

The Complex Roles of Acculturation and Religious Coping in Shaping Recovery
Experiences after Cardiac Events among Arab Individuals in Ottawa

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DEDICATION

The highest praise and sincere gratitude are dedicated to **Almighty Allah**, who granted me countless blessings, guidance and patience throughout this academic journey to complete my Ph.D. dissertation.

I dedicate my dissertation work with a special feeling of gratitude to **my beloved family, my parents, my wife, my brothers and sisters, and my children: M, A, and R,** without their love, sincere prayers, endless support and boundless patience, none of this would have been possible.

DISSERTATION ABSTRACT

Background: People from ethnic minority immigrant groups living in host countries are known to have higher risk factors for cardiovascular diseases. The role of acculturation, or assimilation into a different and dominant culture, is often studied from social and medical views when focusing on individuals diagnosed with cardiovascular diseases and their recovery after cardiac events. However, the effects of the complex roles of acculturation and religious coping on these individuals are rarely considered in the research. There is limited knowledge regarding the complex roles of acculturation and religious coping in adopting healthy lifestyle behaviours and managing stress among individuals with cardiovascular diseases from Arab communities in the Ottawa region. This research project's general purpose was to explore and understand the complex roles of acculturation and religious coping through the experiences of individuals diagnosed with CVD from Arab communities in the Ottawa region.

Objectives: The specific objectives were to 1) identify and understand the challenges among Arab immigrants related to acculturation and religiosity in adopting healthy lifestyle behaviours and managing stress; 2) measure and describe the levels of religious beliefs as well as religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among Arab individuals living in the region of Ottawa, Ontario, Canada who have been diagnosed with cardiac events or who are at high risk for cardiovascular diseases; and 3) explore the role of acculturation and religious coping in shaping male Arab individuals' lived experiences after a cardiac event and to explore their ways of understanding lifestyle behaviours and cardiac rehabilitation during recovery.

Methods: A mixed-method approach was adopted in this research, which included three separate studies: Study 1 was a qualitative study (views of key informants with first-hand knowledge) in which three face-to-face focus groups were conducted with 17 Arab health promoters; Study 2 was a cross-sectional survey study was conducted with 63 individuals from local Arab communities who had been diagnosed with cardiac events or who were at high risk for cardiovascular diseases; and Study 3 consisted of a phenomenographic qualitative study, semi-structured in-depth interviews with male Arab individuals (N=10), selected from Study 2, who identified themselves as having had cardiac events while living in Canada.

Results: From the perspective of Arab health promoters, there was an overlapping between various aspects of acculturation and religious beliefs that may have impacted the healthy lifestyle of Arab immigrants. These challenges were coded in four themes: “Culture first!”: dominant influence of home country culture; “Religiosity alone does not make you healthy!”: limited religious influence; “It is not easy!”: difficulties adapting to the Canadian lifestyle; and “We are not young!”: generational differences in adopting a healthy lifestyle. Findings from the survey study indicated that most participants were oriented more toward their Arabic culture than Canadian culture. Participants tended to be religious, and their nutritional behaviours were healthier than physical activity behaviours. However, age, gender, and interestingly, length of time living in Canada did not affect the participants’ results in any of the questionnaires. Based on lived experiences of 10 participants in the interview study, five core themes were identified: “Stressful events or cardiac events!”: acculturative stress effects; “It was a dreamlike event!”: dismissing perceptions of cardiac events; “recognizing risk factors is not enough to avoid them”: perceived threat; religious coping outcomes: satisfaction and fatalism; Cardiac Rehabilitation programs: who refers and who participates.

Conclusion: This dissertation showed that acculturation level plays an essential role in Arab immigrants’ beliefs and behaviours regarding their health status and their experiences in preventing cardiovascular diseases risk factors or in recovery after cardiac events. Religious coping seems to be a way for less acculturated Arab immigrants to manage stress and mental burdens and find internal peace and satisfaction. From the perspective of Arab health promoters, some religious or cultural beliefs may be barriers to engaging in physical activity, especially for women and older people, and these barriers may be exacerbated by acculturative stress. Religiosity may also play an essential indirect role in managing stress through socialization, family support, and the adoption of coping strategies. Arab individuals living in the region of Ottawa, Ontario, Canada, who have been diagnosed with cardiac events or who are at high risk for cardiovascular diseases may have been more religious and less acculturated in Canadian society. Their lifestyle health behaviours related to physical activity and nutrition may have been influenced by their health status, religious beliefs, and the practices or traditions of their culture of origin. Stress and mental burdens while living in Canada reflected negatively on Arab male individuals’ experiences with cardiac events. Stress was perceived as a potential cause of cardiac events and a factor leading to low self-efficacy in changing lifestyle behaviours. There is a need

to promote healthy lifestyle messages and raise awareness about cardiovascular diseases risk factors among Arab communities. Future research is needed to design culturally adapted cardiac rehabilitation programs for Arab individuals and to evaluate the effectiveness of interventions with both physical and mental health components.

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ABBREVIATIONS

AAMAS: Asian American Multidimensional Acculturation Scale

AHC: Arabic Health Coalition

BIAC: Belief into Action scale

Brief RCOPE: Religious Coping scale

CAHC: Canadian Arab Health Coalition

CR: Cardiac Rehabilitation

CVD: Cardiovascular Disease

HPLP-II: Health-Promoting Lifestyle Profile HPLP-II scale

PSS: Perceived Stress Scale

SEOCHC: South-East Ottawa Community Health Centre

DEFINITIONS

Acculturation: "The dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members." (Berry, 2005, p. 698)

Acculturative stress: "A stress reaction in response to life events that are rooted in the experience of acculturation." (Berry, 2006, p. 294)

Arab Communities: People of Arab ethnic, cultural and linguistic heritage or identity, who identify themselves as Arab and live in non-Arab countries. This would include, for example, the Arab Americans in the United States and North African, Lebanese, Iraqi or Egyptian communities in Canada.

Cardiac event: A term "used to denote the composite of a variety of adverse events related to the cardiovascular system." (Ye, 2013, p.331) This would include a heart attack, angina, and heart surgery.

Cardiac Rehabilitation: "The enhancement and maintenance of cardiovascular health through individualized programs designed to optimize physical, psychological, social, vocational and emotional status. This process includes the facilitation and delivery of secondary prevention through risk factor identification and modification in an effort to prevent disease progression and the recurrence of cardiac events." Canadian Guidelines for Cardiac Rehabilitation and Cardiovascular Disease. (Stone, Arthur, & Suskin, 2009: p.1)

Cardiovascular disease: "A term that refers to more than one disease of the circulatory system including the heart and blood vessels, whether the blood vessels are affecting the lungs, the brain, kidneys or other parts of the body." (Public Health Agency of Canada, 2017)

Ethnic minority immigrant groups: Similar to the visible minority groups to which the immigrant individual belongs. According to the Employment Equity Act, visible minority groups are defined as "persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour". (Statistics Canada, 2015)

Global North countries: A term that has been emerging to refer to what used to be called the "developed countries" in North America, Europe, Australia and some parts of Asia.

Home country: The country of origin for an immigrant (or his/her parents) who live in a host country.

Host country: The country that receive people who are not native to be residents or citizens.

Lifestyle Change Behaviours: A change in healthy or unhealthy habits that are related to food choices, activity level and other behaviours.

Religion: It could be defined as “a search for significance in ways related to the sacred” (Pargament, 1997, p.32), or a multidimensional constructed organized system of life with components of beliefs, practices, rituals and symbols (Koenig et al., 2012). It is a dynamic process in which the sacred or significance becomes the target of people who pursue religions in different ways to achieve these ends. (Abu-Raiya & Pargament, 2012)

Religiosity: The social description of the commitment to a religious system.

Religious coping: In the literature, religious coping methods are known as “ways of understanding and dealing with negative life events that are related to the sacred” (Pargament & Abu-Raiya, 2007, p. 743). However, it could be defined, from a proactive and empowering language point of view, as managing based on religious beliefs.

Spirituality: A religious dimension closely related to religion and religious practice, but in form of personal experience that refers to an inner life rather than social experiences of religion that manifests in groups setting (Wrigley & LaGory, 1994). Spirituality is also defined from a non religious view as an aspect of humanity that expresses the connection with self, others, nature or higher power in different ways to find and give meaning and purpose to life. (Nadarajah et al., 2013; Oakley et al., 2010; Sargeant & Newsham, 2012)

CHAPTER 1: INTRODUCTION

Medical, surgical, and therapeutic interventions attempt to optimize people's health after health-related problems. However, these different interventions cannot be effective without also taking into account psychological, social, and behavioural factors. These factors include the roles of culture and religiosity. Even though these factors are often overlooked, religious coping can, however, provide a source of support and well-being, and can strongly influence some peoples' lives, including their perceptions and beliefs towards health and disease. Religious coping often plays a role in improving health status, depending on how people define and believe in religious issues and to what level they are committed or connected to these concepts in their lives. In this context, people's physical and mental responses to health conditions, including cardiovascular disease (CVD), are influenced by religious coping in various ways that affect risk factors and levels, acute events, recovery, and rehabilitation time. The impact of religiosity may also involve lifestyle changes that are primary factors in helping individuals diagnosed with CVD return to their normal daily life activities.

Many people from ethnic minority immigrant groups living in host countries have higher risk factors for CVD (Dassanayake et al., 2011), as their cultural backgrounds and lifestyles in their home countries often lead to acculturative stress and a high prevalence of unhealthy behaviours and CVD risk factors. For this reason, acculturation or assimilation into a different and dominant culture is often studied from social and medical views when focusing on individuals diagnosed with CVD and their recovery after cardiac events. However, the effects of the complex roles of acculturation and religious coping on these individuals are rarely considered in the research, and therefore I have aimed to explore and understand the complex roles of

acculturation and religious coping through the experiences of individuals diagnosed with CVD from Arab communities in the region of Ottawa.

I studied the roles of acculturation and religious coping in adopting lifestyle change behaviours and managing stress after cardiac events through a mixed-method approach. This involved the use of three separate studies, as follows. Study 1 was a qualitative study that focused on understanding the challenges related to acculturation and religiosity in adopting healthy lifestyle behaviours and managing stress among Arab immigrants from the perspective of key informants who had the most extensive expertise in the targeted research area. Based on the findings from Study 1, Study 2 aimed to quantitatively measure and describe the levels of religious belief, religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among Arab people diagnosed with cardiac events or who were at high risk for CVD. Finally, Study 3, through the use of qualitative interviews, expanded upon individuals' experiences to generate new knowledge about the roles of acculturation and religious coping in shaping male Arab individuals' lived experiences after cardiac events and to explore their ways of understanding lifestyle change behaviours and cardiac rehabilitation (CR) during recovery.

This research was conducted in community settings, cooperating with the Canadian Arab Health Coalition (CAHC) and the South-East Ottawa Community Health Centre (SEOCHC). To inform practice and CR providers in the future, exploring the experiences of Arab individuals diagnosed with CVD will help in understanding their lifestyle behaviours and stress management strategies after cardiac events and in identifying the roles of acculturation and religious coping as factors influencing recovery among male individuals from Arab communities.

This chapter provides a background to the general research topic, including key literature related to the research concepts, as well as a problem statement and a description of the methodological framework used to guide this dissertation.

Researcher Background and Assumptions

In this dissertation, my Middle Eastern cultural affiliation can influence my perspective on religiosity and its role in health care. Like many Arab people, I believe that perceptions related to illness, pain, diagnosis, therapy, and healing are influenced by religious beliefs and coping. This belief is an essential dimension of my personal experience that relies on religion, either with or without a clear understanding of how faith often impacts health status. I firmly believe that it is impossible to separate spirituality and religiosity and that they are two sides of the same coin, as a strong affiliation to religion can lead to spirituality and vice versa. Based on that, I use religiosity or religious terms throughout this dissertation to indicate the similar meaning of religiosity or spirituality (Koenig, 2012).

As a physical therapist with a background different than that of European-descended Canadians, I feel that some immigrants in the local Arab community in Ottawa are not always aware of their CVD risk factors and may not recognize potential complications as a result of not adopting healthy behaviours. In personal conversations with members of the Arab community, I heard that one community member was not satisfied with his lifestyle changes after an acute cardiac event, while another could not adhere to CR sessions after a heart attack because he found them annoying and inappropriate for his age. I also heard that some others had been re-hospitalized because of recurrent cardiac events. Such situations include both men and women, but their stories need to be explored in women's cases particularly, since women from the Arabic culture may not share their experiences spontaneously with men who are not family members.

There is a low level of physical activity among Arab people compared to the general population or other ethnic minority groups, but they have similar levels of high-risk behaviours and practices as other groups such as sedentary behaviours, physical inactivity, smoking, and poor diets, which can potentially lead to chronic diseases. Some of these behaviours have been indicated in the literature on Arab people in host countries, but it is still unclear whether these behaviours are reproduced from or influenced by religious or cultural perspectives.

To avoid researcher bias, I relied on my thesis proposal as a reference and a guideline to address all the details in this research. Before collecting data, I discussed all focus group and interview questions with my supervisor and tested these questions in advance in order to avoid leading questions and wording biases. During the data collection, I considered, recorded, and transcribed all responses word for word in addition to taking note of the participants' impressions to minimize potential confirmation bias and pre-existing assumptions. While I was the only researcher in this study, which is a potential limitation, I tried to minimize confirmation bias when analyzing data by checking the findings with the focus group and interview participants.

Background Literature - Concepts

Lifestyle Behaviours and Cardiovascular Diseases

CVDs are considered the primary cause of morbidity and mortality globally (Mozaffarian et al., 2016), as the World Health Organization [WHO] (2017) has estimated that CVDs represent the leading annual cause of 17 million deaths globally. Primary and secondary prevention in CR programs focuses on healthy lifestyle behaviours and managing stress to prevent CVD. According to the World Health Organisation, "a healthy lifestyle is a way of living that lowers the risk of being seriously ill or dying early" (WHO, 1999). In Canada, the CVD rate is remarkable, with heart diseases being the second-leading cause of death (Statistics Canada,

2020). Approximately one deadly event related to heart disease occurs roughly every 7 minutes in Canada (Statistics Canada, 2011). Although mortality rates are high, the most important behavioural risk factors for CVD are either preventable or modifiable. Healthy behaviours can significantly reduce the risk of CVD overall, especially by lowering systolic blood pressure (Deijle et al., 2017), by adhering to a healthy lifestyle, including physical activity, a healthy diet, low or moderate alcohol consumption, and smoking cessation (Barbaresko et al., 2018; Lacombe et al., 2019; Priano et al., 2018). Almost 80% of premature heart disease could be prevented through maintaining healthy lifestyle behaviours (Heart and Stroke Foundation, 2017).

Stress is often a hidden risk factor that leads to various negative health consequences, including heart diseases (Bailey Merz et al., 2002; Smaardijk et al., 2019; Walton et al., 2002) in particular through the mutual influence of unhealthy behaviours (Al Wekhian, 2016; Kivimäki & Steptoe, 2018; Orth-Gomér et al., 2005; Steffen et al., 2006). Besides these modifiable risk factors, however, age, sex, family history of premature CVD, and ethnic origin are considered non-modifiable risk factors (Mancini et al., 2014). Despite the importance of adopting healthy lifestyle behaviours to prevent risk factors leading to CVD, people from ethnic minority immigrant groups in many countries in the Global North, such as Canada, find some difficulties in adopting healthy lifestyle behaviours (Caperchione et al., 2009; Patel et al., 2017).

Acculturation and Cardiovascular Disease Risk Factors

Acculturation depends on the interaction between various factors that belong to one's personal characteristics and group culture (Berry, 1997). People from ethnic minority immigrant groups often face additional challenges in accepting host country lifestyles regarding identity, communication skills, and making friends (Berry, 2005). These challenges may be related to the explicit distinctions between host and home cultures. According to Hofstede's cultural

dimensions and differences across cultures (2005), people from ethnic minority immigrant groups often come from countries generally categorized as having collectivistic cultures, while most host countries are categorized as individualistic cultures. These differences across cultures may reflect on immigrants' acculturations process when immigrants move from a society with a more social or collectivistic values culture to another one with a dominant self or individualistic values culture. It is evident that acculturation level is reflected in some immigrants groups' mental health status (Guo & Stensland, 2018), as seen in smoking behaviours (Choi S et al., 2008; Gotay et al., 2015) and unhealthy weight gain (Delavari et al., 2013). It also plays a role in shaping immigrants' awareness of non-communicable disease risk factors and recovery, such as with breast cancer (Hurtado-de-Mendoza et al., 2014; Wen et al., 2014) and CVD (Jin et al., 2015). The prevalence of CVD risk factors often differs from one ethnic immigrant group to another based on the culture in their countries of origin and their acculturation level in host countries (Liu et al., 2010).

The degree of adoption of a host country's attitudes, values, customs, beliefs, and behaviours often differs among immigrants based on their cultures, identities, and acculturation levels (Abraido-Lanza et al., 2006). Being less acculturated may be associated with more negative health beliefs and perceptions towards CVD prevention, as less acculturated patients have been found to have a greater fear of CVD, higher perceived susceptibility to disease, and a greater expectation of getting CVD (Edelman et al., 2009). These challenges for immigrants in accepting Western lifestyles often lead to acculturative stress: "a stress reaction in response to life events that are rooted in the experience of acculturation" (Berry, 2006). In addition to the cultural backgrounds and lifestyles in their countries of origin, acculturative stress in many immigrant groups often leads to a high prevalence of unhealthy behaviours and risk factors for

CVD (Gadd et al., 2005), and as a result, this stress and new life burdens often negatively reflect immigrants' physical and mental health status. However, culture is not the only factor impacting adopting healthy lifestyle behaviours and stress management among people from ethnic immigrant groups; religiosity often plays a similar role in immigrant patients' life experiences with CVD (Davidson et al., 2007).

Importance of Religiosity for Health

It is not surprising that many people find support and solutions to their problems through religiosity, religious involvement, and religious beliefs and rituals, despite struggles related to religious issues (Abu-Raiya et al., 2016; Townsend et al., 2002). In this context, religious involvement is associated directly with positive health outcomes, including decreased mortality, decreased physical and mental illness, and improved health-related quality of life and ability to cope with illness (Koenig, 2015; Koenig et al., 2012; Lucchetti et al., 2011; Masters & Hooker, 2013; Townsend et al., 2002). The use of religion as a coping strategy is adopted by some people experiencing stressors as a valuable way to deal with stressful situations related to mental and physical illness (Koenig et al., 2001; Pargament & Abu-Raiya, 2007). A turn to religion for comfort when coping with severe or chronic health problems is often acceptable when individuals are older, and it has been noted that the commitment to religious beliefs and involvement in religious practices increases with age (Koenig, 2004). Based on this relationship between religiosity and age, religious beliefs and practices have to be considered in order to facilitate recovery from illness (Mueller et al., 2001) and improve the health care outcomes and quality of life and well-being of individuals diagnosed with chronic diseases (Bai & Lazenby, 2015).

Religious Coping and Cardiovascular Disease Risk Factors

The indirect influence of religiosity on recovery from CVD-related events is often seen from psychological, social, or behavioural viewpoints in mental and emotional processes (Masters & Hooker, 2013). Religious coping often helps provide a sense of meaning and purpose in people's lives (Bai & Lazenby, 2015), motivating them to maintain their mental and physical health when adopting healthy lifestyle behaviours (Park, 2007). The power of religiosity to promote a healthy lifestyle and prevent risk factors is often seen as an active coping resource for individuals diagnosed with CVD and a less active resource for healthy people in order to prevent illness (Powell et al., 2003). Religiosity may often be used as a coping method for individuals diagnosed with heart failure in order to find peace and a sense of more profound meaning, and for people to accept their inability to control everything in their lives (Naghi et al., 2012).

In this context, some studies have found lower levels of psychological stress associated with a greater level of religiosity among individuals diagnosed with CVD (Lucchese & Koenig, 2013) when facing various stressful situations (Koenig, 2012). In this case, people's health behaviour practices will be influenced by religiosity through lower psychological stress levels and greater social support (Park et al., 2017). Individuals who are more religious experience significant reductions in stress, depression, and symptom burdens (Naghi et al., 2012) in addition to higher levels of well-being, happiness, or life satisfaction, with more positive emotions that predict a reduced risk of CVD (Lucchese & Koenig, 2013). In the same context, a high level of religiosity often reflects positively on social support for individuals diagnosed with CVD. The most common social support source for religious individuals, after family support, comes from members of religious organizations (Koenig, 2012).

Religiosity can be an effective means of promoting a healthier lifestyle and adopting healthy behaviours (Park et al., 2017). This is often related to religious doctrines that discourage behaviours that harm the body, such as smoking, drinking alcohol, unhealthy diets, and physical inactivity (Koenig, 2012; Lucchese & Koenig, 2013). From this perspective and based on the evident linkage between preventive health behaviours and religiosity (Park et al., 2017), it is possible to adopt preventive interventions in CVD based on concepts inspired by religion. Through a scoping review of 10 studies, Valenti and colleagues (2014) found that religiosity is significantly associated with the cardiovascular system in the prevention or treatment of CVD as well as cardiac surgery recovery, and they proposed religion-based prevention interventions as a complementary and non-pharmacological method of therapy (Valenti et al., 2014).

Religious Coping and Cardiac Rehabilitation

In rehabilitation settings, CR outcomes and functional recovery may be influenced by religiosity as a psychosocial factor that often has an impact on functional recovery following CVD events such as heart attacks (Martin & Levy, 2006) and heart surgery outcomes (Contrada et al., 2004). For this reason, it is recommended, especially in lower-resource settings, to focus on the core components related to lifestyle and behaviour elements, and to establish sensitive CR programmes that take into consideration the religious and cultural contexts of individuals (Grace et al., 2016). The indirect influence of religiosity on individuals' rehabilitative experiences has been investigated through various psychological, social and behavioural aspects (Koenig, 2011). In this context, religious coping often leads to an improvement in self-efficacy, well-being, quality of life (Nadarajah et al., 2013), lifestyle changes, adherence to recommended practices (Trevino & McConnell, 2015), and reduction of stress (Johnstone & Yoon, 2009).

Cardiac Rehabilitation and Immigrant Participation

The ethnic backgrounds of individuals are rarely considered in CR studies (Oldridge, 2012). In Canada and the United States, the participation of individuals from ethnic minority immigrant groups in CR programmes is still much lower than expected (Midence et al., 2014). In their study, Midence and colleagues (2014) linked this lack of participation with some communication barriers as well as education, culture, or religious beliefs. In their systematic review and meta-analysis, Sun, Jadotte, and Halperin (2017) identified significant sociodemographic disparities in CR participation in the United States among older individuals, women, and individuals with less education, as well as unemployed and uninsured individuals. In a study by Sun et al. (2017), the factor of "race" (including ethnicity) was not significantly associated with outpatient CR attendance, while another retrospective study found that individuals from ethnic minority immigrant groups in New York City, U.S.A., were less likely to initiate CR, especially those with less insurance coverage (Zhang et al., 2017).

Risk Factors for CVD among Arab Immigrants

In addition to different immigrant groups having an increased prevalence of CVD and associated risk factors, Arab populations in host countries are particularly affected (Abuelezam et al., 2018; El-Sayed & Galea, 2009; Hatahet et al., 2002), and so far, few studies have been conducted regarding CVD, potential risk factors, and preventive behaviours among this group (Suwaidi, 2016).

In the United States, two studies have synthesized the literature on Arab-Americans' health. In the first, Yosef (2008) reviewed studies related to the health of Arab Muslims in the United States, and he found an increased risk for several ailments, such as heart disease, diabetes, and cancer (Yosef, 2008). Later, El-Sayed and Galea (2009) synthesized the literature

related to the health of Arab-Americans living in the United States, and although they found a similarity between this population and the general population in determinants of common morbidities, they highlighted evidence showing that acculturation, immigration, and discrimination-associated stress are potential causes of CVD, diabetes, and mental illness, especially for those who were born abroad.

Some preliminary work has been carried out in some locations in the United States to evaluate the prevalence of CVD risk factors among Arab Americans. For example, in order to evaluate the prevalence of CVD risk factors and associated behavioural factors in 352 participants from Arab Americans in southeastern Michigan, Hatahet, Khosla, and Fungwe (2002) found that several CVD risk factors, including obesity and physical inactivity, were associated with differences in gender and age (Hatahet et al., 2002). Similar findings were reported among Arab Americans in southeastern Louisiana that reflected a prevalence for CVD and hypertension at lower ages than the general population (Al-Dahir et al., 2013). Another cross-sectional study from southern California with 353 participants from Arab communities showed a higher proportion of CVD risk factors in this group than in the general population, especially in health behaviours related to physical activity and tobacco use (Qahoush, 2006).

In the same context, CVD risk factors were evaluated by Qahoush et al. (2010) in a sample of 180 Arab women in southern California, and the study indicated that significant risk factors in this group were physical inactivity and low self-efficacy. Also in southern California, Tailakh and colleagues (2013) reported higher rates of hypertension and prehypertension among Arab people with lower levels of awareness, treatment, and control of hypertension rates than the national rates overall (Tailakh et al., 2013). Another cross-sectional descriptive study by Tailakh et al. (2016) examined the relationship between lifestyle behaviours, including physical activity,

nutrition, and weight control, and acculturation, medication adherence, and blood pressure control among hypertensive Arab Americans, and a significant direct relationship was found between levels of acculturation and adherence to medications and physical activity and blood pressure control. Likewise, a higher prevalence of high cholesterol and lower prevalence of diabetes and hypertension than the general population were reported among Arab Americans living in Washington, D.C., Virginia, and Maryland (Shara et al., 2010). The prevalence of smoking among Arab immigrants living in Colorado was found to be higher than the state average, with their use of tobacco products being almost double that of the general population (El Hajj et al., 2017), while another cross-sectional exploratory study with Arab Americans reported a positive relationship between acculturation and tobacco use (Al-Omari & Scheibmeir, 2009).

In the same context, a prevalence of CVD risk factors among Arab immigrants has been reported in other host countries. In central London in the United Kingdom, for example, one study found that smoking waterpipes as a habit was more likely to be associated with Arab male adults (Kassim et al., 2014). Within the Canadian context, however, there is a limited knowledge base regarding CVD risk factors and preventive behaviours among Arab communities. Even so, based on data from the Canadian Community Health Survey (reported in 2000, 2003, and 2005), respondents of Arabic ethnicity were not greatly different from the general population in the prevalence of CVD risk factors, although they were more likely to smoke and to be obese than respondents from the general population (Liu et al., 2010). Also, data from the 2013 Canadian Community and Health Survey showed that Arab men were among the visible minority groups at higher risk of developing diabetes because of their unhealthy lifestyles, including heavy smoking (Tenkorang, 2017).

In brief, while these studies highlight the risk factors for CVD among Arab people in the Western context, up to this point, no studies have primarily investigated the concept of religiosity and its role in CVD prevalence, risk factors, or prevention among individuals from Arab communities in countries in the Global North. Only Yosef's (2008) review study has focused on the Islamic religion's cultural influences on health and health-related behaviours. He reviewed studies related to the health of Arab Muslims in the United States who faced some barriers related to religiosity (modesty, gender preference, and illness-causation misconceptions) in preventing, detecting, and treating diseases such as CVD (Yosef, 2008).

Problem Statement

Cultural background and religiosity become important factors in the process of recovery from illness and surgery in helping individuals cope positively with health conditions, disease, pain, and life stress as a part of a patient-centred care approach (Puchalski, 2001; Sargeant & Newsham, 2012; Whitley & Drake, 2010). Despite this known importance of religiosity and cultural background, however, secondary CR prevention programs rarely consider individuals' cultural backgrounds and religiosity when supporting individuals trying to make changes in their lifestyles, including adopting healthy lifestyle behaviours. Therefore, it could be crucial to consider religious and cultural beliefs in the life experiences of individuals from ethnic minority immigrant groups who are diagnosed with CVD (Davidson et al., 2007). Such individuals believe in the importance of religiosity, even if they do not understand how religiosity impacts their health (Townsend et al., 2002).

In comparing the morbidity and mortality rates of CVD between people from ethnic minority immigrant groups and the general populations in various countries, the risk is higher in many of the immigrant communities (Dassanayake et al., 2011), and their lack of awareness of

CVD risk factors is more prevalent (Langellier et al., 2012). However, this differs from one host country to another and from one immigrant group to another, and in Canada, the prevalence of CVD risk factors varies across minority immigrant groups (Liu et al., 2010). The impact of medical problems, age, stress, unemployment, and other challenges related to immersion in the host culture and lifestyle often reflects negatively on people's health status in ethnic minority immigrant groups (Ng et al., 2005). This impact often appears through an increasing rate of 30% of leading cardiovascular events, such as heart attacks, among individuals from ethnic minority immigrant groups who are long-term residents in Canada (Tu et al., 2015). For example, the adverse impact on the health status of different groups of ethnic minority immigrants, including Arab communities, during the time that they have lived in Ontario, have been possibly linked to variations in their physical activity levels, health care access, cultural differences in health-seeking behaviours, and other factors (Tu et al., 2015). People from ethnic minority immigrant groups have higher risk factors, including lower physical activity levels and fewer health gains, than the general population (Jolly et al., 2007).

Despite the importance of cultural background and religiosity for Arab people (Amer & Kayyali, 2015), the complex roles of acculturation and religious coping in shaping the experiences of individuals with CVD have only been slightly studied. Therefore, exploring and understanding these complex roles in managing stress and lifestyle change behaviours can help in understanding the nature of coping strategies and the lived experiences of Arab individuals during and after cardiac events. Up to this point, the role of acculturation and religious coping has rarely been addressed in secondary prevention and CR from the perspective of individuals diagnosed with CVD from Arab communities, and there are few data available on the roles of acculturation and religious coping in recovery, stress management, self-efficacy, lifestyle

changes, and adherence to recommended practices for individuals in CR programs. The current research project's general purpose was to explore and understand the nature of the complex roles of acculturation and religious coping in shaping recovery experiences after cardiac events among Arab individuals living in the Ottawa area. The specific objectives were:

- 1) To identify and understand the challenges related to acculturation and religiosity in adopting healthy lifestyle behaviours and managing stress among Arab immigrants
- 2) To measure and describe the levels of religious belief and coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among Arab people diagnosed with cardiac events or who are at high risk for CVD
- 3) To explore and understand the roles of acculturation and religious coping in shaping male Arab individuals' lived experiences after cardiac events, and to explore their ways of understanding lifestyle change behaviours and CR during recovery

Methodology

This dissertation aimed to explore issues related to the nature of the complex roles of acculturation and religious coping in shaping recovery experiences after cardiac events among Arab individuals living in the Ottawa area. To reach this goal, I used a mixed-methods approach with a convergent triangulation design in an exploratory sequential pattern (Creswell et al., 2011; Klassen et al., 2012; O’Cathain, 2010), incorporating elements of transformative design (Mertens, 2007; Mertens et al., 2010; Stewart et al., 2008). The convergent triangulation design helped in collecting and analyzing discrete data on the same phenomenon in order to get convergent results in the interpretation phase (Creswell & Clark, 2007). In this dissertation’s conceptual framework (See Figure 1.1), no single methodological approach (quantitative or

qualitative) could alone develop multiple perspectives and a global understanding of the general phenomenon of interest.

Creswell and colleagues (2011) believed that quantitative and qualitative perspectives have to be merged in a mixed-methods design in order to “develop a complete understanding of a problem; to develop a complementary picture; to compare, validate, or triangulate results” (Creswell et al., 2011). Using a triangulation design for multiple data sources during data collection and analysis will reduce researcher bias and contribute to the trustworthiness of the findings generated from the three studies about the phenomenon under investigation (Creswell et al., 2011; Creswell & Clark, 2007; Klassen et al., 2012). From this perspective, I built the conceptual framework by first using a qualitative component informed by key individuals who belonged to the same community, and then a quantitative part followed by a qualitative one with individuals from the Arab community.

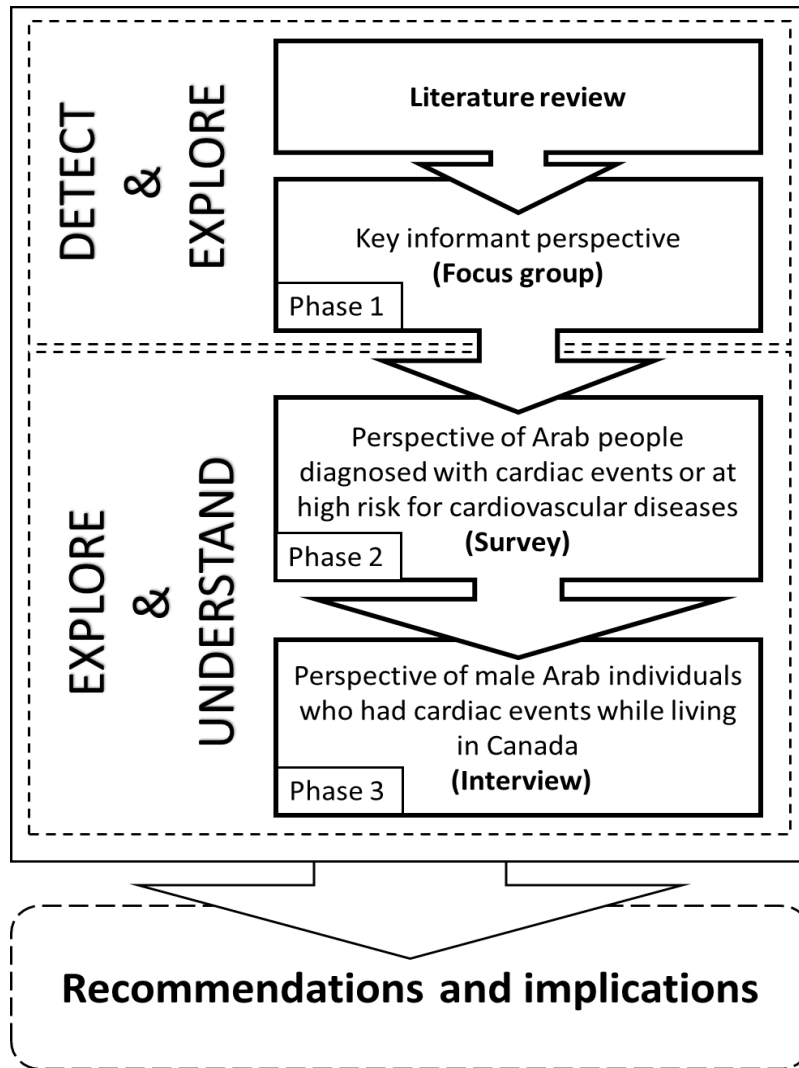


Figure 1.1 Conceptual framework

Based on this design, there were three separate studies whose interpreted data informed my understanding of the nature of the complex roles of acculturation and religious coping in shaping recovery experiences after cardiac events among Arab individuals living in the Ottawa area. In this article-based dissertation, Study 1 was a qualitative focus group study that followed an interpretive description approach (Thorne et al., 1997). Then, a quantitative study (cross-sectional survey) that used a descriptive observational approach was followed by a qualitative study (in-person interviews) with a phenomenographic approach (Marton, 1981). (See Table 1.1)

Focus Group Study (Chapter 2)

In Chapter 2, the focus group study will be discussed in more detail. This study relied on Arab health promoters' perspectives as experts with first-hand knowledge in health promotion among Arab communities in Ottawa. I used focus group discussions with a semi-structured approach along with an interpretive description approach (Thorne et al., 1997). This qualitative study built an interpretive understanding of the behavioural processes of Arab immigrants in order to describe the key informants' perspectives about the challenges related to acculturation and religiosity for adopting healthy lifestyle behaviours. The findings from this study generated knowledge that informed the following two studies.

Survey Study (Chapter 3)

In Chapter 3, the cross-sectional survey study will be discussed in more detail. In this study, a cross-sectional survey was conducted with individuals from local Arab communities who had been diagnosed with cardiac events or who were at high risk for CVD. A sociodemographic questionnaire and five validated questionnaires were used to evaluate the levels of acculturation and religious beliefs, as well as coping strategies, perceived stress, and healthy lifestyle behaviours. All sociodemographic information was analyzed using descriptive statistical analysis. In this study, all participants were invited to be part of another follow-up qualitative interview study.

Interview Study (Chapter 4)

In Chapter 4, the interview study will be discussed in more detail. This study focused on the experiences of male individuals diagnosed with CVD from Arab communities living in the Ottawa region who identified themselves as having had cardiac events while living in Canada. These male individuals had already participated in the previous study. I followed a

phenomenographic approach (Marton, 1981) in order to explore and understand the roles of acculturation and religious coping in shaping male Arab individuals' lived experiences after cardiac events and to explore their ways of understanding lifestyle change behaviours and CR during recovery. I used an inductive thematic analysis approach to identify themes.

Conclusion

In this chapter, I have presented a preliminary review to identify literature related to the dissertation topic and the methodology for the entire dissertation. Each of the following three chapters will discuss individual studies, and each chapter will start with a literature review and background section, followed by the methodology section for that study. Chapter 5 will summarize the three dissertation studies' findings with an integrated general discussion of those findings. As well, in Chapter 5 I will present the strengths and limitations of the dissertation in addition to recommendations and implications for future research.

Table 1.1 Research design: mixed method of three studies

	Qualitative Study 1 (Chapter 2)	Quantitative Study 2 (Chapter 3)	Qualitative Study 3 (Chapter 4)
Research Approach	Interpretive description approach (Thorne et al., 1997)	Descriptive observational	Phenomenographic approach (Marton, 1981)
Objective	To identify and understand the challenges among Arab immigrants related to acculturation and religiosity in adopting healthy lifestyle behaviours and managing stress	To measure and describe the levels of religious beliefs as well as religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among Arab individuals living in the region of Ottawa, Ontario, Canada who have been diagnosed with cardiac events or who are at high risk for cardiovascular diseases	To explore and understand the role of acculturation and religious coping in shaping male Arab individuals' lived experiences after cardiac events and to explore their ways of understanding lifestyle change behaviours and CR during recovery
Research questions	<ol style="list-style-type: none"> 1. How do Arab immigrants consider healthy lifestyle behaviours and stress management in order to prevent CVD in the Canadian context? 2. What is the perceived relationship between the identified coping strategies and acculturation and religiosity? 	<ol style="list-style-type: none"> 1. What are the levels of religious beliefs and religious coping strategies (positive and negative religious coping and religious involvement), acculturation, perceived stress, and healthy lifestyle behaviours (physical activity and nutrition) among the target group? 2. What are the sociodemographic factors associated with these potential findings? 	<p>What are the conceptions of lifestyle change behaviours and stress management held by male Arab individuals diagnosed with CVD and had cardiac events? Sub-questions:</p> <ul style="list-style-type: none"> • What are the possible relationships between acculturation and recovery from cardiac events? • What are the possible relationships between religious coping and recovery from cardiac events? • How do cardiac events impact lifestyle change behaviours and stress management? • What is the position of CR in the recovery process after cardiac events?
Participants	Arab community health promoters (members of the Canadian Arab Health Coalition)	Arab individuals diagnosed with cardiac events or at high risk for CVD living in the region of Ottawa, Ontario, Canada	
Sampling	Purposive (expert sampling)	Purposive	Purposive
Data collection	Focus groups	Questionnaire- cross-sectional survey	In-person interviews
Data analysis	Coding and thematic analysis	Descriptive statistical analysis	Coding and thematic analysis

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**Arab Health Promoters' Perspectives on Religious/Cultural Challenges to Adopt
Healthy Lifestyle Behaviours among Arab Immigrants in Canada**

(Focus group study)

This manuscript meets the guidelines for the journal Qualitative Report where it was submitted in November 2019. It has been resubmitted according to reviewer comments, and it is accepted in May 2021

CHAPTER 2: FOCUS GROUP STUDY

Abstract

Background: Adopting healthy lifestyle behaviours and managing stress is the target of primary and secondary prevention in cardiac rehabilitation programs. Unfortunately, however, Arab immigrants to North America tend to have higher levels of risk factors for cardiovascular diseases, and despite the importance of faith and cultural background in Arab immigrants' lives, little is known about their role in preventing cardiovascular diseases among this group.

Objective: To identify and understand the challenges among Arab immigrants related to acculturation and religiosity in adopting healthy lifestyle behaviours and managing stress.

Method: Three face-to-face focus groups were conducted with 17 Arab community health promoters who were members of the Canadian Arab Health Coalition. Averaging 80 minutes in length, the focus groups were conducted in Ottawa, Canada, in February and March 2018. Transcripts were analyzed with an inductive thematic analysis approach in order to identify themes.

Results: The focus group participants shared both their work experiences as community health promoters in the Arab community and their personal experiences as Arab individuals living in Canada. Data were coded into four themes: "Culture first!": dominant influence of home country culture; "Religiosity alone does not make you healthy!": limited religious influence; "It is not easy!": difficulties adapting to the Canadian lifestyle; and "We are not young!": generational differences in adopting a healthy lifestyle.

Conclusions: Some religious or cultural beliefs may be barriers to practicing physical activity, especially for women and older people. These barriers may be augmented with acculturative stress. Religiosity may also play an important indirect role in managing stress through socialization, family support, and the adoption of coping strategies. Younger people in Arabic communities appear to be more flexible in dealing with these religious/cultural issues. To further explore and expand on these findings from patients' perspectives, follow-up studies are currently being conducted.

Keywords: Arab Immigrants, Culture, Lifestyle Behaviours, Qualitative Research, Religiosity, Health Promotion

This study relied on Arab health promoters' perspectives as experts with first-hand knowledge in health promotion among Arab communities in Ottawa. In this study. This qualitative study built an interpretive understanding of the behavioural process of Arab immigrants in order to describe the key informants' perspectives about challenges related to acculturation and religiosity in adopting healthy lifestyle behaviours among Arab immigrants.

Introduction

Despite the importance of adopting healthy lifestyle behaviours, such as increasing physical activity, and managing stress to prevent risk factors leading to CVD (Sisti et al., 2018), people from ethnic immigrant groups in many Global North countries, such as Canada, experience some difficulty in adopting such behaviours (Caperchione et al., 2009; Patel et al., 2017). For some ethnic immigrant groups, these challenges may be related to their countries of origin (Sohail et al., 2015) where CVD and other non-communicable diseases are increasing (WHO, 2010), or to the stress of migration and acculturation into new social and cultural environments (Gadd et al., 2005). The nature of the acculturation experience depends on the interaction between various factors that may belong to personal characteristics and group culture (Berry, 1997). The value of health maintenance and disease prevention through physical activity may differ from one ethnic immigrant group to another based on the culture in their countries of origin and their acculturation level in host countries (Liu et al., 2010).

Being less acculturated may be associated with negative health beliefs and perceptions towards CVD prevention, as less acculturated patients have been found to have

a greater fear of CVD, higher perceived susceptibility to disease, and a greater expectation of getting CVD in their lifetimes (Edelman et al., 2009). Difficulties for immigrants in accepting Western lifestyles may lead to acculturative stress: “a stress reaction in response to life events that are rooted in the experience of acculturation” (Berry, 2006).

Acculturative stress, in addition to cultural backgrounds and lifestyles in immigrants’ original countries, may lead to a high prevalence of unhealthy behaviours and risk factors for CVD in many immigrant groups (Gadd et al., 2005). This stress and the new life burdens may be reflected negatively in immigrants’ physical and mental health status. However, culture is not the only factor impacting the adoption of healthy lifestyle behaviours and stress management among people from ethnic immigrant groups; religiosity may play a similar role in immigrant patients’ life experiences with CVD (Davidson et al., 2007).

Religiosity may be a potential coping method for patients with heart failure in attempts to find peace and a sense of deeper meaning in their lives and to accept their inability to control all things (Naghi et al., 2012). For this reason, some studies have found that lower levels of psychological stress are associated with a greater level of religiosity among patients with CVD (Lucchese & Koenig, 2013) when facing stressful situations (Koenig, 2012). In this case, health behaviour practices will be influenced by religiosity through reduced psychological stress levels and social support (Park et al., 2017). Patients who are more religious experience significant reductions in stress, depression, and symptom burdens (Naghi et al., 2012), in addition to higher levels of well-being, happiness, or life satisfaction with more positive emotions that predict a reduced risk of CVD (Lucchese & Koenig, 2013). In the same context, living with a high level of religiosity may

positively reflect on the social support for patients with CVD, as the most common source of social support for patients after family support comes from religious organizations (Koenig, 2012). Religiosity is also seen as an effective means to promote healthier lifestyles and adopt healthy behaviours (Park et al., 2017).

On the other hand, while the prevalence of CVD risk factors among Arab immigrants may not be much different from the general population, Arab immigrants are more likely to smoke and be obese than their host country's general population (Liu et al., 2010), as many Arab countries have very high levels of physical inactivity, unhealthy diets, and obesity (Rahim et al., 2014). Few studies have been conducted about CVD and its potential risk factors and preventive behaviours among Arab people in host countries (Suwaidi, 2016), and in most studies, greater attention has been given to Arab people living in the United States by comparing their morbidity or mortality rates to those of the general population or other minority groups. From these studies, it has been found that Arab communities in host countries have an increased prevalence of CVD and its risk factors (Abuelezam et al., 2018; El-Sayed & Galea, 2009; Hatahet et al., 2002). There is also a higher prevalence of hypertension and pre-hypertension among Arab immigrants in the United States, with lower levels of awareness, treatment, and control of hypertension, compared to the national prevalence rates (Tailakh et al., 2013), in addition to significant physical inactivity and low self-efficacy among Arab women living in the United States (Qahoush et al., 2010).

Despite the importance of religiosity for most Arab people (Amer & Kayyali, 2015), however, the challenges of acculturation and religiosity in adopting healthy lifestyle behaviours and managing stress have rarely been studied, and therefore, focusing on

religiosity and acculturation will help in exploring the nature of coping strategies and understanding the behavioural process of managing stress and lifestyle behaviours. To understand these factors in any ethnic immigrant community, it is important to first listen to key informant individuals who belong to the same community, speak the same language, and share the same ethnic culture. So, before exploring the perspective of Arab individuals with CVD, key informants with previous health-related knowledge and similar acculturative experiences (in this case, as Arab immigrants) should be able to reflect first-hand knowledge about the challenges related to acculturation and religiosity when adopting healthy lifestyle behaviours in their community.

Therefore, the perspectives of Arab community health promoters (known as community-based health workers) are considered in this study, as these people, as key informants, may be trusted to share their community life experiences, and as such they can be viewed as a helpful link between health care providers and community members (Kim et al., 2016). Up to this point, there are few data available regarding the challenges related to acculturation and religiosity in adopting healthy lifestyle behaviours and managing stress among Arab immigrants living in Ottawa, Ontario. As of 2007, Arab communities in Ottawa, Canada's capital city, made up four percent of the city's population (Statistics Canada, 2007), and the experiences and perspectives of Arab community health promoters about the chosen research topic are rarely considered in Arab communities in the city.

Using the perspectives of Canadian Arab Health Coalition (CAHC) members, this study aims to identify and understand the challenges related to acculturation and religiosity in adopting healthy lifestyle behaviours and managing stress in order to prevent CVD among Arab immigrants. As they are volunteer health community promoters from different

health-related professions who have varied backgrounds, their perspectives will help other health community promoters or rehabilitation professionals deal with Arab immigrants either with CVD or who are at risk for it. The present study draws on an interpretive description approach (Thorne et al., 1997) to answer the following questions:

1. How do Arab immigrants consider healthy lifestyle behaviours and stress management in order to prevent CVD in the Canadian context?
2. What is the perceived relationship between the identified coping strategies and acculturation and religiosity?

Method

To describe the key informants' perspectives about the challenges among Arab immigrants related to acculturation and religiosity with regard to adopting healthy lifestyle behaviours, focus group discussions with a semi-structured approach were used following an interpretive description approach (Thorne et al., 1997). This qualitative study built an interpretive understanding of the behavioural process of Arab immigrants, and relied on the perspectives of Arab community health promoters (the CAHC members) as experts with first-hand knowledge in health promotion among Arab communities in Ottawa. The focus group method helps encourage participants to interact and discuss their experiences and insights in a limited time (Krueger & Casey, 2014), and although these focus groups were with Arab health promoters, the interpretive description approach allowed H.B. (the PI) to benefit from his knowledge about the phenomenon under study as a platform to design and set up the research project (Hunt, 2009).

This study is part of more extensive research conducted by the PI for his Ph.D. in Rehabilitation Sciences, and the findings from this study will generate knowledge that can

inform the following two studies. Which will be a cross-sectional survey study will be conducted with Arab individuals diagnosed with cardiac events or who are at high risk for CVD. Then, a qualitative (interview) study will be conducted with some participants from Study 2 who had had cardiac events while living in Canada in order to understand their lived experiences and the impacts of their culture or religiosity on their recovery and rehabilitation following cardiac events. The PI, a physiotherapist by training, facilitated all of the focus groups based on his previous experience collecting data from stakeholders in community-based health promotion projects with international non-profit organizations.

Participants

This study was conducted in order to obtain perspectives from Arab participants who had a health promotion role in Ottawa regarding challenges among Arab immigrants related to acculturation and religiosity in adopting healthy lifestyle behaviours. Purposive key informant sampling through an interpretive descriptive approach is appropriate for generating knowledge (Thorne et al., 1997), and is also suitable for exploring cultural and social meanings for ethnic immigrant groups or populations within an in-depth study format with key informants who have the most extensive expertise in a targeted research topic (Trotter, 2012). The CAHC of Ottawa, which was established in 2006, consists of 25 volunteer members. It is a voluntary community organization supported by the South-East Ottawa Community Health Centre (SEOCHC).

The primary goal of the CAHC is to support Arabic communities with health-related life issues by providing training and skill-building workshops focusing on healthy lifestyles, promoting and supporting physical activity and healthy eating activities, providing and disseminating multi-lingual health promotion resources, supporting

community events that involve community partners in promoting healthy lifestyles, and empowering community members to be active participants in the self-management of their health and well-being. The 25 members of the CAHC are Arab adults from different health profession backgrounds such as medicine, pharmacology, and nursing, and other varied backgrounds. They are aged 18 years and older, live in Ottawa, have been residents in Canada for at least three years, are almost all Muslim or Christian women, are Arabic/English speakers, and include members of other local or religious Arabic community organizations or centres.

Recruitment of Participants

Following ethical approval from the University Research Ethics Board at the University of Ottawa (number: H12-17-04), the PI met with the chair of the CAHC to ask whether they were interested in participating in this research. The PI was a volunteer with the CAHC in 2014. An e-mail was sent to the clinical coordinator of the SEOCHC to obtain official permission, which was obtained. Next, the PI attended a regular meeting of the CAHC in order to give its members a general idea about the research protocol. After the CAHC meeting and official acceptance from the SEOCHC, the CAHC members were invited by e-mail to participate in a focus group discussion at the SEOCHC. The PI sent an invitation e-mail at the beginning of February 2018 to the chair of the CAHC, who then sent this invitation to the CAHC members. The contact e-mail and phone number of the PI were included in the invitation e-mail to ensure direct contact with those members who were interested or had any questions. No exclusion criteria were applied. All interested members responded verbally to the chair during the CAHC meeting, and then she scheduled them in three focus groups according to their availability and preferred dates.

Members who were not interested did not give a reason for non-participation. The chair of the CAHC signed a confidentiality agreement in order to protect the participants' privacy and the confidentiality of all information relating to their identities.

Data Collection

Following Krueger's practical guide (2014), data were collected through three face-to-face focus groups. Before conducting these focus groups, the PI conducted a pilot test interview with the chair of the CAHC on February 9th, 2019, to explore how questions might be understood culturally and linguistically. As participation was limited to the CAHC, the PI and the chair of the CAHC assigned participants in three groups based on their availability to attend. All the focus groups were conducted in meeting rooms at the SEOCHC, where they usually attend CAHC regular meetings, in order to provide the most suitable environment for the participants. The PI facilitated the three focus groups, which were conducted on March 1st and 6th, 2019. Before each focus group session, the PI verified that every participant had filled out a sociodemographic form and signed a consent form. Then he welcomed the participants and reminded them of the purpose and rules of the group discussion. The PI was responsible for the audio recording and the translation during these discussions, which lasted between 60 and 120 minutes. The PI also took some observational field notes during and after the sessions, which were used during the data analysis. The PI asked the participants open-ended questions in these focus groups to elicit their shared thoughts, opinions, and experiences, as Arab health promoters, about the topic. The PI developed these questions based on the literature review and the context of the research questions. The focus group questions included:

- How do you think Muslim and Christian Arab people see the impact of their new life in Canada on their health status?
- How do you think faith backgrounds or religious beliefs and practices affect their adoption of healthy lifestyle behaviours?
- How do you think people with CVD cope with their diseases in the Canadian context?
- What do you think are the main barriers to adopting healthy lifestyle behaviours?
- What do you think are the main facilitators in adopting healthy lifestyle behaviours?

The final open-ended question allowed participants to share any information or comments that may not have been addressed in the discussion.

Ethical and Cultural Considerations

The focus group discussions were proposed to participants in their primary language in order to accommodate different language proficiency levels (Krueger & Casey, 2014). Participants had a choice to attend a focus group in their language of preference, but no one showed a particular preference for either English or Arabic as their language of choice during the discussions. Focus group questions were asked in both English and Arabic so that all participants could understand. Almost all sessions were bilingual in both English and Arabic. Due to the participants' cultures, offering female participants the opportunity to talk to a female facilitator or be in a female-only group was considered from an ethical viewpoint. Despite most participants being women, no participant asked to be in a female-only group or talk only to a female facilitator. Participation was voluntary. Before each focus group, the PI gave an idea about the focus group's topic to provide all participants

with a clear idea about the research topic before reading and signing a written informed consent form in Arabic or English.

Data Analysis

As the data collected from the focus groups were in English and Arabic, the PI transcribed the digital recordings in those languages without translation. All participants' names were changed to pseudonyms in order to protect their privacy. The data analysis coding process was initiated following the first focus group by immersion in the transcripts, and was completed concurrently throughout the data collection process to establish patterns based on explored meanings (Hunt, 2009; Thorne et al., 1997). Each transcript, in addition to the field notes, was read, reread, and coded. Repeated reading of these transcripts allowed the integration of new insights into the ongoing data collection (Hunt, 2009; Thorne et al., 1997). In this study, data analysis was carried out through an inductive thematic analysis approach. This reduced the information to essential statements or quotations and combined them into themes (Braun et al., 2016). As data were mixed in Arabic and English, the data analysis was done by hand using Microsoft Word software; none of the qualitative data management tools supported such mixed language data.

Each transcript was highlighted using different colours to identify initial codes, and a list of initial codes emerged in the subthemes. (see Figure 2.1: Data analysis coding conceptual map). In this map, 22 initial codes have emerged into 13 subthemes. These subthemes included gender issues, social support, family support, compared to home country, cultural beliefs, religious beliefs, religious, social isolation, Canadian lifestyle, stressful challenges, aged people, young generation, and financial status. The five dotted arrows show various overlapped interactions between initial codes when emerging into

subthemes. The four solid arrows also show the final development of four themes. The categorized subthemes emerged into four distinctive themes that were identified based on the research questions and participants' narratives (Rabiee, 2004) in order to understand the participants' different perspectives and personal experiences. Later, these data were taken back to the same participants to perform member checks (Gall et al., 1996) in order to judge the accuracy and credibility of the collected and analyzed data. The PI attended a meeting of the CAHC to present the initial findings from the focus groups and to gather feedback from the participants. Some participants attended this meeting, and did some members of the CAHC who had not participated in the focus group discussions. The participants accepted these initial findings without any objections. Participants who did not attend this meeting received a copy of the results through the chair of the CAHC; however, these participants did not return any feedback.

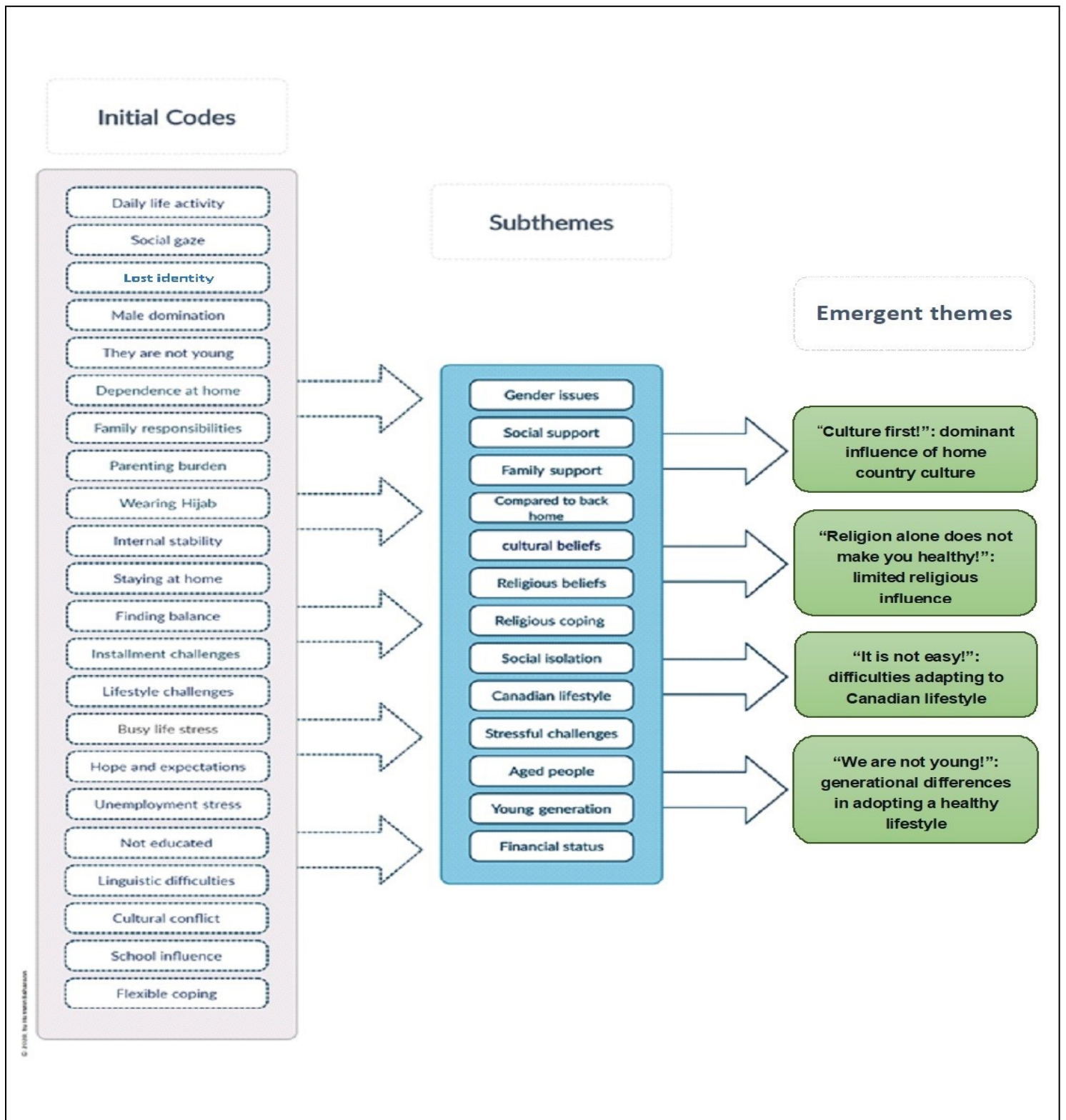


Figure 2.1 Data analysis coding conceptual map

Results

Participants and Setting

These data were collected in February and March 2018 through three face-to-face focus groups, averaging 80 minutes in length, with 17 members from the CAHC. The focus groups and the pilot test interview took place at the South-East Ottawa Community Health Centre. The majority of participants were women, with only two men. The majority of participants identified themselves as Muslims, with only one Christian woman, with the majority being first-generation immigrants; only two young women had been born and raised in Canada. All participants were bilingual (English/Arabic speakers) and highly educated, and most had lived in Canada for more than five years (Table 2.1:

Sociodemographic characteristics of focus group participants and Table 2.2: Participants' characteristics).

Study Themes

Different perspectives and personal experiences were shared in the focus group discussions, and in the current article, the PI highlighted issues related to acculturation and religiosity. Coded data emerged into four themes in this study: "Culture first!": dominant influence of home country culture; "Religiosity alone does not make you healthy!": limited religious influence; "It is not easy!": difficulties adapting to Canadian lifestyle; and "We are not young!": generational differences in adopting a healthy lifestyle. Participants talked about their own experiences and the experiences of the community members they served. They shared different points of view regarding the challenges related to acculturation and religiosity and their impacts on the health status of Arab immigrants and their healthy lifestyle behaviours. Among these challenges, there was an overlapping between various

aspects of acculturation and religious beliefs that may have impacted the healthy lifestyle of Arab immigrants.

“Culture first!”: Dominant Influence of Home Country Culture. From most participants’ perspectives, the strong connection with the home country’s culture influenced Arab immigrants’ daily lives, including lifestyle behaviours and stress management. This cultural influence may be direct, through cultural beliefs about diet and physical activity, or indirect, through a different cultural understanding of social and family support.

Regarding dietary behaviours, participants stated that these behaviours might be influenced by a home country’s culture when attending social gatherings where traditional food is usually served. With regard to this, one of the participants stated:

I mean, if friends hosted you at their home or a feast and brought you food that does not comply with your diet, do you think that you will not eat their food? This is an insult to them, and they will be upset! [my translation from Arabic] (Nehad, G2)

Another participant explained that generosity in serving traditional food means serving fatty and sweet food, even if you believe that it is not healthy:

We believe that traditional food is very delicious, even if it is full of fat or is fried and contains a lot of sugar ... Despite being used to cooking healthy food for my family, the situation is totally different when we have a feast and guests; my husband asks me to leave healthy food aside and cook traditional meals for guests. [my translation from Arabic] (Naseem, G1)

Regardless of the importance of physical activity, some participants found that the perceived need for such activity may be influenced by a home country’s culture, where physical activity depends on daily life activity. From the perspective of most participants,

older people, either men or women, are the most affected by culture, in addition to some adults from the first generation who were less educated. Participants highlighted this issue's cultural aspect, as older people do not see sports or organized physical activities as part of the Arabic culture. Furthermore, they do not enjoy regular participation in single-gender adult and senior physical activity programs offered by religious centres. One participant also found that walking is a daily life practice for Arab immigrants in their home countries, but here, they walked less often: "In the home country, I wouldn't use a car. I used to take a bus, but you couldn't rely on the bus there, so I was walking when missing my bus." [my translation from Arabic] (Wesam, G1)

An indirect influence of the home country's culture on Arab immigrants' behaviours may be social isolation due to the lack of social or family support. Participants found that social support in their home countries was incomparable to that in Canada, as no one felt alone at any time among family members, neighbours, and friends. They missed this social and family support while living in Canada, especially women and older Arab immigrants. Some participants stated that social isolation was one of the main challenges that may impact Arab immigrants' health with regard to stress and mental health issues. One participant found that the Canadian lifestyle and the Arabic culture played a role in this stress:

I think ... a lot of these people [Arab immigrants] come from towns where everyone knows each other. But here [Canada], you could be living in an area without even knowing your next-door neighbour, [with living] in a more exclusionary environment and very more rushed environment, which also affects people's mental health. (Zain, G3)

Another participant indicated the negative peer pressure that some recent Arab immigrants face when they try to become more integrated into the Canadian lifestyle:

You come to Canada, and you are a part of the community even if you want to go to workshops for so and so, you want to take that step, you have this feeling of people looking at you, do you really want to start becoming Canadian? You want to change?” (Noor, G1)

The feeling of social isolation among women might be influenced by the lack of family and social support, especially from male relatives. The lack of support from husbands, fathers, or brothers may be related to male domination in their culture of origin, even preventing women from attending health promotion programs. Participant Ward (G1) explained this point:

Some men think that these programs may change women’s thinking. Personally, I know of many cases in which men are afraid of the new environment in Canada because they see it as a challenge, terrified of losing some of the control power that they were accustomed to in their home countries; for this reason, they become more dominant and controlling. [my translation from Arabic]

Another participant added that this lack of family support might start in early childhood years:

I remember when I was a child, I would ride a bike. But when I was 13 years old, my father took the bike away and said that I had become an older girl and it was not suitable for me to use a bike! [my translation from Arabic] (Wesam, G1).

However, some participants found that family support in the context of Arabic culture may negatively influence older people’s behaviours when prioritizing their caring among family members. This expectation may lead to negative results, making elderly

family member more dependent on others and less physically active in their lives. As one participant stated, “When they become older, they start always depending on someone to help. In this way, they would be reliant and overweight by eating more as they are older, and they like to be treated like a spoiled person!” [my translation from Arabic] (Nehad, G2).

“Religiosity alone does not make you healthy!”: Limited Religious Influence.

The findings from this study did not link religion (as beliefs and doctrine) to healthy behaviours among Arab immigrants. Some participants did not find a direct relationship between religiosity and health status and stress management. For example, Baraa (G1) reported that cultural influence might affect Arab immigrants more than religion: “I think it depends on the culture acquired in the home country more than on the religious concept. The influence of the home country culture may be seen clearly among people from the first generation” [my translation from Arabic]. However, some participants highlighted the indirect influence of religion on Arab immigrants in adopting healthy lifestyle behaviours, especially when talking about women, older people, or recent immigrants.

For some women, wearing a hijab, as in the Islamic dress code for Muslim women, may bother them when practicing physical exercises in the gym, running in the park, or swimming. Regarding this point, Wesam (G1) said, “For example, we rarely see a veiled girl or veiled woman riding a bike! It is a little ... Why? While how many non-veiled female bikers do you see daily?” [my translation from Arabic]. In the same context, Taj (G2) explained how women might find wearing a hijab as a barrier to physical activity: “... when I go to the gym, I suffer, and my daughter suffers too. When she gets fed up, she can take the hijab off, but I cannot! She says we practice exercises and work hard; we sweat and

feel abnormal heat!” [my translation from Arabic]. Although some physical activity centres serve only women, the study participants did not think that Muslim women would feel comfortable taking off their hijab in a place with security cameras in each corner.

Participants mentioned that older people were not flexible in practicing physical activities or following a healthy diet if that might conflict with their religious rules. For example, one participant said that older people might refuse to participate in mixed-gender fitness or swimming activities because of religious issues. For example, Wesam (G1) stated that elderly people might become passive in coping with disease or health conditions because they believed that all things are predestined:

Once at the mosque, when we conducted a workshop for women about cancer screening, a Muslim Arab older woman said: ‘cancer is from the Lord of the Worlds, what are you saying . . . ? It is God’s justice; people cannot do anything!’ [my translation from Arabic] Other participants stated that social isolation might push older Arab people to seek this support from a “higher power” in order to help them cope with health conditions or life challenges.

Participants also felt that this feeling of social isolation may push recent immigrants to use religious coping to face early challenges, with one participant mentioning that recent immigrants might turn to religion in order to reach some internal stability as part of their identity. Another participant felt that this return to religion as a coping strategy may come later, after a long time of stress searching for a job, changing career, parenting, or facing cultural conflicts with children. In this case, religiosity may be the final choice for some people in order to find internal peace after various life failures. Some participants saw this connectedness with religion during their installment time (i.e., their first months in Canada)

as the best way to find social support. Naseem (G1) gave an example: “Even social interactions with people at the mosque; just give you that feeling, and sense of comfort and you feel you belong to a group” [my translation from Arabic]. As well, older Arab immigrants with problematic health conditions may find hope in religion; as Shams (G3) said, “. . . they just rely on religion for the hope, to accept their diagnosis that motivates them that’s OK, I’m not alone in this, God is with me!” Participants highlighted religion or faith for Arab immigrants as a spiritual power that may boost one’s self-confidence and lift one’s morale in the face of illness or stressful challenges.

“It is not easy!”: Difficulties Adapting to the Canadian Lifestyle. During the discussions, participants compared challenges when adapting to the Canadian lifestyle as opposed to their home countries. In these comparisons, participants indicated differences in the Canadian lifestyle, as a society they are trying to settle in, that lead to stressful challenges during adaptation, especially for recent immigrants. However, some participants mentioned a positive side of living in Canada for those who can adapt more quickly.

Regarding installment time, participants mentioned that their first months’ main priority was to find a balance in their new lives. They stated that Arab immigrants do not take care of their health as their burdens and responsibilities increase, especially for families with young children. Taj (G2) stated: “. . . when we came to Canada . . . we needed time to redirect our thinking, restore our calculations, find a job, get credentials evaluated, and find relatives and friends . . . It is huge stress that, for sure, affects us!” [my translation from Arabic]. Participants gave examples of stressful challenges, such as employment, housing, parenting, communication, transportation, and weather, which might have an impact on their health in the form of stress and unhealthy behaviours.

As well, some participants found that sports activities were considered a luxury and not a priority for some Arab immigrants with low incomes. In the same context, financial status might be reflected in dietary habits, as some participants stated that unhealthy dietary habits might be related to low-income Arab immigrants' lack of awareness of the risks of fast food and junk food, which are cheap and available almost anywhere. Some participants from group G2 discussed this point, correlating the increased consumption of these types of food with stress, isolation, and sedentary time at home:

Rajaa: In the grocery store, I see many trolleys filled with sugary drinks and snacks such as chips . . .!

Taj: Do you know why? Because it's for one dollar. Go to the milk shelf, you will find it for 5 dollars . . . there is a big difference!

Salam: But young adolescents need to eat a lot . . . what can we do? . . . [laughs]. Sincerely, they need . . .

Taj: Even adults need to eat more . . .!

Salam: I mean, my son, for example, at midnight or after goes around the kitchen, so I always have to keep the fridge filled! [my translation from Arabic]

As well, participants identified inclement weather as another factor limiting the activities of Arab immigrants. Zain (G3) stated this challenge for Arab older immigrants: “. . . weather is the most thing that affects their transportation, affects their time for physical activity, even when getting out to see their doctor or getting out to have a social life.” Compared to Arab countries, which are generally considered warm, Canada is known for its challenging weather conditions in winter which can cause isolation, especially for older people.

“We are not young!”: Generational Differences in Adopting a Healthy

Lifestyle. This study also highlighted the impact of cultural conflict between Arab parents and their children while living in Canada. Participants stated that these generational differences in cultural or religious beliefs might affect the adoption of healthy lifestyle behaviours. In this context, participants found that the young generation of Arab immigrants, even females, are more motivated to be active based on solid knowledge about healthy behaviours and their flexibility in dealing with stressful life challenges, which may be different from older Arab immigrants.

Participants found that young Arab people, especially those from the second generation, may adopt a healthy lifestyle with fewer difficulties related to religious or cultural issues. If they encounter such barriers, they try to be more flexible than their parents in adopting healthy lifestyle behaviours in the Canadian context. Rajaa, who has a religious concern, narrated her personal experience with her son, who goes to a mixed-gender swimming pool:

I have a son [who] goes to the swimming pool. He tells me: “my religion guides me to take my eyes off . . . so, why do I look at others? . . . I am obligated to go to a swimming pool with families . . . but I should take my eyes off them. So, I go there, and I don’t care . . .” [my translation from Arabic] (Rajaa, G2)

One participant added that young people sometimes try to commit to a fitness program or a sport if they are encouraged by friends and are financially able to cover the membership fees. This younger generation may not find exercising difficult, except for some religious Muslim girls who wear a hijab and prefer to be active in an exclusively female environment. Participants pointed out that Arab women, mostly middle-aged or older, may

not be encouraged to adopt healthy lifestyle behaviours because of low incomes, lack of family support, and the burdens of parenting and housing responsibilities at home.

Participants think that there is a need to design health promotion programs for older Arab women that respect their cultural and religious needs and language and education levels.

In general, participants observed that engaging in physical activity is easier for the younger Arab generation. Salam (G2) stated that younger Arab people are physically active with the health education workshops that are offered to children at school: “. . . here in Canada, they have a good thing. In grade 1, they start teaching children about healthy food, and they have compulsory daily sports for children” [my translation from Arabic]. Such school programs aim to raise children’s awareness about a healthy lifestyle and the importance of engaging in physical activity. Another participant said that children might educate their parents with helpful information about healthy food and behaviours. Still, when children become older, they start eating fast food and junk food as they become busy or more engaged in their education, jobs, and social lives.

From most participants’ perspectives, older Arab immigrants suffer more stress than younger Arabs in facing adaptation challenges due to the lifestyle changes following their migration to Canada. Participants reported that language barriers, transportation difficulties, lack of family support, and inclement weather might also prevent older Arab immigrants from accessing available resources that may help them manage stress and adopt healthy lifestyle behaviours. However, Shams (G3) found that older Arab immigrants’ participation in culturally tailored programs is limited too:

Our religious centre rents a playground and . . . we do some tournaments for soccer, for example, . . . but you still need to push the older people [to participate]. The

young people join for fun, come to play and enjoy, but the older ones are tough; they may be interested in playing cards and drinking coffee. (Shams, G3)

Another participant explained why some older Arab immigrants might need encouragement to be active and go outside for a walk or to change their daily routines at home: “But older people, they don’t have a social life that makes them interested in a healthy lifestyle... I mean, we, at this younger age, maybe more interested, as we still have knowledge and attention” [my translation from Arabic] (Sabah G2).

On the other hand, some participants found that the young generation may suffer from severe stress due to conflicts with their parents, family problems, and imbalances between school and home culture that may reflect on their health. Some participants also reported that stress among young Arabs might be related to feeling burdened by their parents’ needs, besides the pressure of a busy life and the cultural conflict between the Canadian lifestyle and their parents’ culture. Some parents rely on their children to guide them as translators or navigators because of difficulties in communication, as young people are more educated and have better English communication skills. However, the findings indicated that younger Arab people are still more integrated into their social lives than older Arab people despite all the challenges.

Discussion

According to the participants, Arab immigrants find difficulties in adopting healthy lifestyle behaviours and managing stress, especially in their first years in Canada. Although some participants found that stress and unhealthy lifestyle are general problems and not specific to Arab immigrants, they indicated some cultural or religious overlapping factors in Arab immigrant acculturation processes.

It was clear that the Arab community health promoters in this study linked challenges that Arab immigrants face while living in Canada with their close connection to their home country's culture and difficulties in adapting to the Canadian lifestyle. In other words, the Arab community health promoters found that most of the Arab immigrants were less acculturated than other immigrant groups. The findings regarding the challenges related to acculturation in Arab immigrants' lives are consistent with some prior studies that have reported an impact of low acculturation on Arab people in host countries (Amer, 2005; Faragallah et al., 1997). In agreement with El-Sayed and Galea (2009), the data from this study revealed that the burden of immigration and lifestyle changes reflected negatively on the health status of Arab people in the form of stress that may lead to CVD and other physical or mental health illnesses, especially for those who were born abroad. In the same context, findings from this study resonated with the results from other studies (Aqtash & Van Servellen, 2013; El Hajj, 2012; Hardan-Khalil, 2019; Jaber et al., 2003; Jadalla et al., 2015; Tailakh et al., 2016), as Arab people who are less acculturated tend to be less active in adopting healthy lifestyle behaviours.

According to the perspective of community health promoters, Arab women who were not born in Canada face more challenges in adopting healthy lifestyle behaviours related to physical activity. For Arab women, these challenges are related to wearing Hijab (for Muslim women) and finding suitable places to practice physical activity in the exclusive presence of women. This religious or cultural modesty is not only a barrier to healthy behaviours, but was related with other cultural/religious barriers that face Arab women in accessing the health care system (Yosef, 2008). These religious/cultural beliefs are not separate from other common barriers such as language, education, financial status,

and family support. In this context, while high-risk behaviours and physical inactivity have been reported among Arab women (Qahoush et al., 2010), this association between physical inactivity and less acculturation was not reported among younger Arab American Muslim women in one recent study (Eldoumi & Gates, 2019).

Concerning the challenges related to religiosity, the Arab community health promoters did not find a direct connection between religiosity and the health status of Arab people, as they considered religiosity to be an individual experience that is separate from daily life. Simultaneously, there were also some grey areas between religion and culture, as from their perspective, it was not easy to distinguish religious issues from cultural issues in the lives of Arab immigrants. Thus, it was difficult to identify whether stress management or the adoption of healthy lifestyle behaviours are impacted indirectly by religiosity or by the Arab immigrants' culture. In countries of origin, cultural traditions may be more potent than religious beliefs. For example, people in their countries of origin may avoid participating in physical activity because it is not a part of the Arabic culture; however, after migrating to Canada, the same situation may be seen and justified from a religious perspective because some people become more religious following migration.

This commitment to religion by Arab people when facing a new culture and a different lifestyle may be considered a strategy to maintain their identities. However, the key findings on stress management highlighted religiosity's indirect impact in two central areas: coping with stress and receiving social support. It is evident that commitment to religion may lead to spiritual well-being, including finding meaning and peace associated with quality of life (Bai & Lazenby, 2015). However, the indirect impact of religiosity is more valuable in the form of coping strategies that may be used by some people

experiencing stress to deal with difficult situations related to mental and physical health (Pargament & Abu-Raiya, 2007), including coping with pain, chronic illness, and ageing (Sargeant & Newsham, 2012), or managing stress over changes in their life (Koenig, 2004).

Strengths and Limitations

The discussions with 17 participants, as community health promoters, present a rich source of information about health promotion challenges in Ottawa's Arabic community, and their perspectives are valuable in describing the healthy lifestyle behaviours of Arab immigrants and their stressful challenges in the Canadian context. However, this study has some limitations; for example, the perspectives of Arab Christian people were not well represented, with only one participant in this sample. The same observation was noted regarding this study's limited representation of male views, as most participants were women. Another possible limitation may be that all the participants' educational attainments comprised post-secondary diplomas and degrees. As well, all the participants were fluent in English, and some of the participants spoke more than two languages, so this high educational attainment level may have resulted in findings that may be different from those which may be found with less educated Arab immigrants.

Conclusion

From the perspective of Arab health promoters, some religious or cultural beliefs may be barriers to engaging in physical activity, especially for women and older people, and these barriers may be exacerbated by acculturative stress. Religiosity may also play an essential indirect role in managing stress through socialization, family support, and the adoption of coping strategies, while noting that younger people in Arabic communities are more flexible than older ones in dealing with religious/cultural issues. All of these factors

need to be taken into consideration when designing culturally appropriate health promotion programs. Based on these findings, there is a need to explore levels of religiosity, religious coping, and acculturation, and to what degree these concepts may be associated with perceived stress and healthy lifestyle behaviours among Arab people diagnosed with cardiac events or who are at high risk for CVD. This study will be followed by quantitative and qualitative studies in order to generate more knowledge and meet this need.

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Table 2.1 Sociodemographic characteristics of focus group participants (N = 17)

Characteristic	Total n (%)
Sex	
Male	2 (12%)
Female	15 (88%)
Religious affiliation	
Muslim	16 (94%)
Christian	1 (6%)
Immigration generation in Canada	
1st generation	15 (88%)
2nd generation	2 (12%)
Spoken languages	
Arabic/ English	14 (82%)
Arabic/ English / French	3 (18%)
Length of stay in Canada	
1-2 Years	1 (6%)
2-5 Years	1 (6%)
5-10 Years	3 (18%)
>10 Years	12 (70%)
Country of origin	
Algeria	1 (6%)
Egypt	1 (6%)
Iraq	10 (58%)
Lebanon	2 (12%)
Palestine	1 (6%)
Syria	2 (12%)
Professional background	
Chemist	1 (6%)
Dentist	1 (6%)
Health administration	1 (6%)
Health promotion	4 (23%)
International development	1 (6%)
Medicine	6 (35%)
Nutritionist /Dietitian	2 (12%)
Pharmacist	1 (6%)
Education level	
Bachelor's degree	7 (41%)
College degree	1 (6%)
Master's degree	7 (41%)
Medical degree	2 (12%)
Experience in healthcare	
<1 Year	3 (18%)
2-5 Years	3 (18%)

5-10 Years	4 (23%)
11-20 Years	4 (23%)
21-30 Years	3 (18%)

Table 2.2 Participants' characteristics

N	Pseudonyms	Language	Education level	Experience in healthcare (Y)	Residence in Canada (Y)	Living in other countries
1	Ward	Arabic/English	Master's degree	2-5	>10	Yes
2	Najah	Arabic/English	Medical degree	5-10	1-2	Yes
3	Naseem	Arabic/English	Medical degree	11-20	>10	Yes
4	Baraa	Arabic/English	Bachelor's degree	<1	>10	Yes
5	Noor	Arabic/English	Bachelor's degree	2-5	>10	No
6	Sabah	Arabic/English	Bachelor's degree	5-10	>10	Yes
7	Salam	Arabic/English	Master's degree	21-30	>10	Yes
8	Taj	Arabic/English	Master's degree	5-10	>10	Yes
9	Nehad	Arabic/English	College degree	<1	>10	No
10	Rajaa	Arabic/English	Master's degree	11-20	>10	Yes
11	Ihsan	Arabic/English	Bachelor's degree	11-20	5-10	Yes
12	Bayan	Arabic/English	Master's degree	11-20	5-10	Yes
13	Majd	Arabic/English	Master's degree	21-30	2-5	Yes
14	Wesam	Arabic/English	Bachelor's degree	21-30	>10	Yes
15	Shams	Arabic/Englshih	Bachelor's degree	2-5	>10	Yes
16	Farah	Arabic/Englshih	Master's degree	5-10	5-10	Yes
17	Zain	Arabic/Englshih	Bachelor's degree	<1	>10	No

Acculturation and Healthy Behaviours among Arab Individuals at Higher Risk or

Diagnosed with Cardiovascular Diseases:

Findings from a cross-sectional study in Ottawa, Ontario

(Survey study)

CHAPTER 3: SURVEY STUDY

Abstract

Background: Encouraging and facilitating the adoption of healthy lifestyle behaviours in order to prevent cardiovascular disease is the goal of cardiac rehabilitation programs. However, cultural and religious beliefs have been considered challenges that influence healthy behaviours among immigrants in host countries, and cardiac rehabilitation secondary prevention programs rarely consider individuals' cultural and religious backgrounds in supporting healthy lifestyle behaviours. Further, there is a limited knowledge base regarding cultural and religious beliefs and religious coping strategies among Arab individuals diagnosed with cardiac events or who are at high risk for cardiovascular disease.

Objective: This study aims to measure and describe the levels of religious beliefs as well as religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among Arab individuals living in the region of Ottawa, Ontario, Canada who have been diagnosed with cardiac events or who are at high risk for cardiovascular diseases.

Method: A cross-sectional survey was conducted with 63 individuals from local Arab communities who had been diagnosed with cardiac events or who were at high risk for cardiovascular diseases. Participants completed, either in English or Arabic, a sociodemographic questionnaire as well as five validated questionnaires that evaluated their levels of religious beliefs, religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours. The data collected were analyzed using SPSS, and all sociodemographic information was analyzed using descriptive statistical analysis based on frequencies and proportions for categorical variables, using means with standard deviations for continuous variables.

Results: Of the 63 participants, 87% were 45 years old or older; 38% were women, and 62% were men. Most of the participants were Muslim, with only two Christian participants. All the participants were born outside Canada; 59% were official immigrants, with 35% being refugees (the remainder preferred not to say), and 62% had lived in Canada for more than 15 years. Twenty-one of the participants had experienced a cardiac event, and 42 participants had been diagnosed with cardiovascular disease risk factors. The data indicated that most participants were oriented more toward their Arabic culture than Canadian culture. The total mean score of the acculturation-Arabic dimension was 5.26 (SD = 0.42), compared to 3.48 (SD = 0.82) for the

acculturation-Canadian dimension. The participants tend to be religious, as the mean positive religious coping score was 3.82 (SD = 0.20) versus a negative religious coping score of 1.30 (SD = 0.34). The participants' nutritional behaviours were healthier than their physical activity behaviours, as the participants paid more attention to nutrition (M = 2.48, SD = 0.58) than to physical activity (M = 1.76, SD = 0.64). However, age, gender, and interestingly, length of time living in Canada did not affect the participants' results in any of the questionnaires.

Conclusions: While these individuals may have been more religious and less acculturated in Canadian society, their lifestyle health behaviours related to physical activity and nutrition may have been influenced by their health status, religious beliefs, and the practices or traditions of their culture of origin. To further understand the role of religious coping and the impact of culture or acculturation on rehabilitation following cardiac events, a qualitative study will be conducted with selected participants.

Keywords: Arab immigrant, Cardiac Rehabilitation, Culture, Lifestyle Behaviours, Religiosity, Stress management, Cross-sectional survey

In this study, a cross-sectional survey was conducted with Arab individuals from local Arab communities who had been diagnosed with cardiac events or who were at high risk for cardiovascular diseases. This study aimed to measure and describe the levels of religious beliefs as well as religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among Arab people diagnosed with cardiac events or who were at high risk for CVD. In this study, all participants were invited to be part of another follow-up qualitative interview study.

Introduction

The rate of cardiovascular diseases (CVDs) is high in Canada, with heart diseases being the second most common cause of death among Canadians (Statistics Canada, 2020). Approximately one deadly event related to heart disease occurs every seven minutes in Canada (Statistics Canada, 2011). It is well known that CVDs are associated with health conditions such as hypertension, high blood cholesterol, and diabetes, but they are also strongly associated with lifestyle risk factors, including tobacco smoking, physical inactivity, unhealthy diet, unhealthy weight, stress, and excessive use of alcohol (Lacombe et al., 2019; Piepoli et al., 2016). In the same context, stress may be a hidden risk factor that leads to various negative health consequences, including heart diseases (Bailey Merz et al., 2002; Smaardijk et al., 2019; Walton et al., 2002) through a mutual influence with unhealthy behaviours (Al Wekhian, 2015; Kivimäki & Steptoe, 2018; Orth-Gomér et al., 2005; Steffen et al., 2006).

Despite the importance of adopting healthy lifestyle behaviours and managing stress to prevent or live with CVD, people from ethnic minority immigrant groups in many countries in the Global North experience some difficulties in adopting healthy behaviours (Caperchione et al., 2009), which may be related to their country of birth or the stressful migration and acculturation

into a host country's social and cultural environment (Gadd et al., 2005). People from ethnic minority immigrant groups may face various challenges in accepting host country lifestyles regarding identity, communication skills, and making friends (Berry, 2005). It is evident that acculturation level may reflect on some immigrants groups' mental health status (Guo & Stensland, 2018), smoking behaviours (Choi S et al., 2008; Gotay et al., 2015), and unhealthy weight gain (Delavari et al., 2013). It may also play a role in shaping immigrants' awareness of the risk factors for non-communicable diseases, for example breast cancer (Hurtado-de-Mendoza et al., 2014; Wen et al., 2014) and CVD (Jin et al., 2015).

As per the 2016 census, there were almost 523,235 people of Arab origin living in Canada, representing more than 1.5% of the total Canadian population (Statistics Canada, 2016). Their prevalence of CVD risk factors may not be much different from the general population; however, Arab immigrants are more likely to smoke and be obese (Liu et al., 2010). The impact of CVD among Arab immigrants who have immigrated within the last five years is still rarely studied, and few studies have been conducted about CVD and potential risk factors and preventive behaviours among Arab people in host countries (Suwaidi, 2016). By reviewing studies related to the health of Arab Muslims in the United States, Yosef (2008) found an increased risk for several diseases such as heart disease, diabetes, and cancer among Arab Muslims. El-Sayed and Galea (2009) also synthesized literature related to the health of Arab-Americans living in the United States, and although they found a similarity between this population and the general population in determinants of common morbidities, they highlighted evidence that acculturation, immigration, and discrimination-associated stress are potential causes of CVD, diabetes, and mental illness, especially for those who were born abroad (El-Sayed & Galea, 2009).

Behavioural risk factors have been examined among Arab-Americans in some studies in the United States, and prevalence of CVD risk factors was associated with obesity and physical inactivity, with differences in risk factors being based on gender and age (Hatahet et al., 2002). Similar findings were reported with a lower age-based prevalence for CVD and hypertension than the general population (Al-Dahir et al., 2013). A higher proportion of CVD risk factors than for the general population was reported among Arab-Americans, especially in health behaviours related to physical activity and tobacco use (Qahoush, 2006). In the same context, significant findings have indicated greater physical inactivity and lower self-efficacy among Arab women (Qahoush et al., 2010). A higher prevalence of hypertension and prehypertension was also reported among Arab-Americans, with lower awareness, treatment, and control of hypertension rates than the overall national rates (Tailakh et al., 2013), and in another study, Tailakh and colleagues (2016) found a significant direct relationship between the level of acculturation and adherence to medications and physical activity and blood pressure control. Likewise, a greater prevalence of high cholesterol and lower prevalence of diabetes and hypertension than the general population have been reported among Arab-Americans (Shara et al., 2010). Among Arab immigrants in Colorado, the prevalence of smoking was higher than the state average, and their use of tobacco products was almost double compared with the general population (El Hajj et al., 2017). In the same context, a positive relationship between acculturation and tobacco use has been reported among Arab-Americans (Al-Omari & Scheibmeir, 2009).

Within the Canadian context, CVD risk factors and preventive behaviours among Arab communities are still rarely studied. One related study by Liu et al. (2010), however, did include Arab people when examining the prevalence of CVD risk factors in various Canadian ethnic groups through data from the Canadian Community Health Survey (years 2000, 2003, and 2005).

Based on its findings, people from Arab backgrounds were not much different from the general population, but they were more likely to smoke and be obese (Liu et al., 2010). The only study that has considered Arab participants in its analysis of cardiac rehabilitation was that by Findlay et al. (2017), which relied on Canadian Cardiac Rehab Registry data (online database developed by the Canadian Association of Cardiovascular Prevention and Rehabilitation) and considered Arabs and West Asians to be part of one geographical group. This lack of a specific definition of Arab participants could have influenced the results due to its lack of distinction between Arab immigrants and other participants of West Asian ethnic origins.

For Arab people living in host countries, length of residence, age, level of connection with their home country, and faith background may influence their acculturation level (Faragallah et al., 1997; Jadalla & Lee, 2012). The overall acculturation process among Arab Muslim immigrants may face challenges related to cultural and religious differences, perception of gender relations, and feelings of discrimination in host countries (Al Wekhian, 2016; Amer, 2005). These challenges may lead to a high degree of belonging and orientation toward Arabic culture, especially among Arab Muslims (Amer, 2005; Awad, 2010). However, while Arab individuals, especially men, may try to become more acculturated when using English, working, and socializing with people from the dominant culture, they are still proud of their Arabic identity (Al-Dahir et al., 2013).

Being less acculturated may also be associated with negative health beliefs and perceptions towards CVD prevention. Based on findings from some studies, less acculturated Arab-Americans are at greater risk for diabetes due to eating traditional Arab foods (which are rich in saturated fat, sugar, and sodium), older age, and less activity (Jaber et al., 2003). Also, less acculturated Arab-Americans may be at greater risk for smoking because their traditional

culture may view smoking as an acceptable behaviour (Al-Omari & Scheibmeir, 2009). As well, significant physical inactivity and low self-efficacy has been reported among Arab women living in the United States (Qahoush et al., 2010). On the other hand, more acculturated Arab-Americans may be more physically active (Jadalla et al., 2015; Jadalla & Lee, 2012), with a healthy diet; however, they may be more likely to smoke (El Hajj, 2012; Tailakh et al., 2016).

Besides ethnic culture and level of acculturation, religiosity, age, generational status, gender, length of time in a host country, educational background, and language difficulties may influence the adoption of healthy lifestyle behaviours among Arab immigrants in host countries (Amer, 2005; Hakim-Larson & Menna, 2016; Jadalla & Lee, 2012). The power of religiosity to promote a healthy lifestyle and prevent risk factors may be seen as an active coping resource for individuals diagnosed with CVD and a less active influence for healthy people to prevent illness (Powell et al., 2003). Religiosity may be used as a possible coping method for individuals diagnosed with heart failure to find peace and a sense of more profound meaning, as well as to accept their inability to control all things in their lives (Naghi et al., 2012). The indirect influence of religiosity on recovery from CVD-related events may be seen from psychological, social, and behavioural views through mental and emotional processes (Masters & Hooker, 2013), and religious coping may provide a sense of meaning and purpose in one's quality of life (Bai & Lazenby, 2015), motivating people to maintain their mental and physical health by adopting healthy behaviours (Park, 2007).

However, cultural and religious beliefs are considered challenges among immigrants with various languages and cultures that may impact healthy behaviours such as participation in physical activity (Caperchione et al., 2009). For example, in the religious coping experiences of religious Arab-Americans, conflicts between religious traditions and the dominant culture may

increase acculturation stress and depression (Amer et al., 2008), which may lead to a higher risk of CVD. From this perspective, and based on the evident linkage between preventive health behaviours and religiosity (Park et al., 2017), cultural and religious beliefs and religious coping strategies may play roles in preventive interventions for CVD. Therefore, it is essential to focus on the acculturation process in addition to religious beliefs and practices to understand the health needs of Arab immigrants, especially those who are living in vulnerable situations (Abuelezam et al., 2018).

Based on the findings of the previous study (see Chapter 2) with Arab community health promoters, religiosity may play an essential indirect role in managing stress through socialization, family support, and the adoption of coping strategies. However, some religious or cultural beliefs may be barriers for some Arab women, older adults, and newcomers in adopting healthy behaviours. These barriers may be combined with acculturative stress and challenges related to communication, income, education, and/or social and family support. Exploring and describing religious beliefs and religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours would therefore help in understanding the role of coping strategies in managing stress and lifestyle behaviours. Up to this point, there have been no known studies specifically focused on these concepts from the perspective of individuals from Arab communities who have been diagnosed with cardiac events or CVD risk factors.

The purpose of this study was to measure and describe the levels of religious beliefs as well as religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among Arab individuals living in the region of Ottawa, Ontario, Canada, who have been diagnosed with cardiac events or who are at high risk for CVD. In line with this general purpose, this study aimed to find answers to the following sub-questions:

- What are the levels of religious beliefs and religious coping strategies (positive and negative religious coping and religious involvement), acculturation, perceived stress, and healthy lifestyle behaviours (physical activity and nutrition) among the target group?
- What are the sociodemographic factors associated with these potential findings?

Method

The cross-sectional survey study design helps in understanding the prevalence of various outcomes related to a health condition or treatment and the factors associated with such outcomes (Bethlehem, 1999; Mann, 2003). Therefore, in this study, the survey design was used to measure and describe the levels of religious beliefs as well as religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among individuals from Arab communities living in Ottawa, Ontario Canada who had been diagnosed with cardiac events or who were at high risk for CVD.

Participants and Recruitment

Participants in this study were all Arab individuals from communities in the region of Ottawa, Canada, who self-reported as either being diagnosed with cardiac events or who were at high risk for CVD. Based on the small number of this minority population and the difficulties in contacting them, locating them, and accessing their related clinical data, this study followed a purposive snowball sampling technique (Shaghghi et al., 2011) in order to collect specific data related to religious beliefs and religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours, in addition to sociodemographic information. Potential participants were invited through two local community organizations, the Canadian Arab Health Coalition (CAHC) and the South-East Ottawa Community Health Centre (SEOCHC). Based on the

inclusion criteria, all participants were aged 18 years or older, had been living in Canada for a minimum of two years, were Arabic and/or English speakers, and self-reported that they had been diagnosed with CVD risk factors (hypertension, high cholesterol, diabetes) and/or cardiac events while living in Canada.

The recruitment process, guided by the CAHC's community advisory board, began in December 2018 and ended in June 2019. First, I placed English and Arabic invitation posters on the SEOCHC medical clinic's bulletin board and health promotion program facilities. Then, I informed all members of the CAHC about the recruitment and encouraged them to spread the message through their social networking groups (e.g., WhatsApp). To reach more participants, I also sent invitation posters via email to all Arabic social and religious organizations in the region of Ottawa, including mosques, churches, students' clubs, and community associations, for them to share the posters on their Facebook pages and/or spread the message verbally among their members. I also approached the Arabic radio channel and the Arabic newspaper in Ottawa, requesting them to spread the research project's message among their audiences.

From an ethical perspective, I informed all participants that the quantitative study would be conducted via questionnaires and a future follow-up qualitative study. Participants were made aware that the survey information would only be used for research and statistical purposes and that their identities would not be recognizable in any published results. I received ethical approval from the research ethics board at the University of Ottawa and the board of directors of the SEOCHC. Those who agreed to participate in the subsequent qualitative study used the same consent forms for both studies.

Data Collection

Before implementing this cross-sectional survey study, I pilot-tested the final questionnaires in Arabic and English. A small sample of 8 volunteers filled out the questionnaires in order to assess the clarity of the instructions and to estimate the total amount of time required to understand the survey items and complete the survey (Hertzog, 2008). The questionnaires were available for eligible participants in two formats after the pilot test: a self-administered paper-based survey or an internet-based survey. These two formats gave participants a high level of privacy (Couper, 2011). Participants were free to take a hard copy of the questionnaire and consent forms from the CAHC members along with an envelope in which to return the completed questionnaire. For those who preferred to complete the questionnaires online, I sent the survey link directly to their e-mails or WhatsApp numbers according to their choice. In both forms of the survey, study tools were available in both English and Arabic. According to the University of Ottawa's ethical approval, I requested that eligible participants who were interested in completing an interview register their names and contact numbers on the last page of the completed survey. At the end of the survey, I also asked all participants if they were interested in participating in the qualitative study by attending a 20-30-minute in-person interview.

Measures

Religious Beliefs and Religious Coping Strategies. In this study, I have focused on people's religious beliefs and strategies used to cope with stressful situations, measuring religious coping strategies in addition to self-rated religious involvement in order to identify the level of religious beliefs and religious coping strategies among the participants. I measured the specific strategies for positive and negative religious coping with significant life stressors

through the shorter version of the Religious Coping measure (Brief RCOPE) (Pargament et al., 2011) (Appendix 1) and the validated Arabic version of this scale (A-BRCS) (Al-Hadethe et al., 2016). (Due to copyright issues, the Arabic version of the scale is not included in this dissertation). The 14 items in the Brief RCOPE were scored from 1 to 4 to measure the use of religious coping strategies (1 = Not at all, 2 = Somewhat, 3 = Quite a bit, and 4 = A great deal). In the Brief RCOPE, positive religious coping strategies are assessed through levels of connection with God, religious support, seeking God's love and care, asking religious forgiveness, finding collaborative religious coping strategies, participating in religious purification, and maintaining religious focus in order to stop worrying.

In contrast, negative religious coping strategies in the Brief RCOPE are assessed through levels of feeling religious discontent, feeling punished by God, experiencing interpersonal religious discontent, and questioning God's love and power (Pargament et al., 2011). Based on Koenig's (2011) recommendations, it was essential to measure the participants' religious community involvement in addition to their religious coping strategies. To fulfill this recommendation, I used the Belief into Action (BIAC) 10-item scale (Koenig et al., 2015) (Appendix 2) and the validated Arabic version of this scale (Alakhdhair et al., 2016) as a comprehensive measure of religious involvement in order to assess the role religiosity plays in the life of each participant. (Due to copyright issues, the Arabic version of the scale is not included in this dissertation). This valid and reliable self-administered scale consists of 10 questions, each rated on a 1-10 scale and with a total score of 10 to 100. Questions on the BIAC scale focus on: highest priority in life, degree of involvement in religious community activities, the purpose of life under the direction of God, use of personal financial resources for the sake of God, and level of involvement in private or non-organizational religious activities (Koenig et al.,

2015). Because these scales targeted Arab individuals from Muslim and Christian communities in this study, I replaced the word “God” with the word “Allah” and used the word “mosque” in addition to the word “church.”

Acculturation. To measure the participants’ acculturation levels, I used the Asian American Multidimensional Acculturation Scale (AAMAS) (Appendix 3). This scale includes four dimensions: cultural identity, language, cultural knowledge, and food consumption (Chung et al., 2004). From the three subscales of this scale, only the Culture of Origin subscale (AAMASCO) and the European American subscale (AAMAS-EA) were administered in order to measure acculturation among the Arab individuals. I adjusted the AAMASCO subscale to indicate Arabic culture, language, and food and the AAMAS-EA subscale to indicate Canadian culture and food. Each subscale consists of 15 questions: six items to measure cultural behaviour (language and food consumption), six items to measure cultural identity, and three items to measure cultural knowledge. Participants responded using a six-point Likert-type scale starting with 1 = Not very much and ending with 6 = Very much. The AAMAS was administered in English and Arabic. Aqtash and Van Servellen (2013) previously tested and determined the Arabic version to be linguistically and culturally appropriate. (Due to copyright issues, the Arabic version of the scale is not included in this dissertation).

Perceived Stress. To measure the level of stress perceived by individuals from Arab communities who had been diagnosed with cardiac events or who were at high risk for CVD, I used the valid and reliable Perceived Stress Scale (PSS) (Cohen et al., 1983) (Appendix 4). This 10-item scale was translated into Arabic by Chaaya et al. (2010) with good internal consistency and reliability. (Due to copyright issues, the Arabic version of the scale is not included in this dissertation). The Perceived Stress Scale (PSS-10) consists of six negative and four positive

items, with a five-point scale (from 0 = Never to 4 = Very often). In this 10-item scale, scores are obtained by reversing the four positive items, 4, 5, 7, and 8, and then adding together all 10 items. The total scores indicate the level of perceived stress. Positive items assess the ability to cope with perceived stressors, while negative items assess negative emotions, reactions, and perceptions.

Lifestyle Behaviours. To measure the levels of healthy lifestyle behaviours, I used the Health-Promoting Lifestyle Profile HPLP-II scale (Appendix 5). This 52-item scale measures six health promotion behaviours, including health responsibility, spiritual growth, physical activity, nutrition, interpersonal relations, and stress management (Walker et al., 1987). Because these subscales can be used independently, the HPLP-II scale was administered in this study to measure only two behaviours with 17 items, namely physical activity and nutrition related to healthy lifestyle behaviours for CVD. This self-administered questionnaire's scale relies on four-point Likert-type responses, starting with 1 = Never and ending with 4 = Routinely. A higher total score indicates better health promotion behaviours. This instrument was administered in English, but the Arabic version that had been translated and validated by Al-Kandari et al. (2008) was also made available to the participants. (Due to copyright issues, the Arabic version of the scale is not included in this dissertation).

Sociodemographic Information. In studying the nature of coping strategies in managing stress and healthy lifestyle behaviours, certain features such as age, gender, religious affiliation, ethnicity, and education are essential in highlighting a high prevalence or strong association of health outcomes with religiosity (Park et al., 2017) or cultural issues. This information was collected through a self-administered sociodemographic questionnaire. The questionnaire's variables included gender, age, years of residence in Canada, country of origin, marital status,

education, employment, income, health insurance coverage, smoking, and alcohol consumption. Concerning CR for individuals who had reported having experienced cardiac events, information was collected about the type and number of cardiac events in addition to participation and adherence to CR programs. This sociodemographic questionnaire was also made available in English and Arabic.

Data Analysis

To analyze the data collected from these tools, I used SPSS (version 24, SPSS Inc. Chicago, IL). I analyzed all sociodemographic information using descriptive statistical analysis based on frequencies and proportions for categorical variables and by using means with standard deviations for continuous variables. I used an independent sample test (t-test) to compare all variables between the male and female participants and between participants who had experienced cardiac events and those who were at higher risk for cardiac events. In addition, I used variance model analysis (ANOVA) to compare all variables among the age categories and categories for length of residence in Canada. Then, I used descriptive statistics, including mean and standard deviations, to compare outcomes based on gender (men/women), age (adult/older adult), length of residence in Canada, and health status (having cardiac events and/or CVD risk factors).

Results

Sociodemographic Characteristics

Of the 75 individuals interested in participating in this study, 63 met the inclusion criteria and completed and submitted all the questionnaires (84% response rate). Of the 12 participants who were not included in this study, two were excluded for not meeting one or more inclusion criteria, while ten were excluded for not completing all the questionnaires, as they had received

the survey link but did not fill out all the sections. I sent them two reminders after two weeks of receiving the link, and one of them stated that he regretted completing the questionnaires because he considered it private information and did not want to share it. The final number of surveys analyzed was 63. While 27 of the 63 participants filled out the Arabic paper versions of the questionnaires, 36 participants filled out the English/Arabic questionnaires online via their mobile devices or computers.

I used descriptive statistical analysis to analyze the characteristics of the participants. Of the 63 individuals who participated in the study, 21 participants had experienced a cardiac event, and 42 participants self-reported that they had been diagnosed with CVD risk factors. Of the 63 participants, 38% were women, 62% were men, 87% were 45 years of age or older, 59% were official immigrants, and 35% were refugees (the remainder preferred not to say). Almost all the study participants were highly educated, with approximately 80% having completed high school or post-secondary education. Most participants were Muslim, with only two Christian participants. Participants originally from Yemen comprised 22.2%, while 14.3% came from Iraq and 13.7% each came from Palestine and Syria. The other participants were from other Arab countries, including Lebanon, Egypt, Jordan, Libya, Tunisia, Sudan, Morocco, Eritrea, and Djibouti. All the participants were from the first generation in Canada, and 62% of the participants had lived in Canada for more than 15 years. Most participants (86%) had been diagnosed with cardiac events or CVD risk factors for over one year, 44.4% had been diagnosed with high cholesterol, and 41.3% had been diagnosed with hypertension. (Table 3.1: Sociodemographic characteristics of focus group participants.)

At the same time, I calculated descriptive statistics of the mean values and standard deviation (SD) for the total levels of religious beliefs and religious coping strategies (positive

and negative religious coping and religious involvement), acculturation, perceived stress, and healthy lifestyle behaviours (nutrition and physical activity) (Table 3.2: Descriptive analysis of the study variables). I used a t-test for multiple comparisons between variables' mean scores among groups based on gender (men/women) and health status (participants with cardiac events/higher risk for cardiac events). As well, I used ANOVA to compare the variables' mean scores based on age and residence categories.

Religious Beliefs and Religious Coping Strategies

While I examined religious beliefs and coping strategies through the Brief RCOPE in order to report the participants' positive and negative religious coping strategies, I used the Belief into Action (BIAC) to report the participants' religious involvement. The study data indicated that the participants tended to follow positive religious coping strategies more than negative ones. The mean positive religious coping score was 3.82 (SD = 0.20), while the mean negative religious coping score was 1.30 (SD = 0.34). The mean score for the religious involvement scale was moderate, at 5.40 (SD = 1.49) (Table 3.2).

Based on the participants' gender, the mean scores of religious beliefs and religious coping strategies were similar. The mean positive religious coping score was 3.83 (SD = 0.18) among men and 3.81 (SD = 0.22) among women, while the mean negative religious coping score was 1.34 (SD = 0.35) among men and 1.24 (SD = 0.32) among women. The mean score for the religious involvement scale was slightly higher among women than men, as the women's score was 5.79 (SD = 1.61) and the men's score was 5.15 (SD = 1.37) (Table 3.3).

Regarding the participants' ages, while all religious beliefs' and religious coping strategies' mean scores were similar among the age groups, participants from the age group over 64 years had a slightly higher score in religious involvement, at 6.00 (SD = 1.62) (Table 3.4).

Although the positive religious coping scores were similar among participants based on length of residence, the negative religious coping score was higher among residents who had been in Canada for 10-14 years than the other participants, at 1.51 (SD = 0.21). At the same time, participants who had been residents for 1-4 years and for 20 years or more scored the highest levels of religious involvement, with 5.85 (SD = 1.29) and 5.60 (SD = 1.62) respectively (Table 3.5).

Finally, the mean scores for positive religious coping were not different between participants who had had cardiac events and those who were at higher risk for cardiac events. However, for religious involvement, I found a slight difference, as participants who had had cardiac events scored 4.97 (SD = 1.74), while the participants who were at higher risk for cardiac events scored 5.61 (SD = 1.31) (Table 3.6). There were no significant differences reported among the participants with regard to religious beliefs and coping strategies based on their gender, age, length of residence, and health status related to cardiac events.

Acculturation

Acculturation was assessed using the dimensions of the AAMAS scale that showed two different acculturation levels. These results indicated that most participants were more oriented toward their Arabic culture, as the total mean score of the acculturation–Arabic dimension was 5.26 (SD = 0.42), while the total mean score of the acculturation–Canadian dimension was 3.48 (SD = 0.82) (Table 3.2).

On the acculturation scale, women were slightly more oriented than men toward the Arabic culture, with a score of 5.39 (SD = 0.38), and less oriented than men toward the Canadian culture, with a score of 3.24 (SD = 0.77) (Table 3.3). Based on age, participants in the middle-aged group (45-64 years) scored the highest score in both dimensions: 5.28 (SD = 0.39) in the

Arabic dimension and 3.54 (SD = 0.82) in the Canadian dimension (Table 3.4). Regarding the acculturation scores among participants based on length of residence, participants who had been residents for only 1-4 years scored the highest score in the Arabic dimension, with 5.43 (SD = 0.45), while participants who had been residents for 5-9 years scored the highest score in the Canadian dimension, with 3.94 (SD = 0.80) (Table 3.5). As well, participants who had had cardiac events had a high score in the Canadian dimension, with 3.58 (SD = 0.82), compared to participants who were at high risk for a cardiac event, who scored 3.42 (SD = 0.82) (Table 3.6). This study did not report any significant difference between acculturation scores in the two dimensions based on sociodemographic factors.

Perceived Stress

I used the PSS-10 to assess the participants' perceived stress. The overall mean score for perceived stress was 1.99 (SD = 0.40), indicating a moderate stress level (Table 3.2). This score was comparable to the perceived stress score that I reported among women or men (Table 3.3) and participants who had had cardiac events or who were at high risk for a cardiac event (Table 3.6). Regarding participants' ages, the findings indicated less perceived stress among participants from the age categories 35-44 years and older than 64 years, with 1.81 (SD = 0.46) and 1.86 (SD = 0.29) respectively (Table 3.4). Based on the length of residence, the highest level of perceived stress was among those who had been residents for 5-9 years, with a score of 2.16 (SD = 0.38) (Table 3.5). Perceived stress was moderate among all participants without significant differences in gender, age, length of residence, or health status related to cardiac events.

Healthy Lifestyle Behaviours

Nutrition and physical activity are healthy lifestyle behaviours that I assessed by using the HPLP-II scale. This study's findings reported more attention given by participants to nutrition

than to physical activity in their behaviours. The total mean score for nutrition was 2.48 (SD = 0.58), while the total score for physical activity was 1.76 (SD = 0.64). Among the participants in this study, women reported 2.55 (SD = 0.51) in the nutrition behaviour score, which was slightly better than that for men. In contrast, they scored lower on physical activity than men, with 1.66 (SD = 0.62) (Table 3.3). Based on age, participants aged between 35 and 44 years reported a higher level of nutrition behaviour, with 2.73 (SD = 0.81), and a higher level of physical activity, with 2.38 (SD = 0.94). Participants from other age groups reported scores that were similar to the total mean score (Table 3.4). As well, regarding length of residence, participants who had been residents in Canada for 20 years or more scored the highest level of nutritional behaviour, at 2.61 (SD = 0.40), while participants who had been residents for 1-4 years scored the highest level of physical activity, with 1.96 (SD = 0.86) (Table 3.5). For nutritional behaviour and physical activity, scores were similar between participants who had had cardiac events and those who were at higher risk for cardiac events (Table 3.6). I did not find any significant difference based on the sociodemographic factor for nutritional and physical activity behaviours.

Discussion

The overall purpose of this study was to determine the levels of religious beliefs as well as religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among a sample of individuals from Arab communities living in the city of Ottawa, Ontario, Canada, who self-reported as being diagnosed with cardiac events or who were at high risk for CVD. The overall findings indicated no significant difference among participants' mean scores in these various aspects based on age, gender, length of residence in Canada, or health status (participants who had had cardiac events or who were at higher risk for cardiac events).

Although the religious involvement total score was moderate among the participants, the mean RCOPE scores demonstrated high positive religious coping strategies overall. It is essential to consider that most participants in this study were Muslim. Based on participants' religious backgrounds, a high level of religiosity has been reported in other studies with positive religious coping strategies among Muslim participants, including Arabs (Braam et al., 2010; Ghaffari & Çiftçi, 2010). As religiosity may be used as a coping mechanism to deal with anxiety (Abdel-Khalek et al., 2019), the high level of religiosity among Arab immigrants may be a defensive strategy used to face stressful life challenges in the host country, especially in the first years of residence. In this study, this strategy may reflect the highest level of religious involvement and the lowest acculturation level among those who had been residents for 1-4 years.

A high level of religiosity may be considered a way for Muslim immigrants to maintain their original identity and express their fear of perceived discrimination, which is a stressor reflecting on their self-esteem (Amer, 2005; Ghaffari & Çiftçi, 2010). Simultaneously, a high level of religiosity may itself be considered a risk factor for increased stress levels in religious Arab-American Muslims, who experience more ethnic discrimination than Arab-Americans who are less religious or who are non-Muslim (Ikizler & Szymanski, 2018). Participants from the age group over 64 years and participants who are residents for more than 20 years may have challenges related to age, physical and/or mental health status, or level of acculturation, and may use religious coping when facing such challenges. In this context, Amer and colleagues (2008) found that compared to Christian Arab-American participants, Muslim Arab-American participants reported a more generous use of religious coping associated with higher acculturation stress and higher levels of depression (Amer et al., 2008).

It is important to highlight the high total score for positive religious coping strategies and the acculturation scale's Arabic dimension, indicating that more religious participants were less acculturated. This finding is consistent with previous studies that stated that Muslim Arab-Americans were less acculturated and less satisfied with their lives in the United States (Amer, 2005; Faragallah et al., 1997). This Muslim immigrant rejection of Western life is expressed by firmly asserting their Islamic identity (Bagasra & Mackinem, 2019). Other studies reporting similar findings have also shown low levels of acculturation among Arab-American Muslims (Al Wekhian, 2016; Awad, 2010), American Muslims (Bagasra & Mackinem, 2019), and Muslim immigrants in Belgium (Saroglou & Mathijssen, 2007).

As well, the low levels of acculturation that I have reported in this study have been reported in other studies of Arab-Americans or Arab immigrants in the United States, regardless of their religious background (Al-Dahir et al., 2013; Amer, 2005; Jaber et al., 2003; Tailakh et al., 2016). Findings from the current study showed that the mean score on the acculturation scale was lower among women, which is in line with other studies showing that women were less acculturated than men among Arab-Americans (Al-Dahir et al., 2013; Tailakh et al., 2016). Also, Jaber and colleagues (2003) found low levels of acculturation for both Arab-American men and women, Barry (2005), who studied only Arab-American men, obtained similar findings, and Al-Ma'seb (2006), who examined only Arab-American women, again found similar results. Concerning length of residence and acculturation, I reported in the findings of the current study that those who had been residents for only 1-4 years were less acculturated than those who had been residents for 5-9 years. This finding is partially in line with other studies that reported that more exposure to American society and less exposure to the Arabic culture was associated with a higher acculturation level (Al-Ma'seb, 2006; Amer, 2005).

On the other hand, the overall levels of perceived stress were moderate in this study, among both Arab women and men. These findings are consistent with previous studies that did not find any confirmed differences between Arab-American women and men in stress, anxiety, or depression (Amer, 2005). However, findings from another study reported higher perceived stress among Arab-American women than men (Jaber et al., 2003). On the other hand, the findings from the current study indicated higher levels of perceived stress among those who had been residents for 5-9 years. During these years of residence timeframes, participants may face more acculturative stress related to parenting and cultural conflicts with children. From the current study, the findings indicated that satisfaction with life in host countries may increase with more extended residence among Arab-Americans; however, Faragallah et al. (1997) reported that such satisfaction may decline among Arab families even with long residence.

Concerning healthy lifestyle behaviours (nutrition and physical activities), findings from this study reported more attention paid by participants to nutrition than to physical activity, and this is comparable to findings about Arab-Americans in other studies (Aqtash & Van Servellen, 2013; Jadalla et al., 2015; Tailakh et al., 2016). Findings from the current study reporting physical inactivity and a low level of acculturation among participants are similar to findings from a study of a sample of hypertensive Arab-Americans in Southern California (Tailakh et al., 2016). Similar findings have been reported among other Arab-Americans from Southern California (Aqtash & Van Servellen, 2013; Jadalla et al., 2015), southeastern Michigan (Jaber et al., 2003), and Colorado (El Hajj, 2012). In contrast to these various findings, however, Eldoumi and Gates (2019) found no association between physical activity and acculturation or strength of religious faith among a sample of Arab-American Muslim women. Regardless, in this study's findings, women scored lower on levels of physical activity than men, in agreement with Jaber

and colleagues (2003), whereas in Jadalla and colleagues' (2015) study, no difference between men and women was reported regarding physical activity scores.

Qahoush and colleagues (2010) reported that a sample of Arab women in Southern California was physically inactive and overweight, although some still met the minimum public health guidelines for physical activity. For Arab-American women, low self-efficacy in addition to some stressful religious or cultural barriers such as dress code, negative perception, and lack of motivation may influence their physical activity levels (Eldoumi & Gates, 2019; Jaber et al., 2003). Despite the moderate level of nutritional behaviours that I reported in this study, women tended to be healthier than men in their nutritional behaviours. However, both Arab-American women and men scored similar levels of nutritional behaviours in another study (Jadalla et al., 2015). In this study, residents who had been in Canada for 20 years or more scored the highest on levels of nutritional behaviour, which may be related to the length of exposure to Western media which is associated with eating a healthy, low-fat diet (El Hajj, 2012).

Strengths and Limitations

This study is novel in that it deals with acculturation, religious beliefs and religious coping strategies, healthy behaviours, and stress among Arabic communities in Ottawa. This study highlighted the importance of patients' cultural/religious beliefs and practices that should be considered in therapeutic interventions within a person-centred care approach. This study also focused on Arab immigrants with CVD risk factors in Ottawa as an underrepresented ethnic minority group. The findings of this study may help provide the data needed for calculating sample sizes in future studies when studying the same population. However, this study has some limitations, including the challenge of recruiting participants with specific diagnoses of cardiac events or CVD risk factors in a community setting. This difficulty in recruiting volunteer

participants without placing pressure upon them was reflected in the number of study participants, even with the efforts of CAHC members who spread the message among their Arabic communities. For this reason, the final number of participants was lower than expected when designing the study protocol. Also, as religion is a sensitive topic for some people, this may have influenced the participation rate in Arab Muslim communities and Arab Christian communities. Therefore, Arab Christian people's perspectives were not well represented (i.e., with only two participants) in this sample, and I could not compare data based on faith, as most participants were Muslim. On the other hand, this study's premise is strengthened by its focus on such a sensitive topic. Overall, this study focuses on religious beliefs and religious coping strategies, acculturation, and behavioural risk factors among Arab individuals who had been diagnosed with cardiac events or CVD risk factors.

Although this study provides some significant findings, its design as a cross-sectional study cannot explain these findings' causality. As well, although the survey was designed for participants to select their answers without needing to record information, using five scales in addition to the sociodemographic questionnaire made the survey too long to complete in a short time, especially for older people who may have some difficulties in reading and/or in maintaining attention. Another limitation is that some of the participants completed the questionnaires online where others completed the paper versions of the questionnaires. Providing two platforms to participate in the same questionnaires might affect the responses rate differently. As well, adopting translated versions of these four scales from other studies may add another limitation to this study, as the participants may have found some translation style differences. Designing a new and shorter questionnaire in Arabic and English could be best for implementation in similar future studies among Arab people living in host countries.

Conclusion

This study provides new insights into the health behaviours of Arab individuals in the Ottawa region who are living with cardiac events or risk factors. While these individuals may be more religious and less acculturated, their lifestyle behaviours related to physical activity, nutrition, and stress management may be influenced by their health status, religious beliefs, and practices from their culture of origin. Regardless of this study's limitations, these findings and other behavioural factors will inform the following qualitative study. Interviewing participants who have experienced cardiac events and shown interest in sharing their experiences would shed light on religious coping experiences and the impact of culture on recovery following cardiac events. As well, understanding the barriers and facilitators in cardiac rehabilitation experiences will help in designing culturally appropriate cardiac rehabilitation programs to prevent CVD or its risk factors among immigrants from Arab countries.

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Table 3.1 Participants characteristics (N=63)

Characteristic	Total n(%)
Gender	
Men	39 (62%)
Women	24 (38%)
Age categories	
25-34	1 (2%)
35-44	7 (11%)
45-64	41 (65%)
> 64 years	14 (22%)
Current marital status	
Married/Common law	49 (78%)
Divorced/Separated	7 (11%)
Widowed	7 (11%)
Residence in Canada	
1-4 Years	12 (19%)
5-9 Years	7 (11%)
10-14 Years	5 (8%)
15-19 Years	17 (27%)
20 years or more	22 (35%)
Country of origin	
Yemen	14 (22.2%)
Iraq	9 (14.3%)
Palestine	8 (13.7%)
Syria	8 (13.7%)
Lebanon	6 (9.5%)
Egypt	4 (6.3%)
Jordan	4 (6.3%)
Libya	3 (4.8%)
Tunisia	3 (4.8%)
Eritrea	1 (1.6%)
Sudan	1 (1.6%)
Djibouti	1 (1.6%)
Morocco	1 (1.6%)
Living area	
Ottawa	57 (90%)
Gatineau/Hull	6 (10%)
Immigration generation in Canada	
1st generation	63 (100%)
Immigration status when coming to Canada	
Immigrant	37 (59%)
Refugee	22 (35%)
Prefer not to answer	2 (3%)

Don't apply to me	2 (3%)
Preferred languages (written communication)	
Arabic	48 (76%)
English	15 (24%)
Preferred languages (verbal communication)	
Arabic	53 (84%)
English	10 (16%)
Education level	
Less than secondary school	12 (19%)
High school	14 (22%)
Collegial diploma	5 (8%)
Bachelor's degree	17 (27%)
Master's degree	9 (14%)
Ph.D. or medical degree	6 (10%)
Employment status	
Employed	13 (20.6%)
Self-employed	10 (15.9%)
Out of work and looking for work	7 (11.1%)
Out of work but not currently looking for work	2 (3.2%)
Homemaker	7 (11.1%)
Student	5 (7.9%)
Retired	11 (17.5%)
Unable to work	3 (4.8%)
Prefer not to answer	5 (7.9%)
Religious affiliation	
Muslim	60 (95%)
Christian	2 (3%)
Prefer not to answer	1 (2%)
Smoking (cigarettes or hookah)	
Have never smoked	30 (47.6%)
Smoked for a short term then ceased	9 (14.3%)
Smoked for a long term then ceased	5 (7.9%)
Smoke from time to time	11 (17.5%)
Smoke a lot and cannot cease it	8 (12.7%)
Drinking alcoholic beverages	
Have never drunk	53 (84.1%)
Drank for a short term then ceased	8 (12.7%)
Drink from time to time	2 (3.2%)
Cardiac events and CVD risk factors	
Cardiac events	21 (33%)
Only CVD risk factors	42 (67%)
Duration of diagnosed events or risk factors	
Less than a year	9 (14%)
1–5 years	27 (43%)

> 5 years	27 (43%)
Type of cardiac event or CVD risk factors	
Heart attack	13 (20.6%)
Angina	8 (12.7%)
Heart failure	4 (6.3%)
Hypertension	26 (41.3%)
High cholesterol	28 (44.4%)
Diabetes	21 (33.3%)
Frequency of cardiac events (%) N:21	
Once	12 (57%)
Twice	2 (10%)
More than 2 events	7 (33%)
Hospitalization after cardiac events (%) N:21	
Yes	19 (90%)
No	2 (10%)
Referral to cardiac rehabilitation program (%) N:21	
Referred but not participated	2 (9.5%)
Referred, participated, not completed	1 (4.8%)
Referred, participated, completed	10 (47.6%)
Not referred	8 (38.1%)

Table 3.2 Descriptive analysis of the study variables (N=63)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Positive religious coping	63	1.14	4.00	3.82	0.20
Negative religious coping	63	1.00	3.29	1.30	0.34
Religious involvement	63	1.80	9.30	5.40	1.49
Acculturation (Arabic)	63	1.60	6.00	5.26	0.42
Acculturation (Canada)	63	1.73	4.93	3.48	0.82
Perceived stress	63	.60	3.10	1.99	0.40
Nutrition	63	1.00	4.00	2.48	0.58
Physical activity	63	1.00	4.00	1.76	0.64

Religious coping= Brief RCOPE, Religious involvement= BIAC, Acculturation= AAMAS, Perceived stress= PSS-10,
 Nutrition & Physical activity= HPLP-II

Table 3.3 Descriptive analysis of the study variables based on gender (N=63)

Variable	Gender	N	Mean	Std. Deviation	Std. Error Mean
Positive religious coping	Men	39	3.8286	0.18094	0.02897
	Women	24	3.8083	0.22520	0.04597
Negative religious coping	Men	39	1.3388	0.34596	0.05540
	Women	24	1.2381	0.31921	0.06516
Religious involvement	Men	39	5.1513	1.36726	0.21894
	Women	24	5.7917	1.61485	0.32963
Acculturation (Arabic)	Men	39	5.1722	0.43347	0.06941
	Women	24	5.3899	0.37619	0.07679
Acculturation (Canada)	Men	39	3.6154	0.82949	0.13283
	Women	24	3.2472	0.76606	0.15637
Perceived stress	Men	39	1.98	0.348	0.056
	Women	24	2.01	0.475	0.097
Nutrition	Men	39	2.4359	0.62198	0.09960
	Women	24	2.5463	0.51276	0.10467
Physical activity	Men	39	1.8173	0.65572	0.10500
	Women	24	1.6563	0.62036	0.12663

Religious coping= Brief RCOPE, Religious involvement= BIAC, Acculturation= AAMAS, Perceived stress= PSS-10,

Nutrition & Physical activity= HPLP-II

Table 3.4 Descriptive analysis of the study variables based on age (N=63)

Variable	Age categories	N	Mean	Std. Deviation	Std. Error Mean
Positive religious coping	25-34	1	4.0000		
	35-44	7	3.8816	0.16531	0.06248
	45-64	41	3.7847	0.20574	0.03213
	> 64 years	14	3.8837	0.17378	0.04644
	Total	63	3.8209	0.19743	0.02487
Negative religious coping	25-34	1	1.0000		
	35-44	7	1.3469	0.41940	0.15852
	45-64	41	1.3206	0.35611	0.05562
	> 64 years	14	1.2398	0.23873	0.06380
	Total	63	1.3005	0.33703	0.04246
Religious involvement	25-34	1	3.0000		
	35-44	7	5.7857	1.12165	0.42394
	45-64	41	5.1805	1.43007	0.22334
	> 64 years	14	6.0000	1.61579	0.43184
	Total	63	5.3952	1.48709	0.18736
Acculturation (Arabic)	25-34	1	5.0000		
	35-44	7	5.1224	0.59863	0.22626
	45-64	41	5.2840	0.38910	0.06077
	> 64 years	14	5.2551	0.45324	0.12113
	Total	63	5.2551	0.42311	0.05331
Acculturation (Canada)	25-34	1	2.4000		
	35-44	7	3.4190	0.99533	0.37620
	45-64	41	3.5415	0.81856	0.12784
	> 64 years	14	3.3857	0.75659	0.20221
	Total	63	3.4751	0.81969	0.10327
Perceived stress	25-34	1	1.99		
	35-44	7	1.81	0.460	0.174
	45-64	41	2.07	0.411	0.064
	> 64 years	14	1.86	0.287	0.077
	Total	63	1.99	0.397	0.050
Nutrition	25-34	1	2.3333		
	35-44	7	2.7302	0.81361	0.30752
	45-64	41	2.3957	0.59683	0.09321
	> 64 years	14	2.6032	0.36648	0.09795

	Total	63	2.4780	0.58101	0.07320
Physical activity	25-34	1	1.3750		
	35-44	7	2.3750	0.93819	0.35460
	45-64	41	1.6890	0.59037	0.09220
	> 64 years	14	1.6696	0.49905	0.13338
	Total	63	1.7560	0.64227	0.08092

Religious coping= Brief RCOPE, Religious involvement= BIAC, Acculturation= AAMAS, Perceived stress= PSS-10,
 Nutrition & Physical activity= HPLP-II

Table 3.5 Descriptive analysis of the study variables based on length of residence (N=63)

Variable	Length of residence	N	Mean	Std. Deviation	Std. Error Mean
Positive religious coping	1-4 years	12	3.8714	0.19321	0.05577
	5- 9 years	7	3.8735	0.16811	0.06354
	10-14 years	5	3.7486	0.18002	0.08051
	15- 19 years	17	3.7849	0.21762	0.05278
	20 years or more	22	3.8208	0.20129	0.04292
	Total	63	3.8209	0.19743	0.02487
Negative religious coping	1-4 years	12	1.2262	0.35758	0.10322
	5- 9 years	7	1.2857	0.37796	0.14286
	10-14 years	5	1.5143	0.21068	0.09422
	15- 19 years	17	1.2311	0.32294	0.07833
	20 years or more	22	1.3506	0.34497	0.07355
	Total	63	1.3005	0.33703	0.04246
Religious involvement	1-4 years	12	5.8500	1.28806	0.37183
	5- 9 years	7	5.4714	1.87146	0.70735
	10-14 years	5	5.5000	0.29155	0.13038
	15- 19 years	17	4.7471	1.40139	0.33989
	20 years or more	22	5.6000	1.62481	0.34641
	Total	63	5.3952	1.48709	0.18736
Acculturation (Arabic)	1-4 years	12	5.4345	0.44914	0.12965
	5- 9 years	7	5.3980	0.31368	0.11856
	10-14 years	5	5.2429	0.68809	0.30772
	15- 19 years	17	5.0882	0.45142	0.10949
	20 years or more	22	5.2435	0.31842	0.06789
	Total	63	5.2551	0.42311	0.05331
Acculturation (Canada)	1-4 years	12	3.2222	0.89277	0.25772
	5- 9 years	7	3.9429	0.80409	0.30392
	10-14 years	5	3.3200	0.86204	0.38552
	15- 19 years	17	3.4000	0.66207	0.16057
	20 years or more	22	3.5576	0.88265	0.18818
	Total	63	3.4751	0.81969	0.10327
Perceived stress	1-4 years	12	2.03	0.492	0.142
	5- 9 years	7	2.16	0.378	0.143

	10-14 years	5	1.98	0.303	0.136
	15- 19 years	17	1.98	0.413	0.100
	20 years or more	22	1.93	0.369	0.079
	Total	63	1.99	0.397	0.050
Nutrition	1-4 years	12	2.4352	0.61675	0.17804
	5- 9 years	7	2.3651	0.79015	0.29865
	10-14 years	5	2.3111	0.64979	0.29059
	15- 19 years	17	2.4314	0.67801	0.16444
	20 years or more	22	2.6111	0.39508	0.08423
	Total	63	2.4780	0.58101	0.07320
Physical activity	1-4 years	12	1.9583	0.85834	0.24778
	5- 9 years	7	1.4286	0.41993	0.15872
	10-14 years	5	1.5250	0.43661	0.19526
	15- 19 years	17	1.8235	0.76170	0.18474
	20 years or more	22	1.7500	0.47716	0.10173
	Total	63	1.7560	0.64227	0.08092

Religious coping= Brief RCOPE, Religious involvement= BIAC, Acculturation= AAMAS, Perceived stress= PSS-10,

Nutrition & Physical activity= HPLP-II

Table 3.6 Descriptive analysis of the study variables based on health status (N=63)

Variable	Health status	N	Mean	Std. Deviation	Std. Error Mean
Positive religious coping	Cardiac events	21	3.8422	0.18574	0.04053
	Higher risk for CVD	42	3.8102	0.20436	0.03153
Negative religious coping	Cardiac events	21	1.2449	0.32543	0.07101
	Higher risk for CVD	42	1.3282	0.34313	0.05295
Religious involvement	Cardiac events	21	4.9667	1.74107	0.37993
	Higher risk for CVD	42	5.6095	1.31313	0.20262
Acculturation (Arabic)	Cardiac events	21	5.2007	0.34376	0.07502
	Higher risk for CVD	42	5.2823	0.45912	0.07084
Acculturation (Canada)	Cardiac events	21	3.5810	0.82061	0.17907
	Higher risk for CVD	42	3.4222	0.82399	0.12714
Perceived stress	Cardiac events	21	1.98	0.363	0.079
	Higher risk for CVD	42	2.00	0.418	0.064
Nutrition	Cardiac events	21	2.4815	0.58829	0.12838
	Higher risk for CVD	42	2.4762	0.58450	0.09019
Physical activity	Cardiac events	21	1.7500	0.56872	0.12410
	Higher risk for CVD	42	1.7589	0.68264	0.10533

Religious coping= Brief RCOPE, Religious involvement= BIAC, Acculturation= AAMAS, Perceived stress= PSS-10,
Nutrition & Physical activity= HPLP-II

Appendix 1

Brief RCOPE (Pargament et al., 2011)

The following items deal with ways you coped with cardiac events. Think about the cardiac event(s) you are/were facing in the Canadian context. From these listed items below, please indicate to which degree you did what each item says.

	Not at All 1	Somewhat 2	Quite a bit 3	A Great Deal 4
Looked for a stronger connection with Allah	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sought Allah's love and care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sought help from Allah in letting go of my anger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tried to put my plans into action together with Allah	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tried to see how Allah might be trying to strengthen me in this situation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Asked forgiveness for my sins	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Focused on religion to stop worrying about my problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wondered whether Allah had abandoned me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Felt punished by Allah for my lack of devotion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wondered what I did for Allah to punish me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Questioned Allah's love for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wondered whether my mosque/church had abandoned me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decided the devil made this happen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Questioned the power of Allah	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 2

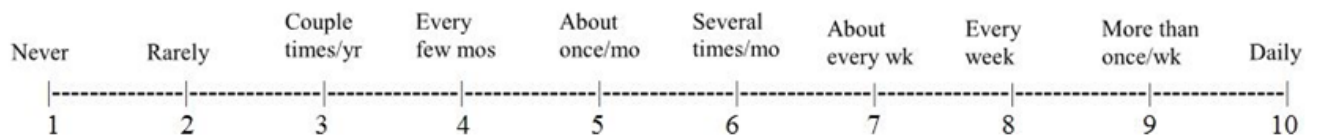
Belief into Action (BIAC) (Koenig et al., 2015)

Answer each one of the following questions separately since the answer options may vary from question to question.

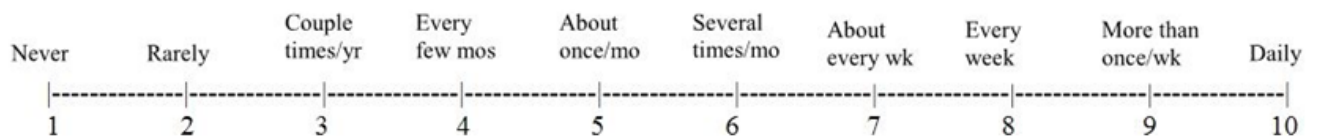
1. Please circle the highest priority in your life now. (most valued, prized) [circle only one]

1. My health and independence
2. My family
3. My friendships
4. Job, career or business
5. My education
6. Financial security
7. Relationship with God
8. Ability to travel & see the world
9. Listening to music and partying
10. Freedom to live as I choose

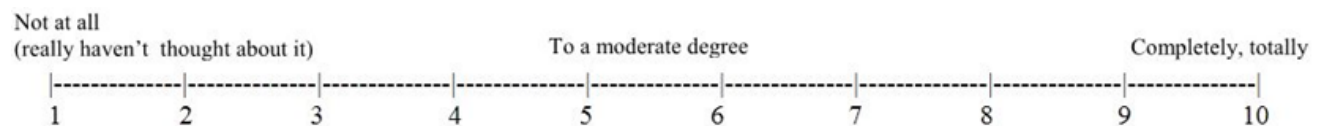
2. How often do you attend religious services? (circle a number below)



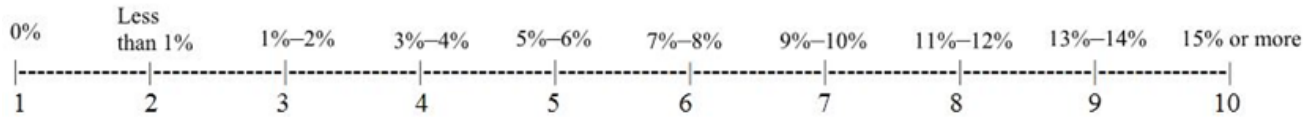
3. Other than religious services, how often do you get together with others for religious reasons (prayer, religious discussions, volunteer work, etc.)?



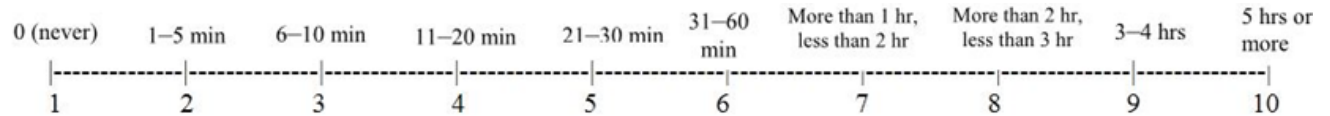
4. To what extent (on a 1 to 10 scale) have you decided to place your life under God's direction?



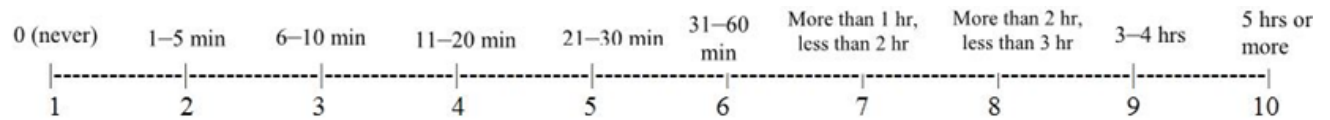
5. What percentage of your gross annual income do you give to your religious institution or to other religious causes each year?



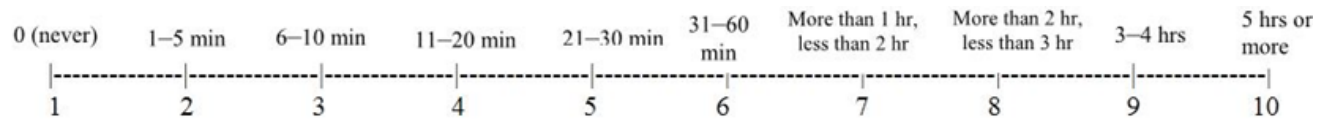
6. On average, how much time each day (in 24 hours) do you spend listening to religious music or radio, or watching religious TV?



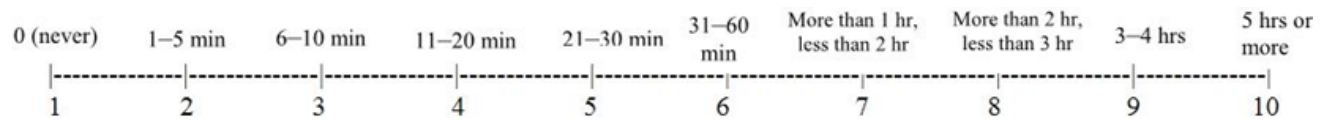
7. On average, how much time each day do you spend reading religious scriptures, books, or other religious literature?



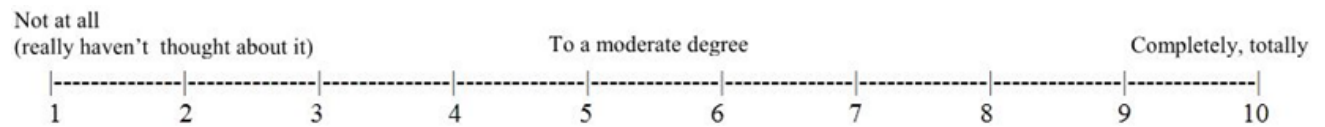
8. On average, how much time each day do you spend in private prayer or meditation?



9. On average, how much time each day do you spend as a volunteer in your religious community or to help others for religious reasons?



10. To what extent (on a 1 to 10 scale) have you decided to conform your life to the teachings of your religious faith?



Appendix 3

Asian American Multidimensional Acculturation Scale (AAMAS) (Chung et al., 2004)

Use the scale below to answer the following questions. Please circle the number that best represents your view on each item. Please note that reference to “Arab” hereafter refers to Arab in North America and not in origin countries.

	Not very well		Somewhat			
	Very well					
How well do you speak :	1	2	3	4	5	6
1) your own Arabic language?	1	2	3	4	5	6
2) English?						
How well do you understand :	1	2	3	4	5	6
1) your own Arabic language?	1	2	3	4	5	6
2) English?						
How well do you read and write in :	1	2	3	4	5	6
1) your own Arabic language?	1	2	3	4	5	6
2) English?						
How often do you listen to music or look at movies and magazines from:	1	2	3	4	5	6
1) your own Arabic group?	1	2	3	4	5	6
2) the White mainstream groups?						
How much do you like the food of:	1	2	3	4	5	6
1) your own Arabic group?	1	2	3	4	5	6
2) the White mainstream groups?						
How often do you eat the food of:	1	2	3	4	5	6
1) your own Arabic group?	1	2	3	4	5	6
2) the White mainstream groups?						
How knowledgeable are you about the history of:	1	2	3	4	5	6
1) your own Arabic group?	1	2	3	4	5	6
2) the White mainstream groups?						

How knowledgeable are you about the culture and traditions of: 1) your own Arabic group? 2) the White mainstream groups?	1 1	2 2	3 3	4 4	5 5	6 6
How much do you practice the traditions and keep the holidays of: 1) your own Arabic group? 2) the White mainstream groups?	1 1	2 2	3 3	4 4	5 5	6 6
How much do you identify with: 1) your own Arabic group? 2) the White mainstream groups?	1 1	2 2	3 3	4 4	5 5	6 6
How much do you feel you have in common with people from: 1) your own Arabic group? 2) the White mainstream groups?	1 1	2 2	3 3	4 4	5 5	6 6
How much do you interact and associate with people from: 1) your own Arabic group? 2) the White mainstream groups?	1 1	2 2	3 3	4 4	5 5	6 6
How much would you like to interact and associate with people from: 1) your own Arabic group? 2) the White mainstream groups?	1 1	2 2	3 3	4 4	5 5	6 6
How proud are you to be part of: 1) your own Arabic group? 2) the White mainstream groups?	1 1	2 2	3 3	4 4	5 5	6 6
How negative do you feel about people from: 1) your own Arabic group? 2) the White mainstream groups?	1 1	2 2	3 3	4 4	5 5	6 6

Appendix 4

Perceived Stress Scale (PSS) (Cohen et al., 1983)

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling how often you felt or thought a certain way:

Stress 1	In the last month, how often have you been upset because of something that happened unexpectedly?	0 1 2 3 4	0 = Never 1= Almost never 2= Sometimes 3= Fairly Often 4= Very Often
Stress 2	In the last month, how often have you felt that you were unable to control the important things in your life?	0 1 2 3 4	0 = Never 1= Almost never 2= Sometimes 3= Fairly Often 4= Very Often
Stress 3	In the last month, how often have you felt nervous and “stressed”?	0 1 2 3 4	0 = Never 1= Almost never 2= Sometimes 3= Fairly Often 4= Very Often
Stress 4	In the last month, how often have you felt confident about your ability to handle your personal problems?	0 1 2 3 4	0 = Never 1= Almost never 2= Sometimes 3= Fairly Often 4= Very Often
Stress 5	In the last month, how often have you felt that things were going your way?	0 1 2 3 4	0 = Never 1= Almost never 2= Sometimes 3= Fairly Often 4= Very Often
Stress 6	In the last month, how often have you found that you could not cope with all the things that you had to do?	0 1	0 = Never 1= Almost never

		2	2= Sometimes
		3	3= Fairly Often
		4	4= Very Often
Stress 7	In the last month, how often have you been able to control irritations in your life?	0	0 = Never
		1	1= Almost never
		2	2= Sometimes
		3	3= Fairly Often
		4	4= Very Often
Stress 8	In the last month, how often have you felt that you were on top of things?	0	0 = Never
		1	1= Almost never
		2	2= Sometimes
		3	3= Fairly Often
		4	4= Very Often
Stress 9	In the last month, how often have you been angered because of things that were outside of your control?	0	0 = Never
		1	1= Almost never
		2	2= Sometimes
		3	3= Fairly Often
		4	4= Very Often
Stress 10	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	0	0 = Never
		1	1= Almost never
		2	2= Sometimes
		3	3= Fairly Often
		4	4= Very Often

Appendix 5

Health-Promoting Lifestyle Profile HPLP-II scale

(Nutrition and physical activity) (Walker et al., 1987)

This section contains statements about your present way of life or personal habits. Please respond to each accurately. Complete all questions. Indicate the frequency with which you engage in each behaviour by circling:

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

Choose a diet low in fat, saturated fat and cholesterol.	N	S	O	R
Follow a planned exercise program.	N	S	O	R
Limit use of sugars and food containing sugar (sweets).	N	S	O	R
Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber.)	N	S	O	R
Eat 6 – 11 servings of bread, cereal, rice and pasta each day.	N	S	O	R
Take part in light to moderate physical activity (such as sustained walking 30 – 40 minutes 5 or more times a week).	N	S	O	R
Eat 2 – 4 servings of fruit each day.	N	S	O	R
Take part in leisure – time (recreational) physical activities (such as swimming, dancing, bicycling).	N	S	O	R
Eat 3 – 4 servings of vegetables each day.	N	S	O	R
Do stretching exercise at least 3 times per week.	N	S	O	R
Eat 2 – 3 servings of milk, yogurt or cheese each day.	N	S	O	R
Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking,	N	S	O	R
Eat only 3 -4 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	N	S	O	R
Check my pulse rate when exercising.	N	S	O	R
Read labels to identify nutrients, fats, and sodium content in packaged food.	N	S	O	R
Reach my target heart rate when exercising.	N	S	O	R
Eat breakfast.	N	S	O	R

**The Recovery Experiences of Male Arab Immigrants After Cardiac Events: Conceptions
about the Role of Acculturation and Religious Coping in Managing Lifestyle Behaviors**

(Interview study)

This manuscript has been submitted to the International Journal of Migration, Health and Social
Care, and it is under review since July 2021

CHAPTER 4: INTERVIEW STUDY

Abstract

Background: Immigrants' cultural backgrounds, home country lifestyles, and acculturation levels in host countries may impact their health status and disease prevention factors. As well, religious coping or using religious beliefs, attitudes, or practices for facing life challenges can provide a sense of meaning and purpose in life. However, up to this point, the roles of acculturation and religious coping have rarely been addressed in cardiac rehabilitation programs from the perspective of Arab individuals who had had cardiac events while living in Canada.

Purpose: This study aimed to explore the role of acculturation and religious coping in shaping male Arab individuals' lived experiences after a cardiac event and to explore their ways of understanding lifestyle behaviours and cardiac rehabilitation during recovery.

Method: Semi-structured in-depth interviews between 40 and 75 minutes in length were conducted in January through March 2020 in Ottawa, Canada, with male Arab individuals (N=10) who identified themselves as having had cardiac events while living in Canada. Inductive thematic analysis based on a phenomenographic approach was used to identify themes.

Results: The findings identified five core themes: "Stressful events or cardiac events!": acculturative stress effects; "It was a dreamlike event!": dismissing perceptions of cardiac events; "recognizing risk factors is not enough to avoid them": perceived threat; religious coping outcomes: satisfaction and fatalism; Cardiac Rehabilitation programs: who refers and who participates.

Conclusion: Stress and mental burdens while living in Canada negatively affected Arab male individuals' experiences following a cardiac event. Stress was perceived as a potential cause of cardiac events and a factor leading to low self-efficacy in changing lifestyle behaviours. However, positive religious coping strategies were used to manage stress and cardiac event consequences, but not to change physical activity, diet, and smoking behaviours. The importance of adhering to medications was perceived as more important than adopting healthy lifestyle behaviours, and for this reason, they expressed a lower perceived need for cardiac rehabilitation programs.

Keywords: Acculturation, Arab immigrants, Cardiac events, Healthy lifestyle behaviours, Religious coping

This qualitative study focused on the experiences of male individuals diagnosed with CVD from Arab communities living in the Ottawa region who identified themselves as having had cardiac events while living in Canada. These male individuals had already participated in the previous study. In this study, I aimed to explore and understand the role of acculturation and religious coping in shaping male Arab individuals' lived experiences after cardiac events and to explore their ways of understanding lifestyle change behaviours and CR during recovery.

Introduction

Immigrants' cultural backgrounds, home country lifestyles, and acculturation levels in host countries impact their health status. In many countries in the Global North, such as Canada, there are often higher levels of risk factors for diseases among immigrants from ethnic minorities in comparison with the general population (Chun et al., 2003; Jolly et al., 2007; Shaw et al., 2008). For example, Arab people in host countries have an increased prevalence of cardiovascular disease (CVD) and CVD risk factors (Abuelezam et al., 2018; El-Sayed & Galea, 2009; Hatahet et al., 2002). However, to date there has been limited research about CVD, potential risk factors, and preventive behaviours among Arab immigrants in host countries (Suwaidi, 2016).

For Arab people living in host countries, acculturation level plays a role in the adoption of healthy lifestyle behaviours, and a high level of acculturation among Arab immigrants may indicate more involvement in health-promoting behaviours (Aqtash & Van Servellen, 2013). Arab-Americans who are more acculturated are more physically active (Jadalla et al., 2015; Jadalla & Lee, 2012), eat healthier diets, and have better mental health (Jadalla, 2007); however, they are more likely to smoke (El Hajj, 2012; Tailakh et al., 2016). In contrast, being less acculturated is often associated with negative health beliefs and perceptions towards CVD

prevention. Less acculturated Arab-Americans are at higher risk because of unhealthy traditional diets, older age (Jaber et al., 2003), physical inactivity, low self-efficacy (Jaber et al., 2003; Qahoush, 2006; Qahoush et al., 2010), and smoking (Al-Omari & Scheibmeir, 2009; Azar, 2008; Sarsour et al., 2010).

Besides culture, religion as a source of support and well-being influences various aspects of people's lives, including their perceptions and beliefs towards health and disease (Koenig, King, & Carson, 2012; Mueller, Plevak & Rummans, 2001). Religious coping is used by people experiencing stressors to cope with stressful situations related to mental and physical health (Pargament & Abu-Raiya, 2007), including coping with pain, chronic illness, and ageing (Sargeant & Newsham, 2012), or with stress over the changes in life that illness causes (Koenig, 2004). Regarding health, religiosity is a predictive factor in reducing mortality and morbidity related to CVD (Masters & Hooker, 2013), as religious coping is used as a potential coping method for patients with CVD (Naghi et al., 2012), and individuals with CVD who are more religious have lower levels of psychological stress (Lucchese & Koenig, 2013) when facing a variety of stressful situations (Koenig, 2012).

To encourage immigrants in host countries to adopt healthy lifestyle behaviours, it is crucial to consider their cultural and religious beliefs and cultural affiliations in behavioural change interventions (Caperchione et al., 2009; Netto et al., 2010). However, cardiac rehabilitation (CR) secondary prevention programs rarely consider individuals' cultural and religious backgrounds in supporting individuals to change their lifestyle behaviours (Galdas et al., 2012). Therefore, health care providers need to understand the roles of culture and migration experiences on immigrants' perceptions of health care and their own health (Lassetter & Callister, 2009). Up to this point, the roles of acculturation and religious coping have rarely been

addressed in recovery and CR programs from the perspective of Arab individuals who had had having cardiac events while living in Canada. Therefore, this study aimed to explore the roles of acculturation and religious coping in shaping male Arab individuals' lived experiences after cardiac events and to explore their ways of understanding lifestyle behaviours and CR during recovery.

Method

This qualitative study adopted a phenomenographic approach (Marton, 1981) in order to describe the variations in the conceptions of male Arab individuals about acculturation and religious coping when undergoing recovery after cardiac events as well as their ways of understanding lifestyle behaviours and CR during recovery. As health beliefs and attitudes have a powerful influence on people's health and health behaviours (Courtenay et al., 2002), the Health Belief Model (Janz & Becker, 1984) was used as the framework for the questions and analysis. The Health Belief Model explains and predicts health behaviours by focusing on the attitudes and beliefs of individuals, since people's motivations to change behaviour related to health conditions are based on their beliefs towards such behaviour (Nieuwenhuijsen et al., 2006). This study was approved by the Office of Research Ethics and Integrity, University of Ottawa, Ottawa, Canada.

Study Setting, Participants, and Sampling Procedure

This study focused on the experiences of individuals diagnosed with CVD from Arab communities in the Ottawa region who were aged 18 years or older, who had been living in Canada for a minimum of two years, who were Arabic and/or English speakers, and who identified themselves as having had cardiac events while living in Canada. These individuals had already participated in a previous survey study about levels of religious beliefs, coping strategies,

acculturation, perceived stress, and healthy lifestyle behaviours. Later, by phone or e-mail, the PI contacted participants who wanted to be part of the follow-up interview study. In order to emphasize the privacy and confidentiality of all information provided, each participant in this qualitative study had already read and signed a written informed consent form when participating in the previous quantitative survey study that included information about both studies' objectives, content, and procedures, with permission to audio-record their interviews.

Fourteen participants consented to be interviewed, and they were contacted by phone or e-mail to arrange an in-person interview with semi-structured questions. In this invitation, the PI asked each participant to decide their preferred interview time and location. For those participants who did not respond to the first invitation, the PI contacted them after two weeks, and sent another reminder two weeks after that if necessary. Each participant had the option to be interviewed in either English or Arabic. Sociodemographic information had been retrieved from the participant sociodemographic questionnaires in the previous quantitative survey study. After completing the interview, participants were given a small token of appreciation in the form of a \$10.00 coffee shop gift card.

Data Collection

The semi-structured questions for these interviews were developed based on the constructs of the Health Belief Model. Following the first two interviews, the transcripts were reviewed to see if the questions needed to be modified, but no changes were deemed necessary. At the end of the interview questions, each participant had an opportunity to add information or comments that might not have been addressed in the interview (see interview questions - Appendix 1). The interviews lasted between 40 and 75 minutes and took place in locations that were considered secure and confidential by the participants; three took place at participants'

homes, three at public cafés, two at participants' work offices, one at a public library, and one over the phone. Only one interview was in English, with the rest in Arabic. The interviews were conducted between January and March 2020 by the PI, a physiotherapist by training with previous experience collecting data from stakeholders in health promotion community-based projects with international non-profit organizations.

Data Analysis

The PI transcribed and translated verbatim all Arabic data into English while listening to the audio recordings in order to have consistent interpreted data and minimize translation variability. Pseudonyms were given to the participants. NVivo 12 (NVivo qualitative data analysis Software, QSR International Pty Ltd. Version 12, 2018) was used to organize the coded data. The data analysis procedure was guided by the phenomenographic analysis guidelines developed by Sjoström and Dahlgren (2002), which included seven steps. The first step was familiarization, when the PI read and re-read all transcripts several times to obtain a comprehensive view of the data. From time to time, the PI returned to the Arabic audio recordings as a reference to avoid any influence of translation on the participants' experiences and on understanding the interpreted meanings.

The second step was compilation, which focused on identifying the most significant elements in the answers given by each participant to each question. The third step was reduction by highlighting the most significant parts of each participant's answers. The fourth step was the preliminary grouping by classifying similar perceptions into sub-categories or initial codes. In this step, the PI had 45 sub-categories or codes, including for example home countries, financial status, parenting, living in Canada, age, education level, work status, desire to be active,

smoking, family, social support, first signs of cardiac events, adherence to medications, CR programs, trust in the health care system, stress, fear of death, etc.

In the next step, comparison, the PI revised all the sub-categories and initial codes to establish connections between them and find descriptive categories. The significant statements were highlighted in each transcript, as the PI noted conceptual comments and reviewed the observation notes. This step was followed by naming categories descriptively in order to highlight their essences. In addition to acculturation issues and religious coping, some of these descriptive categories were related to Health Belief Model constructs such as barriers to healthy behaviours, benefits of healthy behaviours, factors in changing lifestyle behaviours, perceptions of cardiac events' severity, perceptions of CVD risk factors, and self-efficacy. As this study aimed to determine variations in participants' conceptions about various phenomena, in the last step, contrastive comparison of categories, the PI described five themes in the outcomes space representing relationships between descriptive categories regarding the participants' experiences of the various phenomena. The final themes were identified with illustrative quotations that were extracted based on meanings inspired by significant meanings and across descriptive categories.

To ensure trustworthiness and rigour in this qualitative research (Creswell, 2013; Hunt, 2009), the PI shared the initial results with the participants by e-mail to check for accuracy, credibility of interpretation, and conclusions for their experiences, and to allow the participants to provide comments. None of the participants had additional comments.

Results

Socio-demographic Characteristics of the Sample

Although recruitment was not restricted by gender, all interested and eligible participants were males. Out of 14 eligible participants, 10 confirmed their participation and scheduled their

interview times, with nine participants attending face-to-face interviews and one participant preferring a phone interview. The other four participants did not show up for any interview, even though they promised to participate in the study. The mean age of the participants was 59.8 ± 9 years. All participants were Muslim men born outside Canada who were married and living with their families in Ottawa. Five of them had come to Canada as refugees, and the other five were immigrants. Most of the participants had lived in Canada for more than five years. Concerning participants' cardiac events, while eight participants had had heart attacks and two participants had experienced angina, two participants had had three cardiac events and two participants had had two. Although nine participants had been hospitalized for cardiac events, four of these participants were not referred to CR programs (see Tables 4.1 and 4.2).

Themes

“Stressful events or cardiac events!”: Acculturative Stress Effects. Participants who had come to Canada as refugees appeared to be more detailed in describing acculturative stress in their answers; they seem to be less acculturated, could not get jobs quickly, and their lifestyles had changed negatively compared to that in their home countries. This point of view was confirmed by a participant who had been out of work since coming to Canada around three years previously:

Our emergent leaving caused huge stress for us because when you always work in an excellent position, and suddenly you find yourself obligated to leave, it is like you are taken from your home and thrown in the desert, so you find yourself powerless, you cannot do anything to change your situation. You cannot work; you don't have resources; you lost most of your financial capital. So, all these will accumulate stress on you. [my translation from Arabic] (Wesam)

This lifestyle stress is often perceived both physically and mentally, as Ziad stated when describing the stress that had caused his acute heart attack. Ziad linked his stress with the physical efforts that he put forth to be successful in his business and for his responsibilities towards his family: “Physical [stress] means I was working long hours, I was studying at the same time to finish my [professional] licence, and I was doing my family stuff like every father. I had no time to rest!” Work stress was part of the lifestyle stress that participants mentioned, in addition to stress from parenting and family responsibilities. Some participants who were not familiar with parenting responsibilities in the Canadian context found that cultural conflicts increased their mental burdens when they see their children outside of their original culture. It should be noted that this parenting issue primarily concerned participants who were still connected strongly with their home countries.

Stressful challenges related to the Canadian lifestyle were apparent in all participants’ experiences with cardiac events. Almost all the participants accepted this stress and mental burden as a part of the Canadian lifestyle. While one participant followed a mental health treatment program after experiencing depression, another refused such an intervention in order to avoid the stigma around mental health issues in Arabic culture.

“It was a dreamlike event!”: Dismissing Perceptions of Cardiac Events. Some participants expressed surprise with their first cardiac event, but they did not find it difficult after recovery; three participants described it as having a dreamlike quality, but not nightmarish. Most participants found their recovery experiences as easy, regardless of how long they took. In some instances, participants focused on the intervention or the recovery process, and not on the risk of CVD or the cardiac event itself. For example, Laith, who smoked heavily, could not stop

smoking, but he believed in the efficacy of the catheter and stents that he had after his heart attack:

I still smoke without any problems for five years till now, while some of my friends who had had a catheter and stents had to have it done again after two or three years because of blocked arteries. All praise to Allah, I did it once, and I don't have any problems; I feel good. [my translation from Arabic] (Laith)

In the same way, adherence to prescribed medications was common for all participants as a part of the change in their daily lives after cardiac events. Most participants committed to their doctors' recommendations concerning medication adherence in order to avoid any complications during recovery. Only one participant showed a negative perception of the severity of his heart attack. Dani, who smoked heavily and had had three heart attacks, did not adhere to his medication after the first one: "I felt good, so I decided to stop it without consulting my doctor" [my translation from Arabic]. After 16 months, he had another heart attack. He described it as difficult:

The blockage was in the same arteries that they fixed in the first operation. I stopped my prescribed medications for a period; for this reason, the blockage happened again. In my medications, there were some clot-dissolving drugs that I shouldn't stop. [my translation from Arabic] (Dani)

Even with these experiences, Dani still considered medical interventions as his primary support during his recovery.

Overall, participants found that their cardiac events were not difficult experiences because they trusted Canada's health care system, and had feelings of gratitude toward the health care services for making their cardiac events easy experiences. Some participants complimented

the health care services on their professionalism and service quality compared to their home countries, such as Fadi, who said: “I think the health care system and the quality of health care services helped me in the diagnosis and the treatment after that. I think I’m lucky to be in this country and get these high-quality health care services” [my translation from Arabic]. Despite this trust in health care services, however, some participants mentioned bad experiences with their family doctors or cardiologists.

“Recognizing risk factors is not enough to avoid them”: Perceived Threat. Regarding physical activity, some participants had been familiar with physical activity before the cardiac event, such as Jaber, who used to play sports and bike to work even before his angina. He advised all people to be active:

Really, they need [physical] activity, even those who don’t have a higher risk, [they need] physical activity and nutritional diet. Physical activity is number one; I found a big difference when I committed to physical activity. All studies found that people like to talk about physical activity more than do it. [my translation from Arabic] (Jaber)

Other participants, such as Taha, believed in the importance of physical activity and tried to engage in physical activity, at least walking, as recommended by doctors after cardiac events:

After the heart attack, I started feeling that I have to swim. I must walk . . . sometimes even if the weather is harsh; I have to walk, I feel like I have to burn at least what I had eaten that day . . . I have to walk! [my translation from Arabic] (Taha)

For some participants, inclement weather, age, lack of social support, and work status were perceived as barriers to engaging in physical activity.

Participants also discussed their perceptions toward diet and nutrition before and after cardiac events. Some participants reported unhealthy dietary behaviours associated with stress that had caused cardiac events, such as Ziad, who talked about that:

With this stress, at that time, I felt there is no hope in anything, even, for example, I was diagnosed as diabetic at that time, and I insisted on increasing the sugar [in hot drinks] because I didn't care about my health. Even though I know, it is very harmful to me, but I don't care! (Ziad)

Consequently, some participants found that a cardiac event was a reminder to pay attention to dietary behaviours. Dealing with dietary issues varied among the participants based on various factors related to culture, education, and family or social support. First, the influence of their home country's dietary culture was reflected in some participants' behaviours before cardiac events. Qasem gave an example in this way:

I reduce much of the fat in my diet, for example, traditional meat broth that we used to drink each time we have slaughtered sheep or lamb. We had a traditional habit at home country using traditional animal fat as a sauce, and we didn't enjoy our food without it.

However, all that is gone now! [my translation from Arabic] (Qasem)

Their home country's culture did not prevent some acculturated participants from being influenced by the Canadian culture in adopting a healthy diet. As well, this new tendency in adopting a healthy diet is often gained by health education. In this, Jaber was the only participant referred to a nutritionist after his angina to attend a nutrition consultation.

On the other hand, social support is not always on the same page with regard to a healthy diet. Sometimes friends may ignore a healthy diet for cultural reasons when getting together:

For example, as usual in Arabic culture that is very common with hospitality, if you go for example to visit a friend and you tell him ‘I’m on a diet, I’m diabetic,’ and he gives you something sweet. . . ‘Oh, this piece will not do anything’ to keep pushing on you. In order not to make him angry, and you try to compliment him, you will eat it. (Ziad)

In addition to physical activity and dietary behaviours, smoking had an important place in some participants’ experiences. Only three participants had never smoked in their lives. Regardless of the perception among participants about the risk of smoking to their health, no one indicated smoking as a significant cause of their cardiac event, even those who smoked heavily. Even those who had adopted healthy lifestyle behaviours justified smoking out of enjoyment: “Yes, it may be a cause, but I think smoking is a way to reduce stress. I enjoy smoking when I feel stress!” [my translation from Arabic] (Fadi).

While one participant stopped smoking after his first cardiac event, a few participants still smoked from time to time as part of their social life. Kamel was smoking with friends before his first angina event, but he tried to exculpate smoking from being the potential cause:

This happened on a night of Ramadan when I was returning from a gathering with friends to smoke the hookah (water pipe). At that time, I was working in a full-time job, and this [angina] didn’t affect my life before this night, but [it happened] because of a lot of mental burdens that impacted my life more than usual. [my translation from Arabic] (Kamel)

Although all participants believed that smoking is a bad habit that might negatively affect their health, some participants considered themselves heavy smokers, and could not stop smoking after cardiac events. Dani, who had had three heart attacks over a short period, smoked three packs of cigarettes a day after recovery:

I tried, but I couldn't. It is not easy. I tried to reduce smoking after the [catheter] operation for one or two months, and then I turned back to smoke more . . . when I felt that I could breathe better, I turned back to smoke more . . . ! [my translation from Arabic] (Dani)

Religious Coping Outcomes: satisfaction and fatalism. Most participants did not report any significant change in their religious practices or beliefs after cardiac events. Participants had both positive and negative religious coping strategies related to the consequences of their cardiac events, but no participant considered a cardiac event as punishment or asked himself, "Why me?" from a religious point of view. Fadi, who went back to his everyday life after recovery, stated his satisfaction with the consequences of his heart attack: "I'm satisfied with what happened for me, and we are Muslim and understand that all these things are coming from Allah, it is predestined!" [my translation from Arabic]. In contrast, Dani, who faced challenges in recovery, surrendered to his hopeless feelings and negative thoughts:

I said to myself, and sorry for these words, as your age is written [predestined], you will not be killed by adversity, so turn back to smoke and enjoy your life! [laughing] . . . It is done! . . . This is life, and we will complete it regardless of its nature. [my translation from Arabic] (Dani)

Most participants agreed that their cardiac event was a wake-up call to prepare themselves for the end of their busy lives. Ziad linked this feeling with his religious beliefs:

I believe that this life is temporary, and in the hereafter, we will be questioned about what we did in this life . . . so it [cardiac event] gives you like an alert; please be ready because you may lose your life at any point, so are you prepared to face the question? Are you prepared to answer about what you did in this life or not? So, at this time, you try to be

closer to Allah, to pray more, to donate more to do good deeds for this moment after.

(Ziad)

Qasem used a positive religious coping strategy to deal with his cardiac event symptoms:

When I feel these symptoms suddenly, for example, the best thing I do at that moment is the prostration to Allah and intense coughing as doctors recommended me to do. So, I do it in a prostration position because if this coughing didn't prevent the heart attack, I want to pass away while I'm prostrating to Allah! [my translation from Arabic] (Qasem)

Participants showed their deep-rooted beliefs in fate during and after cardiac events. This strong faith among participants did not prevent them from feeling fear, but this fear was not of sudden death itself but rather its consequences on their family and children. Most participants reported a fear for the future of their children, who did not have extended families in Canada. Labeeb was worried about the future of his dependant daughter, and so he hoped to attend her marriage as the last duty in his life: "After my daughter getting married, I think that I will complete my responsibility and commitment toward them in my stressful life, then if I live or pass away, that will be the same...!" [my translation from Arabic]. As a practical step to deal with the fear for their children's future, a few participants had already written or were thinking seriously about writing their wills.

Cardiac rehabilitation programs: who refers and who participates. In these findings, CR programs represented a part of recovery in some participants' experiences. While some participants attended and completed these programs, other participants refused to participate or were not referred by their doctors. Participants who attended these programs varied in their knowledge about CR, its purpose, and the perceived benefits from attending. While most of them reported their impressions of a CR program as an exercise program that focused on physical

activity and progressive exercises, only one participant mentioned mental health counselling as a part of CR programs. After the first few sessions, participants who smoked heavily skipped attending smoking cessation counselling or did not take the program's recommendations seriously.

Some participants who did not complete their programs expected activities for young people such as gym programs, not only progressive exercises with education and counselling sessions. Taha had expected fast, effective outcomes:

I expected a program that would decrease cholesterol in the short term [He was laughing]. For this reason, I found it useless for me. I felt it didn't help at all. However, I know they think in the long term to strengthen the heart muscle, not decrease the cholesterol, which was my goal. [my translation from Arabic] (Taha)

Another barrier for those who had attended CR programs at the University of Ottawa Heart Institute was transportation and parking. However, participants who had completed CR programs underscored the importance of such programs; even though their benefit was temporary, they considered it as a cue to return to a healthy lifestyle.

Those participants who did not attend CR programs had not been referred by their doctors, except Laith, who refused to participate despite a referral:

They told me about it, but I refused it . . . because I didn't want to be under commitment pressure . . . Sometimes appointments are at different times, morning, noon, and afternoon, and it was wintertime, so I said why I get tired, tiredness in this way was more than benefit. [my translation from Arabic] (Laith)

Participants mentioned that their doctors did not find a reason for a referral because the participants were already aware that it was essential to be healthy and engage in exercise in their

daily lives. Fadi said: “My doctor saw that my physical activity and a healthy diet were enough to recover from my minor heart attack. He advised me to continue in that way.” Meanwhile, as reflected by Jaber, some doctors decided whether to refer patients based on their health education levels, some others gave opinions on CR programs’ general environment:

The cardiologist didn’t encourage me to go to cardiac rehabilitation. He said: ‘You will go with people whose situations are so much worse than you, so you will get depression more than benefit.’ He described it as for people with more complex situations than mine. I even asked another doctor, and he said the same thing: ‘In this situation, you don’t need to have rehabilitation, you will see people with terrible health conditions’ . . .! [my translation from Arabic] (Jaber)

Discussion

In this study, a qualitative approach was used to explore the role of acculturation and religious coping in shaping male Arab individuals’ lived experiences after cardiac events, and to explore their ways of understanding lifestyle behaviours and CR during recovery. As a result of the findings reported above, acculturation indirectly influenced participants’ experiences before and after cardiac events. The findings suggest that stress and mental burdens while living in Canada reflected negatively on Arab male individuals’ experiences with cardiac events, and that religious coping was an important factor in these experiences in managing stress and handling the mental consequences of cardiac events, but not in adopting or maintaining healthy lifestyle behaviours. However, while participants generally recognized the risk of CVD and the importance of healthy lifestyle behaviours such as physical activity, a healthy diet, and smoking cessation, for them, adhering to medications was perceived as more important than adopting healthy lifestyle behaviours after cardiac events.

Role of Acculturation in Recovery after Cardiac Events

Although the Muslim Arab participants in this study reported low levels of acculturation, they did not show a high perception of susceptibility to cardiac events. This contrasts with findings from a study by Edelman et al. (2009) that reported a higher perceived susceptibility and higher expectation of getting CVD among less acculturated individuals from different immigrant groups. Previous studies have also stated that Muslim Arab Americans were less acculturated and less satisfied with their lives in the United States (Amer, 2005; Faragallah et al., 1997), and that this rejection of Western life by Muslim immigrants is expressed by firmly asserting their Islamic identities (Al Wekhian, 2016; Bagasra & Mackinem, 2019). Therefore, religious coping might play a role in this acceptance of health conditions that are seen as being predestined. On the other hand, all participants appreciated the medical insurance and the quality of health care services provided here in Canada, considering it a support resource that decreased the perceived severity of cardiac events and giving them a sense of tranquillity regarding health conditions.

However, participants in this study had the impression that their stressful life in Canada affected their health status. This linkage between stress or mental burden and a new lifestyle and environment different from their home countries is consistent with other studies (Al Wekhian, 2016; Gholizadeh et al., 2011; Steffen et al., 2006). The burden of immigration and lifestyle changes reflected negatively on the health status of Arab people in the form of stress that may lead to CVD and other physical or mental health illnesses (El-Sayed & Galea, 2009). As well, some participants faced more acculturative stress related to parental and cultural conflicts with children. This finding is in line with another study that found that Arab families in host countries were less satisfied with their new lives, even with long residence (Faragallah et al., 1997). In the current study's findings, mental burdens associated with perceived barriers such as age, working

status, parenting, and lack of social support were compared to people's home countries, where participants may feel more peace of mind. This lack of social support among Arab men due to work status leads to fewer social resources with which to cope with life stress (Steffen et al., 2006). The strong connection with home countries reported in some participants' experiences and reflected on some healthy lifestyle behaviours has a similar influence on other immigrant groups (Gadd et al., 2005; Huang, 2015).

Role of Religious Coping in Recovery after Cardiac Events

In this study, the participants did not consider their cardiac events as difficult experiences, and showed their perceptions about the severity of cardiac events from a religious viewpoint, as they considered them as part of their fate and as predestined events. Similar perceptions based on fatalism that might negatively affect behaviour change were also reported in a previous study among Muslim participants (Gholizadeh et al., 2011). Among less acculturated immigrants, depending on doctors or God or some other higher power to help prevent CVD is often a way to avoid self-responsibility regarding lifestyle changes (Edelman et al., 2009). This was clear in participants' experiences that reflected a commitment to doctors' recommendations and medication adherence after cardiac events in addition to a religious form of fatalism that ensured their satisfaction with cardiac event consequences.

However, this religious form of fatalism did not prevent participants from using religious coping to deal with stressful challenges. Among Arab Muslim people, religiosity is a coping mechanism to deal with anxiety (Abdel-Khalek et al., 2019), and in this study, participants used positive religious coping to decrease stress during and after cardiac events and to deal with consequences such as fear for their children's future after the participants passed away. This concern over death reflects the importance among older immigrants of using religious and

traditional beliefs to manage their CVD (Davidson et al., 2007). In a previous study, in a context different from CVD, religious coping was also found to be used to face higher acculturation stress and depression among Arab-Americans (Amer, 2005).

Impact of Cardiac Events on Lifestyle Behaviours

Although cardiac events were considered as a warning for participants to pay attention to healthy lifestyle behaviours, participants gave more attention to adherence to medication than to changing such behaviours. This trust in medication is considered the easy way to prevent or control CVD risk factors, as stated in a study by Tailakh and colleagues that found more attention given by Arab Americans to adhering to antihypertensive medications than to controlling blood pressure (Tailakh et al., 2016). In the current study's findings, it was clear that participants showed more trust in the health care system in Canada compared to their home countries. This feeling of gratitude toward the health care services might make participants with cardiac events, for example, more committed to medication adherence during recovery more than adopting healthy lifestyle behaviours..

In general, the findings reveal that all participants recognized the importance of healthy lifestyle behaviours (nutrition, physical activity, and smoking cessation) in order to prevent another cardiac event; however, both before and after cardiac events, participants showed less attention to physical activity than to a healthy diet. These findings align with findings from other studies with Arab Americans (Aqtash & Van Servellen, 2013; Hardan-Khalil, 2019; Jadalla et al., 2015; Tailakh et al., 2016). The perceived lack of importance of physical activity among participants was often related to lack of motivation and stress, family responsibilities, and low self-efficacy, as stated by Arab women (Eldoumi & Gates, 2019; Qahoush et al., 2010), or to the priorities given to work and family, as stated among Arab men (Saleh et al., 2018). With regard

to smoking cessation, it was not easy for some participants who considered themselves heavy smokers to stop smoking, even though they could adopt physical activity practices and a healthy diet after cardiac events. Similar findings have been reported in other studies among Arab-American individuals (El Hajj, 2012; Tailakh et al., 2016).

This challenge to stop smoking even after cardiac events may be more prevalent among less acculturated Arab individuals (Al-Omari & Scheibmeir, 2009), as they do not recognize the benefits of smoking cessation, accompanied with a strong belief in fatalism (Azar, 2008) and deep trust in health care interventions while living in Canada. Accepting smoking as a culturally accepted behaviour among some Arab individuals may explain why most participants who smoked ignored smoking as a significant cause of their cardiac events, even while perceiving its negative impact on health. Less of a desire to stop smoking is often associated with less perceived susceptibility and severity of cardiac events (Ghadban et al., 2019).

Position of Cardiac Rehabilitation in the Recovery Process after Cardiac Events

In this study, a doctor-referred CR program was part of the recovery process for some participants. For most participants, however, adhering to medications was perceived as more important than adopting healthy lifestyle behaviours, and for this reason, they expressed less perceived need for CR programs. The role of doctors was essential in referring patients from immigrants groups in Canada to CR (Findlay et al., 2017), but it was not enough to ensure their participation. Culture and family support may influence this decision, too (Banerjee et al., 2010), as cultural beliefs about the severity of cardiac events in addition to social support and self-efficacy in managing recovery are often considered factors influencing adherence to CR among immigrants in Canada (Findlay et al., 2017). These factors might have influenced some

participants in this study who had been referred to CR but either did not attend or did not complete their programs.

Most participants, whether they had attended CR programs or not, looked at it as just an exercise program focusing on physical activity components. For this reason, some participants did not complete their programs, as they had expected active programs for young people, such as fitness programs. Other components, e.g., nutritional lifestyle education and mental health counselling sessions, were not part of the participants' experiences, which indicates that Arab immigrants are not often aware of this kind of rehabilitation before a doctor's referral. For participants who smoked, smoking cessation programs did not change their smoking habits, as even if they complete such a program, they still smoked and found smoking to be a way to relieve stress. A recent study's findings supported this finding that similar interventions are often not effective for Arab smokers (Alzahrane et al., 2019), as perceived barriers to stop smoking among less acculturated Arab immigrants are often higher than the perceived benefits (Azar, 2008).

Indeed, the stressful challenges mentioned in participants' experiences indicated a critical need for mental health counselling, but such interventions were not mentioned by the participants. Given the inattention to mental health counselling in recovery, participants' experiences are more often related to cultural influence. It is considered inappropriate in Arab culture to discuss family problems with strange people, and with mental health problems, it is considered shameful to seek treatment (Abuelezam et al., 2018). However, participants were comfortable and satisfied when talking with the PI about stressful times during and after their cardiac events. Some participants shared details that they had not shared with anyone before, even with their family members. Therefore, identifying these stressful conditions by interviewing

participants for a short time may indicate another aspect of the participants' missed needs in CR programs. In this case, the PI belongs to the same culture, and interviews with the participants were almost all conducted in Arabic, which underscores the importance of language and the cultural background of health care providers for such individuals (Gholizadeh et al., 2011). In primary and secondary prevention of CVD, it is essential to develop accessible, culturally appropriate resources or programs that meet immigrants' needs and respect their values and beliefs (Davidson et al., 2007; Findlay et al., 2017; Haghshenas & Davidson, 2011), in addition to assessing their acculturation in order to provide more relevant CVD prevention counselling (Edelman et al., 2009).

Strengths and Limitations

To the author's knowledge, this study is one of only a few to explore the perceptions of Arab individuals diagnosed with cardiac events in order to understand their lived experiences with recovery and CR while living in Canada. In this study, since the PI belonged to the Arabic community and conducted all study processes, including data collection and data analysis, this was both a strength and limitation of the study. While there was a strength in avoiding the loss of cultural tones of the lived experiences, usually by interpretation, there was a limitation due to possible researcher bias. However, checking findings with participants added to the accuracy and credibility of those findings, which is a strength, and moreover, participants showed interest in participating in follow-up interviews to share their perceptions. In addition to this desire to share information, being interviewed at a preferred location with an interviewer who shared the same culture and language gave participants more freedom in sharing their personal experiences.

However, the present study had some further limitations. As a qualitative study, this study's findings do not represent all Arab individuals who had cardiac events while living in a

different host country. Further, despite careful ethical consideration to enhance participation in this research regardless of the participants' religion or gender, only male Muslim Arab individuals chose to participate in this study, and therefore, their perspectives, while valuable, may differ from the cultural and religious perceptions of Arab women or Arab Christian individuals. Lastly, depending only on participants who had been a part of the survey study in Phase Two of this research meant a relatively small sample size.

Conclusion

The findings suggest that stress and mental burdens while living in Canada reflected negatively on Arab male individuals' experiences with cardiac events. Regardless of whether the stress was acculturative or lifestyle-related, it was perceived as a potential cause of cardiac events and a factor leading to low self-efficacy in changing lifestyle behaviours. It was also found that positive religious coping strategies were only used to manage stress and cardiac event consequences, and not to change physical activity, diet, and smoking behaviours. The importance of adhering to medications was also perceived as more important than adopting healthy lifestyle behaviours, and for this reason, participants expressed less of a perceived need for CR programs. These findings, of the roles of acculturation and religious coping in Arab individuals' experiences with cardiac events, should be considered when designing rehabilitation programs based on a patient-centred healthcare approach, as an in-depth understanding of individuals' perceptions, beliefs, and behaviours after cardiac events may facilitate participation and adherence to the physical and mental health components of CR programs or community-based health promotion programs. Future research is needed to design culturally adapted CR programs for Arab individuals and to evaluate the effectiveness of interventions with both physical and mental health components. As well there is a need to further educate health professionals in

helping people from various cultural groups adopt healthy life style choices not just to rely on medication and surgery.

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Appendix 1

(The interview questions)

Questions:

1. Please, tell me what (heart attack, angina or heart failure) means to you.
2. What do you think might have caused your (heart attack, angina or heart failure)?
3. Could you please describe your life before and after your (heart attack, angina or heart failure)?
4. What do you think made the recovery after your (heart attack, angina or heart failure) easy or difficult?
5. How did you cope with the (heart attack, angina or heart failure) circumstances (e.g. impact on personal, social, professional life...)?
6. What is/are the main support resource(s) that has/have assisted you during and after your (heart attack, angina or heart failure)? (e.g. spouse, family members, neighbors, community center, religious organization...)
7. Do you think that these circumstances of your (heart attack, angina or heart failure) would be different if it happened to you in the back-home country? Tell me about these differences.
8. What do you know about cardiac rehabilitation?
9. During the recovery after your (heart attack, angina or heart failure), did you attend a cardiac rehabilitation program? If yes, why? If not, why not?
10. If you attended such a program, how do you find it? What do you like/dislike in this program?
11. If I asked you to talk to people who have a higher risk of cardiovascular diseases, what do you advise them to avoid (heart attack, angina or heart failure)?
12. Is there anything else that you would like to add to from what we have already talked about?
13. Is there anything else that you would like to tell me about that I haven't asked?

Table 4.1 Sociodemographic characteristics of interview participants (N = 10)

Characteristic	Total n (%)
Age categories	
35-44	1 (10%)
45-64	6 (60%)
> 64 years	3 (30%)
Current marital status	
Married/Common law	10 (100%)
Residence in Canada	
1-4 Years	2 (20%)
5-9 Years	1 (10%)
10-19 Years	1 (10%)
20 years or more	6 (60%)
Country of origin	
Egypt	1 (10%)
Iraq	2 (20%)
Palestine	1 (10%)
Syria	3 (30%)
Yemen	3 (30%)
Living area	
Ottawa	10 (100%)
Immigration generation in Canada	
1 st generation	10 (100%)
Immigration status when coming to Canada	
Immigrant	5 (50%)
Refugee	5 (50%)
Language of interview	
Arabic	9 (90%)
English	1 (10%)
Education level	
Less than secondary school	1 (10%)
High school	2 (20%)
Bachelor's degree	4 (40%)
Master's degree	2 (20%)
Ph.D. or medical degree	1 (10%)
Employment status	
Employed	4 (40%)
Self-employed	1 (10%)
Out of work and looking for work	1 (10%)
Out of work but not currently looking for work	1 (10%)
Retired	1 (10%)
Unable to work	2 (20%)

Smoking (cigarettes or hookah)	
Have never smoked	3 (30%)
Smoked for a short term then ceased	1 (10%)
Smoked for a long term then ceased	1 (10%)
Smoke from time to time	2 (20%)
Smoke a lot and cannot cease it	3 (30%)
Drinking alcoholic beverages	
Have never drunk	6 (60%)
Drank for a short term then ceased	4 (40%)
Cardiac events	
Heart attack	8 (80%)
Angina	2 (20%)
Time of last cardiac events	
Less than a year	2 (20%)
1–5 years	6 (60%)
> 5 years	2 (20%)
Frequency of cardiac events	
Once	6 (60%)
Twice	2 (20%)
Three times	2 (20%)
CVD risk factors	
Hypertension	2 (20%)
High Cholesterol	7 (70%)
Diabetes	3 (30%)
Hospitalization after cardiac events	
Yes	9 (90%)
No	1 (10%)
Referral to cardiac rehabilitation program	
Referred but not participated	1 (10%)
Referred, participated, not completed	2 (20%)
Referred, participated, completed	3 (30%)
Not referred	4 (40%)

Table 4.2 Participants' characteristics

N	Pseudonyms	Age (Y)	Residence in Canada (Y)	Education level	Work status	Immigration status when coming to Canada	Time since the last cardiac event	Frequency of cardiac events
1	Dani	40	3	Less than secondary school	Unable to work	Refugee	Less than a year	Three times
2	Fadi	62	28	Bachelor's degree	Employed	Immigrant	> 5 years	Once
3	Jaber	60	20	Ph.D. degree	Employed	Immigrant	1–5 years	Once
4	Kamel	62	14	Master's degree	Out of work and looking for work	Immigrant	1–5 years	Three times
5	Labeeb	72	23	Bachelor's degree	Retired	Immigrant	Less than a year	Twice
6	Laith	65	20	High school	Unable to work	Refugee	1–5 years	Once
7	Qasem	67	30	High school	Employed	Refugee	> 5 years	Twice
8	Taha	58	20	Master's degree	Self-employed	Refugee	1–5 years	Once
9	Wesam	64	3	Bachelor's degree	Out of work but not currently looking for work	Refugee	1–5 years	Once
10	Ziad	48	8	Bachelor's degree	Employed	Immigrant	1–5 years	Once

CHAPTER 5: INTEGRATED DISCUSSION AND CONCLUSION

This chapter summarizes the three dissertation studies' findings (Table 5.1: Summary of dissertation findings) with an integrated general discussion of the studies' findings. As well, I present in this chapter the limitations of the dissertation, in addition to recommendations and implications for CR and health promotion practices and future research.

Introduction

Unhealthy diets, smoking, and low levels of physical activity are more common among Arab people than in the general populations or other ethnic minority groups in host countries. As indicated in the literature, Arab people in host countries share similar levels of high-risk behaviours and practices with other ethnic immigrant groups that potentially lead to CVD, such as sedentary behaviours, physical inactivity, smoking, and poor diet. However, it is unclear if these behaviours are reproduced from or influenced by religious or cultural perspectives. Acculturation and religious coping may play a role, either together or separately, in shaping the experiences and perceptions of Arab individuals diagnosed with CVD in host countries. Therefore, I aimed in this mixed methods dissertation to explore the complex roles of acculturation and religious coping in adopting healthy lifestyle behaviours and managing stress from the various perspectives of Arab community health promoters and Arab individuals diagnosed with cardiac events or who were at high risk for CVD, including male Arab individuals who had had cardiac events.

Table 5.1. Summary of dissertation findings

Dissertation Objectives by chapter	Study's objective	Methods	Themes and outcomes	Findings & conclusion
<p>Qualitative Study 1 (Chapter 2): To detect and explore the nature of complex roles of acculturation and religious coping from the perspective of key informants with first-hand knowledge of health promotion among Arab communities in Ottawa</p>	<p>To identify and understand the challenges related to acculturation and religiosity in adopting healthy lifestyle behaviours and managing stress among Arab immigrants</p>	<p>Guided by an interpretive description approach (Thorne et al., 1997). Three face-to-face focus groups were conducted with 17 Arab community health promoters who were members of the Canadian Arab Health Coalition. Data were analyzed using an inductive thematic analysis approach in order to identify themes.</p>	<ul style="list-style-type: none"> • “Culture first!”: dominant influence of home country’s culture. • “Religiosity alone does not make you healthy!”: limited religious influence. • “It is not easy!”: difficulties to adapt to the Canadian lifestyle • “We are not young!”: generational differences in adopting a healthy lifestyle 	<p>Some religious or cultural beliefs may be barriers to practicing physical activity, especially for women and older people. These barriers may be exacerbated by acculturative stress. As well, religiosity may play an important indirect role in managing stress through socialization, family support, and adoption of coping strategies.</p>
<p>Quantitative Study 2 (Chapter 3): To explore cultural and religious beliefs, coping strategies, and lifestyle behaviours among Arab individuals diagnosed with cardiac events or who were at high risk for CVD</p>	<p>To measure and describe the levels of religious beliefs and religious coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours among Arab people living in the region of Ottawa who had been diagnosed with cardiac events or who were at high risk for CVD.</p>	<p>A cross-sectional survey was conducted with 63 individuals from local Arab communities who had been diagnosed with cardiac events or who were at high risk for CVD. Five validated questionnaires were used: Belief into Action (BIAC) scale, Brief RCOPE, AAMAS, PSS 10 items, and HPLP-II. Data were analyzed using descriptive statistical analysis.</p>	<ul style="list-style-type: none"> • The general mean for positive religious coping was high. • Most participants were more oriented toward their Arabic culture than to the Canadian lifestyle, which means they were less acculturated. • Moderate levels of religious involvement, perceived stress, and healthy lifestyle behaviours among all participants. • No significant difference among participants in their results based on age, gender, length of residence time in Canada, or 	<p>While these individuals may be more religious and less acculturated in the Canadian context, their lifestyle health behaviours related to physical activity and nutrition may be influenced by their health status, religious beliefs, and the practices or traditions from their culture of origin.</p>

Table 5.1 Summary of dissertation findings

Dissertation Objectives by chapter	Study's objective	Methods	Themes and outcomes	Findings & conclusion
<p>Qualitative Study 3 (Chapter 4): To understand the lived recovery experiences from the perspective of Arab individuals who had had cardiac events while living in Canada, and the role of acculturation and religious coping</p>	<ul style="list-style-type: none"> • To explore and understand the role of acculturation and religious coping in shaping male Arab individuals' lived experiences after cardiac events • To explore their ways of understanding lifestyle change behaviours and CR during recovery 	<p>Guided by a phenomenographic approach (Marton, 1981). Semi-structured in-depth interviews were conducted with 10 male Arab individuals who identified themselves as having had cardiac events while living in Canada. Data were analyzed through an inductive thematic analysis approach to identify themes.</p>	<ul style="list-style-type: none"> • “Stressful events or cardiac events!”: acculturative stress effects • “It was a dreamlike event!”: dismissing perceptions of cardiac events • “Recognizing risk factors is not enough to avoid them”: perceived threat • Religious coping outcomes: satisfaction and fatalism • Cardiac rehabilitation programs: who refers and who participates. 	<p>Stress and mental burdens while living in Canada negatively affected Arab male individuals' experiences following a cardiac event. Stress was perceived as a potential cause of cardiac events and a factor leading to low self-efficacy in changing lifestyle behaviours. However, positive religious coping strategies were used as a moderator to manage stress and cardiac event consequences, but not to change physical activity, diet, and smoking behaviours.</p>

Summary of findings

Arab Community Health Promoters (Study 1)

Before conducting the first qualitative study with Arab community health promoters who were active members in the CAHC, there was a need to explore perceptions and first-hand knowledge among Arab immigrants related to acculturation, religiosity, adopting healthy lifestyle behaviours, and managing stress to prevent CVD. At that time, I needed to identify the research problem aspects without accessible or exact statistics representing Canadian health system information based on ethnic and racial background. It was necessary to rely on the perspectives of key informants who had in-depth knowledge of the Arab community's health issues to explore the most critical issues related to the problem as well as the challenges faced by Arab individuals who were at risk of developing heart disease, considering these workers as a primary source of information. Although there are some statistical health data available for this community, the quantitative data does not paint a complete picture and are not as profound as the qualitative information that I obtained through focus groups discussion sessions with members of the CAHC.

In these focus group discussions, guided by an interpretive descriptive approach (Thorne et al., 1997), participants shared different perspectives and personal experiences. While they linked most health-related challenges for Arab immigrants in Canada to stressful acculturation and adaptation difficulties, they could not identify a direct connection between religiosity and the health status of Arab immigrants. The findings highlighted language, education, financial status, and family support as acculturation-related barriers that may be reflected in Arab immigrants' healthy lifestyle behaviours and stress management, especially among women and older people. The indirect role of religiosity may be a coping strategy to face the new culture and lifestyle,

reduce stress, and find social support; however, it was not easy for participants to distinguish religious issues from cultural issues in these findings, especially when comparing their home country's culture with the Canadian lifestyle. For example, modesty among Arab women is considered a barrier to engaging in physical activity such as sports or going to the gym. However, participants were unable to categorize it as a religious challenge related to wearing Hijab (for Muslim women) or a cultural challenge related to social gaze from their peers in the Arab community who were not familiar with physical activity among women in the Arabic culture. These findings raised concerns about Arab individuals' levels of religious beliefs as well as coping strategies, acculturation, perceived stress, and healthy lifestyle behaviours when attempting to explore more dimensions of these religious or cultural challenges.

Arab Individuals with Cardiac Events or Who Were at High Risk for CVD (Study 2)

In the quantitative descriptive study, I aimed to explore the cultural and religious beliefs and coping strategies among Arab individuals who had been diagnosed with cardiac events or who were at high risk for CVD. I used a cross-sectional survey with five validated questionnaires to measure and describe the main concepts among 63 participants. I used the Belief into Action (BIAC) scale (Koenig et al., 2015) for religious involvement, the Brief RCOPE scale (Pargament et al., 2011) for positive and negative religious coping, the Asian American Multidimensional Acculturation Scale (AAMAS) (Chung et al., 2004) for acculturation, the Perceived Stress Scale (PSS 10 items) (Cohen et al., 1983) for perceived stress, and the Health-Promoting Lifestyle Profile (HPLP-II) diet and physical activity subscales (Walker et al., 1987) for healthy lifestyle behaviours. As well, I aimed to determine if there were any associations between sociodemographic factors and potential findings. I used descriptive

statistical analysis based on frequencies and proportions for the categorical variables, and means with standard deviations for the continuous variables.

The findings showed high levels of positive religious coping. Most participants were more oriented toward their Arabic culture than to the Canadian lifestyle, which means they were less acculturated. There were moderate levels for religious involvement, perceived stress, and healthy lifestyle behaviours among all participants, but participants were healthier in their diets than in their physical activity behaviours. There was no significant difference among participants in their results based on age, gender, length of residence time in Canada, or health status. These findings informed the next step in this research, which was to get a deeper understanding of acculturation and religious coping roles in the lived experiences of some participants who had had cardiac events in order to understand religious coping in their experiences and the impact of their religiosity or culture on their rehabilitation following cardiac events.

Male Arab Individuals with Cardiac Events (Study 3)

The final qualitative study was the main part of this dissertation. It focused in-depth on the participants' lived experiences, which included many details that should be taken into consideration in order to understand recovery dimensions after cardiac events. In this qualitative study, guided by a phenomenographic approach (Marton, 1981), I aimed to understand variations in the conceptions of relationships between acculturation, religious coping, having cardiac events, and recovery, as different phenomena, from the perspectives of Arab male individuals who had had cardiac events while living in Canada. My focus was on describing the ways of participants' understanding of these interactive phenomena in order to determine the complex roles of acculturation and religious coping in adopting healthy lifestyle behaviours and managing stress. I conducted in-person interviews with 10 male individuals from Arab communities living

in the Ottawa region who had been diagnosed with CVD and identified themselves as having had cardiac events while living in Canada.

This study showed that acculturation had a more influential role in these lived experiences than religious coping. The acculturation role, based on participants' perspectives, was apparent before and after cardiac events, as they had the impression that Canada's stressful life had affected their health status and lifestyle behaviours. Less acculturation among participants caused, for example, parent-child cultural conflicts, strong connection with home countries, unexpected low socioeconomic status, and lack of social support. Participants linked these mental burdens and stress with cardiac events and low self-efficacy before and after cardiac events in changing lifestyle behaviours, such as smoking cessation, physical activity, and diet. However, religious coping played an essential role in some participants' experiences, as positive religious coping played a role in decreasing stress during and after cardiac events and in dealing with different consequences. Despite the importance of healthy lifestyle behaviours in religious doctrine, participants did not use religious coping or beliefs to change their physical activity, diet, or smoking behaviours; however, while all the participants recognized the importance of healthy lifestyle behaviours in order to prevent another cardiac event, they gave more attention to medication adherence than to changing lifestyle behaviours. Because of this perception, reinforced by few doctors' referrals, most participants expressed less of a perceived need for CR programs.

Discussion

Overall, the findings in this dissertation came from triangulated data collected from three sources based on different perspectives in order to explore and understand the complex roles of acculturation and religious coping in shaping the experiences of individuals with CVD. I

presented a separate discussion for the findings in each study. However, in this chapter, I offer an integrated discussion based on general interpretations of all data to understand the roles of acculturation and religious coping as seen by all participants: Arab health promoters, Arab individuals who had cardiac events or who were at high risk for CVD, and male Arab individuals who had cardiac events.

To interpret the general findings about acculturation and religious coping roles, Figure 5.1 shows an overview of the triangulation of the dissertation findings, including acculturation and religious coping, based on the participants' perspectives. I discuss acculturation and religious coping roles and these roles potential implications for CR programs and health promotion in order to prevent CVD among Arab communities.

In this figure, findings from acculturated participants were represented in the upper part of the figure on the left within the socioeconomic status triangle, including work status, education, and language. The work status is the base of this triangle as participants who work and have stable income could be more acculturated than unemployed participants. Employed participants with a higher education level and language proficiency were more acculturated. This good socioeconomic status for acculturated participants led to adopting healthy lifestyle behaviours in the form of physical activity and diet that is represented in the figure in the green area. However, this high acculturation may negatively reflect in some participants' health statuses in the form of lifestyle stress or stressful conditions, such as the competitive Canadian work environment, aging, family problems, parenting, especially among women. These main stress-related factors also put mental health burdens on low acculturated participants experiencing low socioeconomic status related to unemployment, inability to benefit from overseas education and experience working outside Canada, and dissatisfaction with second-

career strategies, especially for some educated participants. For these low acculturated participants, this situation might lead to acculturative stress.

Under stress and mental health burdens, low acculturated participants, whether working or not, aimed to get social support (the base of the inverted triangle) when facing stressful life conditions. They see age, family responsibilities, parenting, and low income as barriers to adopting healthy lifestyle behaviours, especially among women. The inability to obtain social support and life stability pushes low acculturated participants to be more connected to their home country's culture and religious coping with being more satisfied with stressful life situations and managing their stress (the green area at the bottom of the figure). The acculturative stress did not prevent participants from looking toward the positive sides of their lives in Canada, e.g., the quality of the health care services. Participants with a low level of acculturation relied on adherence to medication to prevent CVD risk factors instead of adopting healthy lifestyle behaviours. This dependence on medication and fatalism as a religious coping strategy to help prevent CVD might lead to low self-efficacy in adopting healthy lifestyle behaviours among low acculturated participants.

Participants in the stressful red area (middle part of the figure), representing the lifestyle stress and acculturative stress with main stress-related factors (aging, family problems, parenting, especially among women), might find more difficulties to change their lifestyle behaviours and prevent CVD risk factors (represented in a yellow caution triangle). For this reason, mental health interventions (in a yellow warning sign) could be considered to help acculturated participants with lifestyle stress. Also, culturally appropriate interventions (in a yellow warning sign) could be a need to help low acculturated participants with acculturative stress and help them adopt healthy lifestyle behaviours.

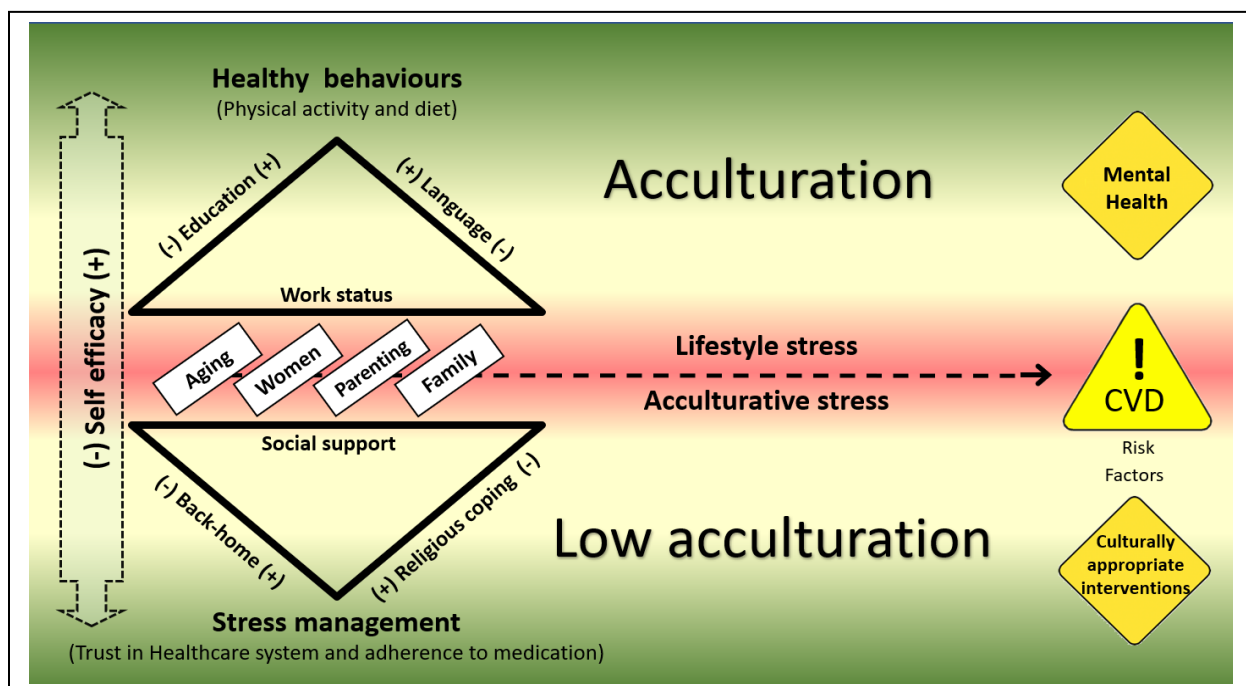


Figure 5.1 Overview of dissertation findings' interpretations

Role of Acculturation

Based on different perspectives, acculturation level plays an essential role in Arab immigrants' beliefs and behaviours regarding their health status and their experiences in preventing CVD risk factors or in recovery after cardiac events. Arab community health promoters linked most health-related challenges for Arab immigrants in Canada to difficulties in acculturation and adaptation. Language, education, and work status are acculturation-related barriers that may reflect on Arab immigrants' healthy lifestyle behaviours and stress management, especially regarding parenting and family burdens for women and older people. Quantitatively, Arab individuals who had cardiac events or who were at high risk for CVD reported low acculturation levels in the survey study. Most participants were less acculturated, being more oriented toward their Arabic home countries' cultures than the Canadian lifestyle.

However, male Arab individuals who had had cardiac events clarified the role of acculturation in their lived experiences. Less acculturated participants connected their stressful life in Canada and acculturative mental burdens to their cardiac events and lifestyle change behaviours, such as smoking cessation, physical activity, and diet, to their low self-efficacy before and after cardiac events. However, their lived experiences indicated positive religious coping strategies as a moderator in managing stress and cardiac event consequences, but not in changing their physical activity, diet, and smoking behaviours.

Based on the participants' perspectives, high acculturation in this dissertation had positive and negative roles. Regardless of the healthy immigrant effect, acculturation of some Arab individuals with good socioeconomic status (work status, education, and language) led to adoptions of healthy lifestyle behaviours in physical activity and diet. These findings are consistent with a previous study that reported more engagement in health promotion behaviours among more-acculturated, young, educated Arab-American women (Hardan-Khalil, 2019). Similar findings were reported among a sample of Arab immigrants in the United States, with a significant association between high acculturation and healthy lifestyle behaviours (Aqtash & Van Servellen, 2013). As well, Abdulrahim and Baker (2009) found that Arab-Americans' health status improved with more acculturation into American society. Another study found that highly acculturated, well-educated, employed Arab immigrants had equal or better health outcomes than the majority-white population (Read et al., 2005).

This positive role has been noted among immigrants in Western host countries, especially among those who voluntarily choose to migrate (Lassetter & Callister, 2009). However, a recent study among older Filipino-American immigrants found that acculturation level has no significant influence on physical and mental health (Seráfica et al., 2019). Acculturation may

have indirect positive effects on immigrants' health status because of their exposure to health-enhancing information that may be reflected in their behaviours and attitudes (Myers & Rodriguez, 2003). However, this positive side of acculturation did not change some cultural smoking habits among some acculturated participants in this dissertation, as has also been found in previous studies about smoking among Arab-Americans (Ghadban, 2017) and South Asian Indians in the United States (Mukherjea et al., 2018). A systematic review about the relationship between acculturation and being overweight among adult immigrants found that high acculturation may promote unhealthy weight gain, especially among male immigrants (Delavari et al., 2013). This acculturation or assimilation into the dominant culture might be negatively reflected in some participants' health statuses in the form of lifestyle stress or stressful conditions, such as a competitive Canadian work environment, family problems, parenting, or aging. These main stress-related factors also put mental burdens on less acculturated participants experiencing low socioeconomic status.

The low levels of acculturation in this dissertation were significantly connected to the low socioeconomic status reported among most participants. This low socioeconomic status was related to unemployment, inability to benefit from overseas education and experience working outside Canada, and dissatisfaction with second-career strategies, especially for some educated participants. After migrating to Canada, unexpected low socioeconomic status formed part of the stress that affected participants' lifestyle behaviours. For example, less-formally educated participants reported low socioeconomic status related to language challenges that limited their work opportunities. Socioeconomic status and language challenges have also been reported as important factors associated with perceived health status among Arab immigrants in the United States (Albqoor, 2017), and similar findings have been reported in previous studies among Arab

immigrants in host countries (Hatahet et al., 2002). Another study reported poor health status among less-educated Arab immigrants with low socioeconomic status (Read et al., 2005), and immigrants may find that changes in their socioeconomic status in Western host countries compared to their countries of origin affect their health status (Caperchione et al., 2009; Lassetter & Callister, 2009; Steffen et al., 2006). Similar relationships between low socioeconomic status and low acculturation with CVD and its risk factors have been reported among various immigrant groups in host countries (Commodore-Mensah et al., 2018; Daviglius et al., 2012; Espinosa de Los Monteros & Gallo, 2013; Fitzgerald et al., 2006; Mukherjea et al., 2018; Yu, 2006).

It is important to underscore that work status and financial capacity were main concerns for all participants, whether refugees or immigrants to Canada. Stable work status was the basis of the acculturation process found in this dissertation, and unemployment or unstable work because of language difficulties, education level, aging, or health conditions added more mental burdens for some participants. These findings are consistent with a previous qualitative study that found that the change in work status before and after migration may put immigrants under mental burdens, with feelings of inferiority, frustration, and sadness (Premji, 2018). As well, the mental burden of psychological problems for Arab refugees that limit their work ability may be related to war trauma and persistent anxiety from their origin countries (Abuelezam et al., 2018; Gholizadeh et al., 2011; Hatahet et al., 2002).

Stability in work status was associated with higher acculturation and a lower prevalence of CVD among a group of African immigrants (Commodore-Mensah et al., 2018); however, in another study, young adult immigrants in Canada who had worked for a long term experienced greater negative health consequences compared to newcomers of similar age (Kwak, 2018). In

this context, overwork and work-related psychosocial factors may be related to CVD (Backé et al., 2012), and overwork and stress were perceived as contributing factors for CVD among a sample of Chinese-Americans (Yu, 2006). Work status is strongly related to education and language level, as educated participants who had language skills could get work more easily and tended to be more acculturated.

Education level was influential in participants' perceptions of CVD risk factors and the perceived importance of healthy lifestyle behaviours. Most participants with more formal academic education, either with or without jobs, showed good knowledge of healthy behaviours but followed irregular health practices, but did link CVD with stress and mental burdens. These findings are consistent with other studies that found that well-educated Arab immigrants in the United States had a better health status than the general population (Read et al., 2005), and educated Arab-American women were more likely to engage in health-promotion behaviours (Hardan-Khalil, 2019). Similar findings were reported among Korean immigrants with diabetes (Choi et al., 2008) and South Asians (Kandula et al., 2010). Educational background could be a psychosocial factor that could be reflected in the acculturation levels of Arab immigrants as well as their mental and physical health (Hakim-Larson & Menna, 2016); however, a recent systematic review could not confirm this influence of education on acculturative stress among Latino immigrants in the United States (Bekteshi & Kang, 2020). Indeed, it is essential to distinguish between academic education level and health literacy when investigating immigrants' perspectives (Shaw et al., 2008) to understand why, for example, some educated and acculturated immigrants could not stop smoking, even though they perceived a higher risk for CVD.

In this dissertation, it was remarkable that low acculturation among most participants was perceived as a result of language challenges, which represented a barrier for some of them to get

a good job and improve their socioeconomic status. Simultaneously, in all the dissertation studies, most participants preferred the Arabic language option, while only a few identified communication difficulties or language barriers as part of a mental burden that affected their health status. These communication challenges were reported more among refugees and newcomers. This is consistent with a previous study that found that language was an essential factor connecting immigration status and health status among Arab immigrants in the United States (Abdulrahim & Baker, 2009; Albqoor, 2017).

The Arabic language has formal, impersonal, and restrained cultural communication styles that may add more barriers and mental burdens for immigrants when communicating with others outside of their family or community (Al-Krenawi & Graham, 2000). The systematic review conducted by Al Abed and colleagues (2014) showed the importance of adopting more effective ways to communicate with Arab immigrants in order to improve their health status in host countries, as language is a prominent part of the acculturation process. In the same context with a different population, another study among Mexican-American immigrant women found that communicating in a non-native language may influence cardiovascular reactivity during stressful simulated social interactions (MacKenzie et al., 2013). A literature review further indicated that cultural and language barriers were among the factors that may affect immigrants' health status in host countries (Lassetter & Callister, 2009).

This dissertation, especially the qualitative studies, highlighted mental burdens and stressful conditions after migrating to Canada as the factor most perceived as affecting health status and healthy lifestyle behaviours that lead to CVD or its risk factors. The findings that linked mental health in the form of acculturative stress with a low acculturation level among Arab immigrants, especially for those who were born abroad, are consistent with previous

studies (Abdulrahim & Baker, 2009; Abuelezam et al., 2018; Al Wekhian, 2016; Albqoor, 2017; Aqtash & Van Servellen, 2013; El-Sayed & Galea, 2009; Faragallah et al., 1997; Gholizadeh et al., 2011; Hakim-Larson & Menna, 2016; Hardan-Khalil, 2019; Jaber et al., 2003; Saleh et al., 2018). Similar findings were also found among other immigrants in previous studies (Bekteshi & Kang, 2020; Lassetter & Callister, 2009; Steffen et al., 2006). Experiencing mental burdens and stressful conditions were also reported in other studies among less acculturated older Filipino immigrants (Seráfica et al., 2019) and older Chinese and Korean immigrants in the United States (Guo & Stensland, 2018), in addition to some immigrant groups in Canada (Premji, 2018). However, this dissertation's findings contrast with those of Padilla and colleagues' (2011) study, which reported an association between high acculturation level in the United States and a greater prevalence of psychological and behavioural problems among Latino immigrants with hypertension.

However, stressful conditions could be higher among women, older people, and parents, even if acculturated, under the pressure of parenting and family responsibilities. In this context, the inability to get a specific professional job or feeling forced to accept a different position in order to cover living expenses means associating stepping down with being less acculturated. From participants' perspectives, these difficulties in reaching a satisfactory work status represent barriers to achieving personal or professional ambitions, and lead to mental burdens and stressful conditions that may reflect on Arab immigrants' health statuses. For some participants, unexpected low socioeconomic status after migrating to Canada was a part of the stress that affected their lifestyle behaviours. Lassetter and Callister (2009) conducted a literature review that supported similar findings from various immigrant groups studies.

From the health promoters' perspectives in this dissertation, low socioeconomic status and other religious/cultural factors may add more mental burdens on less acculturated older Arab immigrant women. These findings are in line with Gholizadeh and colleagues' (2011) study, which reported excessive stress and mental burdens as a main concern impacting the health status and healthy lifestyle behaviours of Middle Eastern immigrant women in Australia, including Arab women. Perceived stress was also among the barriers challenging Arab immigrant women in maintaining regular physical activity (Qahoush et al., 2010); however, this association between physical inactivity and less acculturation was not reported among younger Arab-American Muslim women in a more recent study (Eldoumi & Gates, 2019). Another 2019 study found that young, educated, acculturated Arab immigrant women with less stress and more social support tended to adopt healthy lifestyle behaviours (Hardan-Khalil, 2019). For other immigrant women, however, a literature review conducted by Rezazadeh and Hoover (2018) showed that immigrant women faced similar acculturative challenges in their ethnic communities and in larger Canadian society, which may affect their physical and mental health. However, Kwak (2018) found that immigrant women in Canada who experience high stress engage in a more positive lifestyle, especially older immigrant women, who could be more acculturated than younger women who may face more significant social disparities.

From the perspectives of Arab community health promoters and male individual who had had experiences with cardiac events, less acculturated older Arab immigrants face more mental burden and stressful conditions than younger people facing adaptation challenges due to the change in their lifestyle following migration to Canada. The systematic review conducted by Al Abed and colleagues (2014) showed that older Arab immigrants who were less acculturated faced more mental burdens and life stress because of their limited physical health and social

association. The current dissertation's findings align with a population-based study of immigrant well-being in Canada based on the 2011-2012 Canadian Community Health Survey data which found that older immigrants aged 50 to 64 years old with poor health status, high stress, and low acculturation and satisfaction with life were those most negatively affected after migrating to Canada (Kwak, 2018).

In the same sense, findings from a systematic review about the influence of acculturation, family support, and social support on depression among older Chinese and Korean immigrants in the United States stated that low acculturation, negative family relationships, and low social support have negative consequences on older immigrants' mental health and depressive symptoms (Guo & Stensland, 2018). As well, another study with a sample of older Filipino immigrants in the United States reported lower physical and mental health scores among participants with high acculturative stress (Seráfica et al., 2019). In this dissertation, participants underscored language barriers, transportation difficulties, lack of family support, and inclement weather as barriers that may prevent older Arab immigrants from accessing available resources in order to manage their excessive stress and mental burden consequences. However, the negative view of mental health issues in Arabic culture may also prevent these immigrants from seeking mental health interventions. Older Arab immigrants may not be satisfied with such interventions and may tend to mistrust and underuse them, as it is not acceptable in the Arabic culture to discuss family problems with strangers, and in the case of mental health problems, it is considered shameful to seek treatment (Abuelezam et al., 2018; Al-Krenawi & Graham, 2000). Older Arab immigrants who are less acculturated may feel isolated with communication difficulties and lack of support from family members who are always busy with work or study.

This dissertation's findings indicated that family support was one of the main factors in participants who had had cardiac events adopting healthy lifestyle behaviours during recovery, especially in adhering to medication and in preparing meals following healthy diet guidelines. For participants who are older and dependent on their families to prepare food at home, it is easier for them to adopt a healthy diet than to engage in physical activity, which requires more personal and physical effort. Without this family support, these people may follow a traditional diet, with more difficulties in changing their dietary habits. This was also found among older individuals from other immigrant groups in the United Kingdom (Leung & Stanner, 2011).

At the same time, parenting was also a stressful challenge for some participants, especially in the first months or years after arriving in Canada or when their children became teenagers. Arab community health promoters highlighted parenting, family problems, and cultural conflicts between school environments and home cultures as causes of mental burdens and stressful life conditions affecting both parents' and children's health status. This finding is in line with another study that found that Arab families in host countries were less satisfied with their new lives, even with long residence (Faragallah et al., 1997). In another qualitative study, male Arab participants believed that family responsibilities were a source of stress and a barrier to engaging in regular physical activity (Saleh et al., 2018), and similar findings were reported regarding the lived experiences of various immigrant groups in Canada (Premji, 2018). As well, a systematic review about acculturation and acculturative stress among Latino immigrants in the United States stated that family-cultural conflicts arose from factors that influenced acculturative stress (Bekteshi & Kang, 2020).

Under stress and mental burdens, the goal of less acculturated people, whether working or not working, is to get social support when facing stressful life conditions. They see age,

family responsibilities, parenting, and low income as barriers to adopting healthy lifestyle behaviours, especially among women. For Arab immigrants, mental burdens associated with perceived barriers such as age, problematic work status, parenting, and lack of social support were compared to their home countries, where participants may feel more peace of mind. In the context of social support, the findings pointed to the critical need for social support for less acculturated individuals who were stressed, especially women and older individuals, in order to help manage acculturative stress and prevent CVD risk factors. These findings align with Bekteshi and Kang (2020), who highlighted the importance of social support for Latino immigrants' health status in the United States.

In this sense, social support was associated with healthy lifestyle behaviours in a sample of Arab immigrant women (Hardan-Khalil, 2019), and was also a perceived need from the perspective of another sample of Middle Eastern women (Gholizadeh et al., 2011). For immigrant women in Canada, loss of social support and a sense of isolation were negative factors affecting their mental health (Rezazadeh & Hoover, 2018). On the other hand, participants in this dissertation research stated that social isolation was one of the main challenges that might impact older Arab immigrants' health in the form of stress and mental health issues. These findings are consistent with other studies with older Chinese and Korean immigrants in the United States (Guo & Stensland, 2018). In the context of Arabic culture, family support prioritizes the caring of older people among family members. This special caring may sometimes make elderly family members more dependent on this support and less physically active in their lives, and they may also deal passively with diseases or health conditions because of negative religious coping and full dependence on fatalism.

For Arab immigrants, the inability to obtain social support and life stability pushes individuals to be more connected to their home country's culture and religious coping in order to be more satisfied with stressful life situations. These findings differ from those from Kwak's (2018) study, which found similar life satisfaction levels among stressed, less acculturated immigrants, and native Canadians. However, social support in immigrants' home countries is irreplaceable, as there, no one feels alone at any time among family members, neighbours, and friends. In Canada, they miss this social support, and so their feelings of isolation may push them to stay more connected to the culture of their home countries or to seek help from a higher power through religious coping in order to find some internal stability. Some Arab immigrants may deal with acculturative stress in host countries by seeking social support from the ethnic local community, adopting cultural traditions and beliefs related to home countries, and firmly asserting their religious identity (Al Wekhian, 2016), and that may reflect negatively on their health status and healthy lifestyle behaviours (Bagasra & Mackinem, 2019). From the findings, the strong connection to home countries that might reflect on some healthy lifestyle behaviours has a similar influence on other immigrants groups (Gadd et al., 2005; Huang, 2015). However, the idea of a solid connection between home countries and low acculturation levels did not prevent participants in Studies 1 and 3 from looking toward positive sides of their lives in Canada, e.g., the quality of the health care services. Many of the qualitative studies' participants showed feelings of gratitude toward the health care services in Canada, and this trust in the health care system made participants with cardiac events, for example, more committed to doctors' recommendations and medication adherence during recovery. However, this dependence on doctors and fatalism as a religious coping strategy to help prevent CVD may lead to low self-efficacy in adopting healthy lifestyle behaviours among less acculturated immigrants

(Edelman et al., 2009). Further, despite their trust in the health care system, using mental health services was not a part of the participants' experiences.

Role of Religious Coping

In this dissertation, religious coping seems to be a way for less acculturated Arab immigrants to manage stress and mental burdens and find internal peace and satisfaction. From the participants' perspectives, religious coping could be a positive social support resource when facing stressful challenges, but it could be a negative strategy when individuals depend on fatalism to deal with challenges without significantly changing unhealthy behaviours. For participants who had had cardiac events, positive religious coping was used to decrease stress during and after cardiac events and to deal with consequences, such as fear of their children's future when they passed away. This concern over mortality raises the importance of older immigrants using religious and traditional beliefs to manage their CVD (Davidson et al., 2007).

In a previous study, and in a context different from CVD, religious coping was used by Arab-Americans to face higher acculturation stress and depression (Amer, 2005); however, the roles of positive religious coping and religiosity in dealing with acculturative stress may be related to immigrants' ages. For example, while in one recent study, younger Muslim immigrants found that religiosity aggravates the negative impact of stress on mental health (Stuart & Ward, 2018), another study with older Latinos in the United States found that religious involvement was associated with a lower risk of depressive illness and better mental well-being (Aranda, 2008). Positive religious coping could therefore influence immigrants' mental health with longer residence in host countries (Braam et al., 2010), and in the context of social support, findings from the current dissertation pointed to the importance of social support in the lives of Arab immigrants. Religious centres (mosques or churches) play an important role as primary social

support resources, especially for Arab women and older people who meet friends and peers with similar life conditions in these centres. The second most common social support source in preventing CVD, after family support, comes from members of religious organizations (Koenig, 2012).

On the other hand, religious and social support may also positively influence healthy behaviour and mental well-being practices (Park, 2007). For some Arab Muslim immigrant women, religious coping could influence their acculturative stress when they perceive marginalization and discrimination in host countries because of their external appearance with Hijab. In this respect, these perceptions of Muslim immigrant women may be stronger than those of other immigrant women in Canada who experience non-religious social disadvantages (Rezazadeh & Hoover, 2018). In this dissertation, Arab community health promoters indicated barriers related to wearing Hijab and finding suitable places to practice physical activity for older Arab women in women-only environments. This modesty is not only a barrier to healthy behaviours, as these findings are in line with a literature review study about barriers, challenges, and enablers of physical activity among immigrants in general (Caperchione et al., 2009).

In some participants' experiences, fatalistic beliefs could be considered negative religious coping when they ignore the severity of cardiac events from a religious viewpoint. They consider such events as part of fate, and as predestined. Similar perceptions based on fatalism that might negatively affect behaviour change were reported in a previous study among Muslim participants (Gholizadeh et al., 2011), and such fatalistic beliefs may prevent some immigrants from recognizing the benefits of engaging in healthy behaviours such as physical activity (Caperchione et al., 2009). One study among Mexican-American women stated fatalism as a risk factor for CVD, especially among those with low socioeconomic status (Espinosa de Los

Monteros & Gallo, 2013). In this dissertation, participants did not mention a religious doctrine in their experiences as a factor that might encourage the adoption of healthy lifestyle behaviours, and neither did they rely on religious coping to justify adopting healthy lifestyle behaviours. Positive religious coping strategies were only used to manage stress and cardiac event consequences, but not to change physical activity, diet, and smoking behaviours.

Strengths, Limitations, Implications and Recommendations

Canada is a multicultural country, and while the healthcare system reflects this fact, individuals with CVD or its risk factors from Arab communities need to be well integrated with and benefit from various preventive interventions in order to improve their lifestyle behaviours and prevent CVD events. Hence, it is essential to understand their perceptions and identify the complex roles of acculturation and religious coping in making decisions related to managing stress and adopting healthy lifestyle behaviours. As part of the patient-centred and person-centred healthcare approach in CR programs, this unique dissertation provides a foundational understanding of the complex roles of acculturation and religious coping from the perspectives of Arab community health promoters and Arab individuals with CVD. This dissertation offers an in-depth understanding of lived recovery experiences after cardiac events that may help facilitate participation and adherence to CR programs or community-based health promotion programs.

However, this dissertation has some limitations, including the challenge in recruiting participants with CVD risk factors or who had had specific cardiac events diagnosed in a community setting. It was not easy to find volunteer participants who agreed to share their experiences and spend the time to fill out the questionnaire and attend a follow-up interview. This recruiting challenge may be related to the unfamiliarity of Arab immigrants with such

participation in research activities, or over confidentiality concerns. Moreover, there are some limitations to this dissertation based on the participants' genders and religious backgrounds.

While male perspectives were limited in the first qualitative study with health promoters, as most of the participants in these discussions were women, the last qualitative study was conducted only with male Arab immigrants who had had cardiac events. Also, as religion is a sensitive topic for some people, this may have influenced the participation rate in Arab Muslim communities and Arab Christian communities. Therefore, Arab Christian people's perspectives were not well represented, with only one participant in Study 1 and two participants in Study 2. Comparing different religious backgrounds within a similar Arab culture could have enriched this dissertation's findings. It should be noted that the dissertation's findings cannot be generalized to all Arab immigrants; still, these findings could contribute to the overall picture of immigrants' preventive health behaviours in host countries. The results can also help in improving Arab immigrants' lifestyle behaviours and stress management through health promotion in the Arab community setting, CR practice, and future research.

Health Promotion Programs

Awareness of CVD risk factors remains relatively low among ethnic minority immigrants groups in host countries, and this may affect their healthy lifestyle behaviours (Caperchione et al., 2009; Patel et al., 2017). It is therefore essential to highlight community health promoters' influential roles in raising awareness about CVD and risk factors among low-income, underserved, and ethnic minority communities (Kim et al., 2016). In this dissertation, the findings reflected a low level of awareness affecting healthy lifestyle behaviours, and low use or mistrust in mental health services despite their important need, especially with high levels of

acculturative stress. In this context, there is a need to fill the cultural gaps through accessible health education programs about CVD and how to prevent risk factors.

Based on these findings, Arab community health promoters in the CAHC could plan and develop interventions focusing on individuals and community organizations, with the main objective being to reduce CVD risk factors among community members. They could attract the attention of immigrant community organizations towards health promotion by changing their programs, resources, and practices to prevent CVD risk factors in the Arab community and raise awareness about the importance of mental health intervention to manage acculturative stress. The most important point is to change the knowledge, practices, and attitudes in their community members and organizations in this planning phase. It is possible to follow various kinds of intervention approaches to reach this goal; for example, Arab community health promoters could provide health education programs in Arabic, targeting Arab women and older people about CVD risk factors and mental health.

As religious coping could be used for stress management, health education programs about stress management could partner with religious centres to add religious aspects to such interventions. In some religion-based cultures, religiosity adds more resiliency, stability, and security to people's identities (Kim-Prieto, 2014), and such strong identities may support community members' personalities, especially those of more vulnerable members such as women and older people facing acculturative stress. This internal stability is required, for example, in experiences of coping with physical pain perception, expression, and tolerance (Koenig et al., 2012). Another reason for this partnership with religious centres in health education programs is the social support provided by some religion-based social communities and religious networks. In the same sense, Arab community health promoters could benefit from

social and cultural events in the Arab community, such as cultural festivals or celebrations, in order to reach people and spread awareness messages about CVD risk factors and the importance of mental health interventions.

In order to transfer this knowledge to beneficiaries from Arab communities, such health promotion programs and health education activities need to rely on evidence-based knowledge, and therefore I recommend that the CAHC, working with the locate CR programs, including the University of Ottawa Heart Institute, translate CVD health education materials into Arabic and spread prevention messages in the Arab community in the city. It is also possible to adopt culturally appropriate community rehabilitation and fitness programs or resources to meet Arab communities' healthy lifestyle needs, including education sessions, exercise sessions, and CVD risk factor screening and assessment. The provision of such programs by community health promoters from the same culture could help overcome challenges or barriers in a culturally sensitive way when addressing health behaviours (Caperchione et al., 2009).

Cardiac Rehabilitation Programs

In this dissertation, all the participants recognized the importance of healthy lifestyle behaviours in preventing CVD; however, they gave more attention to medication adherence than to changing their lifestyle behaviours. Because of this perception, and with fewer doctors' referrals, most participants who had had cardiac events expressed less of a perceived need for CR programs, and only a few participants had attended and completed CR programs at the University of Ottawa Heart Institute based on doctors' recommendations and referrals after cardiac events. In this context, in order to raise awareness about CR and improve the CR program participation rate among Arab immigrants, I recommend that decision-makers at the

University of Ottawa Heart Institute improve the CR referral rates by building solid bridges with Arab family doctors and cardiologists.

As Arab community health promoters could spread messages about CVD risk factors and the importance of healthy lifestyle behaviours in Arab communities, health professionals from the Arab communities need to be involved in local CR initiatives to cover more CR program beneficiaries. Because they share a similar culture with Arab immigrants, they understand cultural perspectives and health behaviours which could help in planning appropriate care (Davidson et al., 2007). Some barriers to participating in CR programs at the University of Ottawa Heart Institute were stated to be related to transportation and parking issues, and so I recommend that decision-makers at the University of Ottawa Heart Institute, in partnership with community health centres, overcome such barriers by designing culturally appropriate CR programs in a community setting or via telerehabilitation. Community health centers that participate in this initiative may adopt culturally appropriate CR programs and translate the University of Ottawa Heart Institute's health education materials and resources into different languages in order to disseminate this knowledge among other ethnic minority immigrant groups. Such CR programs could be used in parallel with health promotion programs to provide education about CVD risk factor prevention.

Also, the findings underscore the important need for mental health interventions for Arab individuals. Despite the importance of mental health counselling as an essential part of CR after cardiac events, participants did not recognize its role in their recovery, despite their need for such interventions with acculturative stress and mental burdens. In clinical CR programs for Arab immigrants or other immigrants, psychological counselling is essential in order to understand the whole recovery picture after cardiac events. Culturally adapted mental health

interventions are more efficacious for immigrant groups when targeting a specific ethnic group based on its language and culture (Griner & Smith, 2006). For Arab communities in host countries, such culturally appropriate CR interventions have been recommended in previous studies as a way to improve preventive health behaviours (Aqtash & Van Servellen, 2013), to provide practical strategies in reducing CVD risk and managing stress (Gholizadeh et al., 2011), and to lead individuals with CVD in managing their lifestyle changes (Sloots et al., 2012). Further, this kind of mental health intervention is recommended to understand the influence of acculturative stress and mental burdens on recovery after cardiac events among Arab immigrants who may need more intensive CVD prevention counselling.

Future Research

In summary, this dissertation's findings highlight the importance of acculturation in adopting healthy lifestyle behaviours, and of religious coping in managing stress and decreasing the mental burdens of daily life. As suggested above, there is a need to promote healthy lifestyle messages and raise awareness about CVD risk factors among Arab communities in addition to designing and developing culturally appropriate CR programs for Arab immigrants. More research is required to focus on cultural backgrounds in order to change lifestyle behaviours among Arab immigrants and improve their preventive strategies when facing CVD risk factors. In this context, future work with more representative samples of Arab immigrants, including women, older immigrants, and Arab Christian immigrants, would be beneficial to understand better the complex nature of factors that may affect healthy lifestyle promotion among this minority group. Moreover, longitudinal studies focusing on socioeconomic factors such as income, education, work status, and social support could be conducted to assess the effectiveness of health promotion or CR program initiatives or interventions.

Moreover, understanding the barriers and facilitators in CR experiences would help in designing culturally appropriate CR programs to prevent CVD or risk factors among immigrants from Arab countries. To gain a more in-depth understanding about Arab participants in CR programs, it would be essential to define participants' ethnicities based on their home languages or self-identification in addition to geographical group data in the Canadian Cardiac Rehab Registry (online database developed by the Canadian Association of Cardiovascular Prevention and Rehabilitation). Analyzing these data could help in examining and comparing the sociodemographic and clinical data of Arab immigrants with those of other immigrant groups or the general population. These data could include, for example, risk factor statuses, program utilization, stress test results, and psychosocial well-being. Based on the data analysis, researchers could identify potential factors influencing Arab immigrants' experiences with CR programs after cardiac events, and then build on this analysis to develop culturally appropriate CR programs and improve Arab immigrants' participation rates.

In addition, the promotion of mental health interventions among Arab immigrants may be a good opportunity for researchers and healthcare providers to understand related perceptions of Arab immigrants and identify the role of their cultural values, beliefs, and perspectives in making decisions related to mental health status. In this context, future research work is needed to explore the barriers and facilitators to mental health services among Arab immigrants as well as the role of acculturation and religious coping in their awareness about mental health problems and their perceived mental health needs. Such specific research about mental health could improve Arab immigrants' lifestyles and change some of their negative cultural attitudes toward mental health.

Conclusion

This mixed-methods dissertation provides new insights into the role of acculturation and religious coping in healthy lifestyle behaviours and stress management among Arab individuals in the Ottawa region who have had cardiac events or who have CVD risk factors. While an indirect role has been noted regarding religious coping in managing acculturative stress through socialization, family support, and the adoption of fatalistic coping strategies, low acculturation plays a negative role in adopting healthy lifestyle behaviours, especially among older Arab male immigrants who have had cardiac events. These findings, based on Arab immigrants' perspectives, may be considered when designing CR programs that follow a patient-centred healthcare approach. However, some knowledge gaps remain unaddressed in this research area, and more research is needed in order to design and implement culturally appropriate CR or preventive health promotion programs with both physical and mental health components for Arab immigrants and to evaluate the effectiveness of such interventions. As well there is a need to further educate health professionals in helping people from various cultural groups adopt healthy life style choices not just to rely on medication and surgery.

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Appendix A

Ethical approvals and consent forms

File Number: H12-17-04		Date (mm/dd/yyyy): 01/26/2018	
Université d'Ottawa Bureau d'éthique et d'intégrité de la recherche	University of Ottawa Office of Research Ethics and Integrity		
Ethics Approval Notice Health Sciences and Science REB			
Principal Investigator / Supervisor / Co-investigator(s) / Student(s)			
<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Judy	King	Health Sciences / Physiotherapy	Supervisor
Hussein	Baharoon	Health Sciences / Others	Student Researcher
File Number: H12-17-04			
Type of Project: PhD Thesis			
Title: Managing Stress and Lifestyle Change Behaviours after Cardiac Events among Arab Individuals: The Role of Religion/Spirituality and Acculturation			
Approval Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type	
01/26/2018	01/25/2019	Approval	
Special Conditions / Comments: N/A			
1			
550, rue Cumberland, pièce 154 Ottawa (Ontario) K1N 6N5 Canada (613) 562-5387 • Téléc./Fax (613) 562-5338		550 Cumberland Street, room 154 Ottawa, Ontario K1N 6N5 Canada (613) 562-5387 • Téléc./Fax (613) 562-5338	
www.recherche.uottawa.ca/deontologie/ www.research.uottawa.ca/ethics/			



Université d'Ottawa **University of Ottawa**
 Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

This is to confirm that the University of Ottawa Research Ethics Board identified above, which operates in accordance with the Tri-Council Policy Statement (2010) and other applicable laws and regulations in Ontario, has examined and approved the ethics application for the above named research project. Ethics approval is valid for the period indicated above and subject to the conditions listed in the section entitled "Special Conditions / Comments".

During the course of the project, the protocol may not be modified without prior written approval from the REB except when necessary to remove participants from immediate endangerment or when the modification(s) pertain to only administrative or logistical components of the project (e.g., change of telephone number). Investigators must also promptly alert the REB of any changes which increase the risk to participant(s), any changes which considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project and safety of the participant(s). Modifications to the project, including consent and recruitment documentation, should be submitted to the Ethics Office for approval using the "Modification to research project" form available at: <https://research.uottawa.ca/ethics/forms>.

Please submit an annual report to the Ethics Office four weeks before the above-referenced expiry date to request a renewal of this ethics approval. To close the file, a final report must be submitted. These documents can be found at: <https://research.uottawa.ca/ethics/forms>.

If you have any questions, please do not hesitate to contact the Ethics Office at extension 5387 or by e-mail at: ethics@uOttawa.ca.

Signature:

 — Ethics in Research
 Chair of the Health Sciences and Sciences REB

Permission letter from the South East Ottawa Community Health Center



Hussein Ba Haroon <

@uottawa.ca>

FW: Research proposal- Managing Stress and Lifestyle Change Behaviours after Cardiac Events among Arab Individuals: The Role of Religion/Spirituality and Acculturation

To: "Hussein Ba Haroon (ba@seochc.on.ca)" <ba@seochc.on.ca>
Cc: ba@seochc.on.ca

Wed, Nov 22, 2017 at 2:44 PM

Hello Hussein,

I checked with the ED and the directors of our organization in regards to your research study and they have approved that you can put any posters up on our waiting room once you have the ethics approval. Our Board does not provide research approvals.

One thing they are very explicit about is that we cannot solicit our patients to participate in the study. We cannot send out letters to our clients to let them know about this research. Aside from posting the flyer, there is not much else that SEOCHC staff would be able to do.

I understand that this project is in line with the goals of the Arabic Health Coalition and _____ would be able to lend her support in this way.

Thank you



_____, RN, Clinical Coordinator

SOUTH-EAST OTTAWA COMMUNITY HEALTH CENTRE

600-1355 Bank Street, Ottawa ON, K1H 8K7

Phone 613-737-7195 ext. _____ Fax 613-739-3723

ba@seochc.on.ca www.seochc.on.ca

Please consider your environmental responsibility before printing this e-mail or any other document

Confidentiality Notice: This email message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.

Focus group study – Consent form

Implications related to religion/spirituality and acculturation for Arab people to adopt healthy lifestyle behaviours for primary or secondary prevention of CVD in Canada.

Mr. Hussein Baharoon
Ph.D. candidate

Faculty of Health Sciences,
School of Rehabilitation
University of Ottawa
Tel: XXX-XXX-XXXX
email: XXX@uottawa.ca

Supervisor: Dr. Judy King
PhD, MHSc, BHSc PT
Associate Professor

Physiotherapy Program
School of Rehabilitation Sciences
Faculty of Health Sciences
University of Ottawa
Phone: XXX-XXX-XXXX ext. XXX
Fax:
E-mail: XXX@uottawa.ca

Invitation to Participate: I am invited to participate in a research project conducted by Mr. Hussein Baharoon as a part of his Ph.D. research project at the University of Ottawa, under the supervision of Dr. Judy King.

Purpose of the Study: I understand that the purpose of the study is to explore implications related to religion/spirituality and acculturation, used in adapting healthy lifestyles behaviours related to cardiovascular diseases among Muslim and Christian Arab people from the perspective of the CAHC's members.

Participation: My participation will consist of participating in a focus group discussion about my opinions and experiences with this issue. The time needed for this focus group discussion is approximately 90-120 minutes. This will take place at..... in the South-East Ottawa Community Health Centre. Mr. Hussein Baharoon will audio-record my responses.

Assessment of risks: My participation in this study will entail that I volunteer personal information in the presence of others, which may generate some emotional discomfort. However, I have received assurance from Mr. Hussein Baharoon that every effort will be made to minimize these risks: if need be, I will have access to support services provided by counselling clinic at the South-East Ottawa Community Health Centre (SEOCHC). I may decide to stop the participation at any time.

Benefits: By expressing some personal ideas about my experiences with being a member in the Canadian Arab Health Coalition as [.....] I will contribute to an enlarged understanding of implications related to religion/spirituality and acculturation used in adapting healthy lifestyles behaviours related to cardiovascular diseases among Arab people.

Privacy of participants: I have received assurance from Mr. Hussein Baharoon that the information I share will remain strictly confidential. A full confidentiality of my identity cannot be guaranteed as I will participate in focus groups sessions, but the information I will share in this study will be kept completely confidential. Identifying information of names and places within the data will be altered as needed.

Confidentiality and conservation of data: The data will be used for the purpose of the research project. If I give my permission, the data may also be used as part of the future research work of the researcher. I have been assured that the audio recording and transcripts will be securely safeguarded by the researcher and/or his thesis supervisor for a minimum of five years along with the other data collected for the thesis; and when research is complete, all material data will be shredded and electronic data will be erased.

Voluntary Participation: I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be destroyed.

Acceptance: I, _____, agree to participate in the above research study conducted by Mr. Hussein Baharoon as a part of his Ph.D. research project at the school of rehabilitation, University of Ottawa, under the supervision of Dr. Judy King.

_____ I AGREE to have the data used for future research work of the student researcher.

YES NO

If I have any questions about the study, I may contact the Mr. Hussein Baharoon or Dr. Judy King. If I have any questions regarding the ethical conduct of this study, I may contact the Office of Research Ethics and Integrity, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5, Tel.: [613] 562-5387, Email: ethics@uottawa.ca

There are two copies of the consent form, one of which is mine to keep.

Participant's name

Signature:

Date:

Researcher's name

Signature:

Date:

Survey and interview – Consent form

Experiences of Arab individuals diagnosed with cardiovascular risk factors or cardiac events

Mr. Hussein Baharoon
Ph.D. candidate

Faculty of Health Sciences,
School of Rehabilitation
University of Ottawa
Tel: XXX-XXX-XXXX
email: XXX@uottawa.ca

Supervisor: Dr. Judy King
PhD, MHSc, BHSc PT
Associate Professor

Physiotherapy Program
School of Rehabilitation Sciences
Faculty of Health Sciences
University of Ottawa
Phone: XXX-XXX-XXXX ext.
XXX
Fax:
E-mail: XXX@uottawa.ca

Invitation to Participate: I am invited to participate in a research project conducted by Mr. Hussein Baharoon as a part of his Ph.D. research project at the University of Ottawa, under the supervision of Dr. Judy King.

Purpose of the Study: I understand that the purpose of the study is to determine and to understand the relationship between religion/spirituality, acculturation level, stress management, and lifestyle change behaviours among individuals diagnosed with cardiovascular risk factors or cardiac events from Arab communities living in the region of Ottawa.

Participation: My participation will consist of participating in completing a questionnaire (paper or online), which will require around 30 minutes as well as an optional follow up in- person interview, which may take one hour to complete. This interview will take place at [time TBD..] in the South-East Ottawa Community Health Centre. Mr. Hussein Baharoon will audio-record my responses.

Assessment of risks: My participation in this study will entail that I volunteer personal information, which may generate some psychological or emotional harm or discomfort. However, I have received assurance from Mr. Hussein Baharoon that every effort will be made to minimize these risks: if need be, I will have access to support services provided by counselling clinic at the South-East Ottawa Community Health Centre (SEOCHC). I may decide to stop the participation at any time.

Benefits: By completing the questionnaire and expressing my experience with cardiovascular risk factors or cardiac events, I will contribute to an enlarged understanding of the relationship between religion/spirituality, acculturation level, stress management, and lifestyle change behaviours

among individuals diagnosed with cardiovascular risk factors or cardiac events from Arab communities living in the region of Ottawa.

Privacy of participants: I have received assurance from Mr. Hussein Baharoon that the information I share will remain strictly confidential. My identity will be protected. Identifying information of names and places within the data will be altered as needed.

Confidentiality and conservation of data: The data will be used for the purpose of the research project. If I give my permission, the data may also be used as part of the future research work of the researcher. I have been assured that the questionnaires, audio recording and transcripts will be securely safeguarded by the researcher and/or his thesis supervisor for a minimum of five years along with the other data collected for the thesis; and when research is complete, all material data will be shredded and electronic data will be erased.

Voluntary Participation: I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be destroyed.

Acceptance: I, _____, agree to participate in the above research study conducted by Mr. Hussein Baharoon as a part of his Ph.D. research project at the school of rehabilitation, University of Ottawa, under the supervision of Dr. Judy King.

YES NO

_____ I AGREE to participate in a follow-up in person interview when calling me. My phone number is:

YES NO

_____ I AGREE to have the data used for future research work of the student researcher.

YES NO

If I have any questions about the study, I may contact the Mr. Hussein Baharoon or Dr. Judy King. If I have any questions regarding the ethical conduct of this study, I may contact the Office of Research Ethics and Integrity, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5

Tel.: [613] 562-5387 Email: ethics@uottawa.ca

There are two copies of the consent form, one of which is mine to keep.

Participant's name	Signature:	Date:
Researcher's name	Signature:	Date:

Appendix B

Recruitment documents

Focus group study – Invitation e-mail

Hello

This letter is an invitation to participate in a research project to examine your perspectives and experiences with implications related to religion/spirituality and acculturation in adapting healthy lifestyles behaviours to prevent cardiovascular diseases among Muslim and Christian Arab people. As you know, managing stress and lifestyle change behaviours is an important factor to prevent disease progression and the recurrence of cardiac events. However, little is known about the influence of religion/spirituality on Arab individuals with cardiovascular diseases, what implications they follow in managing stress and lifestyle change behaviours related to cardiovascular diseases in the Canadian context. This study aims to learn more about the Canadian Arab Health Coalition's members opinions and experiences regarding these issues as experts in the health promotion among Arab communities in Ottawa.

To do this, we are conducting 3 focus groups with the Canadian Arab Health Coalition's members. These focus groups will be held in [room and time TBD] at the South-East Ottawa Community Health Centre (SEOCHC).

If you would like to participate in this study:

- ❖ You will be asked to attend a 2-hour face-to-face focus group, which will occur outside of work hours
- ❖ You will be asked in advance to choose which language you prefer for the focus group (English, Arabic or bilingual)
- ❖ For female participants, you will be asked in advance if you would like to participate with mix group or female group only.
- ❖ We will tape record and transcribe the focus group.
- ❖ We will provide refreshments for this focus group

Participation in this study is voluntary and you may choose to leave the research at any time. Participants will be selected on a first-come, first served basis. All of the information from the focus group participants will be kept confidential. No individual professional or personal

descriptors will be used in any reports or publications. You will not be identified by name on the focus group transcripts.

There are no immediate benefits to you; however, by participating in this study you will have the opportunity to share experiences related to implications related to religion/spirituality and acculturation in adapting healthy lifestyles behaviours to prevent cardiovascular diseases among Muslim and Christian Arab people.

If you would like more information or to be involved in the project, please contact the principal investigator, Hussein Baharoon, either by email XXX@uottawa.ca or phone XXX-XXX-XXXX.

Many thanks

Mr. Hussein Baharoon, Ph.D. candidate
School of Rehabilitation, Faculty of Health Sciences, University of Ottawa
Tel: XXX-XXX-XXXX, email: XXX@uottawa.ca
Supervisor: Dr. Judy King PhD, MHSc, BHSc PT
Associate Professor, Physiotherapy Program, School of Rehabilitation Sciences
Faculty of Health Sciences, University of Ottawa
Phone: XXX-XXX-XXXX ext. XXXX, Fax:XXX-XXX-XXXX, E-mail
XXX@uottawa.ca

Focus group study – Protocol

Implications related to religion/spirituality and acculturation for Arab people to adopt healthy lifestyle behaviours for primary or secondary prevention of CVD in Canada.

My name is Hussein Baharoon, a Ph.D. candidate in rehabilitation sciences, University of Ottawa. I am working under the supervision of Dr. Judy King in the School of Rehabilitation sciences, to understand the role of religion/spirituality and acculturation in the experiences of Arab individuals diagnosed with cardiovascular diseases after a cardiac event. By this focus group, we hope to explore implications that individuals or general Arab people in the Canadian lifestyle may have to adopt healthy lifestyle behaviours to prevent cardiovascular diseases.

(Short presentation about the research background).

To get your opinions about this topic, I hope you would be willing to answer a few questions.

In this discussion, anything you tell me is confidential. Nothing you say will be personally attributed to you in any reports that result from this study. All reports will be written in a manner that no individual comment can be attributed to a particular person.

Are you willing to answer my questions? Do you have any questions before we begin?

- How do you think Muslim and Christian Arab people see the impact of their new life in Canada on their health status?
- How do you think faith backgrounds or R/S beliefs and practices affect their adopting of healthy lifestyle behaviours?
- How do you think people with CVD cope with their diseases in the Canadian context?
- What do you think the main barriers in adopting healthy lifestyle behaviours?
- What do you think the main facilitators in adopting healthy lifestyle behaviours?
- Do you have any additional points you'd like to make about any of the questions I've asked? Any other comments?

Focus group study - Participant's demographic form

Please answer the following questions in the spaces provided, circle or tick the most appropriate options.

<p>1. What language do you speak?</p> <ul style="list-style-type: none"><input type="checkbox"/> Arabic<input type="checkbox"/> English<input type="checkbox"/> French<input type="checkbox"/> Other: (please specify) _____ <p>2. What is your professional background?</p> <ul style="list-style-type: none"><input type="checkbox"/> Medicine<input type="checkbox"/> Nurse<input type="checkbox"/> Occupational therapy<input type="checkbox"/> Pharmacology<input type="checkbox"/> Physiotherapy<input type="checkbox"/> Other: (please specify) _____ <p>3. What is your education level?</p> <ul style="list-style-type: none"><input type="checkbox"/> College degree/ diploma<input type="checkbox"/> Bachelor's degree<input type="checkbox"/> Master's degree<input type="checkbox"/> Ph.D., or medical degree<input type="checkbox"/> Other: (please specify) _____ <p>4. How many years of experience in healthcare do you have either in Canada or other country?</p> <ul style="list-style-type: none"><input type="checkbox"/> <1 Year<input type="checkbox"/> 1-2 Years<input type="checkbox"/> 2-5 Years<input type="checkbox"/> 5-10 Years<input type="checkbox"/> 11-20 Years<input type="checkbox"/> 21-30 Years<input type="checkbox"/> 31-40 Years	<p>5. What is your religious affiliation?</p> <ul style="list-style-type: none"><input type="checkbox"/> Muslim<input type="checkbox"/> Christian<input type="checkbox"/> Other: (please specify) _____<input type="checkbox"/> Prefer not to answer <p>6. How long have you resided in Canada?</p> <ul style="list-style-type: none"><input type="checkbox"/> <1 Year<input type="checkbox"/> 1-2 Years<input type="checkbox"/> 2-5 Years<input type="checkbox"/> 5-10 Years<input type="checkbox"/> >10 Years <p>7. What is your (your parents') country of origin?</p> <p>_____</p> <p>8. Have you lived in other countries?</p> <p>_____</p>
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Thank you for taking the time to complete this form



Are you an Arab adult living in the region of Ottawa?
Are you diagnosed with hypertension, high cholesterol, diabetes or heart attack in Canada?



We want to hear from you!

This study explores the experiences of Arab individuals diagnosed with cardiovascular risk factors or cardiac events to collect data of specific knowledge related to religion/spirituality, acculturation, managing stress and lifestyle change behaviours.

What's involved?

Participation would include a questionnaire (paper or online), which will require around 20-30 minutes as well as an optional follow up in person interview, which may take 30 minutes to complete.

(Each participant in the interview will receive a small gift of appreciation)

Who can participate?

Eligible participants are people who meet ALL these criteria:

- Aged 18 years or older,
- Self identified as Arab,
- Arabic and/or English speaker,
- Living in the region of Ottawa,
- Living in Canada for a minimum of two years,
- Diagnosed with cardiovascular risk factors (hypertension, high cholesterol, diabetes) and/or cardiac events while living in Canada

If interested, please contact Mr. Hussein Baharoon at the University of Ottawa by phone at _____ or e-mail _____@uottawa.ca or Dr. Judy King at the

University of Ottawa by phone: _____ ext. _____ or e-mail:

_____@uottawa.ca



This research is carried out in coordination with the Canadian Arab Health Coalition

Survey and interview –Sociodemographic information

Answer all questions completely.
Print clearly or place a check mark in boxes.

Are you:

- Male Female Prefer not to answer

What is your age category?

- 20-24 25-34 35-44 45-64 > 64 years

What is your current marital status?

- Single Married/Common Law Divorced/Separated Widowed

How long have you lived in Canada?

- born here less than 1 year 1-4 years 5- 9 years 10-14 years 15- 19 years 20 years or more

What is your (your parents’) country of origin?

.....

Where do you live?

- Ottawa
- Gatineau/Hull
- Other:

To what generation do you belong since the residence of your family in Canada?

- 1st generation 2nd generation 3rd generation

1st generation refers to people who were born outside Canada.

2nd generation includes individuals who were born in Canada and had at least one parent born outside Canada.

3rd generation or more refers to people who are born in Canada with both parents born in Canada.

What was your immigration status when you came to Canada?

- Immigrant
 Refugee
 Undocumented immigrant
 Prefer not to answer
 Don't apply to me

In what language do you prefer to communicate?

	Arabic	English	Other
Written communication in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verbal communication in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What is your education level?

- Less than secondary school
- High school
- Collegial diploma
- Bachelor's degree
- Master's degree
- Ph.D. or medical degree
- Other

What is your employment status?

Employed	Self-employed	Out of work and looking for work	Out of work but not currently looking for work	Homemaker	Student	Retired	Unable To work	Prefer not to answer
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What is your religious affiliation?

- Muslim
- Christian
- Prefer not to answer
- Other

Are you a member of any religious organizations or associations in the region of Ottawa?

- Yes
 No
 Don't know
 Prefer not to answer

Have you been told by a health professional that you had cardiac event or conditions or any of the following?

- Heart attack
- Angina
- Heart failure
- Hypertension
- High Cholesterol
- Diabetes
- Other:.....

How long have you been diagnosed as having this cardiac event or condition?

- Less than a year 1–5 years > 5 years

How many times did you have a cardiac event (e.g. heart attack, angina, heart failure)?

- Once
- Twice
- More

During your MOST RECENT cardiac event, were you hospitalized?

- Yes No

After you had the cardiac event, were you referred to cardiac rehabilitation?

- I was referred to cardiac rehabilitation, but I did not participate
- I was referred to cardiac rehabilitation, I participated, but I did not complete the program
- I was referred to cardiac rehabilitation, I participated, and I completed the program
- I was not referred to cardiac rehabilitation

Did you ever smoke cigarettes or hookah?

- I have never smoked
- I smoked for a short term then I definitely ceased smoking
- I smoked for a long-term then I definitely ceased smoking
- I smoke from time to time
- I smoke a lot and I cannot cease it

Did you drink any kind of alcoholic beverages?

- I have never drunk any kind of alcoholic beverages
- I drank for a short term then I definitely stopped drinking alcohol
- I drank for a long-term then I definitely stopped drinking alcohol
- I drink alcohol from time to time
- I drink alcohol a lot and I cannot stop it

Interview Protocol

Experiences of Arab Men who had cardiac events while living in Canada

Duration of interview: (45-60 minutes)

Date:

Place:

Interviewer:

Interviewee:

My name is Hussein Baharoon, a Ph.D. candidate in rehabilitation sciences, university of Ottawa. I am working under the supervision of Dr. Judy King at the school of Rehabilitation sciences.

Thank you very much for taking the time to talk with me today and for letting me know more about your experience with cardiovascular diseases after a cardiac event (heart attack, angina or heart failure) while living in Canada. As I told you early when completing the questionnaire, this research is a part of my Ph.D. research project at the school of rehabilitation, University of Ottawa. Through this interview, I would like to hear your valued answers to some questions related to your experience with cardiovascular diseases and the recovery after a (heart attack, angina or heart failure). Your insights into this issue will help me to better understand the role of religion/spirituality and/or culture in your lifestyle change. For the questions I'm about to ask you, please answer in as much detail as possible, and share any associations or connections that may occur to you while you are speaking.

Questions:

1. Please, tell me what (heart attack, angina or heart failure) means to you.
2. What do you think might have cause your (heart attack, angina or heart failure)?
3. Could you please describe your life before and after your (heart attack, angina or heart failure)?
4. What do you think made the recovery after your (heart attack, angina or heart failure) easy or difficult?
5. How did you cope with the (heart attack, angina or heart failure) circumstances (e.g. impact on personal, social, professional life...)?

6. What is/are the main support resource(s) that has/have assisted you during and after your (heart attack, angina or heart failure)? (e.g. spouse, family members, neighbors, community center, religious organization...)
7. Do you think that these circumstances of your (heart attack, angina or heart failure) would be different if it happened to you in the back-home country? Tell me about these differences.

Now we will talk a bit about some of the treatment that you might have had after your (heart attack, angina or heart failure).

8. What do you know about cardiac rehabilitation?
9. During the recovery after your (heart attack, angina or heart failure), did you attend a cardiac rehabilitation program? If yes, why? If not, why not?
10. If you attended such a program, how do you find it? What do you like/dislike in this program?
11. If I asked you to talk to people who have a higher risk of cardiovascular diseases, what do you advise them to avoid (heart attack, angina or heart failure)?
12. Is there anything else that you would like to add to from what we have already talked about?
13. Is there anything else that you would like to tell me about that I haven't asked?

Thank you for your participation in this interview, and this is just a small token of appreciation for your participation in our research.

As I told you, your responses will be confidential and used only for the research purpose. I will contact you later to share with you the initial findings of this research project.