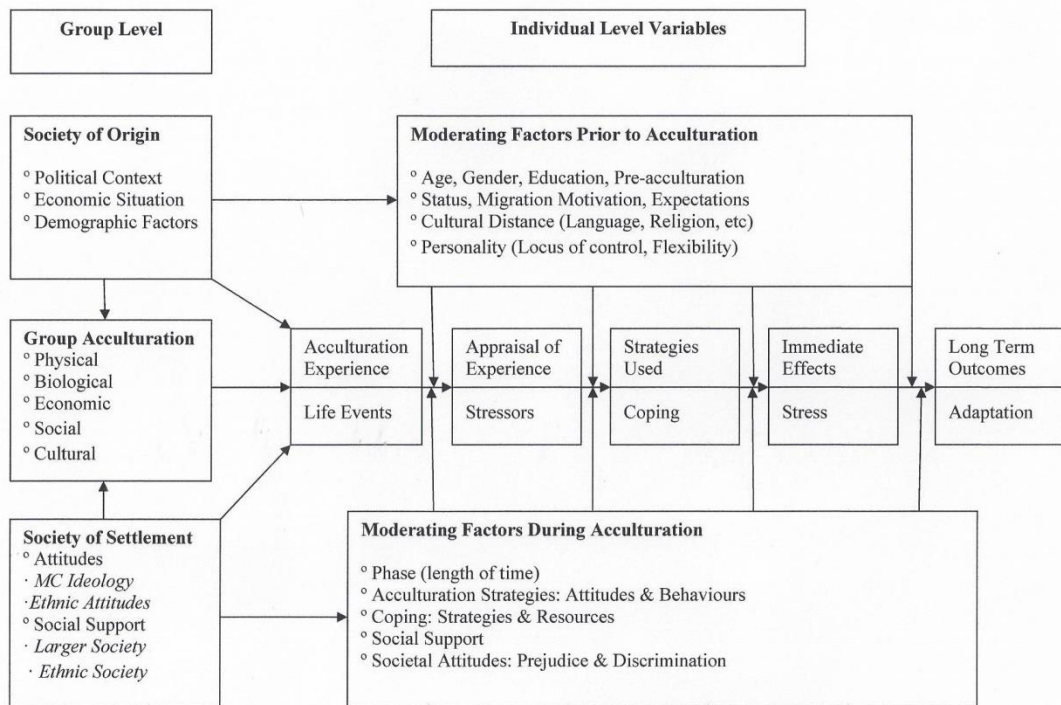
Figure (2): A framework for acculturation research (Berry, 1997)

One prior study utilized Berry's acculturation framework to examine the relationship between acculturation and PPD (Beck et al., 2005). Beck and colleagues examined the relationship between acculturation and PPD among Hispanic subgroups. They found that no clear pattern was evident for the unique relationship between acculturation and PPD. Beck et al. (2005) was guided by Berry (1997) Acculturation Framework; however, the acculturation measurement they used, the Short Acculturation Scale (SAS), measured acculturation by focusing on language as the only dimension. Therefore, it is recommended to utilize Berry's(1997) Acculturation Framework to guide perinatal researchers regarding critical

variables that need to be addressed in studying acculturation as a multidimensional variable and PPD. In this study, the relationship between psychological (individual-level) acculturation and PPD was examined. We hypothesized that acculturation mediates the relationship between acculturative stress and PPD symptoms whereas social support moderates this relationship.

Roy's Adaptation Model

Roy's Adaptation Model (Roy & Andrews, 1999) depicts humans as holistic adaptive systems which are in a continuous interaction with the environment. Roy's definitions of human being, environment, health, and nursing reflect her reciprocal interaction worldview that is congruent with Berry's (1997) philosophical perspective. Roy defines human beings as holistic adaptive systems that function in the environment as wholes; therefore, they are more than the sum of their parts. Humans adjust effectively to changes in the environment and, in turn, affect their environment (Roy & Andrews, 1999). Environment is defined as all conditions, circumstances, and influences that surround and affect the development and behavior of humans as adaptive systems. Environment is classified as stimuli: focal, contextual, and residual (Roy & Andrews, 1999). Health is defined as a state and a process of being and becoming an integrated and whole human being which results from interaction with the environment (Roy & Andrews, 1999). Health is demonstrated by adaptation in the each of four integrated adaptive modes: physiologic, self-concept, role function, and interdependence. Nursing is defined as a health care profession that focuses on human life processes and emphasizes health promotion. The discipline of nursing focuses on human and environment interactions that promote maximum human development and well-being. In Roy's Adaptation Model, the nurse's role is to promote adaptation in situations of health and illness and to enhance the interaction of human systems with the environment (Roy & Andrews, 1999).

A stimulus is defined as that which arouses a response (e.g. move from one country to another) within the human as an adaptive system, and it is either external or internal. The model describes three classes of stimuli that form the environment. Focal stimulus is the internal or external stimulus most immediately in the awareness of the human system such as the birth of a newborn. The contextual stimuli are all other stimuli contributing directly to the effect of the focal stimulus and are represented by maternal demographic characteristics (e.g., maternal age, education, monthly income employment status, marital status) and cultural identity (e.g., acculturation experience). Residual stimuli are internal and external factors that can affect focal stimuli but its influence on the person is not clear (e.g., childhood experiences). Stimuli from internal and external environment activate the coping processes, which are the regulator and the cognator subsystems (Roy & Andrews, 1999). Coping processes produce behavioral responses relative to the four adaptive modes (Roy & Andrews, 1999).

Adaptation is the outcomes of a positive reaction to stimuli (Roy & Andrews, 1999). Responses to stimuli are manifested in four adaptive modes: physiological, self-concept, role-function and interdependence modes (Roy & Andrews, 1999). The physiological mode refers to physical maintenance of the integrity of the human being, and it is represented by physical integrity, hormonal changes, nutrition, rest, and sleep. The self-concept mode is the composite of beliefs and feelings held about the self at a given time such as acceptance of pregnancy, identification with the motherhood role, preparation for labor, and confidence in ability to cope with tasks of motherhood. The role-function mode refers to the roles that a person occupies in society such as the motherhood role. Finally, the interdependence mode focuses on interactions related to the giving and receiving of love, respect, and value, represented by mother's relationship with the newborn, partner, and family. Behaviors in the context of above four

adaptive modes are classified as adaptive or ineffective. Adaptive responses are those that promote the integrity and wholeness of the human system (Roy & Andrews, 1999).

Integration of Acculturation Strategies Framework with Roy's Adaptation Model

This study was guided by the integration of Berry's Acculturation Strategies Framework with Roy's Adaptation Model (see Figure 2). Theoretical substruction was used to develop a Middle Range Theory (MRT) of Adaptation to Acculturative Stress during Postpartum that is based on Berry's (1997) Acculturation Framework and subtracted from Roy's Adaptation Model (see Figure 3). Theoretical substruction is a strategy that isolates concepts, relational statements, and propositions from an existing theory and arranges them into diagram that has vertical and horizontal configurations that represent the theoretical and operational systems (Dulock & Holzemer, 1991). Each vertical configuration represents a descending level of abstraction of each concept adapted from the extant theory. The horizontal axis represents the relational statements expressed as propositions and hypotheses (Dulock & Holzemer, 1991).
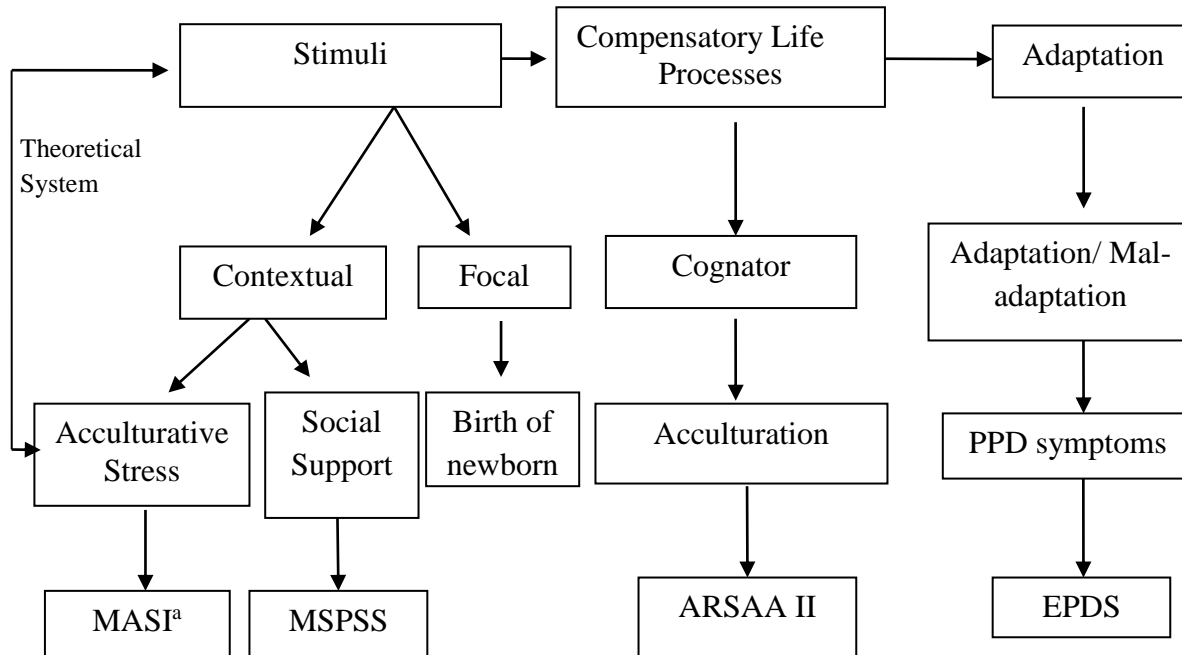
a Note: MASI= Multi-dimensional Acculturative Stress Inventory; MSPSS= Multidimensional Scale of Perceived Social Support; ARSAA-II= Acculturation Rating Scale for Arabic Americans-II Arabic and English; EPDS= Edinburgh Postnatal Depression Scale

Figure 3. Pictorial Representation of the Substruction Model.

The major concepts of this study were acculturative stress, acculturation, social support and PPD symptoms (see Figure 4). In this study, the birth of the newborn was considered as the focal stimulus. Acculturative stress referred to a stress reaction in response to the life event of immigrating to the U.S. and was considered the contextual stimulus. Acculturative stress may increase the risk for PPD symptoms for U.S. immigrant women of Arabic descent. Acculturation refers to the process of adapting and adjusting beliefs, behaviors, and values as a result of interacting with other cultural groups (Berry, 1997). Acculturation may act as a mediator on the relationship between acculturative stress and PPD symptoms. This study focused on psychological (individual level) acculturation. Social support can be both instrumental (e.g., babysitting, help with household chores) and emotional (e.g., being available, ability to listen)

support (Beck, 2002). Social support may moderate the association between acculturative stress and PPD symptoms and was also considered as a contextual stimulus. Finally, PPD symptoms referred to depressive episodes that were prevalent following childbirth. The essential feature of PPD is a period of at least two weeks during which there is either depressed mood or loss of interest in nearly all activities. Both Berry's Acculturation Strategies Framework with Roy's Adaptation Model have the long term outcome of adaptation, and lack of adaptation might lead to psychological problems such as PPD. Figure 4, illustrates the main concepts that were examined in this study and the relationships among these concepts.
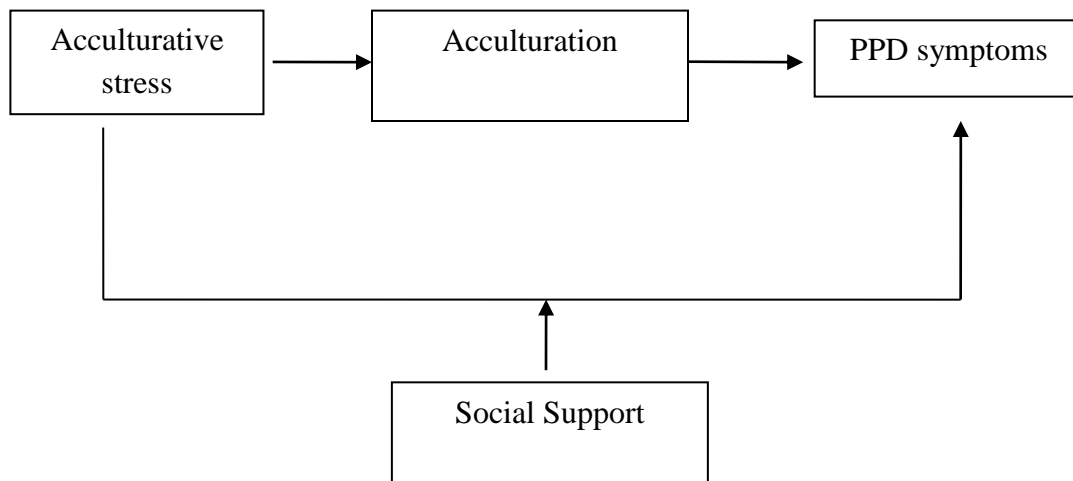
Figure 4. Adaptation to Acculturative Stress during the Postpartum Period

Review of the Literature

In the following section, a review of the current knowledge will be provided about the influence of acculturative stress, acculturation, and social support on the development of PPD and PPD symptoms in immigrant women and specifically immigrant women of Arabic descent.

This dissertation research focused on acculturative stress, acculturation, social support, and PPD symptoms in U.S. immigrant women of Arabic descent.

Postpartum Depression

PPD affects approximately 12–20 % of U.S. mothers (Centers for Disease Control and Prevention [CDC], 2008). In the Middle East, the reported incidence of PPD among women of Arabic descent range from 10% to 37% (Alhasanat & Fry-McComish, 2015). PPD is an episode of major depressive disorder that occurs in the postpartum period. According to the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM V) the onset of PPD is after four weeks postpartum (American Psychiatric Association [APA], 2013). The essential feature of PPD is a period of at least two weeks during which there is either depressed mood or loss of interest in nearly all activities. The woman must also experience at least four additional symptoms from the following: changes in appetite or weight, sleep and psychomotor activity, decreased energy, feelings of worthlessness or guilt, difficulty thinking, concentrating or making decisions, or recurrent thoughts of death or suicidal ideation, plans or attempts. The symptoms must persist for most of the day nearly every day for at least two consecutive weeks (APA, 2013). PPD is accompanied by clinically significant distress or impairment in social, occupational, or other important areas of functioning (APA, 2013).

Risk Factors for PPD

Three large meta-analyses of risk factors for PPD have been conducted (Beck, 2001; O'Hara & Swain, 1996; Robertson et al., 2004). Those meta-analyses had found that risk factors for PPD can be categorized into two groups: (1) risk factors with moderate and strong associations with PPD, and (2) risk factors with low associations with PPD. Risk factors with moderate to strong associations with PPD include history of major depression, antenatal

depression and anxiety, low self-esteem, postpartum blues, stressful life events, and low social support (Beck, 2001; O'Hara & Swain, 1996; Robertson et al., 2004). Risk factors with low associations with PPD include low socioeconomic status (SES), being single, unwanted pregnancy, obstetrical stressors, and difficult infant temperament (Beck, 2001; Robertson et al., 2004). In an integrative literature review, we found that lack of social support was a predominant risk factor for PPD among immigrant women and among Arabic women in their country of birth (Alhasanat &Fry-McComish, 2015). In addition, stressful life events, low income, and intimate partner violence were risk factors associated with development of PPD among both Arab women and immigrant women (Alhasanat &Fry-McComish, 2015). Immigration stress, lack of access to health services, and lack of social support were frequently reported among immigrant women (Alhasanat & Fry-McComish, 2015). In this dissertation research, we examined the impact of low social support and maternal characteristics (e.g., age, level of education, annual household income, antenatal anxiety and depressive symptoms) on PPD symptoms among U.S. immigrant women of Arabic descent.

Consequences of PPD

PPD has serious consequences on mother and infant, the negative effects of PPD extend beyond postpartum to affect children during infancy and childhood. Women with PPD are more likely to have higher levels of negative emotionality and lower levels of positive emotionality, and recurring depressive episodes later in life (Cooper, Murray, Wilson, & Romaniuk, 2003; Dietz, Jennings, Kelley, & Marshal, 2009; Nylen et al., 2010). Women with PPD are less likely to attend well-child visits, complete immunizations, use home safety devices, or place infants in the recommended sleeping position (Zajicek-Farber, 2009). PPD also is associated with difficulty putting infants to sleep, incorrect use of car seats, and setting safe infant bathing water

temperature (Field, 2010). Moreover, mothers with PPD are more prone to neglect and abuse their children (Cadzow, Armstrong, & Fraser, 1999).

PPD influences mother-infant interactions. Women with PPD have distorted thinking, impaired judgment, and inability to attune themselves to the needs of their infants which may lead to hostility and unresponsiveness (Bansil et al., 2010; Dietz et al., 2009). Hostile or withdrawn maternal interaction has been linked to patterns of anxious and withdrawn emotions in children, which may persist over time (Diego et al., 2009). Mother's report of anxiety or depression since the birth was found to be related to withdrawn social behavior of infants (Matthey, Guedeney, Starakis, & Barnett, 2005). Moreover, PPD was significantly associated with lower maternal sensitivity and higher rates of child insecure attachment (Huang et al., 2012). PPD at two months predicted insecure infant attachment, and high disengagement or intrusion behaviors of depressed mothers predicted disorganized attachment (Tomlinson, Cooper, & Murray, 2005). Therefore, PPD may impact mother-infant interaction and parenting which may result in insecure attachment and impaired bonding.

PPD is associated with behavioral, cognitive, and health-related consequences for the developing child. The effects of PPD on children have been well studied (Beck, 1998). In a population-based birth cohort study that was conducted in 18 U.S. cities, PPD was associated with child behavioral problems at age three years including aggression, anxious-depressed behavior, and inattention-hyperactivity (Beck, 1998). Maternal depressive symptoms during the first six months postpartum were associated with behavioral problems such as internalizing psychopathology, externalizing psychopathology, negative emotionality, and lower levels of positive emotionality from early childhood to adolescence (Avan, Richter, Ramchandani, Norris, & Stein, 2010; Goodman et al., 2011; Murray et al., 2011). Brennan et al. (2000) found that the

severity and chronicity of maternal PPD predicted future child behavioral problems up to five years postpartum. In relation to cognitive development, PPD predicts poorer language and IQ development in children across childhood and adolescence (Brand & Brennan, 2009, Sohr-Preston & Scaramella, 2006). The chronicity of PPD symptoms is also contributing to children's vulnerabilities to developmental delays (Sohr-Preston & Scaramella, 2006). Health related consequences of PPD include poorer child cardiovascular functioning (Gump et al., 2009), higher rates of gastrointestinal infections and respiratory tract infections (Ban, Gibson, West, & Tata, 2010), and these health conditions affect a child's growth (Ertel, Koenen, Rich-Edwards, & Gillman, 2010; Gress-Smith, Luecken, Lemery-Chalfant, & Howe, 2012). Findings regarding child consequences of PPD highlight the importance of early identification and treatments that target both the mother and her infant.

PPD among Immigrant Women

A growing evidence suggests that immigrant women have higher rates of PPD than native women. In Canada, the prevalence of PPD among immigrant women ranged between 11.2%- 37% (Gannan et al., 2012; Mechakra-Tahiri et al., 2007; Sword et al., 2006). A group of researchers found that immigrant women were more likely than Canadian-born women to score ≥10 on the Edinburgh Postnatal Depression Scale (EPDS) which represent PPD symptoms (Stewart et al., 2008). Similarly, other researchers found that immigrant women were two times more likely to be at risk for PPD than Canadian-born women (Ganann et al., 2012; Sword et al., 2006). In Australia, immigrant women were more likely than native women to report PPD (Lansakara, Brown, & Gartland, 2010; Small et al., 2003). In Taiwan, higher prevalence of PPD was reported among immigrant women, which ranged between 25.5% and 41.1% compared with 8.4% among native women (Chien et al., 2012; Huang & Mathers, 2008). In the U.S., the

prevalence of PPD among immigrant women was reported among Hispanic women as 43- 60% (Heilemann et al., 2004; Kuo et al., 2004; Lucero et al., 2012; Shellman et al., 2013). Another study has reported the incidence of PPD among immigrant Asian Indian women in the U.S. as 28% (Goyal et al., 2006). In our feasibility study of 50 immigrant women of Arabic descent, we found that 18 (36%) reported ≥ 10 in EPDS indicative for PPD symptoms (Alhasanat et al., 2017). These findings suggest that immigrant women have higher rates of PPD and PPD symptoms compared with native women.

There are numerous factors that increase the risk of PPD among immigrant women. Some of these risk factors include: minority status (O'Mahony & Donnelly, 2007), marginalization (O'Mahony & Donnelly, 2007), immigration stress (Heilemann et al., 2004; Stewart et al., 2012; Small et al., 2003; Zelkowitz et al., 2008), stressful life events (Heilemann et al., 2004; Huang & Mathers, 2008; Mechakra-Tahiri et al., 2007), difficulty adapting to the host culture (O'Mahony & Donnelly, 2007), low family income and socioeconomic status (Chien et al., 2012; Mechakra-Tahiri et al., 2007; Sword et al., 2006), and lack of social support (Alhasanat & Fry-McComish, 2015; Chien et al., 2012; Huang & Mathers, 2008; Mechakra-Tahiri et al., 2007; Small et al., 2003; Stewart et al., 2008; Stewart et al., 2012; Stuchbery, Matthey, & Barnett, 1998; Sword et al., 2006). These risk factors have been identified in Hispanic women who immigrated to the U.S. or immigrant women in other countries (Heilemann et al., 2004). However, data about risk factors for PPD symptoms in U.S. immigrant women of Arabic descent are non-existent.

PPD Among Arab Women in Their Country of Origin

In the Arabic literature, the prevalence of PPD ranged between 10%-37% (Alhasanat & Fry-McComish, 2015). In studies of Arab women in their county of birth, the highest prevalence

of PPD was reported in Bahrain (37%) (Al Dallal & Grant, 2012). The prevalence of PPD reported in other countries was as the following: United Arab Emirates, between 10% - 20% (Green, Broom, & Mirabella, 2006; Hamdan & Tamim, 2011); Egypt, 17.9% (Saleh et al, 2013); Qatar, 17.6% (Bener, Burgut, Ghuloum, & Sheikh, 2012); Morocco, 20% (Alami, Kadri, & Berrada, 2006); Jordan, 22% (Mohammad, Gamble, & Creedy, 2011); and Lebanon, between 16%-26% (Chaaya et al., 2002).

Numerous studies have been conducted with Arab women in their own country of birth. Risk factors for PPD were similar across the studies conducted in Arab countries and included: history of psychiatric problems such as previous depression, antenatal depression, and other unspecified psychiatric problems (Al Dallal & Grant, 2012; Alhasanat & Fry-McComish, 2015; Chaaya et al., 2002; Hamdan & Tamim, 2011; Mohammad et al., 2011; Saleh et al., 2012), stressful life events (Abou-Saleh & Ghubash, 1997; Agoub, Moussaoui, & Battas, 2005; Chaaya et al., 2002; Hamdan & Tamim, 2011; Alami et al., 2006), low household income (Yehia et al., 2013), lack of social support (Chaaya et al., 2002; Saleh, et al., 2013; Yehia et al., 2013), poor marital relationship (Abou- Saleh & Ghubash, 1997; Agoub et al., 2005; Alami et al., 2006), lack of partner support (Abou- Saleh & Ghubash, 1997; Agoub et al., 2005; Al Dallal & Grant, 2012), and poor relationship with mother in law (Green et al., 2006; Mohammad et al., 2011). Furthermore, pregnancy complications (Agoub et al., 2005), baby's health problems (Agoub et al., 2005; Alami et al., 2006), and infant formula feeding (Green et al., 2006; Hamdan & Tamim, 2011; Saleh et al., 2012) were also associated with higher rates of PPD among Arab women. These findings suggest that PPD and PPD symptoms are prevalent in Arab women in their country of birth and that there are numerous risk factors for PPD for these women. However, research on PPD for U.S. immigrant women of Arabic descent is limited.

Arab Immigration to the U.S.

U.S. Arab immigrants are culturally, racially, or ethnically Arab; who are currently living in, but may not have been born in the U.S.; and may be of any religious background (Kakoti, 2012). Although California has the largest number of Arab Americans of any U.S. state, Arab Americans are more visible in Michigan, especially in Wayne County. Michigan's Arab American community constitutes the third largest minority group and the fastest growing population in the state of Michigan (Arab American Institute Foundation [AAI], 2011). The population who identified as having Arabic-speaking ancestry in the U.S. Census grew by more than 26% between 2000 and 2010 (AAI, 2011). The number of Arab Americans in Michigan has almost tripled since the Census first measured ethnic origins in 1980 (AAI, 2011). Arab Americans in Michigan are among the fastest growing Arab populations in the country (AAI, 2011). It is estimated that Michigan is the state with the largest proportion of Arab Americans in the U.S., Wayne County is home to one of the largest Arab American communities in the U.S. (AAI, 2011). Wayne County's most Arab-dense city is Dearborn (AAI, 2011). Wayne County is also the largest county in Michigan, both by land area and population, and includes within its boundaries the City of Detroit. As compared to the rest of the state of Michigan, Wayne County has a smaller white population (79.9% and 54.8%, respectively), a larger African-American population (14.2% and 39.3% , respectively), and a larger foreign-born population (6.1% and 7.8%, respectively) (U.S. Census Bureau, 2014). Residents of Wayne County are generally less educated (proportion with bachelor's degree or higher, 21.3% and 25.9%, respectively) and have lower income (median household income $41,184 and $48,411, respectively) than their counterparts in the rest of the state of Michigan (U.S. Census Bureau, 2014).

Several scholars have described Arab American immigration to the U.S. as happening in three waves. The first wave of immigrants of Arabic descent primarily came from Syria and Lebanon between the late 1800s and World War I, and consisted of Christian, uneducated, and unskilled immigrants who were searching for economic opportunities (Erickson & Al-Timimi, 2001). The second wave of immigration occurred after World War II when many individuals were displaced as a result of the establishment of the state of Israel (Nigem, 1986). The largest groups of immigrants during this phase were Palestinians, followed by Egyptians (Nigem, 1986). In 1965, the U.S. passed less restrictive immigration reforms allowing a large influx of immigrants of Arabic descent into the U.S., starting the third and current wave of immigration for Arabs (Nigem, 1986). Immigrants from the third wave ranged in socio-economic status from highly educated professionals and merchants to unskilled laborers (Nigem, 1986). Individuals in this wave represented diverse ethnicities including Palestinians, Lebanese, Egyptians, Chaldeans, Iraqis, and Yemenis (Nigem, 1986). Many sought refuge in the U.S. due to political instability or war in their home countries (Awad, Martinez, & Amer, 2013). The second and third waves included a greater number of Muslims (Nigem, 1986). As a result of these reasons for immigration and a pattern of young unmarried men choosing to immigrate to the U.S., women have been disproportionately underrepresented (Nigem, 1986). Ultimately, the historical context and composition of these waves have resulted in a diverse population of Arabs living in the U.S. with regard to culture, language, politics, religion, values, class, and acculturation levels (Kakoti, 2012).

Immigration Experiences of U.S. immigrants of Arabic descent

The majority of U.S. immigrants of Arabic descent made a voluntary decision to immigrate seeking better opportunities in the U.S. The process of immigration may be difficult in

which applicants wait for their immigration to be accepted through an exclusive and restricted lottery system (Awad et al., 2013). However, immigration to the U.S. for others who are highly educated and have labor skills needed in the U.S., the opportunity to immigrate to the U.S. may be easier (Awad et al., 2013). Moreover, many individuals from Arabic descent from lower socioeconomic status have high expectations of living in the U.S., believing that it will lead to better economic status and wealth. Consequently, they may become disappointed and overwhelmed by the challenges they face in a new country, an experience that might interfere with their goals and dreams (Awad et al., 2013). In addition to voluntary immigrants, many Arabs immigrate to the U.S. to escape wars or persecution or as a result of forced exile. Involuntary immigrants face more challenges to acculturate and adapt to the U.S. due to pre-immigration and immigration traumas (Awad et al., 2013).

Whether the decision to immigrate was voluntary or involuntary, many women of Arabic descent experience many stressors related to their immigration and adjustment to the U.S. Immigrant women of Arabic descent come from cultures that are significantly different from that of the U.S. Many immigrant women of Arabic descent are unable to speak or communicate in English language and therefore struggle to communicate effectively in the new society (Mourad & Carolan, 2010). Therefore, new immigrant women of Arabic descent may struggle when having to communicate with outside society about their children (e.g., school officials and health care services) (Mourad & Carolan, 2010). As a result, these women may experience stress because they may feel that they are unable to perform their caretaking role (Awad et al., 2013). Another stressor faced by many immigrants of Arabic descent is that of discrimination in the U.S. Instances of discrimination have been reported since the time that Arabs arrived in the U.S. in the 1900's (Naber, 2000). The events of September 11, 2001 led to a sharp increase in

discrimination against both new immigrants of Arabic descent as well as individuals of Arabic descent born in the U.S. (Awad, 2010).

The emphasis on the family unit within Arab culture may present particular challenges in regards to acculturation for immigrant women of Arabic descent. The process of immigration and acculturation may involve a negotiation of gender roles among Arab women; they may need to work and at the same time take care of the children and the house, which adds more responsibilities and stressors (Awad et al., 2013). Once a woman of Arabic descent is married, there is enormous pressure to have children (Awad et al., 2013). For the Arab women a strong emphasis is placed on the family unit; women are expected to care for everyone around them and give little priority to themselves (Read, 2004). The status and admiration of woman is often limited to the role of mother and wife in the Arab culture (Read, 2004). The idea of self-sacrifice is notable for the sake of the children and is believed to be characteristic of and a basic attribute of a good mother (Read, 2004).

In PPD research, U.S. immigrant women of Arabic descent have received little to no attention. It is important to address these women's stressors that might contribute to PPD and it is crucial to understand their acculturation experiences in the U.S. In the following sections, a comprehensive discussion of acculturative stress, acculturation, social support and their relationships with PPD will be provided.

<div align="center">**Acculturative Stress and PPD**</div>

There is a distinction between acculturation and acculturative stress. Acculturation is a process that results from the contact between two culturally different groups of individuals that encompasses changes in affective, behavioral, and cognitive aspects of individuals to adapt to the new culture (Sam & Berry, 2010). Acculturative stress is the reaction when these changes are

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more problematic, producing stress and manifested by uncertainty, anxiety, and depression (Berry, 1997).

Limited research has examined the relationship between acculturative stress and depression among immigrants of Arabic descent from the U.S. or other countries. Perceived acculturative stress, mainly stress to learn English, predicted depression among a sample of elderly U.S. immigrants of Arab descent (Wrobel et al., 2009). A strong positive relationship between acculturative stress and psychological distress has also been reported among Arab American adolescents, in which 46% of these adolescents were first generation Arab American students (born outside the U.S.); however, the study didn't present different results for different generational statuses (Ahmed, Kia-Keating, & Tsai, 2011). Although studies have reported a relationship between acculturative stress and depression for different age groups, there is a gap in knowledge about the relationship between acculturative stress and PPD symptoms among immigrant women of Arabic descent from the U.S. or other countries.

Two studies have addressed the role of acculturative stress on depressive symptoms during pregnancy and postpartum among immigrant women. Among Mexican American women, acculturative stress was related to depressive symptoms during pregnancy (D'Anna-Hernandez et al., 2015). Similarly another study found that acculturative stress was positively related to depressive symptoms in late pregnancy and postpartum period in adolescent Mexican American mothers (Zeiders et al., 2015). These results suggest that acculturative stress is related to depressive symptoms during pregnancy and postpartum in immigrant women. However, no studies were identified about acculturative stress and its effect on PPD symptoms among immigrant women of Arabic descent. Therefore, this study will address the gap in knowledge by

examining the relationship between acculturative stress and PPD symptoms in U.S. immigrant women of Arabic descent.

Acculturation and PPD

Acculturation is a result of interacting with other cultural groups and refers to the process of adapting and adjusting beliefs, behaviors, and values (Berry, 1997). According to Berry (1997) immigrants are faced with two fundamental questions in contact with the new culture: (1) "Is it valuable to retain one's traditional culture?"; and (2) "Is it valuable to have positive relations with the larger society?". By answering the two questions, four acculturation strategies may be distinguished: (a) integration; (b) assimilation; (c) isolation; and (d) marginalization (Berry, 1997). These four strategies are not fixed and they can change depending on situational factors (Sam & Berry, 2010). Research has been focusing on acculturation as a major explanatory factor in the study of ethnic minorities. Research on acculturation in Arab American populations have explored acculturation's role in prevalence of diabetes (Jaber, Brown, Hammad, Zhu, & Herman, 2003), cancer screening (Kawar, 2009), smoking (Jadalla, & Lee, 2012), and substance abuse (Arfken, Kubiak, & Farrag, 2009). Amer and Hovey (2007) examined socio-demographic differences in acculturation among early Arab immigrants and second-generation Arab Americans and found that acculturation was related to religiosity but not related to gender, income, education, or age. Research has also compared acculturation between Muslim Arab Americans and Christians Arab Americans and found that Christian Arab Americans reported greater assimilation and integration into American culture, whereas Muslim Arab Americans were more separated (Amer & Hovey, 2007; Faragallah, Schumm, & Webb, 1997). In contrast, Muslims did not report greater acculturative stress compared to Christians

(Amer & Hovey, 2007). However, research on acculturation among U.S. immigrant childbearing women of Arabic descent is limited.

Only seven published studies were found that examined the relationship between acculturation and PPD. Findings of these studies were inconsistent. In a systematic literature review, we found that acculturation was positively related to risk of PPD symptoms among immigrant Hispanic women (Alhasanat & Giurgescu, 2017). Of the seven studies included in the review, five of the studies reported that higher levels of acculturation were related to higher levels of PPD symptoms (Davila et al., 2009; Heilemann et al., 2004; Kuo et al., 2004; Martinez-Schallmoser et al., 2003; Sumner et al., 2012). The inconsistencies of results among the studies may be due to different instruments used to measure acculturation. For instance, Heilemann et al., (2004) found that childbearing women who were exposed to the U.S. culture during childhood reported significantly higher levels of PPD symptoms compared with women who spent their childhood in Mexico, but country of birth was not significantly related to higher risk of PPD symptoms (Heilemann et al., 2004). Another study found that U.S-born Hispanic women were more likely to have higher Center for Epidemiological Studies-Depression (CES-D) scores compared with Mexican-born women (Davila et al., 2009). In addition, low use of the Spanish language was also related to higher levels of PPD symptoms in two studies (Davila et al., 2009; Martinez-Schallmoser et al., 2003); however, other studies reported that language of the interview was not related to PPD symptoms or PPD (Beck et al., 2005; Heilemann et al., 2004; Valentine et al., 2011). A relationship between acculturation and PPD symptoms was not found in two other studies (Beck et al., 2005; Valentine et al., 2011). In addition, a study of immigrant mothers from China and Vietnam married to Taiwanese men in Taiwan, reported that higher levels of acculturation were related to higher levels of PPD (Chen et al., 2013). The

inconsistencies of results among the studies may be due to different instruments used to measure acculturation, diverse ethnic/ minority samples, and small sample sizes.

Of the seven studies included in the systematic literature review, only one study (Beck, 2006) used a diagnostic test to measure PPD (Alhasanat & Giurgescu, 2017). The remaining of the studies used screening tools to measure PPD symptoms (Alhasanat & Giurgescu, 2017). None of these studies utilized the same instrument to measure acculturation, and none of them utilized the Acculturation Rating Scale for Mexican-Americans-II (ARSMA-II). For example, Beck et al. (2005) measured acculturation using the Short Acculturation Scale (SAS) which consists of four items that focus on language use only among Hispanic women. Acculturation is a complex construct and should be measured using a multidimensional tools. Even though Davila et al. (2009) found a relationship between acculturation and elevated depressive symptoms among Latina women, they measured acculturation by two items of a demographic instrument: country of birth and language of interview. Similarly, Heillemann et al. (2004) used place of birth, language preference, and exposure to the U.S. during childhood to measure acculturation, and they found that acculturation was related to depression among pregnant and postpartum women of Mexican descent. These measures of acculturation are unidimensional and they are not based on a valid and reliable instrument. However, Martinez-Schallmoser et al. (2003) measured acculturation using a revised measure of acculturation that assesses language, ethnic identity, cultural heritage, and semantic descriptions of Mexican women. They found that low use of the Spanish language significantly predicted PPD, thus they concluded that acculturation is one of the predictors of PPD among Mexican-American mothers (Martinez-Schallmoser et al., 2003). In Chen et al., (2013), acculturation was measured as two concepts (social assimilation and social attitudes), the definition of acculturation was not clear and the concepts assimilation and

integration were mixed in the study. Therefore, future studies need to be based on a strong conceptual framework to clearly define the concepts and to use valid and reliable instruments to measure acculturation and its relationship with PPD. Furthermore, the mediating effect of acculturation on the association between acculturative stress and PPD symptoms has not been studied nor has the relationship between acculturation and PPD symptoms in U.S. immigrant women of Arabic descent been examined. Therefore, this study proposed to examine the mediating effect of acculturation on the association between acculturative stress and PPD symptoms in U.S. immigrant women of Arabic descent.

Social Support and PPD

Women resting for 40 days after having a baby is a common protective practice in many Arabic countries such as Egypt, Lebanon, Palestine and Jordan (Kim-Godwin, 2003). Family support is crucial during this 40-day period (six weeks postpartum), traditionally all new mothers have to rest during these 40 days, and a family member comes to the house or stays with the new mother to take care of the baby, the house, and the other children (Nahas & Amashen, 1999). The new mother has the responsibility to take care of her new baby and rest. Extended family is important in Arabic culture, most often living with the nuclear family. When women of Arabic descent immigrate with their husbands, they experience a different life, that of isolation and loneliness (Nahas & Amashen, 1999). These feelings are intensified during pregnancy and the postpartum period when family support is much needed (Nahas & Amashen, 1999). Often, the woman is left alone in the house, when the husband goes to work each day. Nahas & Amashen (1999) found that being left alone in the house after childbirth, women felt deprived of their traditional practice of 40 days of recovery, which they strongly believed would help them during this transition. Traditionally, women would have their food cooked for them by their female

family member or servants for 40 days after childbirth. Therefore, immigrant Arabic women might desire the physical and psychological support that their families would give, as well as the knowledge that they would gain during this experience. However, the effect of social support on PPD development among U.S. immigrant women of Arabic descent has received no attention in the literature.

Lack of social support has been well documented as a predictor for PPD (Beck, 2001; Robertson et al., 2004). Immigrant women might have a higher risk of PPD because they are separated physically and culturally from their support systems. Social support consists of instrumental support such as babysitting and help with household chores, and emotional support such as being able to talk about problems to someone who is able to listen (Beck, 2002). Lack of social support occurs when the mother perceives that she is not receiving the expected amount of instrumental or emotional support from partner, friends, or family (Beck, 2002). Social support provides mothers with an outlet to discuss challenging situations, and receive affirmation from others that contributes to feelings of belonging and self-efficacy. Social isolation and low levels of social support are often experienced by immigrant women, and are found to contribute to PPD (Chien et al., 2012; Heh, Coombes, & Bartlett, 2004; Huang & Mathers, 2008; Mechakra-Tahiri et al., 2007; Small et al., 2003; Stewart et al., 2008; Stewart et al., 2012; Sword et al., 2006). In addition, lack of emotional support from the spouse was found to be a significant risk factor for PPD among non-Arab immigrant women from Canada, Australia and Taiwan (Lansakara et al., 2010; Mechakra-Tahiri et al., 2007; Stuchbery et al., 1998; Zelkowitz et al., 2008). No studies have been found addressing the relationship between social support and PPD symptoms in U.S. immigrant women of Arabic descent.

Social support is a facilitator of well-being during major life transitions and during stressful situations (Cohen & Wills, 1985). Although stressful life events often have deleterious effects on psychological health, social support has been found to limit these negative effects in two ways (Cohen & Wills, 1985; House, Landis, & Umberson, 1988):

1. Main Effect Model: Social support has a direct positive effect on psychological health, thereby benefiting women during both stressful and non-stressful situations. Therefore, higher levels of social support are directly associated with higher levels of psychological well-being.

2. Stress Buffering Hypothesis: Social support buffers the effects of stress on psychological health. The benefits of social support are most apparent when support is provided during times of high stress. According to the stress-buffering model, social support protects mental health by moderating the stressor's effect, or counteracting the harmful effect of a stressor on mental health. Specifically, the influence of acculturative stress on PPD may be attenuated at higher levels of social support (Cohen and Wills, 1985).

One group of researchers found that lower levels of social support were predictors of PPD among immigrant women living in Canada (Dennis et al. 2004, Dennis & Ross 2006). Another group of researchers found that social support was positively related to social attitude (a component of acculturation) and negatively related to PPD in a sample of immigrant mothers married to Taiwanese men in Taipei, Taiwan (Chen et al., 2013). No studies have examined the buffering (moderating) effect of social support on the association between acculturative stress and PPD. Therefore, more research studies are needed to address the buffering effect of social support on the relationship between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.

Summary

In summary, this review of the literature revealed that acculturative stress is related to higher levels of PPD among immigrant women. Numerous studies had emphasized the importance of social support in relation to PPD. However, despite what is currently known, a number of questions still need to be addressed. Most important is the need to determine the role of acculturation and social support (mediation, moderation respectively) on the relationship between acculturative stress and PPD symptoms in U.S. immigrant women of Arabic descent. Most of the studies included immigrant participants from ethnicities other than Arabic descent, and did not address the buffering effect of social support or the mediating effect of acculturation on the association between acculturative stress and PPD symptoms. Therefore, this study was conducted to examine the moderating effect of social support and the mediating effect of acculturation on the associations between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent (see Figure 4, page 23).

CHAPTER 3 METHODOLOGY

The purpose of this study was to examine the relationships among acculturative stress, social support, acculturation, and PPD symptoms in U.S. immigrant women of Arabic descent. In this chapter the design, sample and setting, variables and instruments, data collection procedures, and data analysis are described.

Design

A cross-sectional correlational descriptive design was used to: (a) examine the relationships among acculturative stress, social support, acculturation, and PPD symptoms among U.S. immigrant women of Arabic descent, (b) examine whether or not social support moderates the association between acculturative stress and PPD symptoms, and (c) examine whether or not acculturation mediates the association between acculturative stress and PPD symptoms.

Sample and Setting

Sample. A sample of 122 U.S. immigrant women of Arabic descent were enrolled into the study. Seven women had more than 20% missing data and were excluded from data analysis. The remaining 115 women had complete data for all of the questionnaires and were included in data analysis. The inclusion criteria was: (a) 18-45 years old, (b) had a live birth, (c) were 1-12 months postpartum, (d) were born and grew up outside of the U.S. and came to U.S. after the age of 14, and (e) spoke and read either Arabic or English language. Women were excluded from the study if they: (a) were diagnosed with mental illness (major depression diagnosis, schizophrenia, bipolar disorder, or substance abuse), (b) were on psychiatric medications; and (c) had HIV or cancer diagnoses. Women were not excluded if they had a prior history of PPD, medical

conditions (e.g., chronic hypertension, diabetes mellitus, heart disease), or obstetrical complications (e.g., preeclampsia, placenta previa, preterm birth).

Setting. Women were recruited from two sites; the Arab Community Center for Economic and Social Services- Women, Infant, and Children program (ACCESS-WIC) and an OB/GYN physician's office in Dearborn, MI. Support letters from the ACCESS-WIC office coordinator as well as the physician's office were provided to conduct this study. The WIC office is staffed by a nurse, three or four dieticians, and about three WIC specialists. Women usually see their dieticians during pregnancy and postpartum. During the postpartum period, women are scheduled to follow up with the WIC specialists and dieticians to obtain some dietary benefits and to receive health education regarding their health and their infant's health. Women are scheduled to see their dietician at one month, three months, six months, nine months, and 12 months postpartum. Women who qualify for the WIC services usually have a low annual family income. According to the WIC office coordinator, approximately 150 women who are either pregnant or postpartum receive services at the ACCESS-WIC office in Dearborn every month, and about 90% of them are immigrant women of Arabic descent. The OB/GYN physician's office is staffed by the OB/GYN physician, a physician assistant, two nurses, and four patient care assistants. Women usually see their OB/GYN physician during antenatal visits and at six weeks postpartum. Two methods of recruitment were used: 1) flyers with information about the study and a contact number for the principal investigator were distributed to women in the waiting areas of the two sites of data collection; and 2) women were introduced to the study through the nurses during the postpartum visit in the OB/GYN physician's office or by the dietician in the WIC office.

Power Analysis. A power analysis using G*Power was performed to determine the number of participants needed to detect a true relationship if one does exist. In a multiple regression analysis predicting PPD symptoms with an α=.05, power of 80%, a medium effect size of .15 and 10 predictors [acculturative stress, social support, attraction to American culture (AAmC) and attraction to Arabic culture (AArC), marginalization, maternal age, education, length of residence in the U.S., annual household income, and medical/ obstetrical history], a sample of 115 was needed. The sample size of 115 was also sufficient in multiple regression analysis to predict PPD symptoms by acculturative stress, social support, and the interaction term between acculturative stress and social support.

<h3 align="center">Variables and Instruments</h3>

The following table illustrates the study variables and the instruments that were used to measure each variable (see Table 1). See Appendix A-H for instruments. The instruments are described in details below.

Table 1

Variables and Instruments

Variable	Instrument	Number of items	Cronbach α in current study
Acculturative Stress	Multidimensional Acculturative Stress Inventory (MASI)	25	.83
Acculturation • Attraction to American Culture	Acculturation Rating Scale for Arabic Americans-II Arabic and English (ARSAA-IIA,		

Variable	Instrument	Number of items	Cronbach α in current study
(AAmC) • Attraction to Arabic Culture (AArC) • Marginalization	ARSAA-IIE) subscales: AAmC AArC Marginality Scale	 13 15 18	 .91 .74 .94
Social Support	Multidimensional Scale of Perceived Social Support for Arabic Women (MSPSS-AW)	12	.75
PPD symptoms	Edinburgh Postnatal Depression Scale (EPDS)	10	.81
Demographic Data	Demographic Data form developed by the principal investigator.	N/A	N/A

Acculturative Stress. Acculturative Stress was measured using the Multi- Dimensional Acculturative Stress Inventory (MASI; Rodriguez, Myers, Mira, Flores, & Garcia-Hernandez, 2002). MASI was originally developed for adults of Mexican origin to measure acculturative stress. The instrument originally consisted of 36 items that assess acculturative stress in four dimensions: Spanish Competency Pressures; English Competency Pressures; Pressures to Acculturate; and Pressures against Acculturation (Rodriguez et al., 2002). For each item the respondents indicate whether or not they have experienced a given stressful event (e.g., It bothers

me that I speak English with an accent, I feel uncomfortable when I have to choose between Latino and American ways of doing things) during the past three months (Rodriguez et al., 2002). If they have not experienced a stressful event, their response is coded as 0. If they had experienced a stressful event, they appraise the level of stress on a 5-point Likert scale (1=*not at all stressful* to 5=*extremely stressful*). Total score can range from 0-180 with higher scores indicating higher levels of acculturative stress (Rodriguez et al., 2002). Psychometric testing supported the validity of MASI to measure acculturative stress and reliability of the instrument in a sample of adults of Mexican origin living in the U.S. Principal-components factor analyses of the MASI yielded four factors based on 25 items: Spanish Competency Scale (pressure to retain competency in their language, seven items); English Competency Pressures (pressure to obtain competency in the host language, seven items); Pressures to Acculturate (pressure to acquire practices that are part of the dominant culture, seven items); and Pressures against Acculturation (pressure to retain practices that are part of their culture of origin, four items). To support validity of the instrument, correlations between the MASI and level of generation and proportional length of residence in the U.S. (respondents' length of residence divided by their age) were conducted (Rodriguez et al., 2002). Spanish Competency Pressure was positively related to generation (r=.56, p<.001) and proportional length of residence in the U.S. (r=.37, p<.001). English Competency Pressure was negatively related to generation (r=-.39, p<.001) and proportional length of residence in the U.S. (r=-.44, p<.001). Pressure against Acculturation was positively related to generation (r=.32, p<.001) and proportional length of residence in the U.S. (r=.27, p<.001). Pressure to Acculturate was not related to either generation or proportional length of residence in the U.S. (Rodriguez et al., 2002). Furthermore, supporting construct validity Spanish Competency Pressures subscale was positively correlated with Pressure to

Acculturate (*r*=.38, *p*<.01) and Pressure against Acculturation (*r*=.63, *p*<.01) subscales. English Competency Pressures subscale was positively correlated with Pressure to Acculturate (*r*=.26, *p*<.001). Lastly, Pressure to Acculturate subscale was positively correlated with Pressure against Acculturation subscale (*r*=.46, *p*<.001). The instrument was reliable in adults of Mexican origin with Cronbach's alpha ranging from .74–.94 (Rodriguez et al., 2002). Test–retest reliabilities ranged from *r*=.53–.84 (Rodriguez et al., 2002).

The MASI was translated into Arabic by a bi-lingual licensed psychologist with clinical experience with both English speaking and Arabic speaking populations; and was back-translated into English by a translator unfamiliar with the instrument (Wrobel et al., 2009). Discrepancies in meaning from the original English versions were examined by a professor of Arabic language, and revisions in the Arabic version were made in order to maintain the original meaning of the MASI (Wrobel et al., 2009). The scale was modified slightly by Wrobel and colleagues in order to reflect Arabic culture and language (Wrobel et al., 2009). For example in the statement "People look down on me if I practice Mexican/Latino customs" the word Arabic was substituted for "Mexican/Latino." Furthermore, the original scale had some statements like "Because of my cultural background, I have a hard time fitting in with Whites," the word "Americans" was substituted for "Whites," since Arabs are classified as white, and thus the word white may not necessarily reflect the cultural stressors experienced by Arabs (Wrobel et al., 2009).

The subscales of English Competency and Pressure to Acculturate of the modified Arabic MASI had adequate internal consistency reliabilities in a sample of 200 community dwelling Arab Americans ages 60 to 92 years old (Cronbach's alpha 0.84 and 0.80, respectively) (Wrobel et al., 2009). However, the subscales of Pressure against Acculturation and Arabic Competency

had low internal consistency reliabilities (<0.50) suggesting that there was little variation in their scale responses for the sample of community dwelling Arab Americans (Wrobel et al., 2009). A composite score was also created by summing the original 25 items reported by Rodriquez et al. (Wrobel et al., 2009). The total score for the 25 items can range from 0- 125 with higher scores indicating higher levels of acculturative stress. The 25-item MASI was negatively correlated with English skills (r=-.32, p<.01) and proportion of time in the U.S. (r=-.22, p<.001). Supporting construct validity, the English Competency had positive relationship with Pressure to Acculturate (r=.59, p<.001). The Arabic Competency had week correlations with English Competency (r=.19, p<.01), Pressure to Acculturate (r=.17, p<.05) and Pressure against Acculturation (r=.25, p<.001). The 25-item MASI had adequate internal consistency reliability (Cronbach's alpha 0.85) (Wrobel et al., 2009).

In this study, the modified Arabic and English versions was utilized and administered to participants according to their language preference. The MASI total composite scores was calculated to determine acculturative stress in order to reflect the accumulation of stressors from both their culture of origin and the host culture. The MASI takes about 10-15 minutes to complete. In the current study, the 25-item MASI had adequate internal consistency reliability (Cronbach's α = .83).

Acculturation. Acculturation was measured by the Acculturation Rating Scale for Arabic Americans-II Arabic and English (ARSAA-IIA, ARSAA-IIE) (Jadallah & Lee, 2015). Originally, the Acculturation Rating Scale for Mexican Americans-Revised (ARSMA-II) was developed to assess the degree of acculturation among Mexican Americans (Cueller, Arnold, & Maldonado, 1995; Cueller, Harris, & Jasso, 1980). The scale was developed to measure the psychological, behavioral, and attitudinal changes that occur when individuals from different

cultures come into continuous contact with each other. The ARMSA-II measures four strategies of acculturation as proposed by Berry (1997) and include (1) assimilation, (2) integration, (3) separation, and (4) marginalization (Cueller et al., 1995). The ARSMA-II consists of two main scales: Scale 1 is used to measure integration and assimilation, whereas Scale 2 is used to measure separation and marginalization

Scale 1 of the ARSMA-II, which measures integration and assimilation acculturation strategies, has 30 items and consists of two subscales: (1) Anglo Orientation Subscale (AOS) which consists of 17 items (e.g., I associate with Anglos, I enjoy listening to English language music); and (2) Mexican Orientation Subscale (MOS) which consists of 13 items (e.g., I enjoy speaking Spanish, My family cooks Mexican foods). The instrument assesses the individual's degree of involvement in Mexican culture and Anglo culture. The 30 items are related to cultural heritage and ethnic practices, language use and preferences, ethnic interaction, and ethnic identity (Cueller et al., 1995). Respondents rate each item on a 5- point scale (1 =*not at all* to 5=*extremely often or almost always*) with higher scores indicating stronger orientation toward Mexican or Anglo culture, respectively (Cueller et al., 1995). Supporting validity, the ARSMA II was positively correlated with generational status (*r= .61, p<.001*) (Cuellar et al., 1995). ARSMA II Cronbach's α for AOS and MOS were .83 and .88, respectively. The tool had a test-retest reliability coefficient over one week interval of 0.96 (Cuellar et al., 1995).

The English version of ARSMA-II was adapted for use with English-speaking Arab Americans where references to 'Spanish', 'Mexican,' and 'Mexican–American' were changed to 'Arab or Arabic' and 'Arab American' (Jadalla & Lee, 2015). The modified version was labeled Acculturation Rating Scale for Arab Americans- II English (ARSAA-IIE) (Jadalla & Lee, 2015). In the second step, the ARSMA-II was translated into Arabic by Jadalla, the author of the Arabic

version of ARSMA-II who is bilingual, and back-translated into English by another bilingual researcher who was blinded to the original tool. The translated version of the ARSMA-II was labeled Acculturation Rating Scale for Arab Americans-II Arabic (ARSAA-II). Using factor analysis, 15 items (rather than the original 13 items from the original Spanish version of ARSMA-II) loaded on the Attraction to American Culture (AAmC) and 15 items (rather than the original 17 items from the original Spanish version of ARSMA-II) loaded on Attraction to Arabic Culture (AArC). Therefore, two items (item 5: ''I associate with Arabs or Arab Americans'', and item 28: ''I like to identify myself as an Arab American'') were eliminated. Using the remaining 28 items, two factors emerged which represent the two subscales of the Arabic version of ARSAA-II: (1) Attraction to American Culture (AAmC) which includes 13 items [e.g., I enjoy listening to English language music, I speak English, I enjoy English language movies (American movies)]; and (2) Attraction to Arabic Culture (AArC) which includes 15 items (e.g., I enjoy Arabic TV, I speak Arabic, my thinking is done in Arabic). Respondents rate each item on a 5-point Likert scale ranging from 1=*not at all* to 5=*extremely often or almost always*. The total AAmC score can range from 13-65 and the total AArC score can range from 15-75. Higher scores indicate stronger attraction toward American or Arabic culture, respectively. Supporting construct validity, the two subscales (AAmC and AArC) were negatively correlated (r = -.185) in a sample of 297 Arab American adults (Jadalla & Lee, 2015) which confirms that they assess two related, yet different-facets of acculturation (Jadalla & Lee, 2015). The AAmC and AArC subscales were reliable with Cronbach's α coefficients of .89 and .85, respectively (Jadalla & Lee, 2015). Findings support that ARSAA-II is valid and reliable tool to assess acculturation among Arab Americans (Jadalla & Lee, 2012; 2015). Therefore, in this study, the Arabic and English versions of ARSAA-II were used to measure acculturation

among Arab American women. It takes 10-15 minutes to complete the ARSAA-II. The AAmC was reliable for our sample of U.S. immigrant women of Arabic descent (Cronbach's α =.91). Initially, the AArC had a Cronbach's α of .65 for our sample. After deletion of items 5 and 28 (item 5: ''I associate with Arabs or Arab Americans'', and item 28: ''I like to identify myself as an Arab American''), Cronbach's α for AArC was improved to .74. Similarly, Jadalla and Lee (2015) eliminated these same two items in their sample of 297 because both items involve a reference to the bicultural identity of (Arab American). Therefore, those two items were eliminated in all further analysis. described.

__Scale 2 of the ARSMA-II (Marginality scale)__, which measures marginalization and separation acculturation, consists of 18 items that assess difficulty accepting ideas, beliefs, customs, and values in the Mexican culture (6 items), the Mexican American culture (6 items), and the Anglo culture (6 items). Three Marginality subscales were developed: MEXMAR, marginalization with Mexican cultures ("I have difficulty accepting some ideas held by 'specific Mexican ethnicity'"); MAMARG, measuring marginalization with Mexican American culture ("I have difficulty accepting some values held by 'specific Mexican American ethnicity'"); and ANGMAR, measuring marginalization with Anglo culture ("I have difficulty accepting certain beliefs held by Anglos) (Cuéllar et al., 1995). Each question is scored on a 5-point scale with values 1 through 5. A score of 1 indicates "not at all," and a score of 5 indicates the item occurs "Extremely often or almost always." Total marginality scale scores range from 18- 90, for each subscale scores range from 6–30, a high score indicates being highly marginalized. Scale 2, the Marginality Scale is independent, in that either Scale 1 or Scale 2 can be administered, scored, and interpreted without the need of the other (Cuéllar et al., 1995). The Mariginality Scale (Scale 2 of the ARSMA-II) has never been validated (Cuéllar et al., 1995; Gutierrez, Franco, Powell,

Peterson, & Reid, 2009). The authors of the ARSMA-II recommend that it be used with caution (Cuéllar et al., 1995). In fact, Cuéllar et al. (1995) stated that "the Marginality Scale is for the most part an experimental scale and should be considered as such until it can be adequately validated" (p. 283). In this study, Marginality scale was used in both Arabic and English languages. In this dissertation research, the Marginality scale was not correlated with language preference for the interview (r=.05), length of residency in the U.S. (r=-.15), AAmC (r=.03) or AArC (r=.02) which presents a concern for its validity. The Marginality scale was reliable in this study sample with a Cronbach's α of .94.

Social Support.   Social support was measured by the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988). The MSPSS is a 12-item instrument used to measure the adequacy of social support from three specific sources: family, friends, and significant other (Zimet et al., 1988). Significant other refers to a "special person," that may be interpreted differently by respondents (Zimet et al., 1988). The Family, Friends, and Significant Other subscales each have four items, all rated on a 7-point scale (1=*very strongly disagree* to 7=*very strongly agree*). Higher subscale scores indicate greater perceived social support from each of the three sources of support (Zimet et al., 1988). The total MSPSS score can range from 12-84. To support validity of the instrument, Significant Others and Friends were moderately correlated (r= .63). The Family subscale was weakly correlated with Significant Other (r=.24) and Friends (r=.34) (Zimet et al., 1988). The instrument was reliable in a sample of 275 adult men and women with Cronbach's alpha for Significant Others, Family, and Friends subscales of .91, .87, and .85, respectively (Zimet et al., 1988). The reliability of the total scale was .88. Test–retest reliabilities for the Significant Others, Family, and Friends subscales were .72, .85, and .75, respectively. The test- retest reliability for MSPSS

was .85. Therefore, the instrument has good internal consistency reliability and adequate stability over time (Zimet et al., 1988).

The MSPSS was modified and translated into Arabic to measure perceived social support among Arab women and it was named MSPSS for Arab women (MSPSS-AW)(Aroian, Templin, & Ramaswamy, 2010). In the MSPSS-AW, spousal support is considered distinct from family support; therefore, the wording of MSPSS items on two of the original three MSPSS subscales were modified (Aroian et al., 2010). The MSPSS-AW measures perceived adequacy of social support from significant other was modified to perceived adequacy of social support from husband (Aroian et al., 2010). The resulting MSPSS-AW has 12 items, with four items for each of the three sources of support (family, friends, and husband). In the MSPSS-AW, the 7-point Likert scale was collapsed into a 3-point Likert scale because Arabs are less likely to use middle response categories when presented with many options (Aroian et al., 2010). In order to maintain comparability with the original version of the scale, the 3-point Likert scale is coded as: 1=*disagree*, 4=*neutral* and 7=*agree* (Aroian et al., 2010). The MSPSS-AW takes five to ten minutes to complete.

Construct validity was supported by examining the correlations among the MSPSS-AW subscales. The three factor scores were not highly correlated (range from −.02 to .26, *p*<.01). Family factor scores correlated significantly (*p*< .01) with both Friends factor scores (*r* = .26) and Husband factor scores (*r* = .15). The correlation (*r* = −.02) between Friends factor scores and Husband factor scores was not significant. Internal consistency reliability was established with a sample of 539 immigrant women of Arabic descent living in the U.S. For the three MSPSS-AW subscales (Husband, Friends, and Family) Cronbach's α coefficients were .89, .80, and .73, respectively (Aroian et al., 2010). The total score of MSPSS-AW had acceptable internal

consistency reliability (Cronbach's alpha = .74) (Aroian et al., 2010). In this study both Arabic and English versions of the MSPSS-AW were provided to women to measure their perceived social support in the postpartum period. The total score of MSPSS-AW had acceptable internal consistency reliability (Cronbach's α = .75).

Postpartum Depression. PPD was measured using the Edinburgh Postnatal Depression Scale (EPDS) (Cox, Holden, & Sagovsky, 1987). The EPDS, the most widely used measure of PPD symptoms, is a self-administered, 10-item questionnaire designed to screen women for PPD symptoms experienced in the previous seven days (Cox et al., 1987). The EPDS includes questions about: ability to laugh, looking forward to things, self-blame, anxiety, fear or panic, inability to cope, difficulty sleeping, sadness, tearfulness, and self-harm ideas (Cox et al., 1987). Responses are scored on a 4-point scale. Positively worded items are reversed scored (items 3, 5, 6, 7, 8, 9, 10) (Wisner, Parry, & Piontek, 2002). The total score is determined by adding the scores for each of the 10 items and can range from 0-30. A score of 13 or greater indicates the likelihood of PPD (Cox et al., 1987). The EPDS takes only five minutes to administer and is readable at the third-grade level (Cox et al., 1987).

The sensitivity and the specificity of the EPDS are 86% and 78%, respectively, with a positive predictive value of 73% using a cutoff point of 9/10 (Cox et al., 1987). The specificity and sensitivity have been tested extensively among various population and cultures. The EPDS has been validated in different languages and cultures including Arabic (Ghubash, Abou-Saleh, & Daradkeh, 1997). Arabic version of the EPDS is a reliable and valid screening tool for PPD. The Arabic translation of the EPDS has a sensitivity of 73% and specificity of 90% when the cut-off score is 12, and a sensitivity of 91% and specificity of 84% with a cut-off score of 10 (Ghubash et al., 1997). Therefore, it is recommended to use the cut-off score of 10 for the Arabic

version to get more accurate results (Ghubash et al., 1997). In the current study, internal consistency reliability was good (Cronbach's α=.81).

Demographic Data. Each participant completed the demographic data form, developed by the principal investigator, that included data about the participant's age, country of origin, length of residence in the U.S., years of education, annual household income, employment, marital status, public assistance, pregnancy intendedness, number of pregnancies, number of live children, last monthly period (LMP), estimated date of confinement (EDC), gestational age at birth, type of delivery (e.g., spontaneous normal vaginal delivery, Cesarean section), infant's weight at birth, and any medical or obstetrical complications (e.g., hypertension disorders, diabetes mellitus, gestational diabetes, preeclampsia).

Data Collection Procedures

Identification. An educational session describing the study was presented to staff at ACCESS-WIC and the OB/ GYN physician's office. Potential participants were identified by the registered nurse in the OB/ GYN physician's office, or a dietician at the WIC office, who introduced the study to them. The principal investigator approached women who were sitting in the waiting room to introduce the study to each woman. Women who were willing to participate in the study were asked the screening questions for inclusion into the study to determine eligibility (e.g., Are you 1-12 months postpartum?; Do you define yourself as of Arabic descent; and Did you grow up in your country of origin?) (See Appendix A- H).

Recruitment. Methods of recruitment included (1) flyers posted at the WIC and OB/ GYN physician's office; and (2) face-to face meeting with women before or after their WIC or physician's visit. The flyers posted at the clinical sites had information about the study and the principal investigator's phone number. If a woman called the principal investigator and was

interested in participating in the study, the principal investigator explained the study, screened her for eligibility and invited her to participate. Women who agreed to participate were approached during the day of their visit. The face-to-face meetings were conducted before or after the WIC or physician's visit for women who met the criteria for the study. If a woman was interested in participating, the consent process was completed and data were collected. About 80% of women were enrolled by face-to-face method.

Data collection. Each woman completed the study questionnaires in a private room. All questionnaires were provided in English and Arabic version and women chose their preference. The principal investigator is fluent in both languages. The principal investigator helped women in answering their questions by clarifying, but not directing them. The questionnaires took 30 to 40 minutes to complete. Participants were compensated with $20 store gift card at completion of the questionnaires in appreciation of their time. Data collection was conducted between July and October, 2016

Human Subjects Protection

Approval to conduct this study was obtained from Wayne State University Institutional Review Board (IRB) and state of Michigan WIC IRB. The principal investigator explained the study to potential participants and invited them to participate in the study. Women completed an informed consent process prior to data collection. Participants' privacy, and confidentiality of information was maintained. The participants completed the questionnaires in a private room. All participants were given the option of discontinuing participation in the study at any time during data collection. The questionnaires had only a subject identification number (ID#) without any identifying information. The questionnaires were kept in a locked cabinet in the principal investigator's office, which is located in the College of Nursing at Wayne State University. The

principal investigator maintained a list of names and corresponding ID#. The list and the consent forms were kept in a second locked file cabinet in the principal investigator's office separate from the questionnaire data. Only the principal investigator had access to the list and consent forms.

Data Management and Analysis

Data were collected from 122 participants. Seven participants had more than 20% missing data and were excluded from the analysis. Most missing data were for the Acculturation Rating Scale for Arabic Americans-II Arabic and English (ARSAA-IIA, ARSAA-IIE) and the Marginality Scale. A sample size of 115 women had data available for analysis. Data were entered, cleaned and prepared for analysis on an ongoing basis by the principal investigator using SPSS 22 [International Business Machines Corporation (IBM), Armonk, New York]. Data were analyzed for symmetry, skewness, kurtosis, and outliers. Utilizing Shapiro-Wilk test, the variables of acculturative stress, social support, and PPD symptoms were not normally distributed. Only total acculturation score (AAmC and AArC) was normally distributed for this sample (p= .06). The boxplot for the EPDS revealed five outliers which are expected for depression screening tool. In addition the boxplot for social support revealed one outlier, and for total acculturation score (both AAmC and AArC) revealed one outlier.

Internal consistency reliability of the instruments for this sample was determined using Cronbach's α. Descriptive statistics (means, standard deviations, and frequency distribution) were calculated to describe the sociodemographic and medical/obstetrical characteristics of the sample as well as the major variables of this study: acculturative stress, acculturation, social support and PPD symptoms. Pearson r correlation coefficient and point biserial correlations were used to examine the relationships among acculturative stress, acculturation levels, social support

and PPD symptoms, and the relationship of these variables with selective maternal sociodemographic and medical/ obstetrical characteristics. Backward stepwise multiple linear regression analyses were used to predict PPD symptoms using the independent variables of acculturative stress, social support, and acculturation (AAmC, AArC and marginalization) along with maternal age (continuous), years of education (continuous), annual household income (ordinal), employment (yes vs. no), language preference for the interview (English vs. Arabic), length of residence in the U.S. (continuous), gestational age at birth (continuous), feeling depressed during pregnancy (yes vs. no), antenatal anxiety (yes vs. no), and infant's birth weight (continuous).

Multiple linear regression analyses were conducted to examine if acculturative stress, social support, and the interaction term between acculturative stress and social support predict PPD symptoms. We included both the main effects of acculturative stress and social support as well as the interaction term between acculturative stress and social support in order to test the moderating effect of social support. Finally, multiple linear regression analysis was conducted to examine the mediating effect of acculturation (AAmC, AArC, and marginalization) on the association between acculturative stress and PPD symptoms.

CHAPTER 4 RESULTS

In the following sections, the findings from the study are described. The presentation of the results is guided by the study specific aims.

<h2 style="text-align:center">Sample Characteristics</h2>

A total of 115 U.S. immigrant women of Arabic descent participated in this study. The sample characteristics were analyzed using descriptive statistics (mean, standard deviation, range of scores, frequency). Sample characteristics are presented in Tables 2 and 3. Women had a mean age of 29 years (*SD*= 5.3, range 19-40) and were at a mean of 5 months postpartum (*SD*= 3.6, range 1-12). All women were of Arabic descent who immigrated to the U.S at 14 years of age or older. The mean age when they immigrated to the U.S. was 21 years (*SD*= 6.9, range 14-39) and the mean length of stay in the U.S. was 7 years (*SD*= 5.6, range 1-23). Women had a mean education level of 12 years (*SD*= 4.3, range 1-26). The majority of women were married (99%), had an annual family income of <$40,000 (88%), received WIC services (85%), were not employed (80%), had medical insurance with Medicaid (69%), preferred Arabic language for data collection (67.8%), and immigrated from Yemen or Lebanon (74%). Furthermore, the majority of women had a full-term infant (96.5%), had a normal vaginal delivery (73%), had a male infant (64%), had planned to be pregnant (62%), and were multigravida (82%). Thirty seven women (32%) reported antenatal anxiety and 19 women (17%) reported feeling depressed during pregnancy. Only three health issues were reported during pregnancy among the participants: 13 women (11.3%) reported gestational diabetes, three women (2.6%) reported gestational hypertension, and three women (2.6%) reported asthma. The remaining of the sample did not report any medical conditions or obstetrical complications.

Table 2

Maternal Socio-demographic Characteristics (N=115)

Variable	Mean (Standard Deviation)	Range
Age (years)	29.32 (5.33)	19-40
Woman's age when she came to the U.S. (years)	21.50 (6.90)	14-39
Length of residence in the U.S. (years)	7.78 (5.64)	1-23
Level of education (years)	12.15 (4.28)	1-26
	Number (%)	
Language preference		
Arabic	78 (67.8)	
English	37 (32.2)	
Immigration Status		
Immigrant	111 (96.5)	
Refugee	4 (3.5)	
Country of origin		
Yemen	47 (40.9)	
Lebanon	38 (33)	
Iraq	13 (11.3)	
Others	17 (14.8)	
Marital status		
Married	114 (99.1)	

Separated	1 (.9)	
Employment		
At home	92 (80)	
Student	10 (8.7)	
Full time	5 (4.3)	
Part time	8 (7)	
Annual income		
< $20,000	55 (47.8)	
$20,000- 39,999	46 (40)	
$40,000- 59,999	9 (7.8)	
$60,000- 79,999	1 (.9)	
$\geq$ 80,000	4 (3.5)	
Financial contribution for income		
Spouse	106 (92.2)	
Self	5 (4.9)	
Parents	3 (2.9)	
Receives food stamps	66 (57.4)	
Receives WIC services	98 (85.2)	
Health insurance		
Medicaid	79 (68.7)	
Private	25 (21.7)	
None	11 (9.6)	

Table 3

Maternal Medical and Obstetrical History (N=115)

Variable	Mean (Standard Deviation)	Range
Months postpartum	4.88 (3.60)	1-12
Number of pregnancies	3.13 (2.03)	1-11
Full-term pregnancies	2.65 (1.76)	0-11
Miscarriages	.38 (.82)	0-4
Number of children	2.77 (1.73)	1-11
Gestational age at birth (weeks)	39.26 (1.49)	32-42
Infant's birth weight (pounds)	7.24(1. 1)	2.5-9.7
	Number (%)	
Gravida		
1	21 (18.3)	
≥2	94 (81.7)	
Para		
0	25 (21.7)	
≥1	90 (78.3)	
Type of birth		
Vaginal	84 (73)	
Cesarean section	31 (27)	
Preterm birth with current pregnancy	4 (3.5)	
Full term birth with current pregnancy	111 (96.5)	

Infant's gender		
Male	73 (63.5)	
Female	42 (36.5)	
Infant's feeding		
Formula	51 (44.3)	
Breast feeding	22 (19.1)	
Both	42 (36.5)	
Planned to become pregnant		
Yes	71 (61.7)	
No	44 (38.3)	
Feeling depressed during pregnancy		
Yes	19 (16.5)	
No	96 (83.5)	
Antenatal anxiety		
Yes	37 (32.2)	
No	78 (67.8)	
Gestational hypertension	3 (2.6)	
Gestational diabetes	13 (11.3)	
Asthma	3 (2.6)	

Women reported low levels of acculturative stress (14.97±12.96), marginalization (36.70±15.76) and PPD symptoms (5.70±5.07); moderate levels of attraction to American culture (AAmC) (38.62±13.82); and high levels of social support (67.96±12.72) and attraction to

Arabic culture (AArC) (65.76±7.46). Twenty nine women (25.2 %) had PPD symptoms as measured by EPDS scores ≥10. The descriptive statistics for acculturative stress, social support, acculturation, and PPD symptoms are presented in Table 4.

Table 4

Descriptive Statistics for Acculturative Stress, Acculturation, Social Support, and PPD

Symptoms

Variable (Instrument)	Mean (Standard Deviation)	Range
Acculturative stress (MASI)[a]	14.97 (12.96)	0- 52
Attraction to American culture (AAmC)	38.62 (13.82)	13- 65
Attraction to Arabic culture (AArC)	65.76 (7.46)	46- 75
Marginalization (MARG)	36.69 (15.76)	18- 90
Social Support (MSPSS-AW)	67.96 (12.72)	30- 84
PPD symptoms (EPDS)	5.70 (5.07)	0-19
	Number (%)	
PPD		
EPDS <10	86 (74.8)	
EPDS ≥10	29 (25.2)	

[a]Note: MASI= Multidimensional Acculturative Stress Inventory, MARG= Marginality Scale, MSPSS-AW= Multidimensional Scale of Perceived Social Support for Arabic Women , EPDS= Edinburgh Postnatal Depression Scale.

Pearson r correlation coefficient and point-biserial correlations were used to examine the relationships among sample characteristics and (a) acculturative stress, (b) social support, (c)

acculturation, and (d) PPD symptoms. Maternal age was significantly correlated with acculturative stress indicating that older women were more likely to experience acculturative stress ($r=.22$, $p= 0.02$). In addition, women who completed more years of education also reported to have less attraction to Arabic culture ($r= -.29$, $p=.002$), more attraction to American culture ($r=.35$; $p< .001$) and more PPD symptoms ($r=.33$, $p< .0001$). Women who reported higher annual household income reported less attraction to Arabic culture ($r= -.34$, $p <.0001$). Furthermore, women who reported being employed reported higher social support ($r= .21$, $p= .03$), more attraction to American culture ($r= .33$, $p<.0001$), and less attraction to Arabic culture ($r=-47$, $p<.0001$). Also women who preferred English language reported less acculturative stress ($r=-.36$, $p<.0001$), higher levels of social support ($r= .28$, $p=.003$), more attraction to American culture ($r=.68$, $p<.0001$), and less attraction to Arabic culture ($r= -.47$, $p< .0001$). Lastly, more years of residence in the U.S. were correlated with higher levels of social support ($r= .33$, $p< .0001$), lower levels of acculturative stress ($r=-.23$, $p=.01$), more attraction to the American culture ($r= .390$, $p< .0001$), and less attraction to the Arabic culture ($r= -.39$, $p< .0001$). No other socio-demographic variables were associated with other cultural or mental health variables (see Table 5).

Table 5

Correlations among Selected Sample Characteristics and (A) Acculturative Stress; (B) Social Support; (C) Acculturation; and (D) PPD Symptoms.

Variable	Maternal age	Years of education	Annual household income	Employment	Language Preference	Length of residence in the U.S.
Acculturative	.22*	-.11	-.12	-.18	-.36**	-.23*

stress						
Social support	.02	.07	.06	.21*	.28**	.33**
Attraction to American Culture	-.17	.35**	.12	.33**	.68**	.39**
Attraction to Arabic Culture	.02	-.29**	-.34**	-.47**	-.47**	-.39**
Marginalization	-.05	.11	-.003	.06	.05	-.15
PPD symptoms	.07	.33**	.03	.12	-.02	-.08

*p<.05, ** p<.01 (two-tailed)

Pearson r correlation coefficient and point-biserial correlations were also used also to examine the relationships among maternal medical and obstetrical characteristics and (a) acculturative stress, (b) social support, (c) acculturation, and (d) PPD symptoms. Feeling depressed during pregnancy was significantly correlated with higher levels of acculturative stress (r=.186, p= .04), higher levels of marginalization (r=.24, p= .02), and higher levels of PPD symptoms (r=.35, p< .0001). In addition, antenatal anxiety was significantly correlated with acculturative stress (r= .22, p= .02), marginalization (r=.25, p= .007) and PPD symptoms (r= .34, p<.0001) (see Table 6).

Table 6

Correlations among Selected Medical and Obstetrical Characteristics and (A) Acculturative Stress; (B) Social Support; (C) Acculturation; and (D) PPD Symptoms.

Variable	Feeling depressed	Antenatal anxiety	Gestational age at birth	Infant's birth weight

	during pregnancy			
Acculturative stress	.186*	.22*	.09	-.01
Social support	-.06	-.16	.06	.12
Attraction to American Culture	-.02	-.16	-.05	.16
Attraction to Arabic Culture	.03	.09	.17	.03
Marginalization	.24*	.25**	.18	.09
PPD symptoms	.35**	.34**	-.18	-.05

*$p<.05$, ** $p<.01$ (two-tailed)

Relationships among Variables

The following results are reported according to the specific aims of the study.

Specific Aim 1. *Examine the relationships among acculturative stress, social support, acculturation and PPD symptoms among U.S. immigrant women of Arabic descent.*

Hypotheses H.1.a through H.1.d were tested using Pearson r correlation coefficient and backward stepwise multiple linear regression analysis. Maternal age, years of education, annual household income, employment, language preference, length of residence in the U.S, gestational age at birth, feeling depressed during pregnancy, antenatal anxiety, and infant's birth weight were included as covariates in the multiple linear regression analysis along with acculturative stress,

social support, or acculturation variables. The dependent variable was PPD symptoms as measured by the EPDS. The results are presented in Tables 7 and 8.a-8.e.

Table 7

Relationships among Variables

Variable	1	2	3	4	5
1. Acculturative stress	-				
2. Social support	-.34**	-			
3. Attraction to American Culture	-.54**	.25**	-		
4. Attraction to Arabic Culture	.38**	-.15	-.39**	-	
5. Marginalization	.12	-.22*	.03	.02	-
6. PPD symptoms	.27**	-.49**	-.07	-.01	.25**

*p<.05, ** p<.01 (two-tailed)

H.1.a. Higher levels of acculturative stress are related to higher risk of PPD symptoms. The results supported this hypothesis. Acculturative stress was significantly positively correlated with PPD symptoms, that is higher levels of acculturative stress were related to higher levels of PPD symptoms (r=.27, p= .004) (see Table 7). Acculturative stress and the covariates (maternal age, years of education, annual household income, employment, language preference, length of residence in the U.S, gestational age at birth, feeling depressed during pregnancy, antenatal anxiety, and infant's birth weight) were included as independent variables in the stepwise multiple linear regression analysis. PPD symptoms was the dependent variable. The optimal model is presented in Table 8.a. Higher levels of acculturative stress predicted higher levels of PPD symptoms (β=.25, t= 3.08, p= 0.003) while controlling for years of education, gestational

age at birth, and antenatal anxiety. The model explained 32% of the variance in PPD symptoms

(R^2=.315, F= 12.65, p< .0001 for the optimal model) (see Table 8.a.).

Table 8.a.

Acculturative Stress and PPD Symptoms

Variable	β	t	p
Years of education	.34	4.28	<.0001
Gestational age at birth	-.19	-2.39	.02
Antenatal anxiety	.30	3.74	<.0001
Acculturative stress	.25	3.08	.003

R^2=.315, F= 12.65, p< .0001 for the optimal model

H.1.b. Lower levels of social support are related to higher risk of PPD symptoms. The results supported this hypothesis. Social support was significantly negatively correlated with PPD symptoms, that is lower levels of social support were related to higher levels of PPD symptoms (r= -.49, p<.0001) (see Table 7). Social support and the covariates (maternal age, years of education, annual household income, employment, language preferrence, length of residence in the U.S, gestational age at birth, feeling depressed during pregnancy, antenatal anxiety, and infant's birth weight) were included as independent variables in the stepwise multiple linear regression analysis. PPD symptoms were the dependent variable. We found that lower levels of social support predicted higher levels of PPD symptoms (β= -.47, t=-6.62, p<.0001) after controlling for maternal years of education, gestational age at birth, and antenatal anxiety. The model explained 47% of the variance in PPD symptoms (R^2=.468, F= 24.21, p< .0001 for the optimal model) (see Table 8.b.).

Table 8.b.

Social Support and PPD Symptoms

Variable	β	t	p
Years of education	.35	5.02	<.0001
Gestational age at birth	-.139	-1.97	.05
Antenatal anxiety	.28	3.99	<.0001
Social support	-.47	-6.62	<.0001

R^2=.47, F= 24.21, p< .0001 for the optimal model

H.1.c. Higher scores of attraction to the American culture (AAmC) and lower scores of attraction to the Arabic culture (AArC) are related to higher risk of PPD symptoms. The results did not support this hypothesis. Attraction to the American culture (AAmC) and attraction to the Arabic culture (AArC) were not related to PPD symptoms (see Table 7). Attraction to American culture and the covariates (maternal age, years of education, annual household income, employment, language preferred, length of residence in the U.S, gestational age at birth, feeling depressed during pregnancy, antenatal anxiety, and infant's birth weight) were included as independent variables in the stepwise multiple linear regression analysis. PPD symptoms was the dependent variable. We found that attraction to American culture was not a significant predictor for PPD symptoms controlling for years of education, gestational age at birth, and antenatal anxiety. The model explained 28% of the variance in PPD symptoms (R^2=.276, F= 10.48, p< .0001 for the optimal model) (see Table 8.c.).

Table 8.c.

AAmC and PPD Symptoms

Variable	β	t	p

Years of education	.37	4.25	<.0001
Gestational age at birth	-.18	-2.14	.03
Antenatal anxiety	.33	4.05	<.0001
Attraction to American Culture (AAmC)	-.15	-1.73	.09

R^2=.276, F= 10.48, p< .0001 for the optimal model

Similarly, AArC was not a significant predictor of PPD symptoms after controlling for all covariates. AArC was excluded from the first step in stepwise multiple linear regression and was not included in the optimal model. The optimal model included only years of education, length of residence in the U.S., gestational age at birth, and antenatal anxiety. The model explained 28% of the variance in PPD symptoms (R^2= .276, F=10.46, p< .0001 for the optimal model) (see Table 8.d).

Table 8.d.

Predictors of PPD Symptoms, AArC Controlling for All Covariates

Variable	β	t	p
Years of education	.34	4.09	<.0001
Length of residence in the U.S	-.143	-1.72	.09
Gestational age at birth	-.19	-2.34	.02
Antenatal anxiety	.36	4.351	<.0001

R^2= .276, F=10.46, p< .000 for the optimal model

H.1.d. Higher scores of Marginality scale are related to higher risk for PPD symptoms. The results did not support this hypothesis. Marginalization was significantly positively correlated with PPD symptoms, that is higher scores on the Marginality scale were correlated

with higher levels of PPD symptoms (r=.248, p= .008) (see Table 7). However, using stepwise multiple linear regression analysis marginalization was not a predictor of PPD symptoms after controlling for covariates. The optimal model included years of education, length of residence in the U.S, gestational age at birth, and antenatal anxiety. The model explained 28% of the variance in PPD symptoms (R^2=.276, F= 10.46, p<.0001 for the optimal model) (see Table 8.e).

Table 8.e.

Predictors of PPD Symptoms, Marginalization After Controlling for Covariates

Variable	β	t	p
Years of education	.34	4.09	<.0001
Length of residence in the U.S.	-.14	-1.72	.09
Gestational age at birth	-.19	-2.34	.02
Antenatal anxiety	.36	4.35	<.0001

R^2=.276, F= 10.46, p<.0001 For the optimal model

These results supported hypotheses H.1.a (Higher levels of acculturative stress are related to higher risk of PPD symptoms) and H.1.b. (Lower levels of social support are related to higher risk of PPD symptoms). However, hypothesis H.1.c [Higher scores of attraction to the American culture (AAmC) and lower scores of attraction to the Arabic culture (AArC) are related to higher risk of PPD symptoms.] and hypothesis H.1.d. (Higher scores of Marginality scale are related to higher risk for PPD symptoms) were not supported by these data.

Finally, a stepwise multiple linear regression analysis was conducted with all of the variables in the equation to determine if acculturative stress, social support, and acculturation variables (AAmC , AArC, and marginalization) were predictors of PPD symptoms after controlling for covariates. In the optimal model, higher levels of education (β= .33, t= 4.23,

$p<.0001$), higher reports of antenatal anxiety ($\beta= .21$, $t= 2.35$, $p=.02$), and lack of social support

($\beta= -.46$, $t= -6.12$, $p<.0001$) predicted PPD symptoms. The model explained 50% of variance in

PPD symptoms ($R^2=.501$, $F= 13.33$, $p<.0001$ for the optimal model) (see Table 9).

Table 9

Predictors of PPD Symptoms

Variable	β	t	p
Years of education	.33	4.23	<.0001
Annual household income	-.11	-1.39	.17
Employment	.14	1.67	.09
Gestational age at birth	-.14	1.96	.05
Feeling depressed during pregnancy	.08	.89	.37
Antenatal anxiety	.21	2.35	.02
Acculturative stress	.108	1.43	.16
Social support	-.46	-6.12	<.0001

$R^2=.501$, $F= 13.33$, $p<.0001$ for the optimal model

Specific Aim 2. *Examine if social support moderates the associations between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.*

H.2. Social support moderates the associations between acculturative stress and PPD symptoms. Multiple linear regression analyses were conducted to examine if acculturative stress, social support, and the interaction term between acculturative stress and social support predicted PPD symptoms. The results did not support this hypothesis. Social support predicted PPD symptoms (β=-.320, t=-2.506, p= .014). Acculturative stress and the interaction term between

acculturative stress and social support were not statistically significant. Thus, the moderating effect of social support on the association between acculturative stress and PPD symptoms was not supported (see Table 10).

Table 10

Testing the Moderating Effect of Social Support on the Relationship between Acculturative Stress and PPD Symptoms.

Variable	β	t	p
Acculturative stress	.707	1.705	.091
Social support	-.320	-2.506	.014
Interaction term between acculturative stress and social support	-.578	-1.471	.144

R^2=.271, F= 13.746, p<.0001 for the model

Specific Aim 3. *Examine if acculturation variables mediate the associations between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.*

H.3. Acculturation strategies mediate the associations between acculturative stress and PPD symptoms. Multiple linear regression analyses were used to examine the mediating effect of the acculturation variables (AAmC, AArC, and marginalization) on the relationship between acculturative stress and PPD symptoms. First the relationship between (1) acculturative stress and PPD symptoms, and (2) acculturative stress and AAmC were tested using multiple linear regression analysis. Acculturative stress was a significant predictor for PPD symptoms (β= .265, t= 2.918, p= .004). Acculturative stress was also a significant predictor for AAmC, that is women who experienced higher levels of acculturative stress were less likely to be attracted to the American culture (β=-.535, t= -6.738, p<.0001); therefore, AAmC was considered a potential mediator.

Second, the mediating effect of AAmC on the association between acculturative stress and PPD symptoms was examined. The mediating effect of AAmC was not significant, that is when AAmC was added to the analysis, beta (β) value increased for acculturative stress and stayed significant (β= .319, t= 2.972, p= .004), while AAmC beta value was not significant (β= .102, t=.95, p= .344). The model explained 28% of variance in PPD symptoms (R^2=.278, F= 4.705, p= .011 for the model). Therefore, AAmC was not a significant mediator on the association between acculturative stress and PPD symptoms (see Table 11).

Table 11

Mediation Effect of AAmC on Acculturative Stress and PPD Symptoms

Variable	β	t	p
Acculturative stress	.319	2.972	.004
AAmC	.102	.950	.344

R^2=.278, F= 4.705, p= .011 for the model.

Third, the mediating effect of AArC on the association between acculturative stress and PPD symptoms was examined. Acculturative stress was a significant predictor for AArC (β= .384, t= 4.416, p<.0001), that is the higher levels of acculturative stress were related to higher levels of attraction to the Arabic culture. The model explained 15% of variance in PPD symptoms (R^2= .147, F=19.501, p<.0001). AArC was not significant in predicting PPD symptoms (β= -.014, t= -.151, p=.88). The mediation effect of AArC was not significant; acculturative stress beta (β) has increased and remained significant (β= 317, t= 3.238, p=.002) while AArC beta has decreased but remained not significant (β= -.136, t=-1.388, p= .168). The model explained 29% of variance in PPD symptoms (R^2=.293, F= 5.256, p= .007 for the model) (see Table 12).

Table 12

Mediation effect of AArC on Acculturative Stress and PPD Symptoms

Variable	β	t	p
Acculturative stress	.317	3.238	.002
AArC	-.136	-1.388	.168

R^2=.293, *F*= 5.256, *p*= .007 for the model

　　Lastly, the mediating effect of marginalization on the association between acculturative stress and PPD symptoms was examined. Acculturative stress was not a significant predictor for marginalization (*β*= .120, *t*= 1.28, *p*=.203); therefore, marginalization was not considered a mediator for the relationship between acculturative stress and PPD symptoms.

<div align="center">

Summary

</div>

　　Each of the aims of the study was addressed in this research. Data analysis yielded the following results:

Specific Aim 1. *Examine the relationships among acculturative stress, social support, acculturation and PPD symptoms among U.S. immigrant women of Arabic descent.*

　　Hypotheses H.1.a (Higher levels of acculturative stress are related to higher risk of PPD symptoms) and H.1.b. (Lower levels of social support are related to higher risk of PPD symptoms) were supported by the results of this study. However, hypotheses H.1.c [Higher scores of attraction to the American culture (AAmC) and lower scores of attraction to the Arabic culture (AArC) are related to higher risk of PPD symptoms.] and H.1.d. (Higher scores of marginality scale are related to higher risk of PPD symptoms) were not supported by these data.

Specific Aim 2. *Examine if social support moderates the associations between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.*

Social support predicted PPD symptoms. However, acculturative stress and the interaction term between acculturative stress and social support were not statistically significant. Thus, the moderating effect of social support on the association between acculturative stress and PPD symptoms was not supported.

Specific Aim 3. *Examine if acculturation variables mediate the associations between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.*

First we examined if acculturative stress predicted PPD symptoms. Acculturative stress was a significant predictor for PPD symptoms. We then examined if acculturative stress predicted acculturation (AAmc, AArC and marginalization). Acculturative stress was a significant predictor for AAmC and AArC; however, acculturative stress did not predict marginalization, therefore marginalization was excluded from the mediation analysis. Next we examined if acculturation (AAmC and AArC) predicted PPD symptoms. AAmC and AArC did not predict PPD symptoms. We examined the mediating effect of AAmC and AArC on the association between acculturative stress and PPD symptoms. The mediation analysis was found not significant. Beta (β) value for acculturative stress decreased slightly, but remained significant when added AAmC and AArC. Acculturation variables were found not significant predictors for PPD symptoms. Thus, the results of the study did not support the hypothesis that acculturation is a mediator on the association between acculturative stress and PPD symptoms.

CHAPTER 5 DISCUSSION

This is the first known study that examined the relationships among acculturative stress, acculturation, social support, and PPD symptoms among U.S. immigrant women of Arabic descent. In this chapter, the results of this study are discussed as well as clinical implications and recommendations for future research.

A total of 115 women participated in this study. Twenty nine women (25.2 %) reported EPDS scores ≥10 that represent high risk for PPD. In our feasibility pilot study with 50 U.S. immigrant women of Arabic descent, we found that 36% of them reported EPDS scores ≥ 10 (Alhasanat et al., 2017). These rates are consistent with the PPD prevalence among Arabic women in the Middle East, which ranges between 10- 37% (Al Dallal & Grant, 2012; Hamdan & Tamim, 2011; Qandil, Jabr, Wagler, & Collin, 2016; Yehia et al., 2013). The prevalence of PPD among women of Arabic descent is also consistent with other studies that reported prevalence of PPD among immigrant mothers in Westernized countries. For example, the prevalence of PPD among immigrant women from Canada ranged between 11.2%- 37% (Dennis, Merry, Stewart, & Gagnon, 2016; Gannan et al., 2012; Zelkowitz et al., 2008). Thus, immigrant women are at high risk for developing PPD.

Acculturative Stress and PPD

In this study, we found that acculturative stress predicted PPD symptoms among U.S. immigrant women of Arabic descent. Women who reported higher levels of acculturative stress also reported higher levels of PPD symptoms. Prior studies have examined the relationship between acculturative stress and PPD symptoms from other immigrant women. For example, higher levels of acculturative stress were related to higher levels of depressive symptoms among Mexican- origin adolescent mothers (Zeiders et al., 2015). Similarly, increased acculturative

stress predicted higher levels of anxiety and depressive symptoms among pregnant Mexican women in the U.S. (D'Anna-Hernandez et sl., 2015; Preciado & D'Anna-Hernandez, 2016). Furthermore, acculturative stress has been studied among Arabic population, but not women. For example, in one study that was conducted among 200 U.S. immigrant elderly of Arabic descent, higher levels of acculturative stress predicted higher level depressive symptoms (Wrobel et al., 2009). However, no studies have examined the association between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent. We found that higher levels of acculturative stress predicted higher levels of PPD symptoms among these women.

Main effect and Buffering Effect of Social Support

According to the stress-buffering hypothesis (Cohen & Wills, 1985), social support directly contributed to well-being through enhancing positive affect and perceived self-worth (main effect). However, social support may also indirectly improve well-being by mitigating potentially stressful situations or by attenuating the impacts of stressful situations (buffering effect) (Cohen & Wills, 1985). In this dissertation research, we examined both the main and buffering effects of social support on the association between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.

The results of this dissertation research support the main effect of social support. We found that lack of social support predicted PPD symptoms among U.S. immigrant women of Arabic descent. Women who reported higher levels of social support also reported lower levels of PPD symptoms. It is well established in the literature that lack of social support is a strong risk factor for PPD (Ngai & Ngu, 2015; Schwab-Reese, Schafer, & Ashida, 2016). A recent meta-analysis of 40 studies revealed that lack of social support is associated with perinatal depression among immigrant women from low to middle income countries (Fellmeth, Fazel, &

Plugge, 2016). In contrast, social support has been found to be a protective factor for developing PPD symptoms (Fellmeth et al., 2016). Furthermore, lack of social support was found a significant predictor of PPD among immigrant Latino women in the U.S. (Lara, Navarrete, & Nieto, 2016; Sumner et al., 2011). Similarly, lack of social support was a significant risk factor for PPD among women of Arabic descent that live in their native country (Saleh, et al., 2013; Yehia et al., 2013). In our feasibility study, lack of social support predicted higher levels of PPD symptoms among U.S. immigrant women of Arabic descent (Alhasanat et al., 2017). This dissertation research supports prior research about the lack of social support being a significant risk factor of PPD symptoms among U.S. immigrant women of Arabic descent.

The results of this dissertation research do not support the buffering effect of social support. Social support did not moderate the association between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent from our sample. Similarly, in a recent study social support did not moderate the association between stress and mental health among a sample of 125 women from the general community in Iowa (Schwab-Reese et al., 2016). However, Coburn, Gonzales, Luecken, and Crnic (2016) found that social support moderated the relationship between family stress and PPD symptoms among Mexican American women (Coburn et al., 2016). However, the study by Coburn et al. (2016) did not measure acculturative stress. Another study found that higher levels of social support is related to lower levels of PPD, but social support was not a significant moderator on the association between acculturative stress and PPD among immigrant women in Taiwan (Chen et al., 2013). This dissertation research is the first study to examine the buffering effect of social support on the association between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent. In this context, our findings highlighted the complexity of measuring

acculturative stress and social support in relation to risk for PPD symptoms, perhaps the availability of other sources of emotional support compensated for the conflicts and challenges that immigrant women experienced within their relationships.

Acculturation and PPD Symptoms

This is the first study that examined the relationship between acculturation and PPD symptoms among U.S. immigrant women of Arabic descent. In this study we measured acculturation using the ARSAA-II that has two scales, Scale One measures attraction to the American culture (AAmC) and attraction to the Arabic culture (AArC), and Scale Two which called Marginality scale measures marginalization. Marginalization refers to the loss or absence of contact with both the culture of origin and that of the dominant society (Berry, 1997). In this study, we found that acculturative stress is a predictor for both AAmC and AArC. Women who experienced higher levels of acculturative stress were less likely to be attracted to the American culture and more likely to be attracted to the Arabic culture. However, acculturative stress did not predict marginalization in our sample. Among the acculturation variables, only marginalization was significantly correlated with PPD symptoms. Women who reported higher levels of marginalization also reported higher levels of PPD symptoms. However, the acculturation variables (AAmC, AArC, and marginalization) did not predict PPD symptoms. Furthermore, acculturation did not mediate the relationship between acculturative stress and PPD symptoms. Women who participated in this study were recruited from a large Arab community in Michigan, which is the home to one of the largest Arab American communities in the U.S. (AAI, 2011). Michigan's Arab American community constitutes the third largest minority group and the fastest growing population in the state of Michigan (AAI, 2011). Women reported low levels of marginalization, moderate levels of attraction to American culture and high levels of

attraction to Arabic culture. Women in our study lived in a community that speaks their language and knows their cultural values and beliefs; and therefore, they may not feel marginalized and they may not need to become acculturated to the new culture. This may explain the lack of a relationship between acculturation and PPD symptoms. Future research is highly recommended to examine the effect of acculturation on PPD symptoms among immigrant Arabic women who live in different communities where the Arabic population is a minority.

This is the first study to examine acculturation among U.S. immigrant women of Arabic descent. Prior research has examined acculturation among U.S. immigrant women of Hispanic descent. Acculturation has been measured using proxy measures such as language preference, generation status, length of U.S. residence and birthplace (Alhasanat & Giurgescu, 2017). Some studies reported that higher levels of acculturation were related to higher levels of PPD symptoms among Hispanic immigrant women (Davila et al., 2009; Heilemann et al., 2004; Kuo et al., 2004; Martinez-Schallmoser et al., 2003). However, other studies did not find a relationship between acculturation and PPD symptoms among these women (Beck et al., 2005; Valentine et al. 2011). In Davila et al. (2009), U.S. born Hispanic women were more likely to have higher levels of PPD symptoms compared with Mexican-born women. In Heilemann et al. (2004), childbearing women who were exposed to the U.S. culture during childhood reported significantly higher levels of PPD symptoms compared with women who were raised up in Mexico. Low use of the Spanish language was also related to higher levels of PPD symptoms in two studies (Davila et al., 2009; Martinez-Schallmoser et al., 2003). Only one study utilized the ARSMA-II to measure acculturation among Mexican American pregnant women and found that acculturation was not related to maternal depressive symptoms during pregnancy (D'Anna-Hernandez et al., 2015). Two other studies reported no relationship between acculturation and

PPD symptoms (Beck et al., 2005; Valentine et al. 2011). In our study we found that language preference for the interview and length of residence in the U.S. were not related to PPD symptoms in our sample of U.S. immigrant women of Arabic descent. Proxy measures of acculturation do not take into account the individuals' perception of self-acculturation or their perceptions of the stressors associated with adaptation between two cultures. In our study we used both proxy measures (length of residence in the U.S. and language preference for the interview) as well as the Arabic version the ARSAA II to assess women's perception of acculturation. However, we did not find a relationship between acculturation and PPD symptoms.

Maternal Characteristics and PPD symptoms

In this study we found that higher maternal years of education predicted higher levels of PPD symptoms. Consistent with literature, women who received postgraduate education reported higher levels of PPD symptoms (Liu & Tronick, 2013). In contrast, other studies reported that low levels of maternal education were related to higher levels of PPD symptoms (Lara et al., 2016; Martini et al., 2015; Mukherjee, Coxe, Fennie, Madhivanan, & Trepka, 2016). In this dissertation research, women with higher levels of education reported more attraction to American culture, less attraction to Arabic culture, and higher levels of PPD symptoms. Women with higher levels of education may have more exposure to the American culture and, therefore, they may experience unique psychosocial and cultural stressors such as experiences of racial discrimination which have a negative impact on their mental health. In a study of pregnant African American women, Giurgescu et al. (2016), found that women with higher levels of education reported more situations of racial discrimination; and experiences of racial discrimination were related to depressive symptoms (Giurgescu et al., 2016). Therefore, future

studies of U.S. immigrant women of Arabic descent should focus on how women from different educational levels perceive their contact with the new culture and its relationship with PPD symptoms.

Antenatal anxiety was one of the strong predictors of PPD symptoms among immigrant women of Arabic descent in our study. It is well established in the literature that antenatal anxiety is a strong predictor of PPD (Beck, 2001; O'Hara & Swain, 1996; Robertson et al., 2004). In this study, higher levels of acculturative stress and marginalization were related to higher levels of antenatal anxiety. Prior studies also found that acculturative stress was related to higher level of antenatal anxiety among Mexican American women (Preciado & D'Anna-Hernandez, 2016). It is possible that women who experience acculturative stress may feel anxious when trapped between the customs, values, ideas, and beliefs of their Arabic culture and the American culture their child will be raised in. Women may also feel pressured to assimilate to the American culture or experience marginalization, which both might increase antenatal anxiety, and therefore, increase levels of PPD symptoms (Preciado & D'Anna-Hernandez, 2016). This is the first study that addressed the relationship of antenatal anxiety with acculturative stress and PPD symptoms among immigrant women of Arabic descent. In our feasibility study we also found that antenatal anxiety was related to PPD symptoms among U.S. immigrant women of Arabic descent (Alhasanat et al., 2017).Therefore, U.S. immigrant women of Arabic descent who experience antenatal anxiety are more likely to develop PPD symptoms. It is highly recommended that clinicians screen immigrant women for anxiety during antenatal visits to prevent future development of PPD symptoms.

Strengths and Limitations

This study has few limitations. This study utilized a cross-sectional design and depressive symptoms were collected one time during the postpartum period. Future research should assess depressive symptoms across pregnancy and postpartum period for U.S. immigrant women of Arabic descent. This study was conducted in Dearborn, MI, a highly dense Arabic population. Future research should consider less dense Arabic population communities in order examine the relationship among acculturative stress, acculturation, and PPD symptoms of women of Arabic descent with different immigration experiences. The reliability of ARSMA-II was low in our sample and we had to eliminate two items to improve its reliability. Lastly, the current study consisted of only self-report of PPD symptoms. Utilizing the DSM-V, a diagnostic tool for PPD, is recommended for future research.

Despite these limitations, the study has several strengths. This was the first study to examine relationships among acculturative stress, social support, acculturation, and PPD symptoms among U.S. immigrant women of Arabic descent. The instruments were administered in both languages, Arabic and English, for women to choose. This flexibility of language preference gave us the opportunity to recruit non- English speaking women and measure their PPD symptoms. In addition, this study was guided by Berry's Framework of Acculturation and Roy's Adaptation Theory. Acculturation was measured based on Berry's theory utilizing a multi-dimensional instrument rather than proxy measures as in previous literature. According to Berry (1997), acculturation is a phenomenon that begins with the cultural groups in contact with each other bringing changes and affecting the individual who is experiencing acculturation resulting in a number of psychological responses and changes, and leading to a person's adaptation.

Recommendations for Future Research

Future qualitative studies are needed to understand the unique experiences of U.S. immigrant women of Arabic descent that is related to their acculturation experiences and their depressive symptoms. Future longitudinal design studies are also highly recommended to gain a comprehensive understanding of immigrant women's experiences of acculturative stress, acculturation, and depressive symptoms during pregnancy and postpartum. In addition, different settings of recruitment are recommended to understand different acculturation experiences among immigrant Arabic women, especially in communities that are less familiar with the Arabic culture. Lastly, PPD is related to negative child outcomes, therefore, future research tailored to understand and examine acculturative stress and acculturation consequences on mother's mental health and children outcomes is recommended. Further work should investigate the specific stressors of acculturation as well as the physiological mechanisms by which this may be affecting the mother/child dyad among Arabic immigrant populations.

Clinical Implication

In this study, acculturative stress, antenatal anxiety, and lack of social support were significant predictors of PPD symptoms among U.S. immigrant women of Arabic descent. Assessment of acculturation status during the perinatal period may inform culturally based interventions optimizing perinatal outcomes in immigrant Arabic women. Providing culturally competent mental health care during pregnancy and postpartum will help women understand their acculturation experiences in relation to parenting and will be able to deal with expectations of the postpartum. Furthermore, findings of this study may promote cultural competence in health care settings, particularly amongst nurse-woman communication, critical to the health care experience. This is particularly true for women who may have fewer resources or feel less confident in navigating the health care system. Cultural competence can lead to effective change

in cross-cultural situations and may help health care workers respond with cultural sensitivity to patients' values, customs, and beliefs. In addition, screening for anxiety during pregnancy is crucial, since antenatal anxiety was related to acculturative stress and the development of PPD symptoms. Assessment for anxiety during pregnancy will identify immigrant women at risk for developing further mental health problems and that will help in early interventions by providing community services and resources to decrease anxiety.

Lastly, in Arabic culture, women resting for 40 days after having a baby is a common protective practice (Kim-Godwin, 2003). Family support is crucial during this 40-day period (six weeks postpartum), traditionally all new mothers have to rest, and a family member comes to the house or stays with the new mother to take care of the baby, the house, and the other children (Nahas & Amashen, 1999). In this period of intense need for social support for new mothers, it is highly recommended to provide immigrant women with nursing home visits. Community health nurse antenatal/postpartum home visitation should aim to assess early signs of anxiety and depression among immigrant women, provide social support to new mothers, and provide them with the knowledge and education that they might need. Weekly home visits that lasts for six weeks postpartum were found to have a positive effect upon mothers' mental health in decreasing the risk for developing postpartum depression (Cust, 2016).

Conclusion

This is the first study that examined the relationship between acculturative stress, social support, acculturation (AAmC, AArC, and marginalization) and PPD symptoms among U.S. immigrant childbearing women of Arabic descent. We found that higher levels of acculturative stress and lack of social support predicted higher levels of PPD symptoms while controlling for years of education, gestational age at birth, and antenatal anxiety. However, acculturation was

not a significant predictor of PPD symptoms. Social support predicted PPD symptoms directly, however, the buffering effect of social support on the association between acculturative stress and PPD symptoms was not significant. Lastly, acculturative stress was a significant predictor for AAmC and AArC; however, acculturative stress did not predict marginalization. Acculturation did not mediate the association between acculturative stress and PPD symptoms. Future longitudinal research studies in different settings is recommended to examine more cultural risk factors associated with PPD symptoms among immigrant women. Early screening for antenatal anxiety and antenatal depression within a culturally competent environment is recommended to improve immigrant women's mental health in the postpartum period.

APPENDIX A
DEMOGRAPHIC DATA

1. What is your preferred language to communicate (please check)?

    ☐ English

    ☐ Arabic

2. What is your date of birth (mm/dd/yy):_____

3. What is your immigration status (please mark):

    ☐ Immigrant

    ☐ Refugee

4. At what age did you come to the Unites States?:_____

5. What is your country of origin/ birth?: _____

6. How long have you lived in the United States?: Years:_____Months:_____

7. What is your marital status:

    ☐ Single

    ☐ Married

    ☐ Divorced

    ☐ Widowed

    ☐ Separated

8. How many years of education do you have:_____

9. What is your highest level of education

☐ Less than High school

☐ Technical/ vocational training

☐ Graduated High School or GED

☐ Some college

☐ Associate degree

☐ Bachelor degree

☐ Graduate degree or higher

10. Are you currently working or temporarily laid off from a regular job?

☐ Yes, working. If you currently work, about how many hours per week do you work?_____

☐ Yes, temporary laid off

☐ No, not working. If not working are you?

  ○ At home

  ○ Student

  ○ Other (please specify) _____

11. Are you currently employed?

☐ No. If not employed, please mark if you are

  ☐ house person

  ☐ in school

☐ Yes. If yes please mark if you are employed

  ☐ full time

  ☐ part time

12. What is your annual family income? :

☐ < \$20,000

☐ \$20,000- \$39,999

☐ \$40,000- \$59,999

☐ \$60,000- \$79,999

☐ \$80,000- \$99,999

☐ > \$100,000

13. Who makes the financial contribution to your household income (please mark all that apply)?:

☐ Self

☐ Father of baby

☐ Live-in partner

☐ Spouse

☐ Your Father/Mother

☐ Other (please specify relationship) _____

14. Are there other sources of income to your household?

☐ Yes

☐ No

15. What are other sources of income to your household (please mark all the apply)?

☐ SSI

☐ Welfare

☐ Unemployment

☐ Food Stamps

☐ Alimony

☐ WIC

☐ Other (please specify) _____

☐ There are no other sources of income to my household

☐ Who is the main financial provider(s) in your household (please check all that apply)?Self

☐ Partner (husband, fiancé)

☐ Parent(s) (your mother or father, or both)

☐ Other (please specify) _____

16. What type of health insurance do you have?

☐ Private or through employer

☐ Private + Medicaid (to cover maternity)

☐ Medicaid

☐ Self-pay

☐ Medicare

☐ Medicare + Medicaid

☐ Other (please specify) _____

☐ Don't know, unsure

Please tell us about your previous pregnancies. Answer based on what scenarios apply to you.

17. **How many times** have you been pregnant? (Please include full term and premature births, miscarriages and elective terminations of pregnancy)_____

18. How many of your pregnancies were **Full Term** (delivered after 9 months or 37 weeks)_____

19. How many of your pregnancies were **Premature** (delivered before 9 months or 37 weeks)_____

20. How many of your pregnancies were **miscarriages or elective terminations** of pregnancy (less than 4 months or 20 weeks pregnant)Number of pregnancies:_____

21. If the pregnancy with this baby was not your first pregnancy what is the **date of your last birth**?(enter as mm/dd/yyyy)_____

22. If you remember please tell us when was your estimated due date :_____

23. What is the date of infant's birth (mm/dd/yy)?:_____

24. How many weeks pregnant were you when you had your baby?:_____

25. What type of birth did you have?:

  ☐ Normal vaginal birth

  ☐ Cesarean section

26. What was the baby's weight at birth?:_____ pounds _____ ounces

27. What is the infant's gender?:

  ☐ Male

  ☐ Female

28. Did you plan to become pregnant with this child?:

  ☐ Yes

  ☐ No

29. Infant Feeding Method:

    ☐   Formula

    ☐   Breastfeeding: For how long did you breastfeed him/ her? _____ months

    ☐   Both Formula and breastfeeding.

30. Have you felt depressed during your pregnancy?

    ☐   Yes

    ☐   No

       If yes, when and how long have you been feeling this way? _____

       If yes, how mild or severe would you consider your depression? _____

31. Have you been feeling anxious during your pregnancy?

    ☐   Yes

    ☐   No

       If yes, how long have you been feeling this way? _____

32. Before this pregnancy, have you ever been depressed?

    ☐   Yes

    ☐   No

       If yes, when did you experience this depression? _____

       If yes, have you been under a physician's care for this past depression? _____

       If yes, did the physician prescribe any medication for your depression?

33. Did you have any medical conditions before or during the pregnancy (please check all

    that apply)?:

- ☐ Asthma or other problems with your lungs (please describe) _____

- ☐ Hypertension or elevated blood pressure while not pregnant (please describe) _____

- ☐ Thyroid problems (please describe) _____

- ☐ Diabetes or high blood sugar levels while not pregnant (please describe) _____

- ☐ Heart problems (please describe) _____

- ☐ Kidney problems that was more than an infection of your urinary bladder (please describe) _____

- ☐ Other conditions (please describe) _____

34. Did you have any mental or psychological conditions before or during the pregnancy (please check all that apply)?:

    - ☐ Major Depression (Please describe) _____

    - ☐ Postpartum Depression (Please describe) _____

    - ☐ Bipolar (Please describe) _____

    - ☐ Substance abuse (Please describe) _____

    - ☐ Schizophrenia (Please describe) _____

    - ☐ Personality disorder (Please describe) _____

    - ☐ Other conditions (please describe) _____

If we need to contact you, what would be the best way to do it?:

- ☐ By phone: My home/ cell (please circle) phone # is _____

☐ By e-mail: My e-mail address is_____

☐ By mail: My address is _____

APPENDIX B
ACCULTURATION RATING SCALE FOR ARAB AMERICANS II
(ARSAAII)

<u>**Circle the number that best describes your response to each of the items below**</u>

No.	Item	Not at all	Very little or not very often	Moderately	Much or very often	Extremely often or almost always
1.	I speak Arabic	1	2	3	4	5
2.	I speak English	1	2	3	4	5
3.	I enjoy speaking Arabic	1	2	3	4	5
4.	I associate with Americans	1	2	3	4	5
5.	I enjoy listening to Arabic language music	1	2	3	4	5
6.	I enjoy listening to English-language music	1	2	3	4	5
7.	I enjoy Arabic TV	1	2	3	4	5
8.	I enjoy English language TV (American TV)	1	2	3	4	5
9.	I enjoy English language movies (American movies)	1	2	3	4	5
10.	I enjoy Arabic language movies (Arabic movies)	1	2	3	4	5
11.	I enjoy reading e.g., books in Arabic	1	2	3	4	5
12.	I enjoy reading e.g., books in English	1	2	3	4	5
13.	I write (e.g., letters, notes) in Arabic	1	2	3	4	5
14.	I write (e.g., letters, notes) in English	1	2	3	4	5
15.	My thinking is done in English language	1	2	3	4	5

16.	My thinking is done in Arabic language	1	2	3	4	5
17.	My contact with my home country has been	1	2	3	4	5
18.	My contact with the U.S.A. has been	1	2	3	4	5
19.	My <u>father</u> identifies or identified himself as An <u>Arab</u>	1	2	3	4	5
20.	My <u>mother</u> identifies or identified herself as an <u>Arab</u>	1	2	3	4	5
21.	My friends, while I was growing up, where of <u>Arabic origin</u>	1	2	3	4	5
22.	My friends, while I was growing up, where of <u>American origin</u>	1	2	3	4	5
23.	In my family, we cook Arabic foods	1	2	3	4	5
24.	My friends now are of Anglo origin (Americans)	1	2	3	4	5
25.	My friends now are of Arabic origin (Arabs)	1	2	3	4	5
26.	I like to identify myself as <u>a White American</u>	1	2	3	4	5
27.	I like to identify myself as an <u>Arab</u>	1	2	3	4	5
28.	I like to identify myself as an <u>American</u>	1	2	3	4	5

APPENDIX C
SCALE 2 OF THE ARSAA-II THE MARGINALITY SCALE (MARG)

		Not at All	Very little or not very often	Moderately	Much or very often	Extremely often or almost always
1)	I have difficulty accepting some behaviors exhibited by Anglos	1	2	3	4	5
2)	I have difficulty accepting attitudes held by Anglos	1	2	3	4	5
3)	I have difficulty accepting values held by some Anglos	1	2	3	4	5
4)	I have difficulty accepting certain practices and customs commonly found in some Anglos	1	2	3	4	5
5)	I have difficulty accepting ideas held by some Anglos	1	2	3	4	5
6)	I have, or think I would have, difficulty accepting Anglos as close personal friends	1	2	3	4	5
7)	I have difficulty accepting some behaviors exhibited by Arabs	1	2	3	4	5
8)	I have difficulty accepting attitudes held by Arabs	1	2	3	4	5
9)	I have difficulty accepting certain practices and customs commonly found in some Arabs	1	2	3	4	5

10)	I have difficulty accepting values held by some Arabs	1	2	3	4	5
11)	I have difficulty accepting ideas held by some Arabs	1	2	3	4	5
12)	I have, or think I would have, difficulty accepting Arabs as close personal friends	1	2	3	4	5
13)	I have difficulty accepting some behaviors exhibited by Arab Americans	1	2	3	4	5
14)	I have difficulty accepting attitudes held by Arab Americans	1	2	3	4	5
15)	I have difficulty accepting values held by some Arab Americans	1	2	3	4	5
16)	I have difficulty accepting certain practices and customs commonly found in some Arab Americans	1	2	3	4	5
17)	I have difficulty accepting ideas held by some Arab Americans	1	2	3	4	5
18)	I have, or think I would have, difficulty accepting Arab Americans as close personal friends	1	2	3	4	5

APPENDIX D
MULTIDIMENSIONAL ACCULTURATIVE STRESS INVENTORY (MASI)

Below is a list of situations that as an Arab-American you may have experienced. Read each item carefully and first decide whether or not you have experienced that situation during the past 3 months. If you have experienced the situation during the past 3 months, circle YES. Then circle the number that best represents HOW STRESSFUL the situation has been for you. If you have not experienced the situation during the past 3 months, circle NO, and go to the next item.

1. I have a hard time understanding others when they speak English.   *YES   NO*

If you answered YES, how stressful has this situation been during the past 3 months?

If you answered NO, go to #2.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

2. I have a hard time understanding others when they speak Arabic. *YES   NO*

If you answered YES, how stressful has this situation been during the past 3 months?

If you answered NO, go to #3.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

3. I feel pressure to learn Arabic. *YES   NO*

If you answered YES, how stressful has this situation been during the past 3 months?

If you answered NO, go to #4.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*

Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

4. It bothers me that I speak English with an accent. *YES*   *NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #5.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

5. Since I don't speak English well, people have treated me rudely or unfairly. *YES*   *NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #6.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

6. I have been discriminated against because I have difficulty speaking English. *YES*   *NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #7.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

7. I don't speak English or don't speak it well. *YES*   *NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #8.

1	*2*	*3*	*4*	*5*

Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

8. I don't speak Arabic or don't speak it well. *YES*   *NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #9.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

9. I feel pressure to learn English. *YES*   *NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #10.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

10. I feel uncomfortable being around people who only speak English. *YES*   *NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #11.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

11. I feel uncomfortable being around people who only speak Arabic. *YES*   *NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #12.

1	2	3	4	5
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

12. It bothers me when people assume that I speak Arabic. ***YES   NO***

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #13.

1	2	3	4	5
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

13. Since I don't speak Arabic well, people have treated me rudely or unfairly. ***YES   NO***

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #14.

1	2	3	4	5
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

14. I have been discriminated against because I have difficulty speaking Arabic. ***YES   NO***

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #15.

1	2	3	4	5
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

15. It bothers me when people pressure me to assimilate to the American ways of doing things.

YES   NO

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #16.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

16. It bothers me when people don't respect my Arab values (e.g., family). *YES   NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #17.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

17. Because of my cultural background, I have a hard time fitting in with Americans. *YES   NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #18.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

18. I don't feel accepted by Americans. *YES   NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #19.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*

Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

19. I have had conflicts with others because I prefer American customs (e.g., celebrating Halloween, Thanksgiving) over Arab ones. ***YES   NO***

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #20.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

20. People look down upon me if I practice Arab customs. ***YES   NO***

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #21.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

21. People look down upon me if I practice American customs. ***YES   NO***

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #22.

1	*2*	*3*	*4*	*5*
Not At All	*A Little*	*Somewhat*	*Very*	*Extremely*
Stressful	*Stressful*	*Stressful*	*Stressful*	*Stressful*

22. I feel uncomfortable when I have to choose between Arab and American ways of doing things.

YES   NO

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #23.

1	2	3	4	5
Not At All Stressful	*A Little Stressful*	*Somewhat Stressful*	*Very Stressful*	*Extremely Stressful*

23. I feel uncomfortable because my family does not know American ways of doing things. *YES*

NO

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #24.

1	2	3	4	5
Not At All Stressful	*A Little Stressful*	*Somewhat Stressful*	*Very Stressful*	*Extremely Stressful*

24. I feel uncomfortable when others expect me to know American ways of doing things. *YES   NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

If you answered NO, go to #25.

1	2	3	4	5
Not At All Stressful	*A Little Stressful*	*Somewhat Stressful*	*Very Stressful*	*Extremely Stressful*

25. I feel uncomfortable when others expect me to know Arab ways of doing things. *YES   NO*

If you answered YES, how stressful has this situation been <u>during the past 3 months</u>?

1	2	3	4	5
Not At All Stressful	*A Little Stressful*	*Somewhat Stressful*	*Very Stressful*	*Extremely Stress*

APPENDIX E
MSPSS (MOTHER)

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 disagree

       Circle the 2   if you are neutral

       Circle the 3   if you agree

	Disagree	Neutral	Agree
1. My husband is around when I am in need.	1	2	3
2. I can share my joys and sorrows with my husband.	1	2	3
3. My family (other than husband) really tries to help me.	1	2	3
4. I get the emotional help and support I need from my family (other than husband)	1	2	3
5. My husband is a real source of comfort to me.	1	2	3
6. My friends really try to help me.	1	2	3
7. I can count on my friends when things go wrong.	1	2	3
8. I can talk about my problems with my family (other than husband)	1	2	3
9. I have friends with whom I can share my joys and sorrows.	1	2	3
10. My husband cares about my feelings.	1	2	3
11. My family (other than husband) is willing to help me make decisions.	1	2	3
12. I can talk about my problems with my friends.	1	2	3

APPENDIX H
EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

In the past 7 days:

1. I have been able to laugh and see the funny side of things

- o   As much as I always could

- o   Not quite so much now

- o   Definitely not so much

- o   Now Not at all

2. I have looked forward with enjoyment to things

- o   As much as I ever did

- o   Rather less than I used to

- o   Definitely less than I used to

- o   Hardly at all

*3.I have blamed myself unnecessarily when things went wrong

- o   Yes, most of the time

- o   Yes, some of the time

- o   Not very often

- o   No, never

4. I have been anxious or worried for no good reason

- o   No not at all

o   Hardly ever

o   Yes, sometimes

o   Yes, very often

*5. I have felt scared or panicky for no very good reason

o   Yes, quite a lot

o   Yes, sometimes

o   No, not much

o   No, not at all

*6. Things have been getting on top of me

o   Yes, most of the time I haven't been able to cope at all

o   Yes, sometimes I haven't been coping as well as usual

o   No, most of the time I have coped quit well

o   No, I have been coping as well as ever

*7   I have been so unhappy that I have had difficulty sleeping

o   Yes, most of the time

o   Yes, sometimes

o   Not very often

o   No, not at all

*8 I have felt sad or miserable

o   Yes, some of the time

o   Yes, quite often

o   Not very often

o   No, not at all

*9. I have been so unhappy that I have been crying

- o   Yes, most of the time

- o   Yes, quite often

- o   Only occasionally

- o   No, never

*10 The thought of harming myself has occurred to me

- o   Yes, quite often

- o   Sometimes

- o   Hardly ever

- o   Never

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ABSTRACT

POSTPARTUM DEPRESSION AND ACCULTURATION AMONG U.S. IMMIGRANT WOMEN OF ARABIC DESCENT

by

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May 2017

Advisor: Dr. Carmen Giurgescu

Major: Nursing

Degree: Doctor of Philosophy

Purpose and Background/Significance: Postpartum depression (PPD) affects 12-20% of U.S. mothers. The PPD rates for women of Arabic descent are even higher (up to 37%). Higher acculturative stress and acculturation and lack of social support have been related to higher risk for PPD symptoms among immigrant women. No published research has investigated the relationship between acculturative stress, social support, and/ or acculturation and PPD symptoms among U.S. immigrant women of Arabic descent. Therefore, the purpose of this dissertation research was to examine the impact of acculturative stress, social support, and acculturation on PPD symptoms among these women. The specific aims of this study were:

Specific Aim 1. Examine the relationships among acculturative stress, social support, acculturation, and PPD symptoms among U.S. immigrant women of Arabic descent;

Specific Aim 2. Examine if social support moderates the associations between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent; and

Specific Aim 3. Examine if acculturation variables mediate the associations between acculturative stress and PPD symptoms among U.S. immigrant women of Arabic descent.

Theoretical/ conceptual framework: This study was guided by Berry's (1997)

Acculturation Framework which identified acculturation as the process of cultural and psychological change that results after contact between cultures. According to Berry, acculturation refers to the process of adapting and adjusting beliefs, behaviors, and values as a result of interacting with other cultural groups. There are four acculturation strategies: (a) integration, a strong identification and deep involvement with the host society with the desire to maintain the original ethnic identity and culture; (b) assimilation, a positive relation with the host society and relinquish of all ties to their own culture; (c) separation, the tendency to focus exclusively on maintaining individual's own cultural values and the practices of their ethnic group, with little or no desire to be a part of the host society; and (d) marginalization, the loss or absence of contact with both the culture of origin and that of the dominant society.

Method: Using a cross-sectional correlational descriptive design, a sample of 115 U.S. immigrant women of Arabic descent were enrolled from clinics in Dearborn, MI. Participants completed a demographic questionnaire, the Multi-dimensional Acculturative Stress Inventory, the Acculturation Rating Scale for Arabic Americans-II, the Multidimensional Scale of Perceived Social Support, and the Edinburgh Postnatal Depression Scale between 1-12 months postpartum. Data were analyzed using correlational and multiple linear regression analyses.

Results: Women had a mean age of 29±5 years and were 5±4 months postpartum. Women have been in the U.S. for 7±6 years and had a mean education of 12±4 years. The majority of women had an annual household income of less than \$40,000 (88%), were unemployed (80%), and preferred Arabic language for interview (68%).

Specific Aim 1: Higher levels of acculturative stress ($p = .003$) and lower levels of social support ($p < .0001$) predicted PPD symptoms while controlling for years of education, gestational age at birth, and antenatal anxiety. Using stepwise multiple linear regression analysis with all of the

variables in the equation to determine if acculturative stress, social support, and acculturation variables [attraction to American Culture (AAmC) , attraction to Arabic Culture (AArC), and marginalization) were predictors of PPD symptoms after controlling for covariates. In the optimal model, higher levels of education (p<.0001), higher reports of antenatal anxiety (p=.02), and lack of social support (p<.0001) predicted PPD symptoms. The model explained 50% of variance in PPD symptoms (R^2=.501, p<.0001 for the optimal model).

Specific Aim 2: Social support predicted PPD symptoms (p= .014). However, acculturative stress and the interaction term between acculturative stress and social support were not statistically significant. Thus, the moderating effect of social support on the association between acculturative stress and PPD symptoms was not supported.

Specific Aim 3: First we examined if acculturative stress predicted PPD symptoms. Acculturative stress was a significant predictor for PPD symptoms (p= .004). We then examined if acculturative stress predicted acculturation (AAmc, AArC and marginalization). Acculturative stress was a significant predictor for AAmC and AArC; however, acculturative stress did not predict marginalization, therefore marginalization was excluded from the mediation analysis. Next we examined if acculturation (AAmC and AArC) predicted PPD symptoms. AAmC and AArC did not predict PPD symptoms. We examined the mediating effect of AAmC and AArC on the association between acculturative stress and PPD symptoms. The mediation analysis was found not significant. Thus, the results of the study did not support the hypothesis that acculturation is a mediator on the association between acculturative stress and PPD symptoms.

Conclusions: Lack of social support, higher level of education, and antenatal anxiety predicted PPD symptoms in U.S. immigrant women of Arabic descent. Future research is needed to examine acculturative stress and acculturation among immigrant women of Arabic descent in

different settings. Longitudinal studies and utilizing diagnostic assessment of PPD is highly recommended. Nurses need to screen immigrant women for anxiety and depression during antenatal visits and develop evidence-based interventions targeted to improve social support and mental health during pregnancy and postpartum for these women.

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