Socio-Cultural Factors Influencing Self-Care Among African Immigrants Living With Chronic Illness In The United States

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Socio-Cultural Factors Influencing Self-Care Among African Immigrants Living With Chronic Illness In The United States

Abstract
Self-care is vital in chronic illness management. Self-care entails three core processes: self-care maintenance (e.g., following dietary recommendations), self-care monitoring (e.g., monitoring blood glucose), and self-care management (e.g., calling a provider for symptoms). Persons who engage effectively in self-care have improved perceived control over their illness, better quality of life, lower hospitalization, and less mortality compared to those with poor self-care. Multiple factors are known to influence self-care, but less is known about how sociocultural factors influence self-care among African immigrants living with chronic illness. To date, much of the self-care research has grouped all persons of African-descent into one “Black/African-American” category. This limits our ability to understand the sociocultural variations among Black/African American subgroups that may influence self-care and impairs progress in developing targeted interventions that may improve the lives of Black people with chronic illness. To address this gap, this dissertation aimed to: (1) synthesize the existing evidence of the cultural factors that influence self-care in persons with cardiovascular disease through an integrative review (Chapter 2); (2) identify the cultural factors that influence self-care practices among African immigrants living with chronic illness in countries outside Africa using mixed studies review (chapter 3); and (3) describe the self-care behaviors of adult African immigrants in the U.S. living with a chronic illness. In a cross-sectional study, we assessed the relationship between acculturation and self-care and explored potential determinants of self-care using general linear modeling (chapter 4). Cultural beliefs and norms challenge adherence to recommended diets and medication regimens in persons with cardiovascular diseases (Chapter 2). Cultural identity was both a driver and a constraint to engaging in self-care in African immigrants with chronic illness. Further, structural factors such as unemployment, lack of insurance, high cost of healthcare, and immigrant status-related discrimination, linguistic challenges, and ineffective physician-patient communication also influenced self-care (Chapter 3). Overall, the self-care of African immigrants across the three domains of self-care maintenance, monitoring, and management was adequate. Specific self-care behaviors found to be low in this population include eating a special diet, and monitoring for medication side-effects, and fatigue. Acculturation was not associated with self-care. Self-care self-efficacy was a strong determinant of self-care. The perception of inadequate income was another significant determinant of poor self-care management (chapter 4). Taken together, these findings demonstrate that cultural and structural factors that influence individual self-care behaviors need to be accounted for in order to promote self-care behaviors in African immigrants living with chronic illness.

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SOCIO-CULTURAL FACTORS INFLUENCING SELF-CARE AMONG
AFRICAN IMMIGRANTS LIVING WITH CHRONIC ILLNESS IN THE
UNITED STATES

Onome Henry Osokpo

A DISSERTATION

in

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in

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Degree of Doctor of Philosophy

2021

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SOCIO-CULTURAL FACTORS INFLUENCING SELF-CARE AMONG AFRICAN IMMIGRANTS LIVING WITH CHRONIC ILLNESS IN THE UNITED STATES

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Onome Henry Osokpo
DEDICATION

This work is dedicated to the Almighty God from whom all mercies flow; my wife, Olufunmilayo, our children, Oghenechoja, Ajirioghene, Jonathan, John, James and Japheth, my parents especially my mother who kept my household afloat when my wife was working and I was away doing research or attending classes, my brothers and sisters who have always encouraged me and my entire church and African immigrant community.
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ABSTRACT

SOCIO-CULTURAL FACTORS INFLUENCING SELF-CARE AMONG AFRICAN IMMIGRANTS LIVING WITH CHRONIC ILLNESS IN THE UNITED STATES

Onome Henry Osokpo

Barbara Riegel

Self-care is vital in chronic illness management. Self-care entails three core processes: self-care maintenance (e.g., following dietary recommendations), self-care monitoring (e.g., monitoring blood glucose), and self-care management (e.g., calling a provider for symptoms). Persons who engage effectively in self-care have improved perceived control over their illness, better quality of life, lower hospitalization, and less mortality compared to those with poor self-care. Multiple factors are known to influence self-care, but less is known about how sociocultural factors influence self-care among African immigrants living with chronic illness. To date, much of the self-care research has grouped all persons of African-descent into one “Black/African-American” category. This limits our ability to understand the sociocultural variations among Black/African American subgroups that may influence self-care and impairs progress in developing targeted interventions that may improve the lives of Black people with chronic illness. To address this gap, this dissertation aimed to: (1) synthesize the existing evidence of the cultural factors that influence self-care in persons with cardiovascular disease through an integrative review (Chapter 2); (2) identify the cultural factors that influence self-care practices among African immigrants living with chronic illness in countries outside Africa using mixed studies review (chapter 3); and (3) describe the self-care behaviors of
adult African immigrants in the U.S. living with a chronic illness. In a cross-sectional study, we assessed the relationship between acculturation and self-care and explored potential determinants of self-care using general linear modeling (chapter 4). Cultural beliefs and norms challenge adherence to recommended diets and medication regimens in persons with cardiovascular diseases (Chapter 2). Cultural identity was both a driver and a constraint to engaging in self-care in African immigrants with chronic illness. Further, structural factors such as unemployment, lack of insurance, high cost of healthcare, and immigrant status-related discrimination, linguistic challenges, and ineffective physician-patient communication also influenced self-care (Chapter 3). Overall, the self-care of African immigrants across the three domains of self-care maintenance, monitoring, and management was adequate. Specific self-care behaviors found to be low in this population include eating a special diet, and monitoring for medication side-effects, and fatigue. Acculturation was not associated with self-care. Self-care self-efficacy was a strong determinant of self-care. The perception of inadequate income was another significant determinant of poor self-care management (chapter 4). Taken together, these findings demonstrate that cultural and structural factors that influence individual self-care behaviors need to be accounted for in order to promote self-care behaviors in African immigrants living with chronic illness.
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CHAPTER ONE: INTRODUCTION

In the United States (U.S.), chronic illness is creating an enormous and growing burden on individuals, families, and communities (Wallace, R. et al., 2012). This burden is evident among immigrants with different cultural backgrounds and perspectives (Kagawa-Singer, Dressler, George, & Elwood, 2015). Yet, there are substantial gaps in knowledge regarding the role that culture and social context play in the self-care practices of persons living with chronic illness. Specifically, we know little about the influence of socio-cultural factors influencing self-care among foreign-born born Blacks because the data of these individuals in the U.S. are aggregated under the category of African American/Black (Commodore-Mensah, Himmelfarb, Agyemang, & Sumner, 2015).

This practice of categorizing people based on race or color while disregarding cultural background limits our ability to assess within-category variability of cultural beliefs, practices, and behaviors (Kagawa-Singer et al., 2015). Categorizing people in this manner impairs our progress in developing targeted interventions that may improve the lives of persons with chronic illness and achieve equity in health outcomes in diverse populations (Anderson, K. M., 2012). There is a crucial need to understand the social, cultural, and contextual factors that serve as facilitators or barriers to self-care among African immigrants living with chronic illness in the U.S. This topic has remained largely unexamined so the overall goal of this dissertation is to examine the influence of culture on the self-care of African immigrants living with chronic illness in the U.S.

Background and Significance

Chronic illness is the leading cause of disability worldwide, accounting for more than 60% of all deaths (World Health Organization, 2015). Chronic illness is defined as a
physical condition that is slow in progression, prolonged, rarely cured, and often associated with functional restrictions requiring ongoing monitoring and long-term medical and/or nursing management (Basu, Avila, & Ricciardi, 2016; Bernell & Howard, 2016; Buttorff, Ruder, & Bauman, 2017; Raghupathi & Raghupathi, 2018). Chronic illnesses usually persist for 3 months or longer and are lifelong (Wallace, R. et al., 2012). In the U.S., chronic illness affects approximately 133 million Americans (45%); almost a third of the overall U.S. population has multiple chronic conditions as these illnesses seldom exist in isolation (Fried, 2017; Gerteis et al., 2014; Tinker, 2017). This number is expected to continue to rise (Fried, 2017; Gerteis et al., 2014). Chronic illnesses result in troublesome symptoms, suboptimal quality of life, limitations in physical functioning and productivity, and psychosocial difficulties. Chronic illnesses threaten the overall well-being of affected individuals over many years (Bauer, Briss, Goodman, & Bowman, 2014) as well as the well-being of their families, friends, and others around them (Wallace, R. et al., 2012). Chronic illnesses are responsible for 70% of all deaths in the U.S., killing more than 1.5 million Americans yearly (Gerteis et al., 2014).

Although cardiovascular disease (CVD), many cancers, stroke, and chronic lung disease contribute the most to the burden of mortality, other chronic illnesses (e.g., arthritis) that contribute less to mortality, severely impact quality of life (Wallace, R. et al., 2012). In the U.S., individuals with chronic illnesses account for more than 80% of all health care spending, with two-thirds of these expenses by persons with two or more chronic illnesses (Anderson, G. F., 2010). About 99% of Medicare expenditures are for persons with at least one chronic illness (Lochner, Goodman, Posner, & Parekh, 2013).
Chronic illness is responsible for 75% of inpatient hospital stays and outpatient services such as physician visits and home health visits (Anderson, G. F., 2010).

Blacks (including U.S.-, Caribbean-, and Africa-born Blacks (African Immigrants)) have higher incidence rates of common chronic illnesses (e.g., CVD, stroke, diabetes, chronic kidney disease) compared to non-Hispanic whites (Hayward, Miles, Crimmins, & Yang, 2000; Schoeni, Martin, Andreski, & Freedman, 2005). Blacks also have poorer outcomes, including preventable hospitalization, increased symptom burden, morbidity, and mortality (Doshi, Aseltine, Sabina, & Graham, 2017; Gravlee, 2013). For example, Blacks have a higher incidence rate of chronic illnesses than do whites, including diabetes, hypertension, stroke, heart failure, and peripheral artery disease, and higher chronic illnesses mortality (Carnethon et al., 2017; Loop et al., 2017).

African immigrant Blacks, a relatively understudied population, are migrants from Africa who self-identify as having African ancestral origins (e.g. Nigerians, Ghanaians). African Caribbean Blacks migrate from the Caribbean islands (e.g. Jamaica, Haiti) to the U.S. and self-identify as being of African descent. Many U.S.-born Blacks (African Americans) self-identify as descendants of African slaves brought to the U.S. between the 17th and 19th centuries (Agyemang, Bhopal, & Bruijnzeels, 2005; Bhopal, 2004). African immigrants may be lawful permanent residents, naturalized U.S. citizens, refugees, temporary migrant, asylees, Non-immigrant temporary visa holder (e.g., international students) or undocumented immigrants (Hall, Eleanor & Cuellar, 2016). National U.S. estimates of chronic illnesses reveal that prevalence of chronic illnesses (e.g. Type 2 diabetes, hypertension) is high among African Immigrants Blacks.
Chronic Illness Self-Care

Mastering self-care is particularly important in chronic illness management. When adequately performed, self-care results in improved perceived control over the illness, illness stability, better clinical outcomes, better quality of life, and improved well-being (Allegrante, Wells, & Peterson, 2019; Jonkman et al., 2016; Parke et al., 2015; Riegel, Barbara et al., 2019; Riegel, B. et al., 2017). In addition, adequate self-care results in judicious use of available resources and significant cost savings (Allegrante et al., 2019; Reilly et al., 2015). Though certain commonalities among self-care and related concepts—self-efficacy, self-monitoring, self-management, and symptom management—exist in the extant literature, there is a key difference between self-care and these surrogate terms. Self-care is a broad and encompassing concept entailing individual-level activities and processes, while these surrogate concepts fall within its domain (Matarese, Lommi, De Marinis, & Riegel, 2018; Richard & Shea, 2011). Self-care is a multidimensional construct that reflects people’s behaviors in both healthy and ill states over time and throughout the life course (Riegel, B., Jaarsma, & Stromberg, 2012; Riegel, B., Jaarsma, Lee, & Stromberg, 2019).

According to the Middle Range Theory of Self-Care of Chronic Illness (Riegel, B. et al., 2012; Riegel, B. et al., 2019), the overarching concept of self-care entails three core processes: self-care maintenance, self-care monitoring, and self-care management. Self-care maintenance includes behaviors used to maintain physiological stability, preserve health, and minimize disease complications (Riegel, B. et al., 2012). Some of the most
common maintenance behaviors are adhering to medication regimens, following dietary recommendations, engaging in physical activity, and stopping smoking (Riegel, B. et al., 2012).

Self-care monitoring involves vigilant tracking, recognizing, and labeling of symptoms with the goal of taking appropriate actions before a symptom escalates, such as communicating with a health care provider to obtain timely and adequate care (e.g., monitoring blood glucose for diabetes or checking daily weight for heart failure) (Riegel, B. et al., 2012; Riegel, B. et al., 2019). Self-care management entails implementing treatment recommendations, either individually or in consultation with a health care provider, when symptoms occur as well as evaluating the effectiveness of these treatments (Riegel, B. et al., 2012).

To maintain health and minimize complications, patients with chronic illness must actively and consistently participate in self-care (Wallace, R. et al., 2012). Engagement in self-care requires substantial time, effort, and sometimes inconvenience (Wallace, R. et al., 2012). In all cases of chronic illness, persons who see these self-care activities as beneficial and less demanding may perform them more frequently while those who see these tasks as demanding and not very useful may do it less frequently or not at all (Wallace, R. et al., 2012). This distinction is important because we know little about how culture influences these perceptions regarding self-care.

**Chronic Illness Stage and Self-Care**

Chronic illnesses can be characterized by the stage: early, moderate, or late-stage. Early-stage chronic illnesses (e.g., uncomplicated diabetes, New York Heart Association stage I or II HF, mild osteoarthritis) cause mild symptoms and burden and little or no
functional impairment and require a low or moderate degree of self-care (Wallace, R. et al., 2012). Moderate-stage chronic illnesses (e.g., complicated diabetes, painful knee osteoarthritis, mild to moderate stroke) cause moderate functional impairment and symptoms that often interfere with usual lifestyles, thus requiring a moderate to high degree of self-care (Wallace, R. et al., 2012). Late-stage chronic illnesses are progressive with high functional impairment often requiring a high degree of self-care. Persons with late-stage chronic illnesses often have multiple chronic conditions (e.g., diabetes and severe vascular disease, severe chronic obstructive pulmonary disease [COPD]) (Wallace, R. et al., 2012).

Self-care is most salient to individuals with symptomatic chronic illness (Riegel, B. et al., 2012). Although chronic illnesses vary based on the organ systems they affect, symptom characteristics and presentation, symptom burden and duration of the disease, self-care activities for common chronic illnesses are very similar. In a recent metasynthesis (Schulman-Green et al., 2012), the authors noted that core similarities exist in strategies for self-care across different types of chronic illnesses. These strategies entail integrating the illness into daily life, modifying behaviors to minimize complications, learning regimens and skills, monitoring symptoms, following prescribed regimens, keeping up to date with screenings, seeking support of family and friends, and consulting with a provider (Schulman-Green et al., 2012).

Factors affecting Chronic Illness Self-Care

While there are no data on the self-care of African immigrants, prior investigators have found blacks in the US (African immigrants, Afro-Caribbeans, and U.S.-born African Americans) to differ in self-care compared to whites in the US (Dickson, Knafl,
Wald, & Riegel, 2015). Following prescribed medicines and dietary restrictions is low in the Black population (Jonkman et al., 2016; Vellone et al., 2017). Health literacy, lifestyle behavior, socioeconomic factors, psychosocial factors, structural racism, distrust in the health care system, genetic predisposition, and cultural factors are thought to contribute to these differences (Boen, 2016; Chaudhry et al., 2011; Commodore-Mensah et al., 2015; Dickson, McCarthy, Howe, Schipper, & Katz, 2013; Gyamfi et al., 2017; Karlamangla, Merkin, Crimmins, & Seeman, 2010).

A variety of factors are known to influence chronic illness self-care. For example, presence of comorbidities and nature of patient-provider relationship can affect self-care (Jaarsma, Cameron, Riegel, & Stromberg, 2017; Riegel, B. et al., 2012). Personal factors that can influence self-care include knowledge of the disease, understanding of health information, skills to plan, set goals, and use information to make decisions, motivation to perform self-care, confidence, habits, and support from others (Jaarsma et al., 2017; Riegel, B. et al., 2012). These factors are strongly shaped and impacted by a person’s culture, which is also noted as a key factor that may influence self-care. A person’s motivation, confidence, support from others and habits (daily routines) are shaped and impacted by a person’s culture (Jaarsma et al., 2017; Riegel, B. et al., 2012). Socio-cultural factors can affect a person’s ability and willingness to engage in or adjust self-care routines throughout the trajectory of an illness(Jaarsma et al., 2017; Riegel, B. et al., 2012; Schulman-Green et al., 2012).

Culture’s influence on self-care is one of the key knowledge gaps in self-care research (Riegel, Barbara et al., 2019). Much has been written about culture’s influence on self-care among Blacks in general, but in most of these studies ethnicity is used as a
proxy for culture, thus limiting our understanding of the influence of culture on self-care and our ability to determine specific contributions to health outcomes (Kagawa-Singer et al., 2015). Additionally, there is little in the literature on the influence of culture on self-care as an aggregate of health behaviors. To my knowledge, no data exist on African Immigrant Black’s self-care or on the influence of culture on self-care.

**Role of Culture in Self-Care Practices**

Cultural background informs lifestyle practices and therefore may be a fundamental determinant of self-care (Kagawa Singer et al., 2016). Culture is defined as shared values, norms, and ways of thinking that are learned and passed from generation to generation and that shape the beliefs, attitudes, decision-making processes, and behaviors of individuals, families, and groups (Airhihenbuwa, 1995; Al-Bannay, Jarus, Jongbloed, Yazigi, & Dean, 2013; Mio, Barker, & Tumambing, 2012). Nationality, race/ethnicity, family background, time spent in a place, rural versus urban residence, socioeconomic status, and social and spiritual affiliations all shape cultural characteristics and identities (Al-Bannay et al., 2013; Kagawa-Singer et al., 2015). These factors may influence people’s definitions of health and well-being, impacting how they think, shaping how they live, impacting their decisions across a life course, and shaping their lifestyle rituals and rules (Blackstone et al., 2017; Dickson et al., 2013; Dressler, 2012; Dumit, Noureddine, & Magilvy, 2016; Mio et al., 2012). People’s cultures may influence their definition of an illness, its causal attributions, its treatment course, and its perceived curability (Arnault, 2018; Kelly-Hanku, Aggleton, & Shih, 2014). In turn, these factors may affect how they interpret, label, describe, and respond to illness symptoms or perceive treatment options (Arnault, 2018; Norris, Allotey, & Barrett, 2010; Zola, 1966).
A person’s interpretation of chronic illness may be different from the biomedical perspectives of the illness (Ahmad et al., 2016; Norris et al., 2010; Turner, 1996; White, 2015; Wittink, Dahlberg, Biruk, & Barg, 2008). For example, the cause of an illness may be attributed to metaphysical agents (e.g. voodoo), social causes (e.g. overwork), or folk etiology (e.g. imbalance in hot and cold) (Gany, Gill, Ahmed, Acharya, & Leng, 2013; Kleinman, 1980; Poss & Jezewski, 2002; Turner, 1996). As a result, conflict or potential conflict may arise due to these differing perspectives. The effect of these culturally-informed differences in perspectives may be positive, neutral or negative on health behaviors (Iwelunmor, Newsome, & Airhihenbuwa, 2014). Although we know these factors exist, we know little about how these interpretations influence self-care. Therefore it is imperative to examine the self-care of African immigrants in the U.S.

Similarities and Differences Between African Immigrants and African Americans

African immigrants (AIs) and African Americans (AAs) born in the United States are very similar in many respects. In addition to being grouped together under the “Black/African American” category in the census, African immigrants and African Americans have phenotypic similarities (they share the same skin color and other physical markers) because of their largely shared heritage (Berlin, 2010). Also, African Americans are generally seen as proximal hosts of African immigrants (Imoagene, 2019). Both groups may share a feeling of kinship because of their African roots and racial similarities (Imoagene, 2019).

There are also cultural similarities. African American culture is a blend of American individualistic culture and cultural traditions and beliefs rooted in Africa, shaped by their historical experiences (Brown, 2013). Similarly, African immigrant
culture, though thought to be collectivistic, has elements of individualism as well (Imoagene, 2017). African Americans tend to have deep-rooted respect for elders and share the broader African concept of family, referring to other African Americans who may be complete strangers as: "uncle," "aunty," "mother," and "father" (Brown, 2013). Additionally, like African immigrants, African Americans see institutions such as places of worship as protective and as sources of social cohesion (Brown, 2013).

However, there are meaningful differences in culture, language, history, and life experiences between African Americans and African immigrants that may influence self-care (Brown, 2013; Nsangou & Dundes, 2018). These differences include socialization, patterns of behavior, embodiment of values, attitudes, beliefs, norms, and personal experiences. The cultural milieus of African Americans and African immigrants are different and their ethnicities and cultures have been shaped by different historical realities and cultural heritages (Baugh, 2018). For example, African immigrants tend to identify more with and maintain stronger attachments to their ethnic communities or African religious groups (e.g., through WhatsApp groups etc.) (Arthur, 2000; Vickerman, 2002). African immigrants keep tight-knit kinship networks (Nsangou & Dundes, 2018). They tend to move in with family members, relatives, or other immigrants already established in the U.S. and then expand their connections with other African immigrants (Nsangou & Dundes, 2018). African immigrants tend to maintain their indigenous culture and limit their interactions and integration with other groups by clustering in communities with other African immigrants from their home countries (Arthur, 2000).

African immigrants see their ethnicity and ethnic identities as protective factors for their wellbeing and as core aspects of their culture (Emeka, 2019). Although
African immigrants may want to integrate into America culture, they often hesitate to get involved in race issues (Berlin, 2010; Conteh, 2013). African immigrants who migrated to the U.S. as young adults or adults may react differently from African Americans because of their culture and limited exposure to American culture and history of racism. Middle-aged and older African immigrants believe their origin and culture set them apart from African Americans, although shifts in identity may occur with later generations because of integration and assimilation (Emeka, 2019; Imoagene, 2017). Regardless of socioeconomic status, these differences may influence the beliefs and attitudes of African Immigrants about health and health care (Baugh, 2018), including health and illness definitions, symptom interpretations, and treatment choices.

Profile of African Immigrants Living in the United States

There is an ongoing epidemiologic transition in sub-Saharan Africa (i.e., countries that are fully or partially located south of the Sahara Desert such as Nigeria and Ghana), where researchers have observed a shift in drivers of morbidity and mortality and disease patterns. Due to changing lifestyle factors and urbanization, the illness profile of sub-Saharan Africans has changed from communicable to non-communicable diseases (e.g., CVD) (Gouda et al., 2019; Mudie et al., 2019). This change becomes particularly relevant in the context of the U.S. because of international migration and the increasing growth of the population of African-born Blacks living in the U.S. This growth can be attributed to family members reuniting with immigrants already living in the U.S., diversity programs, highly-skilled worker visa programs, and the African refugee flow (Echeverria-Estrada & Batalova, 2019).
Africans are one of the fastest-growing immigrant groups in the U.S. There was an increase of over 200% in the 1980s and 1990s, and an almost 100% increase during the 2000s (Capps, McCabe, & Fix, 2012). For example, in 2018, slightly more than 2 million Sub-Saharan African immigrants resided in the U.S. compared to 150,000 in 1980 (Echeverria-Estrada & Batalova, 2019). Between 2013 and 2017, the largest number (over 300,000) of sub-Saharan African (Echeverria-Estrada & Batalova, 2019) immigrants resided in the greater New York City and Washington, DC metropolitan areas, including the NJ-NY-PA metro area (New York, New Jersey, and Pennsylvania) and the DC-VA-MD-WV metro area (Washington-Arlington-Alexandria) (Echeverria-Estrada & Batalova, 2019). In most sub-Saharan African countries, English is an official language (Echeverria-Estrada & Batalova, 2019). This fact is reflected in 2017 data: African immigrants were more likely to speak English only or mostly at home compared to all immigrants (26% vs 16%)(Echeverria-Estrada & Batalova, 2019) and have higher English proficiency compared to all immigrants (Zong & Batalova, 2014).

Though uneven across ethnonationalities, African immigrants are remarkably highly educated, with a significant majority having one or more years of college education (Reed, Andrzejewski, Luke, & Fuentes, 2012). They experience poverty at higher rates than immigrants overall but are more likely to have insurance (Echeverria-Estrada & Batalova, 2019; Zong & Batalova, 2014). African immigrants have a health advantage upon immigration but one study reported that the immigrant health advantage of this group appears to erode over time, as years in the U.S. increase and U.S. citizenship is obtained (Reed et al., 2012). The reason for the decline in health of African Immigrants over time remains unknown but may be related to the influence of cultural
norms and other socioeconomic factors (Reed et al., 2012). Compared to other immigrant groups, African immigrants may have relatively weak social networks and limited community resources (Reed et al., 2012). The healthy immigrant phenomenon (Rubalcava, Teruel, Thomas, & Goldman, 2008) posits that recent immigrants are healthier than those that are U.S.-born because of their eating habits and lifestyle or self-care behaviors (Constant, Amelie F, García-Munoz, Teresa, Neuman, Shoshona, Neuman, Tzahi, 2014; Constant, A. F., García-Muñoz, Neuman, & Neuman, 2018; Neuman, 2014).

Like other immigrant groups in the U.S., African immigrants face challenges and stressors that may affect their self-care behaviors. Challenges include cultural and linguistic adjustment, sociopolitical environment, lack of support systems, restrictive governmental and healthcare policies, financial strain, low socio-economic status, confusion about the U.S. healthcare system and challenges navigating the system (Hall, E. & Cuellar, 2016; Venters & Gany, 2011). These challenges may influence African immigrants’ self-care behaviors, resulting in migration-related health inequalities (Malmusi, Borrell, & Benach, 2010), and may be associated with chronic illness prevalence (Malmusi et al., 2010). Additionally, we know little about the role and influence of culture on the health behaviors of African immigrants in the U.S.

It has been suggested that African immigrants’ understanding of illness may be influenced by cultural and systemic factors such as complications of the disease (Kindarara, McEwen, Crist, & Loescher, 2017). In one study, some participants were able to provide the biomedical explanation of their disease but also incorrectly attributed their illness to other causes (Beune, Haafkens, Agyemang, & Bindels, 2010). This cultural
understanding of their illness may result in poor performance of health behaviors such as adherence to exercise (Beune et al., 2010; Seid, Abdela, & Zeleke, 2019).

Systemic, Political and Economic influences on Health Behaviors

Like other low-income individuals and immigrants, African immigrants face formidable barriers to health care—including economic, systemic, and political challenges—that may negatively impact their health and health behaviors. These challenges may be related, for example, to negotiating American bureaucracies, navigating the health care system, obtaining better employment, and difficulty accessing public services, as well as to immigration status, language barriers, a limited pool of culturally competent health care providers, and the psychological stress of adjusting to a new culture and environment.

African immigrants are more likely to be socioeconomically disadvantaged than their non-Hispanic white counterparts (Alang, McCreedy, & McAlpine, 2015). Educational attainment among African immigrants has not translated into prosperity (Capps et al., 2012). Despite having higher educational attainment than immigrants overall and native U.S. citizens (Echeverria-Estrada & Batalova, 2019), African immigrants experience exceptionally poor economic return on their education and above-average rates of poverty, especially due to recent arrival, challenges with transferring home country education credentials, persistent stereotypes of Africa, and labor market discrimination (Capps et al., 2012). Additionally, African immigrants experience limited access to publicly funded services such as Medicaid due to citizenship status (Adegboyega & Hatcher, 2016). By law, legal immigrants are ineligible for these services for their first five years of residency in the United States, and illegal immigrants are
ineligible irrespective of how long they have lived in the U.S. (Adegboyega & Hatcher, 2016). Additionally, states can restrict the eligibility of qualified immigrants (Adegboyega & Hatcher, 2016). The Patient Protection and Affordable Care Act of 2010 also forbids legal immigrants of less than five years and all undocumented immigrants from purchasing health insurance through the market exchange (Nataly Agabin & Janis Coffin, 2015).

Lack of familiarity with U.S. health care, proximity to health care facilities, high cost of health care (Wafula & Snipes, 2014; Zong & Batalova, 2014), and difficulty navigating systems that advantage lighter-skinned people (Williams, Mohammed, Leavell, & Collins, 2010) also limit access to care in this population and may influence African immigrants’ health behavior. Even when African immigrants have access to health care facilities, access to culturally competent providers may be limited (Adegboyega & Hatcher, 2016). Additionally, African immigrants may reside in states with less-developed safety nets and community-based organizations, and may have uneven access even in states with a longstanding history of serving immigrants. These issues make it difficult to receive specialty care because of insurance or cause long wait times before getting an appointment (Adegboyega & Hatcher, 2016).

Language challenges related to having an African accent or the way in which English is used can cause difficulty navigating the health care system and potentially being treated differently by health care providers (Adekeye, Adesuyi, & Takon, 2018). Another language barrier is the technical or biomedical vocabulary used by providers, especially for African immigrants whose primary language is not English (Adegboyega & Hatcher, 2016). Prevailing power arrangements that privilege physicians’ specialized
expertise, as well as the hierarchical structures of healthcare institutions where cultural beliefs and preferences are often not considered in making self-care recommendations, affect African immigrants’ willingness to adhere to self-care recommendations (Onome, 2019).

African immigrants experience a “double jeopardy” situation: they face racism, discrimination, and other structural challenges faced by blacks born in the U.S. in addition to systemic health care challenges unique to them. Unique challenges include being misunderstood or dismissed because of their cultural attitudes and practices, disrespected, mistreated, perceived as inferior, and given poor and insensitive care. These challenges are based on African immigrants’ cultural modes of dressing, African names, ways of life, ill-conceived perceptions of African immigrants, and persistent stereotypes of Africa (Adegboyega & Hatcher, 2016; Adekeye et al., 2018; Boise et al., 2013). In addition, current policies limit public benefits including cash food stamps, rental assistance, and health benefits. To qualify for these benefits, immigrants need a legal permanent immigrant sponsor to repay benefits received by family members or they else are vulnerable to deportation (Bernstein, Gonzalez, Karpman, & Zuckerman, 2019; Morey, 2018). These political actions and policies present additional challenges for African immigrants, which may not only affect their health and health behaviors but also slow their social and economic integration into the U.S. (Wallace, S. P., Young, Rodríguez, & Brindis, 2019) It is critical to recognize the need to address these social, cultural, and structural issues (Rogers et al., 2015) and account for their influence on the self-care of African immigrants living with chronic illness.
Acculturation and Health Behaviors among African Immigrants in the United States

Acculturation is defined as the social, psychological, and cultural change that occurs when groups with different cultures have continuous first-hand contact with a new host culture (Schwartz, Unger, Zamboanga, & Szapocznik, 2010). The common proxy measures of acculturation include country of origin, age at immigration, English language proficiency, and duration of residency in the U.S. (Agbemenu, 2016; Sofolahan-Oladeinde, Iwelunmor, Tshiswaka, & Conserve, 2014).

There are relatively limited data on the influence of acculturation on the health behaviors of African immigrants to the U.S., as well as no data on self-care, particularly in the context of chronic illness. Reports are mixed as to the influence of acculturation on dietary practices and health screening behaviors of African immigrants (Agbemenu, 2016; Sofolahan-Oladeinde et al., 2014).

Conceptual Framework

The Middle-Range Theory of Self-Care of Chronic Illness (Riegel, B. et al., 2012; Riegel, B. et al., 2019) and the PEN-3 model (Airhihenbuwa & Webster, 2004) were integrated to create a theoretical perspective that allows an exploration of the influence of culture on self-care as an aggregate of health behaviors. The Theory of Self-Care of Chronic Illness (Riegel, B. et al., 2012; Riegel, B. et al., 2019) focuses on the behaviors and processes of the individual managing his or her own chronic illness and takes cultural context into consideration. Other models were considered but not used because they are unidimensional, capturing only sub-domains of self-care such as the Individual and Family Self-Management Theory (Ryan & Sawin, 2009), the Social Cognitive Theory of
Self-Regulation (Bandura, 1991), the Theory of Symptom Management (Bender, Janson, Franck, & Lee, 2018), the Theory of Reasoned Action (Fishbein & Ajzen, 1980), or the Theory of Planned Behavior (Ajzen, 1985), or because they focus on specific chronic illnesses like sickle cell disease (Jenerette & Murdaugh, 2008).

Cultural orientations of individualism and collectivism play a key role in shaping the way individuals interpret and respond to a construct (Triandis, 2001). Data on the self-care of chronic illness has been compared in different countries and found to be useful by various cultural groups, not just individualistic western groups (De Maria et al., 2019).

The PEN-3 model is the only model that centralizes culture in the study of health behaviors (Airhihenbuwa, 1995; Iwelunmor et al., 2014), allowing for assessment of the impact of community and culture on health behaviors at micro and macro levels (Huff, Kline, & Peterson, 2014). Based on the specific focus of this dissertation, these two theoretical frameworks have been integrated to guide examination of socio-cultural factors influencing self-care (Figure 1).

The Middle-Range Theory of Self-Care of Chronic Illness addresses three core processes – self-care maintenance, monitoring, and management (Riegel, B. et al., 2012; Riegel, B. et al., 2019). Cultural beliefs and values identified as critical barriers or facilitators of self-care, but the manner in which these beliefs and values influence self-care is not specified. Some elements of the PEN-3 model may elucidate the role that culture plays in self-care as demonstrated by studies in a prior review (Iwelunmor et al., 2014). Modified elements of the PEN-3 allow for examination of the contextual factors.
influencing self-care behaviors. Additionally, unique cultural factors (e.g. cultural practices and habits) that promote or hinder health behaviors can be identified (figure 1).

Figure 1: The conceptual framework of the proposed study delineating how culture influences self-care. Culture or proxies of culture serve as antecedents to self-care. Social and cultural context influence self-care maintenance (e.g. treatment adherence), self-care monitoring (e.g. symptom recognition), and self-care management behaviors (e.g. dietary changes in response to symptoms). Cultural beliefs, attitudes, values may influence willingness to adopt certain health practices. Societal or structural influences hinder or promote behavior change. Support from others captures the degree to which behaviors are influenced by family and community. Cultural Identity, cultural practices and habits may promote, threaten, or have existential influences on self-care. A person’s confidence or belief in their ability to perform self-care can influence self-care.

**Chapter Aims and Methods**

**Chapter 2**: Cultural Factors Influencing Self-Care by Persons with Cardiovascular Disease: An Integrative Review
Using an integrative review method (Whittemore & Knafl, 2005), this published article (Osokpo & Riegel, 2019) provides some background on the influence of culture on self-care behaviors in different CVD populations. A literature search was conducted using several computerized databases. No limitation was placed on publication date. Original primary research articles conducted in adults and that addressed self-care and culture in the context of CVD were identified and reviewed. This review provides a global picture of the influence of cultural factors on CVD self-care.

Chapter 3: Maintaining Cultural Identity: A systematic mixed studies review of cultural influences on the self-care of African immigrants living with chronic illness.

Using a results-based convergent synthesis approach (Noyes et al., 2019; Pluye & Hong, 2014), this systematic mixed studies review revealed cultural factors that influences the self-care practices of African immigrants living with chronic illness in countries outside Africa. Studies that examined the influence of culture or dimensions of culture related to self-care practices of adult African immigrants living with a chronic illness in countries outside Africa were identified. Quantitative and qualitative studies were synthesized separately and integrated at the third level to reveal the overarching theme of Maintaining Culture Identity. This theme was both a driver and a constraint to engaging in self-care among African immigrants.

Chapter 4: Self-Care of African Immigrant Adults with Chronic Illness in the U.S.

Using a cross-sectional design and both convenience and snowballing sampling techniques, 88 African immigrants’ English-speaking adults with symptomatic chronic illness completed self-report measures of self-care and acculturation. Self-care was adequate overall. Specific self-care behaviors that were poor include the following: eating
a special diet, monitoring for medication side-effects and feeling more tired than usual when doing normal activities, changing diet or calling a provider for symptoms. Acculturation was not associated with self-care. Marital status perceived income adequacy, and education were better determinants of self-care than acculturation in this sample.

Chapter 5: In chapter 5, I summarize the major findings of this three-article dissertation. I compare these results to the literature describing self-care in other populations. Limitations of the current body of knowledge are described. Future directions of my program of research and the implications of this research are specified. I will also highlight how this dissertation expands the current self-care research. In conclusion, I will report how this dissertation expands our knowledge of self-care among African Immigrants with chronic illness, and the impact of culture on self-care.

Innovation

This study is innovative in three ways. To my knowledge, this will be the first study to:

1. Provide a global picture of the influence of cultural factors on the self-care of chronic illness.

2. Examine the experience of African immigrants in depth to explore how cultural factors influence their self-care practices, enabling identification of individuals at risk for poor self-care.

3. Examine the influence of acculturation to determine whether it is a meaningful contributor to poor self-care among African immigrants with chronic illness.
Conclusion

This dissertation contributes to our understanding of the key factors influencing self-care of African immigrants with chronic illness. The findings inform the development of interventions anchored in culture that can facilitate the uptake of self-care behaviors and improve the lives of persons with chronic illness. Additionally, the findings from this work may offer providers and clinicians insights to help them to understand the influence of the cultural or social realities of African immigrant patients on their health and health behaviors.
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CHAPTER TWO (PAPER ONE): CULTURAL FACTORS INFLUENCING SELF-CARE BY PERSONS WITH CARDIOVASCULAR DISEASE: AN INTEGRATIVE REVIEW

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Abstract

Background: Self-care is critical for maintaining health, minimizing disease complications, and improving quality of life. Understanding valid, culturally-specific practices and their influence on self-care behaviors can inform development of interventions to improve outcomes for individuals living with cardiovascular disease (CVD). To date, the influence of culture on self-care behaviors has not been adequately examined in different CVD populations.

Aim: The aim of this review was to synthesize past empirical literature examining cultural factors influencing self-care in patients with CVD.

Method: An integrative review method was used. A literature search was conducted using PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Anthropology Plus, and the International Bibliography of the Social Sciences (IBBS) computerized databases. No limit was placed on publication date. Articles were included if they were: (1) peer-reviewed original primary research studies, (2) published in English with full-text availability, (3) conducted in adults (≥ 19 years), (4) addressed culture related to health and health behaviors, (5) related to self-care or elements of self-care, and (6) related to CVD. Fourteen articles met the inclusion criteria and were included in this review.

Results: Culture influences self-care in general, but predominantly self-care maintenance behaviors. In African American and South Asian populations, cultural beliefs such as fatalism, collectivism and traditional gender roles clashed with dietary adherence. Traditional beliefs and ideas, collectivism, family and kinship ties, fatalism, cultural norms and normative thinking played critical roles in medication adherence and use of
complementary/alternative medicine. Similarly, cultural beliefs and social norms influenced how individuals interpreted and responded to their symptoms.

**Conclusion:** The findings shed light on the importance of understanding cultural factors that help or hinder self-care behaviors among individuals with CVD. Understanding such influences is anticipated to facilitate the design of effective, tailored interventions.

**Keywords**
Cardiovascular diseases, culture, integrative review, medication adherence, self-care, self-management, symptom assessment
What is already known about the topic

* CVD is the leading causes of death globally. Individuals living with CVD face significant and unique health challenges such as functional decline, frequent hospitalizations, and psychosocial difficulties.

* Self-care is essential for maintaining health and minimizing CVD complications. Adequate self-care is associated with in fewer CVD symptoms, better quality of life, and overall improvements in well-being.

What this paper adds

* This paper demonstrates that culture influences CVD self-care behaviors in general but predominantly self-care maintenance behaviors such as adherence to medications, diet, and physical activity.

* Cultural factors such as fatalism, collectivism and traditional gender roles inform the decisions that individuals make about adherence to prescribed diets. Collectivism, family and kinship ties, fatalism, cultural norms and normative thinking appear to play a critical role in medication adherence and use of complementary/alternative medicines.

* Cultural beliefs appear to influence symptom interpretation and actions taken in response to symptoms.
Background

Cardiovascular diseases (CVDs) such as coronary artery disease, cerebrovascular disease, myocardial infarction, heart failure, and peripheral arterial disease—are the leading causes of death globally (Benjamin, Muntner, & Bittencourt, 2019; World Health Organization, 2017). CVD is responsible for about 50% of deaths from non-communicable diseases and accounts for over one-third of all deaths (Benjamin et al., 2019; World Health Organization, 2017).

In Africa, approximately 11% of all deaths were caused by CVD and almost 40% of all non-communicable disease-related deaths were attributed to CVD in 2013 (Mensah et al., 2015). In Latin America and the Caribbean, more than 30% of all deaths were attributable to CVD in 2013 (Fernando, Pamela, & Alejandra, 2014). In developed countries such as Australia, more than half a million hospitalizations were CVD-related and over 40,000 deaths were attributed to CVD in 2011 (Australian Institute of Health and Welfare, 2011). In Europe, over 4 million deaths were attributed to CVD in 2016 (Townsend et al., 2016). In the United States (US), more than one in three adults have at least one type of CVD in 2014 (Benjamin et al., 2019; World Health Organization, 2017).

CVD increases functional disability, accentuates psychosocial stress, and negatively impacts quality of life. Prior studies have shown that adequate self-care results in fewer CVD symptoms, better quality of life, and overall improvements in well-being (Buck et al., 2015; Jonkman et al., 2016; Riegel, Barbara et al., 2017). Self-care reduces hospitalizations and readmissions (Janssen, Gucht, Dusseldorp, & Maes, 2013), dependency following stroke (Parke et al., 2015), and all-cause death rates (Janssen et al., 2013; Riegel, Barbara et al., 2017). Self-care is assumed to be adopted uniformly across
the world; however, we propose that culture, which is known to inform human behavior (Kagawa-Singer, MN, Dressler, George, & Elwood, 2015) has a strong influence on self-care.

Culture is defined as shared values, norms, feelings, and ways of thinking that are learned, transmitted, and shape a group’s beliefs, attitudes, and behaviors (Airhihenbuwa, 1995; Al-Bannay, Jarus, Jongbloed, Yazigi, & Dean, 2013). Cultural factors represent the collective consciousness of a group of people, which is active enough to influence and shape perception, judgement, and behavior (Iwelunmor, Newsome, & Airhihenbuwa, 2014). Cultural variations reflect race, ethnicity, traditions, and customs that define the individual within a group (Al-Bannay et al., 2013; Kagawa-Singer et al., 2015).

Certain factors are essential antecedents to culture such as family background; country of residence; time spent in a place; race and ethnicity; religious, spiritual, and social affiliations; parents’ place of birth; language; and parents’ language (Al-Bannay et al., 2013; Kagawa-Singer et al., 2015). These cultural antecedents influence how people think, the beliefs they hold, the norms they live by, their language, dietary preferences, values, and overall patterns of behavior (Jæger, 2013; Karimi & Clark, 2016). Additionally, culture influences how a person defines an illness (Arnault, 2018a; White, 2015), including causal attributions, treatment course, and curability of the illness (Arnault, 2018a; Ruiz-Montero, Van Wilgen, Segura-Jiménez, Carbonell-Baeza, & Delgado-Fernández, 2015). Culture may influence how a person monitors, interprets, labels, and describes symptoms (Arnault, 2018a). Although culture influences the ability to cope, negotiate, and adopt strategies to manage complex issues like a chronic disease (Airhihenbuwa, Ford, & Iwelunmor, 2014), the current self-care research almost never
considers the role of culture in influencing self-care behaviors, perhaps because of the challenges of defining, conceptualizing and operationalizing culture in health research (Airhihenbuwa et al., 2014). Identifying culturally-specific practices and their influence on self-care can inform the development of interventions to improve outcomes for individuals living with CVD, potentially helping to address known disparities in CVD outcomes (Havranek et al., 2015).

Self-care refers to behaviors and activities performed by individuals in both healthy and ill states with the purpose of maintaining well-being through health promoting practices and managing illness (Jaarsma, Cameron, Riegel, & Stromberg, 2017; Riegel, B., Jaarsma, & Stromberg, 2012). Considering the impact that culture can have on a person’s health, a comprehensive understanding is needed regarding how culture influences self-care and shapes thinking in relation to decisions surrounding health-promoting practices, illness management, and healthcare utilization. While much has been written about culture’s influence on general self-care, most studies have used a unidimensional proxy of race for culture, thus providing a narrow understanding of the role that culture plays in health behavior (Kagawa-Singer et al., 2015). This limited focus has led to an inability to determine the actual contribution of culture to health outcomes (Kagawa-Singer et al., 2015). Further, few studies have examined how cultural factors influence decision-making regarding whether and when to engage in self-care. Hence, the purpose of this integrative review was to summarize and synthesize past empirical literature examining cultural factors influencing self-care in patients with CVD. A thorough understanding of how culture influences self-care can facilitate the design and tailoring of interventions to meet patient needs.
Theoretical Framework

The Middle range theory of Self-care of Chronic Illness (Riegel, B. et al., 2012) guided this examination of how culture influences self-care of CVD across cultural groups. According to this model, self-care behaviors address three core processes: self-care maintenance, self-care monitoring, and self-care management.

Self-care maintenance entails actions used to maintain physiologic stability, preserve health, and minimize disease complications. Self-care maintenance behaviors include medication adherence, following dietary recommendations, engaging in physical activity, and smoking cessation, for example (Riegel, B. et al., 2012). Self-care monitoring involves vigilant monitoring, symptom detection and interpretation, with a goal to respond appropriately with actions such as communicating with a healthcare provider to obtain timely and appropriate care (Riegel, B. et al., 2012; Riegel, B., Jaarsma, Lee, & Stromberg, 2018). Self-care management involves implementing, either independently or in consultation with a healthcare provider, treatment recommendations when symptoms occur (Riegel, B. et al., 2012). This theoretical framework guided the search process and the interpretation of studies.

Methods

An integrative review of empirical literature was conducted using methodological strategies proposed by Whittemore and Knafl (Whittemore & Knafl, 2005). An integrative review was used to allow inclusion of diverse study methodologies, including qualitative, quantitative, experimental, and mixed method studies, thus providing a comprehensive and varied perspective of the phenomenon (Whittemore & Knafl, 2005). With the guidance of a medical librarian, a literature search was conducted using
PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL),
Anthropology Plus, and the International Bibliography of the Social Sciences (IBSS)
computerized databases. Key search terms included were a combination of concepts
related to culture, self-care and CVD (Table 2.1).

Table 2.1: Literature search terms used to conduct the integrative review

| Concept of Culture | "culture", "transcultural nursing", "ethnopsychology", 
|                   | “transcultural”, “cross-cultural”, “enculturation”, “acculturation” and “ethology” |
|                     | "medication adherence”, “patient participation”, "symptom assessment”, and "symptom management" |
| Cardiovascular Diseases | “cerebrovascular”, “cardiovascular”, “heart”, “myocardial”, 
|                        | “stroke”, "peripheral vascular", "peripheral artery", “coronary”, “hypertension” and "high blood pressure" |

Articles included in the review were: (1) peer-reviewed original primary research studies,
(2) published in English, (3) conducted in adults (≥ 19 years), (4) related to culture,
health and health behaviors, (5) related to self-care or elements of self-care, and (6)
conducted in individuals with at least one CVD. Publication date was not limited.

To fully comprehend the influence of culture on self-care, critical elements extracted
from the included articles were organized in a data matrix with author/year, study aim,
research design, sampling/size/inclusion and exclusion criteria, results, limitations and implications (See data matrix of included articles in Appendix A – Table 2.2).

The data matrix was developed by OO with training and active supervision from BR. For methodological rigor, BR conducted checks for accuracy of included and excluded studies. The authors met frequently to discuss the findings. Final data included in the data matrix was agreed upon by both authors. This process was repeated for the analysis of the data as well. The authors met frequently to discuss the findings. BR developed the theory that guided how self-care was conceptualized and measured in the studies. The first author (OO) has a thorough understanding of the Middle-Range Theory of Self-Care of Chronic Illness that guided the analysis. The first author is trained and experienced in literature review processes, data extraction, development of a table of evidence, and data analysis.

A sequential analysis of these critical elements in the data matrix was performed and the findings related to culture and self-care were noted (Whittemore & Knafl, 2005). Subsequently, using the Middle Range Theory of Self-care of Chronic Illness (Riegel, B. et al., 2012), data related to culture and self-care were arranged in patterns and themes. This process was conducted by OO with supervision and checks for accuracy by BR. In this manner, we were able to identify the influences of culture on self-care maintenance, monitoring and management. The quality of each included article was appraised using criteria developed by Falk et al, 2013 (Falk, Ekman, Anderson, Fu, & Granger, 2013) using data from Torraco (Torraco, 2005) and Thomas and colleagues (Thomas et al., 2004) (Table 2.3).
Table 2.3 Areas Addressed in the Quality Assessment of Articles in the Review

<table>
<thead>
<tr>
<th>Assessment of studies included in the review</th>
<th>Scorea</th>
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<tbody>
<tr>
<td>Research aims/questions/objectives/hypothesis are clear and appropriate</td>
<td>1 point</td>
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<tr>
<td>Sample size/number of participants are given</td>
<td>1 point</td>
</tr>
<tr>
<td>Sampling/recruitment/randomization are adequately described</td>
<td>1 point</td>
</tr>
<tr>
<td>Clear overview of intervention (if applicable) is given with use of appropriate outcome measures</td>
<td>1 point</td>
</tr>
<tr>
<td>Data analysis is adequately described and rigorous</td>
<td>1 point</td>
</tr>
<tr>
<td>Ethical issues are suitably addressed</td>
<td>1 point</td>
</tr>
<tr>
<td><strong>Total possible score</strong></td>
<td><strong>6 points</strong></td>
</tr>
</tbody>
</table>

a0 = absent; 1 = present.

*Note.* Developed by Falk et al, 2013 (Falk et al., 2013) using data from Torraco (2005) and Thomas et al. (2004).

**Results**

The initial search identified 603 articles for consideration (203 in CINAHL, 208 in PubMed, 174 in IBSS, 15 in Anthropology Plus, and 3 articles identified from a review of reference lists from other sources (see Figure 1). After removing duplicates (n=10), the titles of 593 articles were screened for relevance, and 203 articles were excluded because they did not meet inclusion criteria. Abstracts of the remaining 390 studies were examined by one individual (OO) for eligibility. Articles not meeting the inclusion criteria were eliminated (n=242). The full texts of the remaining 148 articles were assessed and 133 articles were discarded primarily because they did not address culture. See the list of excluded titles in supplemental file 2 (figure 2.1). Ultimately, 14 articles met the inclusion criteria and were included in this review.
Figure 2.1 - Flow chart of identification, screening, eligibility, and inclusion of papers
Study Characteristics:

Of the 14 articles included in this review, two were quantitative studies (Fredericks, 2012; Jang, Toth, & Yoo, 2012), one was a mixed methods study (Dickson, McCarthy, Howe, Schipper, & Katz, 2013), and the remaining 11 were qualitative studies. The studies were published between 2004 to 2017, and conducted on four separate continents (North America, Asia, Australia, and Africa), with most done in the US or Canada. Specifically, three were conducted in the US (Becker, Gates, & Newsom, 2004; Dickson et al., 2013; Jang et al., 2012); four in Canada (Ens, Seneviratne, Jones, & King-Shier, 2014; Fredericks, 2012; Galdas et al., 2012; King-Shier et al., 2017); two in Lebanon (Dumit, Magilvy, & Afifi, 2016; Dumit, Noureddine, & Magilvy, 2016); two in China (Jiang, Wu, Che, & Yeh, 2013; Rong, Peng, Yu, & Li, 2017); two in Australia (Davidson et al., 2007; Davidson et al., 2011); and one in Uganda, Africa (Namukwaya, Murray, Downing, Leng, & Grant, 2017). Half of the studies focused on the influence of culture on self-care of heart failure. Other CVDs investigated included coronary artery disease, myocardial infarction, and cardiovascular surgery. The populations studied were Chinese, Greek, Macedonian, Serbian, Croatian, Indian, Lebanese, Caucasian, African American, Ugandan (African), and Korean. The mean age of participants in all the included studies ranged from 41 to 80 years, with one study not reporting participant age (Davidson et al., 2007). Both men and women were included in 11 studies (Becker et al., 2004; Davidson et al., 2011; Dickson et al., 2013; Dumit et al., 2016; Dumit et al., 2016; Ens et al., 2014; Fredericks, 2012; Jang et al., 2012; Jiang et al., 2013; King-Shier et al., 2017), two studies did not specify gender (Davidson et al., 2007; Dumit et al., 2016), and one included only men (Galdas et al., 2012).
Data were collected primarily through interviews either by telephone, in-person, or in focus groups (Becker et al., 2004; Davidson et al., 2007; Davidson et al., 2011; Dumit et al., 2016; Dumit et al., 2016; Ens et al., 2014; Galdas et al., 2012; Jiang et al., 2013; King-Shier et al., 2017; Namukwaya et al., 2017; Rong et al., 2017). Two studies used surveys or standardized instruments for data collection (Fredericks, 2012; Jang et al., 2012), and one study, a mixed methods study, used both interviews and standardized instruments (Dickson et al., 2013). Only four studies used a theoretical framework to guide their study (Dickson et al., 2013; Galdas et al., 2012; Namukwaya et al., 2017; Rong et al., 2017). All the studies noted factors that may moderate the influence of culture on self-care such as age, gender, education, marital status, and socio-economic status. Two studies reported comorbid conditions (Fredericks, 2012; Galdas et al., 2012) or illness duration (Dumit et al., 2016; Rong et al., 2017). All studies reported either culture or cultural antecedents or proxies of culture. Proxies of culture includes family background, country of birth, country of residence, time spent in a place, race and ethnicity, spiritual and social affiliations, and language.

Notably, only two studies provided a definition of culture (Becker et al., 2004; Galdas et al., 2012). Culture was defined as a “system of values, norms and beliefs” or “shared system of meaning” that shapes how people interpret the world, triggers the decisions they make, and influences their behaviors in the context of disease conditions. Three studies used ethnicity as a proxy for culture (Dickson et al., 2013; Jang et al., 2012; King-Shier et al., 2017). Few studies highlighted the attributes of culture including beliefs (Namukwaya et al., 2017; Rong et al., 2017), principles (e.g. collectivism) (Davidson et al., 2011), traditions (Jiang et al., 2013), and customs (Rong et al., 2017).
Others used some of the antecedents of culture such as place of birth, length of residence in a country, primary language, as well as religious and family affiliations for the hypothesized behavior that characterizes a cultural group (Davidson et al., 2007; Dumit et al., 2016; Dumit et al., 2016; Ens et al., 2014; Fredericks, 2012; King-Shier et al., 2017). These authors suggested that a person’s values, beliefs, attitudes, and customs are associated with these cultural antecedents. Notably, few studies defined self-care (Table 2.4).

**Table 2.4: Definitions of Self-care Provided by Authors of the Included Studies**

<table>
<thead>
<tr>
<th>Generic definition - self-care defined as adherence to diet, medication, and symptom management(Dickson et al., 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanded definition - self-care defined as either as a multidimensional construct including a “dynamic process,” a “naturalistic decision making process,” or “activities or behaviors that individuals initiate and perform”(Becker et al., 2004; Dumit et al., 2016; Dumit et al., 2016; Fredericks, 2012; Jang et al., 2012)</td>
</tr>
<tr>
<td>Provided definitions of specific self-care behaviors like medication adherence(Ens et al., 2014; King-Shier et al., 2017)</td>
</tr>
<tr>
<td>Self-management and self-care used interchangeably but no definition provided(Davidson et al., 2007)</td>
</tr>
<tr>
<td>Self-care and health-related behavior used interchangeably but no definition provided(Namukwaya et al., 2017)</td>
</tr>
<tr>
<td>Alluded to self-care in the context of behaviors such as seeking health advice, diet and fluid restrictions, medication adherence, and undertaking physical activities but no definition of self-care was provided(Davidson et al., 2011; Jiang et al., 2013; Rong et al., 2017)</td>
</tr>
<tr>
<td>Mentioned elements of self-care such as lifestyle and behavioral modification involving regular physical exercise and healthful nutrition without providing a definition(Becker et al., 2004)</td>
</tr>
</tbody>
</table>

**Culture and Self-care**

Three studies, including a comparative, descriptive, observational, and a mixed-methods study, examined the influence of culture on overall self-care. The mixed methods study found that self-care was influenced by cultural beliefs (Dickson et al., 2013). Regardless of socioeconomic status and gender, culturally-based factors were
central to the development of self-care approaches, including spirituality, social support and advice, and non-biomedical healing traditions among African Americans (Becker et al., 2004). Furthermore, belief in God and higher powers helped participants manage their illness, and focusing on inner strength derived from their religion and cultural values helped participants to effectively manage their illnesses (Becker et al., 2004). Family influence (Davidson et al., 2007), including emotional support, was highly valued and multifaceted, coming from a wide variety of sources, particularly the mother (Becker et al., 2004).

In one study, because of differences in traditional lifestyles, Korean Americans ranked “I put my feet up when I sit in a chair” lower than other behaviors. Koreans are used to sitting or lying on the floor rather than on a chair and this position is more comfortable and comforting for them; putting their feet up is considered rude in the Confucian tradition (Ahn & Kim, 2007; Jang et al., 2012). Similarly, another observational study illustrated that people who self-identified their country of origin as England or Ireland endorsed more self-care behaviors than individuals who self-identified with other countries of origin such as India or China. This finding suggests that country of origin, a proxy of culture, influences the number of self-care behaviors performed (Fredericks, 2012).

**Culture and Self-care Maintenance**

Nine qualitative studies examined the influence of culture on specific self-care maintenance behaviors such as smoking cessation, medication taking, and diet modification.
Culture and Dietary Restrictions

Traditional beliefs have an important influence on adherence to prescribed diets across cultural groups. In Chinese culture, diet is emphasized as being important to health and well-being, and the idea of yin and yang or ‘hot’ and ‘cold’ food is embraced (Davidson et al., 2007; Davidson et al., 2011; Jiang et al., 2013). Because of Chinese dietary culture, salted, spiced, and pickled foods were prominent in participants’ diets, making adherence to certain dietary regimens difficult (Davidson et al., 2011; Jang et al., 2012). Furthermore, another study in Chinese culture revealed that “tonics,” such as meat stew or tonic soup, were believed to alleviate the side effects of Western medicine and to provide a synergistic effect on prescribed medications, disease recovery, and overall health (Jiang et al., 2013). Unfortunately, these tonics often resulted in fluid overload in heart failure patients. Similar to the Chinese population, cultural beliefs clashed with dietary adherence in African Americans; those with heart failure had difficulty adhering to a salt-restricted diet (Dickson et al., 2013). In this cultural group, maintaining a salt-restricted diet was not seen as important and provider recommendations for diet modification were met with skepticism (Dickson et al., 2013). In other cultures, fatalism, or the belief that health, illness, and even death are predetermined and beyond the control of the individual (Heiniger, Sherman, Shaw, & Costa, 2015) prevented some CVD patients from following dietary recommendations. For example, according to the Taoist and Buddhist philosophies espoused in Chinese culture, food habits are considered part of the broader life experience. Although participants knew that dietary restrictions were necessary, quality of life was more important to them, and they followed a “let it be” philosophy. Consequently, fatalism caused these heart failure patients to experience
difficulty in reconciling their cultural preferences with dietary recommendations (Rong et al., 2017).

Fatalism, collectivism and traditional gender roles had a negative influence on diet-related behaviors in men from South Asian cultures, specifically Punjabi Sikh men. By definition, collectivism prioritizes the needs of the group and defers individual needs (Hofstede, 2003). In this South Asian culture, negotiating changes in diet is often intertwined with family practices, gender divisions of labor, and collectivist ideals (Galdas et al., 2012). Because food choices are routinely determined by family practices, dietary changes were difficult to maintain unless wives or daughters were invested, as meal preparation was primarily the duty of women (Galdas et al., 2012). According to these study authors, men had little control over how the food was prepared or what dishes were served. In fact, collectivist cultural norms related to particular ingredients or meals trumped the restrictions. Nevertheless, collectivism did not always negatively influence dietary adherence. In two qualitative studies, the collectivist nature of Lebanese culture played a positive role in adherence to dietary recommendations. Participants reported that their wives dutifully prepared prescribed meals for them (Dumit et al., 2016; Dumit et al., 2016).

Culture and Medication Adherence

As with dietary restrictions, traditional beliefs and ideas, collectivism, family and kinship ties, fatalism, and normative thinking played critical roles in medication adherence (Davidson et al., 2007; Dumit et al., 2016; Dumit et al., 2016; Ens et al., 2014; King-Shier et al., 2017; Namukwaya et al., 2017). Specifically, the Chinese immigrant population in one study held traditional Chinese views (Davidson et al., 2011). For them,
a diagnosis of heart disease signaled a disruption of a harmonious life balance; hence, the process of recovery and adjustment necessitated use of traditional therapies to restore balance. Using traditional Chinese medicine (TCM) and herbal treatments provided a sense of coherence with past and traditional values and beliefs, and the length of time spent in another country did not change these views and opinions (Davidson et al., 2011). In keeping with collectivism, support from children, spouses, and other family members provided both tangible support and emotional assistance with medication adherence among South Asian immigrants; however, these participants were often tempted to use complementary and alternative medicines (CAM) in lieu of prescribed medications when returning to their home countries where attitudes towards medications often differed. Relatives sometimes questioned the continued use of prescribed medications because CAM is believed to have sufficient healing properties (Ens et al., 2014).

Alternately, among the Lebanese, family, coworkers, and employers reportedly played a positive role in self-care maintenance related to medication adherence (Dumit et al., 2016; Dumit et al., 2016). In another study, South Asian participants discussed God’s role in medication adherence (King-Shier et al., 2017). The fear of what “could happen” and a desire to think of a positive future motivated medication adherence among all participants. Here, fatalism played a positive role in self-care maintenance. Additionally, communication patterns with the prescribing physician, lack of trust in Western medicine, and the use of traditional medicines were negative influences on medication adherence in this group.

In the only study conducted in Africa (Namukwaya et al., 2017), where normative thinking influenced behavior, alternative medications were used alongside western
medicine. Normative thinking holds that certain actions are good and desirable, while others are undesirable or wrong (Bicchieri, 2016). Herbs and traditional therapies were used to ward off evil curses, as well as to enhance the effects of conventional medicine, mitigate side effects of conventional medicine, or offer an alternative to conventional medicine. Accordingly, this normative thinking negatively influenced medication adherence.

Self-care maintenance practices other than diet and medication use were addressed in two other studies. In a qualitative study of Lebanese patients, cultural norms supported behaviors such as taking flu shots, smoking cessation, alcohol control, and walking (Dumit et al., 2016). Cultural norms for the Lebanese favored walking over other types of physical activity. A similar result was found in Punjabi Sikh men who preferred walking, ideally in the company of others in their community (Galdas et al., 2012)

**Culture and Self-Care Monitoring**

Studies investigating the influence of culture on self-care monitoring addressed body monitoring and surveillance (Dickson et al., 2013; Jang et al., 2012), with activities such as weighing daily for heart failure in order to recognize early changes in health (Riegel, B. et al., 2012). Cultural beliefs and social norms influenced how African Americans interpreted and responded to their symptoms. Symptom monitoring was described as “body listening” in this cultural group (Dickson et al., 2013). Similarly, a study of Ugandans that explored the beliefs of patients with heart failure found that religious, cultural and lay beliefs, which often differed from biomedical ones, were used to label symptoms and determine which medicines were appropriate for use (Namukwaya et al., 2017). Fatalism and normative thinking played a negative role in self-care
monitoring in this cultural group. Moreover, having symptoms that were not serious enough to prevent one from working was not concerning. In another study, although both Caucasian American groups and Korean Americans were likely to not recognize worsening symptoms of heart failure such as shortness of breath; Caucasian Americans were less likely to be aware of the importance of shortness of breath than Korean Americans (Jang et al., 2012).

**Culture and Self-care Management**

Self-care management involves the response to changes in physical and emotional signs and symptoms, with implementation and the evaluation of any treatment used (Riegel, B. et al., 2012). In one study, African American cultural beliefs about self-care management were inconsistent with the biomedical recommendations of responding to symptoms; because of cultural beliefs, a passive approach was adopted, including enduring symptoms rather than seeking treatment (Dickson et al., 2013). Among African Americans, spirituality shaped self-care management. Participants endorsed the “belief that God is in control,” used prayer, and looked to a higher power to intervene (Dickson et al., 2013). Similarly, faith and spiritual beliefs influenced Ugandans’ perception of the cause of illness and treatment approaches; these participants sought care from witch doctors or depended on prayer when symptoms occurred (Namukwaya et al., 2017). Among Punjabi Sikh men, faith and spirituality often surpassed the recommendation of healthcare professionals and played a central role in the acceptance of the conditions, the perception of illness, and the extent to which they believed that conditions could be managed through the adoption of lifestyle changes. Further, these participants held faith-based beliefs in predetermination or an external locus of control (Galdas et al., 2012).
Discussion

Understanding cultural influences on self-care behaviors is critical in designing and tailoring interventions to meet patient needs (Keller, Coe, & Moore, 2014). To our knowledge, this is the first integrative review that summarizes and synthesizes past empirical literature examining cultural factors influencing self-care in patients with CVD. The diversity of designs used in the included studies allowed us to examine the influence of culture on self-care from multiple paradigms. The findings reveal that culture influences self-care in general, but predominantly the self-care maintenance behaviors of diet and medication adherence. In Figure 2, cultural factors that serve as barriers to or facilitators of self-care guided by the middle-range theory of self-care of chronic illness are presented.
Figure 2: Culture informs human behavior through its influence on values, norms, feelings, and ways of thinking. Cultural influences on self-care include fatalism, collectivism, traditional gender roles, family and kinship ties, cultural beliefs, social norms, and normative thinking. These factors appear to influence primarily self-care maintenance behaviors, with some effect on self-care monitoring and self-care management.

Similar to a previous study (Patel et al., 2015), we found fatalistic beliefs about health, illness, and health negatively influenced dietary adherence. Specifically, fatalistic beliefs often resulted in perceived lack of control and discouraged people from changing their dietary health behaviors. Individuals endorsing fatalistic beliefs did not perceive
their eating practices to be problematic. Their food habits contributed in important ways to their quality of life, which was much more important to these individuals.

Additionally, although fatalistic beliefs were associated with noncompliance in some cultures, fatalism was not a negative influence across all cultural groups (Heiniger et al., 2015). In some cultures, a fatalistic belief in illness led to a perceived lack of control over the illness, which improved attitudes toward adherence. This finding is similar to that of a recent study suggesting that faith in God and believing that “God is in control” can be a strong motivator to engage in self-care practices such as medication adherence (Saidi, Milnes, & Griffiths, 2018).

We found that collectivism and family influenced self-care maintenance among certain cultural groups. These findings are consistent with other studies showing that collectivism impacts health behaviors, predicts patients’ attitudes towards outcomes, influences levels of self-efficacy, and accounts for motivations of care (Pokhrel et al., 2018). This may be because, in collectivistic societies, the family unit plays a critical role in health-related decisions and practices and individual needs are considered secondary (Davis, 2000). In collectivistic societies, food choices, adherence to prescribed medications, and/or use of CAM are routinely influenced by family practices, gender role expectations, and collectivistic ideals. Our review illustrates that the influence of collectivism and family is mixed, and cultural practices and norms may be either positive or negative predictors of self-care, depending on the cultural group and specific aspect of self-care. In keeping with collectivistic principles, individuals with CVD may receive instrumental support from children, spouses, and family members with medication adherence, while concurrently being encouraged to use CAM believed to possess healing
properties, which may be detrimental to their disease condition.

Consistent with previous findings from a study of Africans with diabetes (BeLue et al., 2012), which found that cultural beliefs influenced self-care monitoring (labeling and interpreting of symptoms). Cultural beliefs impact how a person recognizes, labels, and describes symptoms, as well as their anticipated responses to symptoms (Arnault, 2018b). Because of the cultural meaning of an illness, “body listening” strategies are sometimes employed to monitor symptoms (Dickson et al., 2013; Riegel, B., Dickson, & Faulkner, 2016). Additionally, people in certain cultures may attribute disease to a mystical cause such as ancestral disharmony or evil spirits (Omonzejele, 2008; White, 2015), so such symptoms may be perceived as physical manifestations and expressions of curses, disobeying taboos, or attacks from evil spirits. Thus, exploring the meaning ascribed to symptoms is important, as well as the names given to various symptoms.

Although only three studies examined the influence of culture and self-care management, our findings reveal that cultural beliefs influence self-care management by influencing the choice of therapy for CVD-related symptoms. A passive approach such as use of traditional medicines, prayer and faith as alternatives to prescribed therapy may be adopted because of a lack of conviction in the efficacy of western medicine to treat symptoms believed to have a spiritual or mystical origin (Wegner & Rhoda, 2015). This finding shows the importance of assessing how a specific cultural group’s beliefs influence the actions taken in response to symptoms.

Our findings do not suggest that “culture” and “country” are interchangeable. We know that a broad variety of cultures may exist within one country, and even within cultures (Ory, 2008). Therefore, we did not attempt to reveal cultural influences at the
granular level or make broad generalizations. Our goal was to offer substantive insights about cultural factors that encompass the self-care experience within a group at a global level based on relevant published studies. Significant within-country cultural differences may exist depending on personal, generational, and contextual characteristics of individuals in the country. Characteristics such as religious affiliations/spiritual beliefs, gender, educational status, socioeconomic status, urban versus rural residency (Al-Bannay et al., 2013; Kagawa-Singer et al., 2015) influence a person’s worldview, values, norms and ways of thinking differently. For example, universal concepts such as religion or family may have a unique form or construction in different cultural context, influencing a group’s thinking about particular issues such as self-care behavior (Kagawa-Singer et al., 2015).

It is critical to understand the cultural framework by which health, illness, and symptoms are understood, interpreted and managed among different groups because beliefs and practices operating within certain cultures are situated within an indigenous framework of health and illness. These beliefs and practices are sometimes expressed in different languages and within local knowledge systems (Awah, Unwin, & Phillimore, 2009; BeLue et al., 2009).

**Limitations and Strengths of This Review**

Although several combinations of search terms were used to identify relevant studies, it is possible that some studies may have been missed. It is also possible that useful articles may have been missed because they were not published in English. We believe the extent of this limitation may be diminished because of the global shift towards publication in English. Small sample sizes in most studies and samples from narrow geographical
region also limit generalizability. The self-reporting of self-care may not be representative of all patients with CVD, and limited published data pertaining to the influence of culture on self-care in CVD populations hinders the comparison of study findings. The use of various measures of self-care also limits our ability to generalize findings (Creswell & Clark, 2017). Since most of the studies were qualitative or observational, causality cannot be inferred. Additionally, the unique cultural lenses through which the authors of some studies could have influenced their interpretation of findings (Al-Bannay et al., 2013). However, sensitizing researchers to the characteristics of their own culture may result in an increased awareness of how their own culture differs from that of others (Al-Bannay et al., 2013). Despite these limitations, this review expands upon current evidence of the influence of culture on self-care, identifying specific cultural factors that affect self-care among diverse ethnic groups.

**Implications for Future Research**

Continued research in the area is needed, especially in examining the influence of culture on self-care monitoring and self-care management. Further, more research is needed examining different cultural groups. There is also a need to conduct more quantitative and mixed methods studies in this area because most of the studies reviewed were qualitative. Culture is multidimensional and does not lend itself to simple quantitative measurements. Consequently, mixed-paradigms and mixed-method research designs are needed to reflect culture as an explanatory variable (Kagawa-Singer et al., 2015), given that data from quantitative measures alone are insufficient to provide a multi-level perspective and qualitative findings lack generalizability.

In considering the translation of these results to clinical practice, when
implementing interventions for certain cultural groups such as South Asians and Africans, consideration of collectivist cultural practices should be included in the messaging, content, processes, and delivery of interventions. Additionally, the potential influences of fatalism, normative thinking and traditional beliefs should be considered when designing interventions to promote self-care in cultural groups. Furthermore, there is a need for partnership between healthcare professionals, patients, and cultural and religious leaders in order to facilitate the uptake of self-care behaviors.

Acknowledgement
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## Appendix A: Table 2.2: Data Matrix of Included Articles Identifying Cultural factors that influences Self-Care

<table>
<thead>
<tr>
<th>Author/ Year</th>
<th>Study Purpose</th>
<th>Definition/ Conceptualization of Culture</th>
<th>Conceptualization of Self-care</th>
<th>Design/Sampling/Measures</th>
<th>Effect/Outcomes/Results</th>
<th>Strengths/ Limitations</th>
<th>*Quality score</th>
</tr>
</thead>
</table>
| Davidson et al (2007) | 1. Describe the experiences migrants with HF.  
2. Uncover patterns and identify cultural factors influencing HF management. | Place of birth - Length of residence in a country/ Language/ Religious and family affiliations | Life-style adjustments (a low-sodium diet, physical activity), vigilant follow-up, medication adherence | **Design**: Descriptive, exploratory design.  
**Sampling technique**: Convenience and snowball sampling techniques. N=13; family groups N=16; key informant interviews N=8; heart failure nurse specialists/consultants N=6 focus groups  
**Measures**: One-time interviews | Family and Kinship relationships are vital in the decision-making process about treatment choices and care plans. Traditional, cultural and religious factors influence heart failure management | **Strengths**: Study design allowed for the examination of cultural factors influencing self-care.  
**Limitations**: Small sample size precludes the ability to generalize the findings. | 6 |
| Davidson et al (2011) | 1. Describe the experiences of Chinese Australians with heart disease post-discharge  
2. Identify patterns and cultural factors including beliefs influencing illness/health seeking behaviors and health beliefs of Chinese Australians. | Place of birth, attitudes, beliefs, values | Medication adherence, adherence to dietary modification, and undertaking physical activities | **Design**: Qualitative, Multi-method design  
**Sampling technique**: Convenient Sampling. Three convenience samples: (a) focus groups. (b) Snowball sampling techniques also used.  
**Participants**: Individual Interviews: N=8; Mean age: were 74 ±5 years; 6 men and 2 women. Focus groups: N=76. Mean age of 68 ±8 years. Men and women included. (b)  
**Measures**: One-time interviews conducted with individual patients as well as focus groups. | Traditional beliefs, collectivism and family influenced participants’ concept of health and their willingness to follow self-care recommendations including medication adherence and dietary restrictions | **Strengths**: Study design allowed for exploration of cultural factors influencing health seeking behaviors  
**Limitations**: Small sample size (n=8), mostly men (n=6) and elderly (mean age (74). | 6 |
| Dickson et al, 2013 | (1) To describe the cultural beliefs about HF  
Ethnicity; Beliefs - beliefs related to HF self-care | Self-Care conceptualized as adherence to | **Designed**: Mixed-methods concurrent nested design. | Cultural belief influenced self-care. Cultural beliefs supported medication | **Strengths**: Study design allowed for multi-level | 6 |
### Appendix A: Table 2.2: Data Matrix of Included Articles Identifying Cultural factors that influences Self-Care

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<tr>
<th>Author/ Year</th>
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<th>Strengths /Limitations</th>
<th>*Quality score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dumit, Magilvy, &amp; Afifi (2016)</td>
<td>To explore the cultural descriptions of cardiac illness</td>
<td>Culture presented as country of</td>
<td>Self-Care was conceptualized as medication adherence,</td>
<td>Design: Qualitative descriptive method. Sampling technique: Purposive sampling</td>
<td>Concept and meaning of self-care were not familiar to the participants. Family</td>
<td>Strength: Study design allowed for investigation of cultural factors influencing self-care. i) Authors used a theoretical framework to guide their examination of cultural beliefs that impacts self-care. ii) Adequate reliability for the SCHFI instrument (Cronbach α values 0.76, 0.56 and 0.83 for the subscales) Limitations: Study sample consisting mostly men (60%) with NYHA class III (67%). Interviews conducted only once.</td>
<td>6</td>
</tr>
</tbody>
</table>
### Appendix A: Table 2.2: Data Matrix of Included Articles Identifying Cultural factors that influences Self-Care

<table>
<thead>
<tr>
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<th>*Quality score</th>
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<tr>
<td>and self-care among Lebanese patients with CAD</td>
<td>and self-care among Lebanese patients with CAD</td>
<td>symptom monitoring; following dietary recommendations; following providers instructions; engaging in physical activity, seeking support from others</td>
<td>population: Cardiology clinic patients with CAD (N=15); Mean age: 62 years; 80% married; 46.6% had intermediate school education or higher. 60% residents of urban areas; 50% were housewives.</td>
<td>Population: Cardiology clinic patients with CAD (N=15); Mean age: 62 years; 80% married; 46.6% had intermediate school education or higher. 60% residents of urban areas; 50% were housewives.</td>
<td>played a key role in influencing participants’ self-care practices. Culture influenced illness interpretation.</td>
<td>description of illness and self-care. <strong>Limitations:</strong> Sample consisted mostly of those who were married (80%) and residents of urban areas (60%) therefore affecting generalization. Additionally, interviews were conducted only once</td>
<td></td>
</tr>
<tr>
<td>Dumit, Noureddine &amp; Magilvy (2016)</td>
<td>To explore perceptions of self-care practices and reveal factors influencing these practices among Lebanese with CAD.</td>
<td>Culture presented as country of citizenship - Lebanese; Language spoken (Arabic)</td>
<td>Activities undertaken to enhance health, prevent disease, minimize illness and restore health</td>
<td>Design: Qualitative descriptive design. <strong>Sampling technique:</strong> Purposive sampling <strong>Population:</strong> CAD patients (N=15); Male 53%; Married 80%; Literate 93%; Male: 35%; Mean age 61.6; Women included were housewives</td>
<td>Participants reported adherence to medications and dietary restrictions. They also reported smoking cessation and performing physical activity. Participants identified family responsibility, and other psychosocial factors as barriers to self-care. They reported the support from others informed by cultural</td>
<td><strong>Strength:</strong> Study design allowed for the exploration of cultural factors related to self-care <strong>Limitations:</strong> Sample consisted primarily of those that were married, and all the women in the study were literate. Also,</td>
<td>6</td>
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### Appendix A: Table 2.2: Data Matrix of Included Articles Identifying Cultural factors that influences Self-Care

<table>
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<th>Effect/Outcomes/Results</th>
<th>Strengths /Limitations</th>
<th>*Quality score</th>
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<tbody>
<tr>
<td>Galdas, et al (2011).</td>
<td>To describe the role culture plays in willingness to adopt lifestyle changes following MI among a South Asian sub-group, Punjabi Sikh men</td>
<td>“a system of values, norms and beliefs that give meaning to everyday experiences and influence behavioral patterns”</td>
<td>Lifestyle and behavioral modification such as performing regular physical exercise and healthful nutrition</td>
<td><strong>Design:</strong> Qualitative, interpretive design. Population: Post-MI patients (N=27); Age range: 41 to 86 years (mean 65.7 years). Lived in Canada between 2 and 42 years, the mean length of time being 20 years. All men were married; Three men were widowed</td>
<td>Cultural factors such as collectivist cultural norms, family practices, and gender roles influenced actions related to self-care, rehabilitation, and lifestyle change post-MI. Faith and spirituality often trumped the recommendation of providers and played a role in patients’ acceptance of their conditions, and shaped their perception of illness, and the adoption of lifestyle changes.</td>
<td>Sample was from one site thus limiting transferability. Additionally, interviews were conducted only once.</td>
<td>5</td>
</tr>
<tr>
<td>Jang, Y., Toth, J., &amp; Yoo, H. (2012)</td>
<td>To compare the differences in HF self-care</td>
<td>Race and ethnicity used as</td>
<td>Authors used Orem definition of Self-Care</td>
<td><strong>Design:</strong> A two-group, comparative, descriptive design</td>
<td>There was no significant difference in the mean self-care scores between</td>
<td>Strengths: The Revised HFSCBS demonstrates</td>
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<tr>
<td>Jiang, R., Wu, S., Che, H., &amp; Yeh, M. (2013)</td>
<td>To explore HF patients’ understanding of providers instructions regarding dietary restrictions and how culture influences</td>
<td>No definition provided. Alluded to participants’ established beliefs and traditions. Also, ethnicity was used as a proxy for culture</td>
<td>Sub-concept of Self-Care used: Adherence to dietary restrictions</td>
<td><strong>Design:</strong> In-depth interview, Qualitative design. <strong>Sampling technique:</strong> Purposive sampling; <strong>Population:</strong> hospitalized due to HF (N=12); Mean age =74.5 years; 8 men and 4 women; 50% illiterate; 50%, hospitalized 2-3 times.</td>
<td>i) Traditions and cultural beliefs influenced willingness to follow dietary recommendations. ii) Culture play a role in the communication between patients and their provider. Even though patients doubt</td>
<td>Strength: Qualitative design allowed for in-depth examination of patients understanding of provider’s instructions regarding</td>
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</table>
| Namukwaya, E., Murray, S. A., Downing, J., Leng, M., & Grant, L (2016). | To explore Ugandan HF patients’ understanding of their illness and its treatment and health-related behaviors | Cultural beliefs | Health related behaviour | **Design:** Qualitative in-depth interviews design  
**Sampling technique:** Purposive sampling.  
**Population:** Outpatients with HF (N=21); Age range: 18-70; Female 71.4%; Married/ Widowed or separated, 61.8%. | Measures: One-time interview was conducted  
the providers advise, they expressed that challenging an expert was inappropriate and impolite  
ii) Accepting and following self-care recommendations was challenging because some patients did not want to be a burden to their family members | dietary changes and how culture influences willingness to follow the recommendations  
**Limitations:** i) Small sample size that consisted mostly males (67%). ii) NYHA HF class not reported. iii) Only two participants had above a primary education (16.7%). iv) Participants were recruited from one site | Study designed allowed for the investigation of the cultural meaning of HF and how beliefs influence health behaviors. ii) Three sessions of interviews were | 6 |
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<tr>
<td>Rong, X., Peng, Y., Yu, H. P., &amp; Li, D (2016)</td>
<td>To explore cultural factors related to dietary and fluid restriction behaviors among older Chinese patients.</td>
<td>No definition of culture was provided. Culture presented as customs, religious beliefs, and practices</td>
<td>Self-care and Self-management behavior used interchangeably: Adherence to dietary and fluid restrictions</td>
<td><strong>Measures:</strong> Series of interviews were conducted during hospitalization, and at 3 and 6 months</td>
<td>use of traditional medicines alongside biomedical treatments.</td>
<td>conducted; iii) A theoretical framework was used to guide data collection, analysis and interpretation. <strong>Limitations:</strong> Sample mostly female (71.4%) and married or widowed (61.8%)</td>
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| Suzanne Fredericks (2012)     | To examine the influence of country of origin on performance of self-care behaviors following Cardiovascular surgery | Country of origin presented as antecedents to culture - values, beliefs, attitudes and customs | Self-Care as conceptualized by Orem 2001 | Design: Descriptive non-experimental design  
Sampling technique: Convenience sampling  
Population: Coronary Artery Bypass Graft patients (N=90); Mean Age +SD: 64.1 ± 8.51; Male 73.3%; Less than High School: 24.9; Marital Status: Married/cohabitating 77.7%; Number of co-morbid conditions (2 or more; 91%).  
Measures: Revised Self-Care Behavior Scale (RSCB) | Persons who self-identified their country of origin as England or Ireland had higher self-care behaviors scores. Participants’ country of origin influences the self-care behaviors they perform | **Strengths:** The RSCB instrument demonstrates good content validity (0.86) and internal consistency reliability (α=0.789)  
**Limitations:** Sample consisted of mostly first-generation Canadians (63.3%), males (73.3%), married (77.7%) and with more than high school education (75.1%). | 6 |
| Ens, Seneviratne, & King-Shier (2014) | To explore the influence of cultural beliefs and behaviours on medication adherence among South Asian patient | Country of birth and Ethnicity presented as antecedents to cultural beliefs | Sub-concept of Self-Care used - Adherence to cardiac medications | **Design:** Ethnography  
**Sampling techniques:** Purposive sampling  
**Population:** Patients with CAD (n = 8); Male: 75%; Married: 50%; Age range: 65-78 yrs.; Length of residence in Canada: 10-12 | Family members in Canada provided tangible support and encouraged patients to take their medications. However, interactions with international family resulted in frequent use | **Strengths:** Design allowed for cultural beliefs to be explored  
**Limitations:** 1) Sample were | 5 |
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<tbody>
<tr>
<td>Becker, Gates, &amp; Newsom, 2004</td>
<td>To explore the influences of cultural factors on self-care</td>
<td>Culture was defined as “shared system of meaning, the way that people experience, perceive, and interpret their world. Cultural guidelines pass from one generation to the next through a process in which individuals develop a cultural lens for understanding the world” - Ethnicity used as a proxy for culture</td>
<td>Self-Care conceptualized as a synchronic model as proposed by Dill and colleagues (1995)</td>
<td>Design: Qualitative, interpretive approach. <strong>Sampling technique:</strong> No sampling technique reported. Convenience sampling suggested as a limitation  <strong>Population:</strong> (N=167) African Americans (AA); Age range: 21-91; socioeconomic status; middle-income &amp; low-income; Educational levels: 70% - 75% with high school education or less and 25% with at least a college degree. All were community-dwelling; 87.4% Married; Gender: Female: 53.9%.  <strong>Measures:</strong> 3 sessions of in-depth interviews.</td>
<td>of complementary and alternative medicines (CAM). ii) Acknowledgement of patient’s cultural values and customs by providers and ability of providers to communicate patients’ language resulted in more compliance with prescribed medications.</td>
<td>mostly males (75%). ii) Reliability and validity of the Morisky Medication Adherence was not reported. iii) Interviews were conducted only once.</td>
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</thead>
<tbody>
<tr>
<td>King-Shier et al 2017</td>
<td>To develop an in-depth understanding of the factors that influence cardiac medication adherence among South Asian, Chinese, and European White patients living in Canada with ACS</td>
<td>Ethnicity used as proxy to culture and serves as antecedents to cultural practices, understandings, beliefs</td>
<td>Sub-concept of Self-Care used Medication adherence and lifestyle modifications</td>
<td><strong>Design:</strong> Qualitative descriptive approach  <strong>Sampling technique:</strong> Purposive Sampling  <strong>Population:</strong> South Asians, Chinese and European White ACS patients (N=64; 25 South Asian, 13 Chinese, and 26 European White ); Age (mean): South Asian: 61.5; Chinese: 63; European White: 62.5; Language Spoken: English: South Asian: 75%; Chinese: 62.5%; European White: 100%; Gender: Male- South Asian; 56%; Chinese: 62%; European White: 44%; Post-secondary education: South Asian: 70%; Chinese: 77%; European White: 80</td>
<td>Being able to communicate in patient’s own language influenced medication adherence. Important. Fatalism influenced medication adherence among South Asian participants. Existential feelings e.g. Fear of what “could happen” positively influenced medication adherence among all participants. Belief in and use of traditional medicines negatively influenced adherence to prescribed medications</td>
<td><strong>Strengths:</strong> i) Design allowed for an in-depth understanding of cultural factors influencing medication adherence  ii) Several sessions of interviews were conducted  <strong>Limitations:</strong> Sample of Chinese (62.5%) and South Asian (56%) were mostly males. Majority spoke English, not other language. South Asian: (75%), Chinese (62.5%) and European White (100%)</td>
<td>6</td>
</tr>
</tbody>
</table>

*Quality score of 5 or 6 indicates acceptable scientific rigor. HF=Heart failure. ACS= Acute coronary syndrome. NYHA=New York Heart Association. CAD=Coronary Artery Disease. MI= Myocardial Infarction
CHAPTER THREE (PAPER TWO): MAINTAINING CULTURAL IDENTITY: A SYSTEMATIC MIXED STUDIES REVIEW OF CULTURAL INFLUENCES ON SELF-CARE OF AFRICAN IMMIGRANTS LIVING WITH CHRONIC ILLNESS

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Nursing Liaison Librarian, University of Pennsylvania Biomedical Library, Philadelphia, PA

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In press: Journal of Advanced Nursing
Abstract

Aim: To understand and identify cultural factors influencing the self-care practices of African immigrants living with chronic illness in countries outside Africa.

Background: The influence of cultural factors on self-care is relatively unexplored in African immigrants with chronic illness.

Design: Systematic Mixed Studies review.

Data Sources: PubMed, Psych Info, Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Anthropology Plus, and Sociological Abstract computerized databases. No limit was placed on publication date.

Review Methods: Results-based convergent design was used. The Mixed Method Appraisal Tool was used to evaluate the studies. Quantitative studies were synthesized narratively while qualitative studies were synthesized using thematic synthesis.

Results: We identified 251 articles and nine fulfilled our inclusion criteria. The studies were published between 2006 to 2019, with six qualitative and three quantitative studies. Studies were conducted in the United States, Australia, Sweden, the Netherlands and the United Kingdom. Most studies examined the influence of culture on self-care of diabetes (n=6), while the rest focused on hypertension (n=3). Findings highlight that cultural norms and practices, non-Western approaches to interpreting and managing illness, cultural connotations of health behaviors, and structural challenges influence self-care. Cultural food preferences made adherence to prescribed diets challenging. Family support facilitated self-care. Maintaining culture identity was both a driver and constraint to engaging in self-care.
**Conclusion:** The complex interplay of cultural and structural factors influences the willingness of Africans who have immigrated to a developed country to follow recommended self-care practices. Considering these cultural norms and structural barriers can help to explain the self-care behaviors of African immigrant populations.

**Impact:** Clinicians and policymakers who account for structural factors and integrate cultural factors into care facilities, treatment protocols, and policy can be influential in promoting self-care in African immigrant populations.

**Keywords:** African immigrants; cultural identity; culture; dietary adherence; medication adherence; non-communicable diseases; nursing; chronic illness, self-care; self-management; symptom assessment; Systematic Mixed Studies review.
Introduction

Globally, chronic illness—diabetes, heart disease, stroke, and chronic obstructive pulmonary disease—are the leading cause of disability, mortality, and morbidity (World Health Organization, 2015). Chronic illness account for two of every three annual deaths (over 34 million) globally (Lozano et al., 2012; Vos et al., 2016). Chronic illness result in poor overall health, distressing physiological and psychological symptoms, impaired quality of life, functional limitations, psychosocial challenges, increased healthcare utilization, and high healthcare-related expenditures (Basu, Avila, & Ricciardi, 2016; Bauer, Briss, Goodman, & Bowman, 2014; Blumberg, Waidmann, Blavin, & Roth, 2014).

In sub-Saharan African countries, over the last decade there has been a shift in the pattern of mortality and disease from communicable diseases to Chronic illness due to urbanization and behavioral factors (BeLue et al., 2009). The increased disease burden of Chronic illness has resulted in a rapid rise in mortality and disability in sub-Saharan African countries (Alwan, Galea, & Stuckler, 2011), especially in countries such as Nigeria and Ghana, which have seen an upward trend in both the prevalence of Chronic illness and poor outcomes related to these diseases (BeLue et al., 2009). Additionally, immigrants from African countries living in European countries and the US are experiencing an accelerated risk of Chronic illness that their counterparts at home in African do not experience. Two reasons for this acceleration include migration-related lifestyle changes (Osei & Schuster, 1996; Reuven, Dreiher, & Shvartzman, 2016) and transition from a traditional African diet to a western diet (Oniang’o, Mutuku, & Malaba, 2003; Venters & Gany, 2011).
Irrespective of the etiology, pathophysiology, and overall course of the chronic illness, self-care is vital to illness management, and all persons with chronic illness must actively and consistently participate in self-care to minimize illness complications (Benjamin, Muntner, & Bittencourt, 2019). Culture may influence both self-care behaviors and factors that influence self-care such as confidence, habits, motivation, support from others, and the patient-provider relationship (Jaarsma, Cameron, Riegel, & Stromberg, 2017; Riegel, Barbara, Jaarsma, & Strömberg, 2012). Surprisingly little is known about how culture influences self-care. Therefore, the purpose of this systematic mixed studies review was to synthesize findings across studies on cultural factors influencing self-care among African immigrants living with NCD.

Self-Care

According to the Theory of Self-Care of Chronic Illness, self-care involves three core processes: self-care maintenance, self-care monitoring, and self-care management (Riegel, Barbara et al., 2012; Riegel, B., Jaarsma, Lee, & Stromberg, 2018). Self-care maintenance involves behaviors used to maintain physiological stability, promote wellness, and minimize disease complications such as taking prescribed medications, adhering to the recommended diet, and performing physical activity (Riegel, Barbara et al., 2012; Riegel, B. et al., 2018). Self-care monitoring entails identifying, labeling, and interpreting symptoms (Riegel, Barbara et al., 2012; Riegel, B. et al., 2018). For example, checking blood sugar for diabetes. Self-care management involves actions taken in response to symptoms, including implementing treatment recommendations and evaluating treatment effectiveness (Riegel, Barbara et al., 2012; Riegel, B. et al., 2018). These behaviors are similar across common chronic diseases. For example, persons living
with any of the various Chronic illness are all expected to take prescribed medications, monitor symptoms, consult with the healthcare team if symptoms arise, and follow the prescribed regimen (Riegel, B. et al., 2018; Schulman-Green et al., 2012).

**Cultural Influences on Self-Care**

Culture and health appear to be interrelated. Culture is defined as shared values, norms, feelings, and ways of thinking that are learned and passed down from generation to generation and that shape a group’s beliefs, attitudes, and behaviors (Airhihenbuwa, 1995; Al-Bannay, Jarus, Jongbloed, Yazigi, & Dean, 2013; Kagawa Singer et al., 2016). Culture actively influences and shapes perceptions of health (Zola, 1966), the meaning of illness (Arnault, 2018; Dumit, Magilvy, & Afifi, 2016; Ruiz-Montero, Van Wilgen, Segura-Jiménez, Carbonell-Baeza, & Delgado-Fernández, 2015), presenting symptoms (Arnault, 2018; Zola, 1966) and health behaviors (Iwelunmor, Newsome, & Airhihenbuwa, 2014; Karimi & Clark, 2016). Cultural factors support changes in health behavior at the individual level, which may be instrumental in reducing health disparities (Singh et al., 2017). Culture influences the way people think, the values they hold, the norms they live by, their health preferences, and generally their way of life (Arrey, Bilsen, Lacor, & Deschepper, 2016; Kagawa-Singer, Dressler, George, & Elwood, 2015; White, 2015). Therefore, cultural beliefs and practices are thought to be key factors influencing chronic illness self-care (Osokpo & Riegel, 2019; Riegel, Barbara et al., 2012). However, the manner in which culture influences self-care among sub-Saharan African immigrants (henceforth African immigrants) remains largely unexplored.
Background

In 2017, an estimated 36 million of all international migrants had been born in Africa (McAuliffe & Ruhs, 2017; United Nations, 2018). Migrants from Nigeria, Ghana, and Kenya constitute the majority of immigrants in Europe and the US (Connor, 2018; Echeverria-Estrada & Batalova, 2019). Several push and pull factors have influenced the dramatic increase seen in international migration from sub-Saharan African countries over the past decade (Connor, 2018). Push factors include socioeconomic and political problems—political instability, civil wars, and economic malaise. Pull factors include a quest for economic opportunity, family reunification, diversity programs, and refugee programs (Connor, 2018; Echeverria-Estrada & Batalova, 2019). The demand for cheap labor to provide much-needed services in European and North American countries through skilled worker visa programs has disproportionately attracted educated professionals from African countries (Schwartz, I. M. et al., 2006).

With the large number of African immigrants worldwide, it is worthwhile to describe how culture influences perceptions of health and health behaviors of these immigrants. Notably, social ties, cultural beliefs, and practices of African immigrants extend across national boundaries (Olupona, 2007). African immigrants tend to identify with and maintain a strong connection with African immigrant communities, keeping closely connected kinship networks while maintaining meaningful transnational linkages with the mother country (Arthur, 2000a; Nsangou & Dundes, 2018; Schwartz, I. M. et al., 2006). They maintain their indigenous culture and view their ethnic identities as factors protecting their overall well-being (Arthur, 2000a). African immigrants often reconstruct institutions from their countries of origin in the new milieu (Schwartz, I. M. et al., 2006).
They commonly draw on their cultural knowledge, values, beliefs, traditions, and folkways to establish a new life away from home (Arnold, Bolle, Kunnie, & Chidester, 2004; Schwartz, I. M. et al., 2006).

Recent reviews (Agbemenu, 2016; Sofolahan-Oladeinde, Iwelunmor, Tshiswaka, & Conserve, 2014) examining effects of acculturation suggest that religion, competing cultural practices, language difficulties, and structural factors (e.g., discrimination, stigma, cost of care) influence health perceptions and behaviors of African immigrants. Using proxies of acculturation, longer duration of residency in the US was related to positive changes in perceptions and beliefs about chronic illness and better self-rated health (Sofolahan-Oladeinde et al., 2014). The influence of acculturation on health behaviors was mixed; one study found that longer duration of residency was associated with poor dietary practices, e.g., uptake of foods with more fat (Dharod, Croom, Sady, & Morrell, 2011), while another study noted that longer duration of residency was associated with more fruit and whole grain intake (Kumar, Yu, Akinremi, & Odedina, 2009). Additionally, longer duration of residency and better language acculturation was associated with an increase in the likelihood of accessing health services. These reviews were limited by the use of simple quantitative measurements, which are poor indicators of cultural constructs (Kagawa-Singer, MN, Dressler, George, & Elwood, 2015) and proxy measures of acculturation such as country of birth and duration of residency (Al-Bannay et al., 2013; Kagawa-Singer et al., 2015). Additionally, most of the studies included in these reviews focused on healthy immigrants in the US. Thus, there is a need for a broader understanding of the influence of culture on self-care in those with chronic
illness because this understanding will be influential in promoting health in these unique populations.

The Review

Aim: we aimed to understand and identify cultural factors influencing the self-care practices of African immigrants living with chronic illness in countries outside Africa.

Design

We carried out a systematic mixed studies review using a results-based convergent synthesis approach (Noyes et al., 2019; Pluye & Hong, 2014). This approach was chosen because it allows us to examine cultural factors by analyzing and synthesizing quantitative and qualitative results separately and then combining both results in a third synthesis in order to provide a comprehensive understanding of the influence of cultural factors associated with self-care (Noyes et al., 2019; Pluye & Hong, 2014).

Search methods

In collaboration with a university librarian, six computerized databases were searched ((PubMed, PsychINFO, Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Anthropology Plus, and Sociological Abstract). Medical subject headings (MeSH), keywords and concepts related to self-care, culture, and chronic illness or non-communicable disease were combined in the context of African immigrants (Table 3.1).

| Table 3.1: Literature search terms used to conduct the systematic mixed studies review |
| Sub-Saharan Africa: (cameroon or central african republic or chad or congo or democratic republic of the congo or equatorial guinea or gabon or burundi or djibouti or eritrea or ethiopia or kenya or rwanda or somalia or south sudan or sudan or tanzania or uganda or angola or botswana or lesotho or malawi or mozambique or namibia or south africa or swaziland or zambia or zimbabwe or benin or burkina faso or cabo verde or gambia or ghana or guinea or guinea bissau or liberia or mali or|
| Example of the search strategy in PubMed | **mauritania or niger or nigeria or senegal or sierra leone or togo or Africa, Western or Africa, Central or Africa South of the Sahara or South Africa or Africa, Eastern OR (African and immigrant*))** |
| AND | **Immigration** | (emigrants and immigrants OR transients and migrants OR migrant* OR immigrant* OR emigrant* OR African immigrants OR African migrants OR transnational immigr*) |
| AND | **Chronic illness/ non-communicable diseases** | (Hypertension OR diabetes OR diabetic OR diabetes* OR COPD OR Blood pressure OR Cardiovascular diseases OR vascular diseases OR coronary* OR peripheral artery* OR peripheral vascular OR stroke OR myocardial* OR heart OR cardiovascular* OR cerebrovascular*) NOT infectious diseases |
| AND | **Concept of self-care** | (smoking cessation OR weight monitoring OR physical activity OR physical activity OR health behavior OR diabetes management OR diet and lifestyle changes OR Lifestyle changes OR diet change OR Healthy activity OR healthy eating OR dietary habits OR symptom management OR symptom assessment OR patient participation OR medication adherence OR patient compliance OR fluid restriction OR diet restriction OR diet modification OR self-care OR self-management) |
| AND | **Concept of culture** | “Culture or beliefs OR norms OR values OR cultural* OR ethology OR acculturation OR enculturation OR enculturation OR cross-cultural OR transcultural* OR ethnopsychology OR transcultural nursing OR enculturation” |
| Example of the search strategy in PubMed | “smoking cessation OR weight monitoring OR physical activity OR physical activity OR health behavior OR diabetes management OR diet and lifestyle changes OR Lifestyle changes OR diet change OR Healthy activity OR healthy eating OR dietary habits OR symptom management OR symptom assessment OR patient participation OR medication adherence OR patient compliance OR fluid restriction OR diet restriction OR diet modification OR self-care OR self-management” AND “African Immigrants OR West African Immigrants OR Congolese Immigrants OR nigerian immigrants OR ethiopian immigrants OR ghanaian immigrants OR kenya immigrants OR south american immigrants OR somalian immigrants OR liberian immigrants OR cameroonian immigrants OR eritrean immigrants OR tanzanian immigrants OR ugandan immigrants OR zimbabwe immigrants OR senegalese immigrants OR guinea immigrants OR angola immigrant OR benin immigrant OR botswana immigrant” AND “diabetes* OR high blood pressure OR hypertension OR coronary* OR peripheral artery* OR peripheral vascular OR stroke OR myocardial* OR heart OR cardiovascular* OR cerebrovascular*” AND “Culture or beliefs OR norms OR values OR cultural* OR ethology OR acculturation OR enculturation"
Search outcomes

With no limit on publication date, articles were included if the study: 1) was original primary research, 2) examined the influence of culture or dimensions of culture related to self-care practices, 3) was related to chronic illness, 4) was conducted on adults (≥19 years), and 5) was conducted exclusively with African immigrants or included African immigrants as participants. Articles were excluded if the study: 1) was not reported in English, or 2) did not have full text available. Using the abstract and a full-text screening criteria form, two experienced reviewers independently screened the titles and abstracts. If the selection criteria were met, the two reviewers reviewed the full text to assess eligibility. Disagreements were discussed until consensus was reached.

Quality appraisal

The quality of each included study was appraised using the Mixed Methods Appraisal Tool (Hong et al., 2018; Pluye et al., 2011). This tool was chosen because it is designed for methodological quality appraisal of systematic mixed methods reviews. The 2018 version of the MMAT tool discourages the use of a total quality score and recommends use of descriptive quality appraisal (Hong et al., 2018; Pluye et al., 2011). All types of studies are rated based on a set of two screening questions and four questions specific to qualitative or quantitative designs (Hong et al., 2018; Pluye et al., 2011) (Tables 3.2 and 3.3)
### Table 3.2 - Mixed Methods Appraisal Tool – Quantitative Descriptive studies

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Are there clear research questions?</th>
<th>Do the collected data allow to address the research questions?</th>
<th>Is the sampling strategy relevant to address the research question?</th>
<th>Is the sample representative of the target population?</th>
<th>Are the measurements appropriate?</th>
<th>Is the risk of nonresponse bias low?</th>
<th>Is the statistical analysis appropriate to answer the research question?</th>
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<tbody>
<tr>
<td>Wieland et al (2012)</td>
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<td>Shamshirgan et al (2015)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>N/A secondary data analysis</td>
<td>Y</td>
</tr>
<tr>
<td>Njeru et al (2016)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

Y=Yes (Hong et al. 2018)

### Table 3.3 - Mixed Methods Appraisal Tool – Qualitative studies

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Are there clear research questions?</th>
<th>Do the collected data allow to address the research questions?</th>
<th>Is the qualitative approach appropriate to answer the research question?</th>
<th>Are the qualitative data collection methods adequate to address the research question?</th>
<th>Are the findings adequately derived from the data?</th>
<th>Is the interpretation of results sufficiently substantiated by data?</th>
<th>Is there coherence between qualitative data sources, collection, analysis and interpretation?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beune, et al (2006)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Findings related to Ghanaian Immigrants were delineated in some instances</td>
</tr>
<tr>
<td>Beune et al (2010)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Findings related to Ghanaian Immigrants were delineated in some instances</td>
</tr>
</tbody>
</table>
Data extraction

For methodological rigor, data extraction was first completed independently by OO and RJ, then findings were discussed. Discrepancies were resolved after reviewing the article together. The data extracted from included studies captured critical information on the following: Author/Year; Title; Chronic Illness Index; Country Where Study Was Conducted; Study Aim; Design/Sampling, Characteristics/Measures; Definition/Conceptualization of Culture; Conceptualization of Self-care; Findings and Strengths /Limitations (Table 3.4 - brief data matrix of included articles. See Appendix A – Larger data matrix of included articles).
### Table 3.4: Brief Data Matrix of Included Articles Identifying Cultural factors that influences Self-Care.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Author</th>
<th>Chronic Illness Index</th>
<th>Country where study was conducted</th>
<th>Objective</th>
<th>Design</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Beune, et al. (2006).</td>
<td>Hypertension</td>
<td>Netherlands</td>
<td>To explore and compare explanatory models (EMs) of hypertension in native Dutch, first-generation Ghanaian and African Surinamese (Surinamese) hypertensives in Amsterdam, the Netherlands</td>
<td>Qualitative study using in-depth, semi-structured interviews</td>
<td>N= 54; N= 19 (first-generation Ghanaian immigrants), N=19 (Surinamese) &amp; N=16 (Dutch)</td>
</tr>
<tr>
<td>3</td>
<td>Kindarara et al. (2017).</td>
<td>Diabetes</td>
<td>United States</td>
<td>Describe Sub-Saharan African immigrants’ health-illness transition experiences associated with type 2 diabetes mellitus (T2DM) self-management</td>
<td>Qualitative description methodology</td>
<td>sampling N= 10 Male =5 Female =5 Saharan African immigrants</td>
</tr>
<tr>
<td>4</td>
<td>Njeru et al (2016)</td>
<td>Diabetes</td>
<td>United States</td>
<td>To assess diabetes knowledge, attitudes and behaviors among Somali Immigrants</td>
<td>CBPR - cross sectional quantitative study</td>
<td>N=39 Somali Immigrants</td>
</tr>
<tr>
<td>5</td>
<td>Nyaaba, et al. (2019).</td>
<td>Hypertension</td>
<td>Netherlands</td>
<td>To explore and compare how context shapes; a) hypertensive migrant and non-migrant Ghanaian’s illness representations</td>
<td>Cross sectional qualitative design</td>
<td>N=20 (Migrants) Urban Ghana N=15</td>
</tr>
<tr>
<td>S/N</td>
<td>Author</td>
<td>Chronic Illness Index</td>
<td>Country where study was conducted</td>
<td>Objective</td>
<td>Design</td>
<td>Sample</td>
</tr>
<tr>
<td>-----</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>and b) the coping strategies that they develop and adapt to mitigate challenges with self-managing HTN</td>
<td></td>
<td>Rural Ghana = N=20</td>
</tr>
<tr>
<td>6</td>
<td>Shamshirgaran, et al. (2015)</td>
<td>Type 2 Diabetes</td>
<td>Australia</td>
<td>To identify differences in patterns of adverse health behaviours among people with type 2 diabetes according to country or region of birth</td>
<td>Cross sectional quantitative study</td>
<td>N=288</td>
</tr>
<tr>
<td>7</td>
<td>Wallin, A. M., Löfvander, M., &amp; Ahlström, G. (2007).</td>
<td>Diabetes</td>
<td>Sweden</td>
<td>“To describe how persons from Somalia with diabetes experience everyday living and how they manage diabetes-related problems. The findings will also be explored from a gender perspective”</td>
<td>Descriptive qualitative design</td>
<td>N=19 Somalis</td>
</tr>
<tr>
<td>8</td>
<td>Wieland, et.al (2012)</td>
<td>Diabetes</td>
<td>United States</td>
<td>Comparing the health-seeking behaviours and optimal blood pressure between non-Somali and Somali patients in the U.S.</td>
<td>Secondary data analysis</td>
<td>N= 81 non-Somali and Somali patients</td>
</tr>
<tr>
<td>9</td>
<td>Alloh, F., Hemingway, A., &amp; Turner-Wilson, A. (2019).</td>
<td>Diabetes</td>
<td>United Kingdom</td>
<td>To explore the experiences of West African immigrants in the management of Type 2 diabetes in the UK using a constructivist grounded theory approach.</td>
<td>Qualitative research approach - constructivist grounded theory approach</td>
<td>N= 34 West African immigrants</td>
</tr>
</tbody>
</table>
Synthesis

Numerical data from the two quantitative studies was synthesized narratively (Hong, Pluye, Bujold, & Wassef, 2017). A meta-analysis was not performed due to the variability in methodological design of the included quantitative studies. Data from the qualitative studies was synthesized using thematic synthesis (Hong et al., 2017; Thomas & Harden, 2008). Thomas & Harden, 2008 advocate a 3-stage approach with: 1) coding of text 'line-by-line' from each qualitative study; 2) the developing descriptive themes related to aims of the study from the included studies, and finally 3) generating analytical theme(s) that reflects an interpretive construct. The studies and the data matrix of the included studies were reviewed repeatedly and codes were created (Hong et al., 2017). The codes were then grouped together to reveal emerging themes (Noyes et al., 2019; Pluye & Hong, 2014; Thomas & Harden, 2008). After separate completion of the quantitative and qualitative data synthesis, a third synthesis, stage 3 integration synthesis, was performed to derive additional themes by integrating the findings from the quantitative and qualitative studies.

Results

Figure 1 flowchart depicts the selection process for the included studies. The initial search identified 252 articles from the following databases: 47 from PubMed, 20 from PsychINFO, 31 from Embase, 112 from CINHAL, 7 from Anthropology Plus, and 34 from Sociological Abstract. Titles and abstracts were evaluated and duplicates (n=38) were removed. A further 115 studies were excluded because they were not relevant to this review. After reviewing the full-text of 99 articles, 90 were excluded. Nine studies met the inclusion criteria for this systematic mixed studies review and are presented in a
data matrix (Table 4 - brief data matrix of included articles. Appendix A – Table 3.5: Larger Data Matrix of Included Articles Identifying Cultural factors that influences Self-Care).

Figure 1: Flow chart of identification, screening, eligibility and inclusion of papers.
Characteristics of the studies

The nine articles in this review included six qualitative and three quantitative studies published between 2006 to 2019 (Table 4 and 5). Five studies focused specifically on Somalian and Ghanaian immigrants, while others included West African immigrants or, more broadly, sub-Saharan African immigrants. Only two studies used a theoretical framework to inform their questions or organize their findings: the middle-range Theory of Transitions (Kindarara, McEwen, Crist, & Loescher, 2017), the Health Belief model, and Social Cognitive Theory (Njeru et al., 2016). Data were collected through in-person interviews (Alloh, Hemingway, & Turner-Wilson, 2019; Beune E.J.A.J., Haafkens J.A., Schuster J.S., & Bindels P.J.E., 2006; Beune, Haafkens, Agyemang, & Bindels, 2010; Kindarara et al., 2017; Nyaaba et al., 2019; Wallin, Löfvander, & Ahlström, 2007), survey instruments (Njeru et al., 2016; Shamshirgaran, Jorm, Bambrick, & Hennessy, 2015), and electronic medical record review (Wieland, Morrison, Cha, Rahman, & Chaudhry, 2012). Except for one study, which did not report demographic characteristics exclusively for African immigrants (Shamshirgaran et al., 2015), all studies included both male and female participants 19 years of age and older. Two studies reported on religion: one study included Muslims (Wallin et al., 2007) while the other study included Christians (Nyaaba et al., 2019). Three studies reported duration of residency in the adopted country as 4–26 years (Beune et al., 2010), greater than 10 years (Kindarara et al., 2017), and 1–13 years (Wallin et al., 2007). The sample sizes ranged from 10 to 34 in the qualitative studies and 39 to 288 in the quantitative studies.

The majority of the studies examined the influence of culture on self-care of diabetes (n=6); the remaining studies focused on hypertension (n=3). No other Chronic
illness were addressed. Although all the investigators mentioned either culture or its proxies, none provided a specific definition of culture. Culture was reported as either traditional/cultural beliefs or perspectives (Beune E.J.A.J. et al., 2006; Beune et al., 2010) or cultural ethnicity (country of birth) (Alloh et al., 2019; Kindarara et al., 2017; Njeru et al., 2016; Nyaaba et al., 2019; Shamshirgaran et al., 2015; Wieland et al., 2012). Self-care was presented broadly as lifestyle changes (Beune E.J.A.J. et al., 2006), self-management (Kindarara et al., 2017; Nyaaba et al., 2019), and self-care behaviors (Njeru et al., 2016; Shamshirgaran et al., 2015; Wallin et al., 2007) or more specific health behaviors such as physical activity (Beune et al., 2010), diet and physical activity (Alloh et al., 2019), or completion of preventive services rates (Wieland et al., 2012). Of these nine studies, only one (Nyaaba et al., 2019) provided a definition for a concept related to self-care. In that study, self-management was defined as a “process that includes coping or making modifications to enable persons to live with chronic conditions” (Nyaaba et al., 2019).

Using the results-based convergent synthesis methodology (Noyes et al., 2019; Pluye & Hong, 2014), findings from the separate quantitative and qualitative data were integrated in a third synthesis to reveal factors that influence self-care practices.

Synthesis of Quantitative Studies

Cultural Expectations and Experiences Driving Self-care Decisions

Family and community cultural expectations and experiences were found to influence self-care behaviors. Furthermore, self-care recommendations were likely to be effective only if “culturally tailored”. Compared with Westerns norms, certain health behaviors (e.g. smoking, drinking alcohol) were less prevalent among sub-Saharan African
immigrants because cultural norms label these behaviors as “unhealthy” or “unnecessary” (Shamshirgaran et al., 2015). A study (Shamshirgaran et al., 2015) identifying differences in patterns of adverse self-care behaviours among people with type 2 diabetes reported that in models adjusted for age, sex, education, work status, income, BMI, hypertension, heart disease, and stroke, relative to Australian-born people with diabetes, people born in sub-Saharan Africa were less likely to be current smokers (OR 0.41  (95% CI: 0.15–1.12). Cultural taboos around smoking and drinking alcohol make African immigrants less likely to admit to smoking. Additionally, in a descriptive study, hence P values and estimates of precision were not reported, Njeru et al., 2016 reported that social support from friends and family was a cultural asset that facilitated engagement in recommended self-care practices (e.g. adhering to recommended diet, participation in physical activity). Walking with friends and family and dancing at church and community centers were preferred and culturally acceptable physical activities that promoted participation (Njeru et al., 2016). Many of these observations are explored further in the qualitative studies below.

**Synthesis of Qualitative Studies**

Data analysis revealed the following themes: herbal remedies, cultural norms regarding physical activity, cultural taste preferences, and the importance of family, body cues in symptom interpretation, and traditional approaches to illness response. These themes are summarized in the general theme of cultural influence, not isolated.

**Herbal Remedies**

Although African Immigrant living with chronic illness may adhere to prescribed medications, high importance is placed on alternative medicines (Alloh et al., 2019;
Herbal remedies (e.g., bitter kola nuts, garlic) are perceived as efficacious, harmless, and natural (Alloh et al., 2019; Nyaaba et al., 2019) compared to Western medicine, which has side effects (Nyaaba et al., 2019). Herbal remedies are perceived to have curative powers (Alloh et al., 2019; Nyaaba et al., 2019). For example, in a qualitative study of Western African immigrants with diabetes living in the United Kingdom, (Alloh et al., 2019) participants reported use of traditional African medicine to manage the complications of diabetes because of their hope to find a cure for the disease. In Nyaab et al., (2019), Ghanaian immigrants to the Netherlands used medicinal herbs such as Kola to manage hypertension (Nyaaba et al., 2019).

African immigrants’ experiences with and perceptions regarding use of herbal remedies may negatively influence their adherence to prescribed western medications. (Omenka, Watson, & Hendrie, 2020). Additionally, good experiences with the use of herbal remedies in the past, easy accessibility, and minimal costs of herbal remedies, compared with more expensive western medicines, may make adherence to prescribed medications sub-optimal (Sellers, Ward, & Pate, 2006). This is especially the case in countries (e.g. United States) with private insurance driven prescription coverages involving out-of-pocket expenses. In other studies, cultural traditions (e.g., morning prayers) were used to cue routine scheduling of Western medications to facilitate adherence (Kindarara et al., 2017; Nyaaba et al., 2019).

**Cultural norms regarding physical activity**

Cultural perspectives regarding physical activity hindered adherence to exercise recommendations (Alloh et al., 2019; Beune et al., 2010; Kindarara et al., 2017; Nyaaba et al., 2019). Recommendations to engage in physical activity were thought to be
Eurocentric or Americentric, not part of African cultural customs and habits, societal norms, and practices. For example, riding a bicycle is perceived as a sign of poverty in African nations (Beune et al., 2010; Kindarara et al., 2017; Nyaaba et al., 2019). Physical activities were perceived by some as dangerous in the context of their illness (Beune et al., 2010) or simply difficult because they had not been learned in their country of origin (Nyaaba et al., 2019). Work, family, and social activities (e.g., church attendance) were prioritized over physical activity (Beune et al., 2010; Kindarara et al., 2017; Wieland et al., 2012).

Another issue that interfered with the engagement of African immigrants in physical activity was a cultural preference against being slim; being “fat” was considered desirable as a sign of beauty, an indicator of health, prosperity, and strength (Beune et al., 2010). These beliefs resulting in a lack of concern about being overweight or obese, thus influencing engagement in physical activity.

**Cultural Taste Preferences**

Adherence to a recommended diet was challenging due to cultural taste preferences, enjoyment of meals, local portion sizes, and social eating norms during community/social gatherings (Alloh et al., 2019; Beune E.J.A.J. et al., 2006; Kindarara et al., 2017; Nyaaba et al., 2019; Wallin et al., 2007). Ghanaian immigrants in the Netherlands (Beune E.J.A.J. et al., 2006; Nyaaba et al., 2019), sub-Saharan African immigrants in the United States (Kindarara et al., 2017), West African immigrants in the United Kingdom (Alloh et al., 2019), and Somali immigrants in Sweden (Wallin et al., 2007) all reported problems following dietary recommendations because of deference to African culture related to food choices. In one study, even though the family tried to encourage adherence, African
immigrants on a salt-restricted diet surreptitiously used salt (Nyaaba et al., 2019). Others used creative strategies (e.g., mixing vegetables and beans with preferred African soup) to facilitate adherence with the prescribed diet (Wallin et al., 2007). Lack of familiarity with prescribed foods (Alloh et al., 2019) and disease-related social stigma (Kindarara et al., 2017) added to the difficulty in dietary adherence.

**Importance of Family**

African immigrants are collectivistic, and the family unit plays a significant role in health-related decisions and practices (Arthur, 2000b). Collectivism is the tendency to give priority to the goals of the group over one’s personal goals (Al-Bannay et al., 2013). In collectivistic cultures, health behaviors (e.g., food choices) are routinely influenced by family practices, and collectivistic beliefs and ideals (Al-Bannay et al., 2013). Three studies reported the role that family play in dietary and medication adherence (Kindarara et al., 2017; Nyaaba et al., 2019; Wallin et al., 2007). Family members facilitated dietary adherence by doing grocery shopping and assisting with meal preparation (Alloh et al., 2019; Kindarara et al., 2017; Nyaaba et al., 2019). Additionally, support and encouragement (e.g., sending reminders to take medications, paying for medications) (Kindarara et al., 2017; Nyaaba et al., 2019; Wallin et al., 2007) facilitated adherence to prescribed medications among African immigrants.

**Body cues in symptom interpretation**

Culture not only influences how a person defines an illness but how symptoms are monitored, interpreted and described (Arnault, 2018). Four studies reported that body cues are used by African immigrants to monitor and interpret symptoms (Beune E.J.A.J. et al., 2006; Kindarara et al., 2017; Wallin et al., 2007). Beune et al, 2006 reported that
study participants reported trusting their bodies to alert them to increases in blood pressure with lack of energy, “sensations” and headaches of a particular type (Beune E.J.A.J. et al., 2006). Kindarara et al., 2017 reported a preference to use body cues to interpret symptoms while Wallin et al., 2007 reported that body cues were effective in symptom monitoring.

**Traditional approaches to illness response**

Three studies reported that African immigrants used traditional approaches such as lying down, sitting quietly, trying to avoid stress, and using traditional remedies in addition to Western approaches to illness. The acceptable Western approaches included taking a prescribed medication and seeking medical advice to decide how to respond to illness symptoms (Alloh et al., 2019; Beune E.J.A.J. et al., 2006; Nyaaba et al., 2019).

**Cultural Influence, Not Isolated**

Culture influenced all domains of chronic illness self-care practices but did not operate in isolation. African immigrants view diseases broadly as Western constructs, talking about how they are a consequence of economic or social attributes of the host nation, rather than as biological processes. The Western way of life—driven by competition, cost of living and healthcare, work or school demands and stress (Alloh et al., 2019; Beune E.J.A.J. et al., 2006; Kindarara et al., 2017) (e.g., related to tax obligations) —negatively influenced self-care. Also, unemployment, lack of transportation, financial limitations, and working multiple jobs (Beune et al., 2010; Nyaaba et al., 2019) caused difficulties following provider recommendations (Beune et al., 2010). In addition to these societal influences, lack of a place to exercise and concerns about neighborhood safety, lack of health insurance, the cost of health care, food, and medicine (Kindarara et al., 2017),
immigration status, and linguistic challenges (Beune et al., 2010; Njeru et al., 2016) hindered self-care. When the information from providers was either too scientific or poor quality (Kindarara et al., 2017), self-care recommendations were ignored. Effective physician-patient communication (e.g. encouraging words and positive feedback from providers) facilitated adherence to recommended self-care regimes (Kindarara et al., 2017). These systemic challenges are likely to supersede the influence of culture on self-care behaviors (Wieland et al., 2012).

**Synthesis of findings from quantitative and qualitative studies**

**Maintaining Cultural Identity**

A stage 3 (Noyes et al., 2019; Pluye & Hong, 2014; Thomas & Harden, 2008) was undertaken in this integration synthesis by combining the findings of the quantitative and qualitative findings, an overarching theme emerged: Maintaining Cultural Identity.

Maintaining culture identity was both a driver and constraint to engaging in self-care. Clearly certain self-care behaviours including eating traditional foods, walking with friends and family are at the heart of health and home life; allegiance to traditional medicine and to traditional understandings or models of health suggest a collision between identities. African immigrants see certain behaviors (e.g. going to the gym) as being outside of their cultural identities and expectations, which helps to explain the behaviors of this population. Synthesis of both the quantitative and qualitative studies reveal that preserving traditional modes of self-care – especially during cultural celebrations and events, or in family settings – remains important to African immigrants even when it collides with medical experts’ recommendations and advice. Specific self-care behaviours (e.g. traditional foods) are central to maintaining cultural and community
identity and allegiance among African immigrants and these behaviors serve as a comfort and respite from the challenges of being an immigrant.

**Discussion**

The purpose of this review was to synthesize findings across studies on cultural factors influencing self-care among African immigrants living with non-communicable diseases. The results of this synthesis reveal that cultural factors inform the ways African immigrants perceive self-care recommendations as well as their decisions about whether to follow such recommendations. Perceptions of Western medicine and herbal remedies, lack of culturally appropriate recommended physical activities, cultural taste preferences, the role of family, and cultural experiences and expectations anchor the cultural identity of African immigrants and greatly influence their decisions regarding adherence to the recommendations of providers. To our knowledge, this is the first study to provide a comprehensive understanding of the influence of the African culture on the self-care of Chronic illness.

Cultural identity represents a person’s identity as a member of a racial or ethnic group with shared characteristics (Unger, 2011). Cultural identity influences not only the meaning of illness but the likelihood of adopting recommendations (Unger, 2011). Our results support those of prior investigators who found that cultural identity predicted health-risk behaviors (Schwartz, S. J. et al., 2015) and healthy lifestyle behaviours (Moise et al., 2019) of other immigrant groups. Immigrants live between two cultures, which can cause conflict between the expectations of their country of origin and their adopted country (Arthur, 2000c). Our study reveals the powerful influences of African immigrants’ cultural identity on their self-care behaviors.
Folk medicines have a long tradition in African culture (Turner, 1996).

Traditional beliefs about these remedies are a strong influence on medication adherence in immigrant Africans. Although Africans may seek Western medicine if folk medicines do not provide relief of symptoms (Namukwaya, Murray, Downing, Leng, & Grant, 2017), unfamiliarity with Western medicines (Chaumba, 2011) may explain the preference of African immigrants for folk medicines. Some evidence suggests that the dual approach to managing chronic illness—combining folk medicines with Western medicines—may have some beneficial outcomes (Turner, 1996). This information could be used by nurses and other healthcare providers to encourage adherence to Western medicines. At least, questions related to use of herbal remedies should be asked during healthcare visits (Omenka et al., 2020).

Culturally informed beliefs about food can be deeply ingrained. Among African immigrants, the taste, texture and experience of food have cultural connotations or symbolic meanings such as love, respect, kinship, and status that may not be apparent to non-Africans (Ibe-Lamberts, Tshiswaka, Osiko, & Schwingel, 2017). Food functions not just as a vehicle for maintaining health but also as a means of building family, community and promoting harmony in relationships (Ibe-Lamberts et al., 2017; Jakub, Turk, Fapohunda, & Zoucha, 2018). Eating is not usually an individual event but rather one that involves a group, strengthening ties and a sense of belonging, reflecting symbolic meanings between an individual and their family members (Ibe-Lamberts et al., 2017). Food is always at the center of family, traditional, and religious gatherings (Jakub et al., 2018). Furthermore, food is seen as an agent of the propagation of life, cultural/ethnic identity and pride, and other cultural processes (Fajans, 1988; Fieldhouse,
Eating constitutes the “building blocks from which symbolic meaning is constructed by the individual” (Kifleyesus, 2002). These powerful beliefs present an incongruence between cultural and biomedical perspectives on food that hinder acceptance of dietary recommendations among African living with Chronic illness (Alonso, 2015). Significant effort is needed to help African immigrants to adapt traditional foods to accommodate the biomedical recommendations, but this is probably a better approach than trying to convince an African Immigrant to eat a purely Western diet.

The theme regarding beliefs of African immigrants surrounding physical exercise is important to recognize. Gym activities are not culturally appropriate African practices (Ilunga Tshiswaka, Ibe-Lamberts, Whembolua, Fapohunda, & Tull, 2018; Kaplan, Ahmed, & Musah, 2015; Mohamed, Hassan, Weis, Sia, & Wieland, 2014). The physical activities of walking and dancing are more culturally appropriate in African immigrants (Ibe-Lamberts, Tshiswaka, Onyenekwu, Schwingel, & Iwelunmor, 2018; Ilunga Tshiswaka et al., 2018; Jakub et al., 2018) because these activities are seen as more than exercise. Understanding physical activity as a cultural means of sharing experience, passing along values, and communicating cultural histories (Jakub et al., 2018) can promote adherence. In this population, group physical activities (e.g. walking) may be more effective in promoting physical activity than individually-based physical activity recommendations. Others have noted that the predominant Western cultural view of the body differs significantly from that of sub-Saharan Africans and African immigrants who equate higher weight with prestige, beauty, and happiness and lower weight with poverty and illness (Agyemang, Addo, Bhopal, de Graft Aikins, & Stronks, 2009; Cooper...
Brathwaite & Lemonde, 2016; Mbanya, Motala, Sobngwi, Assah, & Enoru, 2010; Omenka et al., 2020). Cultural expectations about body image, size, and general physical appearance can negatively influence willingness to modify the diet and participate in exercise (Joseph, Ramaswamy, & Wang, 2018). Together, these cultural beliefs regarding diet, exercise, and body weight need to be acknowledged and addressed in creative ways if Western healthcare providers are to be successful in promoting these self-care behaviors among African immigrants.

Our findings indicate that the immediate family and the African immigrant community play an important role facilitating medication adherence, participation in physical activity, and dietary adherence, consistent with previous studies of aspects of self-care among African immigrants (Ilunga Tshiswaka et al., 2018; Mohamed et al., 2014). African immigrants are members of a collectivist, interdependent community with intrinsically strong social support. A cultural network provides a supportive environment that can facilitate the uptake of self-care behaviors (Joseph et al., 2018). Family and community ties lie at the center of social support of African immigrants in developed countries (Arthur, 2000c; Schwartz, I. M. et al., 2006). African immigrant associations and groups offer support of immigrants economically, psychologically, and culturally during periods of illness and need, which serves to protect the African culture (Arthur, 2000c). Family support is crucial (Baig, Benitez, Quinn, & Burnet, 2015; Pamungkas, Chamroonsawasdi, & Vatanasomboon, 2017) and this resource must be used by Western healthcare providers if they want to promote self-care behavior.

This review reveals useful implications for practice. If cultural beliefs and norms influence an individual’s illness perception, labelling, experience, and response
(Kleinman, 1980; Osokpo & Riegel, 2019; Owiti, Greenhalgh, Sweeney, Foster, & Bhui, 2015), nurses and other healthcare providers would benefit from recognizing that inconsistencies between cultural and biomedical views of illness may hinder willingness to adhere to self-care recommendations (Osokpo & Riegel, 2019). Furthermore, recognizing cultural identity of African immigrants may result in more engagement during a clinical engagement where self-care recommendations are communicated. Western demands for culturally inappropriate behaviors can be expected to be met with subtle resistance. This study has important implications for nurses who typically serve as frontline healthcare workers either in community or hospital settings. Nurses who educate patients on self-care recommendations can be instrumental in the development and implementation of culturally appropriate self-care interventions.

**Limitations**

We used studies published in English, so we may have missed useful articles in other language. Even having used varied combinations of search terms, we may have missed some relevant literature. The cultural lens of the authors of qualitative studies may have influenced their interpretation of their findings. Additionally, the self-reporting of self-care prevents generalizability to all African immigrants with Chronic illness. The studies included in this review only represented patients with diabetes or hypertension; thus, our findings cannot be generalized to other Chronic illness. Despite these limitations, this review provides valuable knowledge on key factors that influence the self-care practices of African immigrants with Chronic illness. Hopefully these findings will call attention to the role that culture plays in the health of African immigrants and
help clinicians understand the influence of culture on the health and health behaviors of patients.

**Conclusions**

Although we know that people embody their beliefs and there has been an exponential increase in migration from sub-Saharan African countries over the past few decades, little is known about the influence of culture on the self-care practices of African immigrants living with Chronic illness. To our knowledge, this is the first review to examine the influence of cultural factors on the self-care of African immigrants living with Chronic illness. The findings provide valuable insights into African immigrants’ beliefs and perceptions regarding self-care practices and offer critical information to guide health care providers and policy makers to ensure that efforts to promote self-care behaviors have cultural relevance and improve care for this population. Those who understand and integrate cultural factors into care, treatment, and policy can be influential in promoting self-care in this population.
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among ghanaiian migrants and non-migrant ghanaians. *Patient Education and
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experiences and needs of african immigrants in the united states: A scoping review.


Appendix A – Table 3.5: Larger Data Matrix of Included Articles Identifying Cultural factors that influences Self-Care.

<table>
<thead>
<tr>
<th>S/N</th>
<th>Author/ Year</th>
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</table>
| 1   | Beune, E. J., Haafkens, J. A., Schutter, J. S., & Bindels, P. J. (2006). | Hypertension | Netherlands | To explore and compare explanatory models (EMs) of hypertension in native Dutch, first-generation Ghanaian and African-Surinamese hypertensives in Amsterdam, the Netherlands | Design: qualitative study using in-depth, semi-structured interviews  
Sampling technique: Purposive sampling based on ethnicity  
N= 54; N= 19 (first-generation Ghanaian immigrants), N=19 (Surinamese) & N=16 (Dutch)  
Age Median (range): 45 (35–54)  
Gender: Male: 7  
Female: 9  
Duration of stay in NL (years) Median (range): 14.5 (4–26)  
Measures: One-time interviews | Lay explanatory models (Em)-traditional/cultural beliefs/practices/socio-cultural background of participant | Antecedents to self-care: Participant’s perspectives of etiology, nature and consequences of hypertension. Self-care: Daily Experiences living with hypertension. Lifestyle changes | - Self-care maintenance: Participants were reluctant to discuss their illnesses with others in the Ghanaian community because of fear of gossips.  
Hypertension was perceived by some members in the community as a disease that results from family-related or financial problems.  
Tax obligations resulted in stress.  
Participants trusted their bodies to alert them to BP fluctuations and use body cues to act.  
Symptom management approaches used included lying down, sitting quietly, trying to avoid stress, taking medication, and seeking medical advice. |
Sampling technique: Purposive sampling based on ethnicity | Ethnic/cultural perspectives | Regular physical activity | Physical activity was perceived as dangerous by participants.  
Stated they could only engage in physical activity when they had no HTN |
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<tr>
<td></td>
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<td></td>
<td>African Surinamese and White-Dutch patients in Amsterdam, The Netherlands</td>
<td></td>
<td>N= 54; N= 19 (first-generation Ghanaian immigrants), N=19 (Surinamese) &amp; N=16 (Dutch)</td>
<td>Age Median (range): 45 (35–54) Gender: Male: 7 Female: 9</td>
<td>Duration of stay in NL (years) Median (range): 14.5 (4–26)</td>
<td>Measures: One-time in-depth individual interview</td>
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<td></td>
<td>Physician-recommended activities (e.g. cycling or swimming) are European, not Ghanaian.</td>
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<td></td>
<td>Activities in places of worship or community centers and walking/dancing with family and friends helped encourage participation in physical activity.</td>
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<td></td>
<td>Lack of facilities for physical activity, lack of places to play, walk, or exercise in their neighborhoods, and concerns of safety in their neighborhoods led to lack of participation in physical activity.</td>
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<td>Physically demanding jobs were seen as a way to get enough exercise.</td>
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<td>Churches facilitated physical activity by offering physical activity programs.</td>
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<td>Family and friends enabled being physically active.</td>
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<td>Creating physical activity in their homes helped</td>
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</table>
**Theoretical Framework:** middle range theory of transitions - To inform research questions and organize the findings  
**Sampling technique:** purposive and snowball sampling  
N = 10  
Male = 5 Female = 5  
Average Age = 60.3 (range, 44-76 years)  
Years in the U.S. = greater than 10 years  
**Measures:** Face-to-face semi-structured in-depth interviews  
**Analytical Approach:** qualitative content analysis | Cultural ethnicity | Self-management e.g. dietary modification, exercise – definition not provided | A Western lifestyle driven by competition, cost of living, and financial struggles influenced self-care.  
African immigrants preferred to use body cues to interpret symptoms.  
The disease being sometimes attributed to diabolical causes (e.g., witchcraft) hindered self-care.  
Routine checkups were not a norm. Even with insurance, African immigrants only visited physicians or hospitals for acute illnesses.  
Participation in social gatherings, cultural norms around foods, and disease-related social stigmas made adhering to healthy eating and diet hard.  
Way of life—particularly lack of time, work and school demands, and the need to drive or take a bus—hindered |
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<td>participation in exercise and adhering to recommended diets.</td>
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<td>Lack of accessibility to healthy foods hindered adherence.</td>
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<td>Providers’ information on diseases was either too scientific or of poor quality.</td>
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<td></td>
<td>Lack of insurance and cost of health foods and medicine hindered self-care.</td>
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<td>Following a routine or schedule helped facilitate glucose monitoring and self-maintenance (e.g., keeping doctors appt., medication adherence).</td>
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<td></td>
<td>Family members provided emotional and instrumental support such as assisting with meal preparation, sending reminders to take medications, transporting to medical appointments, and doing grocery shopping.</td>
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<td>Peers shared stories and suggested strategies to</td>
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<tr>
<td>4</td>
<td>Njeru, J. W., Formea, C. M., Osman, A., Goodson, M., Hared, A., Capetillo, G. P., ... &amp; Patten, C. A. (2016)</td>
<td>Diabetes</td>
<td>United States</td>
<td>To assess diabetes knowledge, attitudes and behaviors among Somali Immigrants</td>
<td><strong>Methods:</strong> CBPR - cross sectional quantitative study  <strong>Measures:</strong> Adapted the following: Diabetes - History Survey - Diabetes Care Profile - Summary of Diabetes Self-Care - Activities Measure</td>
<td>Cultural ethnicity – country of birth</td>
<td>Self-care behaviors activities – physical activity, diet, glucose self-monitoring and medication adherence</td>
<td>African immigrants reported high adherence to recommended behaviors such as medication adherence, engaging in physical activity, following prescribed diets, and monitoring symptoms. African immigrants expressed confidence in...</td>
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<td>Diabetes Knowledge Questionnaire</td>
<td>Being able to care for themselves (e.g., maintaining appropriate diets) and manage their illnesses.</td>
<td>Being able to care for themselves (e.g., maintaining appropriate diets) and manage their illnesses.</td>
<td>Being able to care for themselves (e.g., maintaining appropriate diets) and manage their illnesses.</td>
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<td></td>
<td>Theoretical framework used: Health beliefs model and social cognitive theory</td>
<td>Levels of social support from family and friends related to chronic illness self-management were high.</td>
<td>Levels of social support from family and friends related to chronic illness self-management were high.</td>
<td>Levels of social support from family and friends related to chronic illness self-management were high.</td>
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<td>Sampling technique: face-to-face contact, word-of-mouth</td>
<td>Social support was a cultural asset.</td>
<td>Social support was a cultural asset.</td>
<td>Social support was a cultural asset.</td>
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<td>N=39 Somali Immigrants Male=17 Ave. Age: 53 Foreign born =38 Comorbid conditions: HTN (23) High cholesterol (24) Foot complications (12) Analytical Approach: Descriptive statistics</td>
<td>African immigrants reported feelings of not being good as other people, unhappy, and afraid because of their illnesses.</td>
<td>African immigrants reported feelings of not being good as other people, unhappy, and afraid because of their illnesses.</td>
<td>African immigrants reported feelings of not being good as other people, unhappy, and afraid because of their illnesses.</td>
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<td>Lack of knowledge of how to exercise, lack of time, and the perception that exercise required too much effort were barriers to exercise.</td>
<td>Lack of knowledge of how to exercise, lack of time, and the perception that exercise required too much effort were barriers to exercise.</td>
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<td>Forgetfulness, lack of needed self-care supplies, and lack of skills to perform self-care were barriers to self-care.</td>
<td>Forgetfulness, lack of needed self-care supplies, and lack of skills to perform self-care were barriers to self-care.</td>
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<td>Beyond sociocultural factors, systemic factors related to immigration</td>
<td>Beyond sociocultural factors, systemic factors related to immigration</td>
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| 5   | Nyaaba, G. N., Agyemang, C., Masana, L., Akins, A. D. G., Beune, E., Larrea-Killinger, C., & Stronks, K. (2019). | Hypertension | Netherlands                        | To explore and compare how context shapes; a) hypertensive migrant and non-migrant Ghanaians’ illness representations and b) the coping strategies that they develop and adapt to mitigate challenges with self-managing HTN | **Methods:** cross sectional qualitative design  
**Measures:** One-time interview  
**Theoretical framework used:** None  
**Sampling technique:** Purposive sampling  
N=20 (Migrants)  
Urban Ghana N=15  
Rural Ghana = N=20  
Age range=46-73  
Religion: Christianity (n=20)  
**Analytical Approach:** thematic analysis | No definition of cultural influences provided. Culture proxy used (country of origin & country of residence) | Health behavior/self-management practices. Definition: “process that includes coping or making modifications to enable persons live with chronic conditions” | No status and linguistic difficulties were reported to negatively influence self-care.  
Modifying prescribed medication dosages and integrating taking HTN medication into routine activities (prior to sleeping, with meals, morning prayers) helped with challenges related to medication adherence (e.g., forgetfulness, long-distance journeys resulting in medication shortages).  
Traditional medicines/remedies (e.g., bitter kola nuts, garlic) in addition to HTN medications were used to manage HTN.  
Side effects of prescribed HTN medications (e.g., sexual weakness) resulted in non-compliance with prescribed medications or dosage, or schedule adjustment.  
Family and community support helped with medication adherence (e.g., reminders to take medications via phone calls). |
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<td>Family members facilitated access to medication (e.g., accompanied the person to routine visits or paid for medications). Adherence to dietary changes (e.g., salt reduction) was challenging due to reduced enjoyment of meals because of reduced taste. Even with family’s disapproval, African immigrants surreptitiously used salt. To adhere to prescribed diets, African immigrants separated their meals from family meals; family members’ familiarity with this modification helped. Cultural norms around physical activity hindered adherence to physical recommendations (e.g., riding bicycles perceived as a sign of poverty, use of gyms not a cultural habit). Economic challenges (e.g., working multiple jobs to</td>
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<tr>
<td>6</td>
<td>Shamshirgaran, S. M., Jorm, L., Bambrick, H., &amp; Hennessey, A. (2015)</td>
<td>Type 2 Diabetes</td>
<td>Australia</td>
<td>To identify differences in patterns of adverse health behaviours among people with type 2 diabetes according to</td>
<td>Methods: cross sectional quantitative study</td>
<td>Ethnicity – country or region of birth (foreign-born) – accounts for language and cultural influences</td>
<td>Self-care behaviors e.g. smoking; physical activity; alcohol consumption; consumption of fruit and vegetable</td>
<td>Compared to other ethnic groups, smoking was less prevalent among sub-Saharan African immigrants. Compared to other ethnic groups, smoking was less prevalent among sub-Saharan African immigrants.</td>
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Compared to other ethnic groups, smoking was less prevalent among sub-Saharan African immigrants.
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| 7   | Wallin, A. M., Löfander, M., & Ahlström, G. (2007). | Diabetes | Sweden | “To describe how persons from Somalia with diabetes experience everyday living and how they manage diabetes-related problems. The findings will also be explored from a gender perspective” | **Methods:** Descriptive qualitative design  
**Measures:** Face-to-face interviews  
**Theoretical framework used:** None  
**Sampling technique:** Purposive sampling  
N=19  
Gender: Men =8  
Mean Age (Range) = 54.9 (30-83)  
Years in the country: mean (range) – 9.9(1-13)  
Religion: Muslim  
**Analytical Approach:** Latent content analysis | Definition of culture not provided.  
Immigration/Country of birth used as proxies for culture.  
A cultural characteristic with respect to masculinity versus femininity included that is, gender roles in a culture | No definition of self-care provided.  
Elements of self-care alluded to: dietary modifications, performing physical activity, self-monitoring of blood glucose, medication adherence and lifestyle changes | It was tiring to adhere to a prescribed diet and medicine regimen.  
Giving up traditional eating habits was a challenge.  
There was a strong longing for traditional, mostly sweet and fatty African food.  
African immigrants had cultural difficulties adapting to regular eating routines.  
Difficulty with self-care sometimes resulted in misunderstandings with family and friends.  
Maintaining religious traditions (e.g., fasting) was not a barrier to self-care.  
Less likely to intake adequate fruits and vegetables.  
Compared to Australia–born persons with diabetes, North African and sub-Saharan African immigrants were less likely to drink alcohol. |
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- Care, although this depended on state of health.
- Body cues were effective in symptom monitoring.
- Though African immigrants found it challenging, some followed prescribed diet. Sometimes others creatively helped used strategies to help them comply with prescribed diet (mixed vegetables and beans with preferred soup).
- Others were unable to give up preferred traditional foods for prescribed diet—prescribed diet was considered tasteless.
- Some made efforts to engage in physical activity.
- Some adhered to prescribed medication. Relatives helped with medication administration—for example, injecting insulin.
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</table>
**Measures**: EMR data  
**Theoretical framework used**: None  
**Sampling technique**: Chart Review  
**Analytical Approach**: Descriptive and inferential statistics  
**Study Characteristics**:  
N: 81  
Gender:  
Ages: 19-55+ | Ethnicity as proxy of culture | Health seeking behavior – reported by completion of preventative service rates | Somali immigrants were less likely to have optimal glycemic control than non-Somali patients.  
However, the reasons for this are unclear. |
| 9   | Alloh, F., Hemingway, A., & Turner-Wilson, A. (2019). | Diabetes | United Kingdom | To explore the experiences of West African immigrants in the management of Type 2 diabetes in the UK using  
**Method**: qualitative research approach - constructivist grounded theory approach  
**Sampling**: A combination of purposive and snowball sampling techniques used | Ethnicity as proxy of culture | Diabetes management process - dietary and physical activity experiences | African immigrants made efforts at changing dietary habits—paid attention to their diets. |
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<td>Data collection method:</td>
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<td>Reducing portion sizes per management recommendations was challenging because of familiarity with large portions. African immigrants experienced struggles with performing self-care (e.g., adhering to prescribed diets) including lack of time, unfamiliarity with prescribed food type, and cost of healthy foods. Support from family and friends facilitated self-care: for example, by helping prepare healthy meals. Access to healthcare services and good quality care facilitated self-management. Lifestyle in the new country (e.g., because of the resulting stress) presented challenges to meeting physical activity recommendations.</td>
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- a constructivist grounded theory approach.
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<td>African immigrants experienced significant reduction in physical activity since migration to the new country. Alternative treatments (e.g., herbs) were thought to be curative. Herbal medications were used to manage illness complications. Hope to find cure for their illnesses resulted in the use of alternative medications.</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER FOUR (PAPER THREE): SELF-CARE OF AFRICAN IMMIGRANTS
ADULTS WITH CHRONIC ILLNESS

Target Journal: Clinical Nursing Research

Abstract

Background: Self-care is critical in chronic illness management. The specific self-care behaviors of African immigrants in the U.S. have not been described. Acculturation is thought to influence self-care in immigrant populations, but the nature of that influence has not been explored in this population.

Objectives: To describe the self-care behaviors of adult African immigrants in the U.S. living with a chronic illness and explore the relationship between acculturation and self-care.

Methods: Using a cross-sectional design and both convenience and snowballing sampling techniques, 88 African immigrants with chronic illness were enrolled from religious and community-based organizations serving African immigrants in the northeastern U.S. Volunteers were included if they: 1) self-identified as sub-Saharan African immigrants, (2) were ≥35 years of age, (3) had a symptomatic chronic illness (e.g. diabetes) confirmed either by self-report or practitioner, and (4) were able to speak and understand English. Self-care was measured with the Self Care of Chronic Illness Inventory v3 measuring self-care maintenance, monitoring, and management as well self-care self-efficacy. Scores are standardized 0-100 with scores >70 considered adequate. Acculturation was measured using a modified standardized acculturation instrument and predefined acculturation proxies including duration of residency and age at immigration. Descriptive statistics was used to summarize both continuous and categorical variables.
General linear modeling with a backward elimination approach was performed to identify potential determinants of self-care.

**Results:** The 88 participants were between the ages of 35 and 78 years, most were married (67%) and reported either diabetes (18.2%) or hypertension (50%) as their major illness. Most (56.8%) were acculturated. The self-care scores were adequate, with the mean scores of 78.6, 77.9 and 75.6 for self-care maintenance, monitoring and management. Self-care self-efficacy mean score was 81.3. Specific self-care behaviors low in this population were eating a special diet and monitoring for medication side-effects and fatigue. In response to symptoms, few modified their diet or called a healthcare provider. Acculturation was not associated with self-care. Self-care self-efficacy was a strong determinant of self-care maintenance (p<0.0001), monitoring (p<0.0001) and management (p<0.0001). The perception of inadequate income was another significant determinant of poor self-care management (p= 0.03).

**Conclusions:** In this sample of African immigrants with chronic illness, self-care was adequate. Acculturation was not associated with self-care. Self-care self-efficacy and perceived income adequacy were better determinants of self-care than acculturation in this sample.

**Keywords:** Acculturation, African immigrants, Cardiovascular disease, Chronic illness, Culture, Diabetes Mellitus, Emigrants and immigrants, Hypertension, Immigrant health, Minority health, Self-Care, Self-Management, Self-efficacy
Background

Globalization has resulted in increased emigration of Africans from their home continent to developed countries. As of 2012, over 2 million Africans had immigrated into the U.S. (Gambino, Trevelyan, & Fitzwater, 2014). Many of these immigrants have chronic illness (e.g., type 2 diabetes, hypertension) (Commodore-Mensah, Y. et al., 2016; O’Connor et al., 2014). Mastering self-care is essential for successful chronic illness management (Jonkman, Nini H. et al., 2016; Jonkman, N. H., Groenwold, Trappenburg, Hoes, & Schuurmans, 2017; Riegel, B. et al., 2017; Wong, Wong, Yeung, & Chang, 2017). Cultural background influences self-care (Osokpo & Riegel, 2019) and acculturation is known to influence some health behaviors (Sofolahan-Oladeinde, Iwelunmor, Tshiswaka, & Conserve, 2014; Teruya & Bazargan-Hejazi, 2013). However, it is not known if acculturation similarly influences chronic illness self-care. In this study we describe self-care in African immigrants and explore the relationship between acculturation and self-care.

Studies suggest that African immigrants experience chronic disease risk exacerbation when they emigrate to developed countries (Agyemang, Addo, Bhopal, de Graft Aikins, & Stronks, 2009; Commodore-Mensah, Y. et al., 2016; Creatore et al., 2010; Mesoudi, 2018; Reuven, Dreher, & Shvartzman, 2016; Toselli, Rinaldo, & Gualdi-Russo, 2019). One reason for this exacerbation is that culturally normative behaviors may be influenced by acculturation (Osei-Kwasi et al., 2019; Osokpo & Riegel, 2019; Sofolahan-oladeinde et al., 2014; Venters & Gany, 2011). Acculturation involves modification of culturally accepted behaviors after adopting or borrowing
beliefs and values from a new host culture due to continuous first-hand contact and immersion (Berry, 2008; Schwartz, Unger, Zamboanga, & Szapocznik, 2010).

Acculturation has been shown to exacerbate chronic disease risk in other populations (Hall & Cuellar, 2016; Teruya & Bazargan-Hejazi, 2013). Among African immigrants in the U.S., acculturation is associated with a decrease in traditional high-fiber diets, an increase in fast food consumption and high-fat diets (Dharod, Croom, Sady, & Morrell, 2011; Okafor, Carter-Pokras, & Zhan, 2014; Patil, Hadley, & Nahayo, 2009), and uptake of smoking behavior among healthy African immigrants (Bennett et al., 2008). It is unknown if acculturation similarly influences other self-care behaviors.

Self-care entails behaviors people perform to maintain health, manage illness and minimize illness complications (Riegel, B., Jaarsma, & Stromberg, 2012a). Theoretically self-care encompasses three core processes: self-care maintenance, self-care monitoring, and self-care management (Riegel, B. et al., 2012a). Self-care maintenance involves maintaining physiological stability, promoting health, and minimizing disease complications by taking medications as prescribed, following dietary recommendations, performing physical activity, and avoiding cigarettes and tobacco smoke, for example (Riegel, B. et al., 2012a; Riegel, B., Jaarsma, Lee, & Stromberg, 2019). Self-care monitoring involves monitoring of signs and symptoms, with recognition and labeling essential to motivating the actions involved in receiving timely care (Riegel, B. et al., 2012a; Riegel, B. et al., 2019). Self-care management involves managing symptoms and evaluating treatment effectiveness (Riegel, B. et al., 2012a; Riegel, B. et al., 2019). Another key factor that influences self-care is self-care self-efficacy (Caruso et al., 2019). Self-care efficacy reflects a person’s confidence in the ability to perform and persist in
engagement in self-care despite difficulties (Riegel, B. et al., 2012a; Riegel, B. et al., 2019). Self-care, when performed adequately, can significantly minimize disease symptoms and complications, reduce hospitalizations, and increase quality of life and perceived control over chronic illnesses (Jonkman, Nini H. et al., 2016; Jonkman, N. H. et al., 2017; Riegel, B. et al., 2017; Wong et al., 2017). Despite differences in the etiology and pathophysiology of common chronic illnesses, there are core similarities in self-care across common chronic illnesses. Anyone with a chronic condition needs to take medication if prescribed, manage a complex treatment regimen, monitor their symptoms, recognize, label, and respond appropriately to symptoms, and consult with members of the healthcare team (Riegel, B. et al., 2012a; Riegel, B. et al., 2019; Schulman-Green et al., 2012).

Given the number of African immigrants in the U.S. and the call for tailored intervention to promote optimal self-care (Dorsey et al., 2019; Dorsey & Pickler, 2019; Hickey et al., 2019), more nuanced research on the self-care among African immigrants is needed to allow for the identification of those with chronic illnesses at greater risk for poor self-care to inform the development of culturally concordant behavioral interventions for an at-risk population. One of the key knowledge gaps in self-care research is the influence of acculturation on self-care (Riegel, Barbara et al., 2019). Therefore, the purpose of the study is to describe the self-care behaviors of adult African immigrants in the U.S. living with a chronic illness and explore the relationship between acculturation and self-care. We hypothesized that acculturation would be significantly associated with self-care.
Methods

A cross-sectional descriptive survey was used to study 88 African immigrants with chronic illness. Approval for the study was obtained from the Institutional Review Board (IRB) of the University of Pennsylvania after an expedited review. Verbal and written informed consent were obtained from all participants before the survey was conducted. Enrollment occurred between March and December 2020.

Sample

Convenience and snowballing techniques were employed to recruit participants from religious and community-based organizations serving African immigrants. Between 2013 and 2017, the largest number (over 300,000) of sub-Saharan African immigrants resided in the greater New York City and Washington, DC metropolitan areas, including the New York, New Jersey, and Pennsylvania metro area, so enrollment focused on these areas (Echeverria-Estrada & Batalova, 2019). A sample of at least 84 participants was sought to achieve 80% power to detect a Pearson correlation as low as 0.30 between acculturation and self-care maintenance (primary outcome) at a significance level of 0.05 (PASS V15.0.03) (Hinkle, Wiersma, & Jurs, 2003).

Eligibility criteria specified that participants: 1) self-identify as sub-Saharan African immigrants, (2) be ≥35 years of age, (3) have a symptomatic chronic illness diagnosis (e.g., hypertension) confirmed either by self-report or practitioner, and (4) be able to speak and understand English. The age requirement of 35 years was used because disease and the symptoms of chronic health conditions increase in middle-aged (Barnett et al., 2012) and 35 is an accepted cutoff for defining middle-age adults (World Health Organization, 2015). The exclusion criteria were: 1) unwillingness to sign the consent
form; 2) not living in the community where self-care is an individual responsibility; and 3) major cognitive impairment that limited the ability to participate.

**Procedure**

**Enrollment Procedures:** Administrators and community leaders of religious and community-based organizations serving African immigrants were contacted in person, via email and phone to inform them about the study. Permission was sought from these community gatekeepers to address their members virtually or in-person during their meetings (e.g., Sunday Worship service) to inform them about the study. An e-version of the study flyer was shared with all those present at these meetings. Some individuals at these meetings also connected the principal investigator with family members and friends who met the eligibility criteria and might be interested. Additionally, nurse navigators at two organizations serving African immigrants identified and directed potential participants to the principal investigator. Potential participants were approached by the primary investigator and provided with a detailed explanation of the study to determine interest in participating.

**Screening:** Interested individuals were screened for cognitive impairment using the Telephone Interview for Cognitive Status (TICS) (Brandt, Spencer, & Folstein, 1988), an 11-item interview. The TICS can be administered either over the telephone or face-to-face. Before the interview, participants were advised to make sure their environment was conducive for testing and they were able to hear the principal investigator at a conversational volume. The individual item scores are summed to obtain the TICS total score, providing a measure of global cognitive functioning. A TICS score \( \leq 20 \) is considered “Moderately to Severely impaired”, scores 21-25 “Mildly Impaired”,

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scores 26-32 “Ambiguous” and 31-41 scores “Nonimpaired” (Brandt et al., 1988).

Interested individuals were eligible if the TICS score was > 25. The TICS demonstrates excellent sensitivity and specificity to detect cognitive impairment (Brandt et al., 1988). In screening for symptoms, individuals were asked: “Have you had symptoms due to your chronic illness or treatment for your illness within the last three months (chest pain, palpitations, shortness of breath, polyuria, etc.)?” For ability to read and understand English, individuals were asked: “Can you read and understand English” and “Can you write more than your name in English?” A yes response to both questions made the individual eligible to participate in the study.

Data Collection: Once potential participants were enrolled, data collection was done over the phone or in-person at community centers. Of the 150 African immigrants assessed for eligibility, 52 were excluded because they did not meet inclusion criteria. Another 10 were not interested in participating and four withdrew consent before completing surveys. The final sample was 88 African immigrants.

Eligible and willing individuals were asked to provide sociodemographic data (e.g., age, marital status, level of education, living condition, perceived adequacy of income, comorbidity, and employment status) and then complete self-report measures of self-care, acculturation, and comorbidity. This process took approximately 20-40 minutes to complete.

Data on self-care was collected using the Self Care of Chronic Illness Inventory (SC-CII) v3 (Riegel, Barbara et al., 2018), a 20-item instrument using a 5-point response scale. The SC-CII reflects the Middle Range Theory of Self-Care of Chronic Illness (Riegel, B. et al., 2012a; Riegel, B. et al., 2019). Compared to other theories, this self-
care theory is multi-dimensional and allows for examination of the full scope of self-care with three scales measuring self-care maintenance, monitoring, and management (Jaarsma et al., 2020). Raw scores are standardized to a scale of 0-100, with higher scores indicating better self-care. A self-care score ≥70 is considered adequate engagement in self-care activities, although lower levels provide some benefits (Grady & Hinshaw, 2017). The SC-CII has adequate psychometric properties (Riegel, Barbara et al., 2018). The global reliability index for the self-care maintenance, monitoring, and management scales were 0.67, 0.81, and 0.71 respectively, while content validity was 0.89, 0.88, and 0.96 respectively (Riegel, Barbara et al., 2018). The SC-CII captures fundamental views of self-care regardless of the cultural background of the person completing the inventory (De Maria et al., 2019). The SC-CII have been translated into numerous languages and found to be useful in both individualistic and collectivist societies (De Maria et al., 2019) where family involvement overrides individual decision making (Herber, Krischel, & Whittal, 2020).

Acculturation was operationalized using two methods. First, a 12-item standardized acculturation instrument (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987) was modified to assess an individual’s language and media use and ethnic social relations. The instrument was originally developed for Hispanics and found to have adequate psychometric properties (alpha coefficient of 0.92) (Marin et al., 1987). Items were slightly modified for African immigrants. For example, for the question “In general, in what language do you usually think?” the choices ranged from “Only African dialect (e.g. Yoruba) to Only English”. The 12 items are summed and averaging to produce a
general acculturation score ranging from 1-5, with higher scores indicating higher acculturation. Scores in the middle (i.e., 2.5) indicate biculturalism (Pérez, 2015).

Secondly, acculturation was operationalized using predefined acculturation proxies such as duration of residency and age at immigration. Duration of residency in the U.S. was determined by subtracting the year of migration from the current year. Participant were asked: “What year did you come to live in the U.S. permanently?” Age at immigration to the U.S. was calculated by subtracting duration of residency in the U.S. from current age.

Comorbidity was measured using the Charlson Comorbidity Index interview format (Charlson, Pompei, Ales, & MacKenzie, 1987; Charlson et al., 1987; Katz, Chang, Sangha, Fossel, & Bates, 1996). Total scores range from 0 to 34. Higher Charlson Comorbidity Index scores indicate higher risk of mortality (Charlson et al., 1987).

**Determinants:**

In addition to acculturation, the following variables were examined as possible determinants of self-care: self-care self-efficacy, age in years, length of chronic conditions in months, sex (male/female), marital status (single never married, divorced/separated/widowed, or married), insurance status (with/without health insurance), employment status (employed [full-time or part-time] or unemployed/retired), perceived income adequacy (have enough or more than enough to meet needs, or do not have enough to meet needs), living situation (lives alone or lives with family/others), immigration status (US citizen/ permanent resident, Refugee status, and Non-immigrant temporary visa holder), and educational level (high school graduate or below and some college or above). We chose these variables as potential determinants of self-care because
they are linked to health outcomes in African immigrant populations in the U.S. (Comodore-Mensah, Yvonne et al., 2018; Commodore-Mensah, Y. et al., 2016; Mukaz et al., 2020; Shoup et al., 2020). Additionally, self-care self-efficacy was included because it has been shown previously to explain self-care behavior (Riegel, B., Jaarsma, & Stromberg, 2012b).

Analysis

Research Electronic Data Capture (REDCap) (Harris et al., 2009; Harris, 2012; Harris, 2012) was used for data management. De-identified participant information was entered into REDCap by the principal investigator and exported into SPSS v.25 (IBM Corp., Armonk, N.Y., USA) for analysis. The level of significance for statistical tests was set at p < 0.05. Frequencies (percentages) were used to describe categorical variables (e.g., gender). Means and standard deviations were used for continuous variables. Score distributions were assessed using means of boxplot, median and interquartile range. Linear regression was used to examine the relationship between self-care and acculturation. An exploratory sensitivity analysis with a backward elimination approach was conducted to identify potential determinants of self-care using an alpha threshold of 0.1. Multivariable regression analysis was used to explore the relationship between self-care and acculturation while adjusting for confounding variables. In a stepwise manner, the most insignificant variables were removed gradually at different steps until a final model was reached. Acculturation was forced into each model because acculturation was hypothesized to influence self-care.
Results:

Table 4.1 presents the sociodemographic and clinical characteristics of the sample. Majority of participants were Nigerian and Liberian U.S. citizens/permanent residents. Ages ranged from 35 to 78 years. They were mostly married and lived with family or with others. Most were highly educated, employed, and reported having enough or more than enough income to meet their needs. Diabetes and hypertension were the most common diagnoses. Most respondents carried health insurance. Most of these African immigrants were acculturated.

Table 4.1: Sociodemographic and clinical characteristics of participants (N=88)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean± (95%CI) / Median (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sociodemographic characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>54.7 (52.7, 56.7)</td>
</tr>
<tr>
<td>Household size</td>
<td>4 (3.5)</td>
</tr>
<tr>
<td>Duration of residency in the U.S. (years)</td>
<td>16.9 (14.5, 19.3)</td>
</tr>
<tr>
<td>Age at immigration to the U.S. (years)</td>
<td>37.8 (35.2, 40.4)</td>
</tr>
<tr>
<td><strong>Country of birth</strong></td>
<td>N (%)</td>
</tr>
<tr>
<td>Nigeria</td>
<td>50 (56.8)</td>
</tr>
<tr>
<td>Liberia</td>
<td>14 (15.9)</td>
</tr>
<tr>
<td>Mali</td>
<td>9 (10.2)</td>
</tr>
<tr>
<td>Ghana</td>
<td>6 (6.8)</td>
</tr>
<tr>
<td>Others (Angola, Cote d ‘Ivoire, Mauritania, Democratic Republic of Congo, Togo, Sierra Leone)</td>
<td>9 (10.2)</td>
</tr>
<tr>
<td><strong>Age category</strong></td>
<td></td>
</tr>
<tr>
<td>35–48 years</td>
<td>18 (20.5)</td>
</tr>
<tr>
<td>49–64 years</td>
<td>60 (68.2)</td>
</tr>
<tr>
<td>65 and above</td>
<td>10 (11.4)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>42 (47.7)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
</tr>
<tr>
<td>Single never married</td>
<td>11 (12.5)</td>
</tr>
<tr>
<td>Married</td>
<td>59 (67.0)</td>
</tr>
<tr>
<td>Divorced/Separated or Widowed or Other</td>
<td>18 (20.5)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>High school graduate or below</td>
<td>13 (14.8)</td>
</tr>
<tr>
<td>Some college</td>
<td>18 (20.5)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>33 (37.5)</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Master’s degree and above</td>
<td>24 (27.3)</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
</tr>
<tr>
<td>Christian (Catholic, Protestant, Pentecostal)</td>
<td>67 (76.1)</td>
</tr>
<tr>
<td>Muslim</td>
<td>19 (21.6)</td>
</tr>
<tr>
<td>African Tradition</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
</tr>
<tr>
<td>Employed (full-time &amp; employed part-time)</td>
<td>61 (69.3)</td>
</tr>
<tr>
<td>Unemployed, retired or other</td>
<td>27 (30.7)</td>
</tr>
<tr>
<td><strong>Perceived Adequacy of Income</strong></td>
<td></td>
</tr>
<tr>
<td>I have enough or more than enough to meet my needs</td>
<td>53 (60.2)</td>
</tr>
<tr>
<td>I do not have enough to meet my needs</td>
<td>35 (39.8)</td>
</tr>
<tr>
<td><strong>Living condition</strong></td>
<td></td>
</tr>
<tr>
<td>Lives alone</td>
<td>11 (12.5)</td>
</tr>
<tr>
<td>Lives with family or with others</td>
<td>77 (87.5)</td>
</tr>
<tr>
<td><strong>Immigration status</strong></td>
<td></td>
</tr>
<tr>
<td>US citizen/ permanent resident</td>
<td>75 (85.2)</td>
</tr>
<tr>
<td>Refugee status</td>
<td>5 (5.7)</td>
</tr>
<tr>
<td>Non-immigrant temporary visa holder</td>
<td>8 (9.1)</td>
</tr>
<tr>
<td><strong>Insurance status</strong></td>
<td></td>
</tr>
<tr>
<td>Insured</td>
<td>72 (81.8)</td>
</tr>
<tr>
<td>Non-insured</td>
<td>16 (18.2)</td>
</tr>
<tr>
<td><strong>Modified acculturation scale</strong></td>
<td></td>
</tr>
<tr>
<td>Less acculturated</td>
<td>38 (43.2)</td>
</tr>
<tr>
<td>More Acculturated</td>
<td>50 (56.8)</td>
</tr>
<tr>
<td><strong>Clinical characteristics</strong></td>
<td>Mean (95% CI)/ Median (IQR)</td>
</tr>
<tr>
<td>Length of chronic condition (months)</td>
<td>32.5 (10, 81.5)</td>
</tr>
<tr>
<td>Comorbidity score</td>
<td>1 (0, 1)</td>
</tr>
<tr>
<td><strong>Acculturation (continuous variable)</strong></td>
<td></td>
</tr>
<tr>
<td>Modified standardized acculturation scale</td>
<td>3.0 (2.9, 3.1)</td>
</tr>
<tr>
<td><strong>Major chronic illness</strong></td>
<td>N (%)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>16 (18.2)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>44 (50.0)</td>
</tr>
<tr>
<td>Arthritis</td>
<td>7 (8.0)</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>3 (3.4)</td>
</tr>
<tr>
<td>Asthma</td>
<td>2 (2.3)</td>
</tr>
<tr>
<td>Others (e.g., Thyroid disorders, Breast Cancer, Colon Cancer, GERD*/IBS*, Anemia, Chronic dermatitis, HIV*)</td>
<td>16 (18.2)</td>
</tr>
</tbody>
</table>

*GERD: Gastroesophageal reflux disease; IBS: Irritable bowel syndrome; HIV: human immunodeficiency virus
Figure 4.1 – The boxplots represent the self-care maintenance, monitoring and management and self-care self-efficacy distributions. The box represents the first and third quartiles while the central line is the median. The white diamond represents the mean and the whiskers reflects the maximum and minimum observation if within the range of 1.5 X interquartile range from the box. Dots represents outside observations. Dashed line represents the cut-off level of 70 points.

Figure 1 presents the self-care maintenance, monitoring and management and self-efficacy distributions. Mean self-care of African immigrants across all domains was adequate (Table 4.2).

Table 4.2: Summary of Self-care scores

<table>
<thead>
<tr>
<th>Self-care</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean (95% Confidence Limits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-care maintenance</td>
<td>88</td>
<td>40.6</td>
<td>100</td>
<td>78.6 (75.9, 81.3)</td>
</tr>
<tr>
<td>Self-care monitoring</td>
<td>88</td>
<td>30.0</td>
<td>100</td>
<td>77.9 (73.8, 82.8)</td>
</tr>
<tr>
<td>Self-care management</td>
<td>88</td>
<td>40.0</td>
<td>100</td>
<td>75.6 (72.1, 79.1)</td>
</tr>
<tr>
<td>Self-care self-efficacy</td>
<td>88</td>
<td>25.0</td>
<td>100</td>
<td>81.3 (77.8, 84.8)</td>
</tr>
</tbody>
</table>

The descriptive analysis of the individual items on self-care maintenance scale revealed that the majority of the sample never, rarely or only sometimes eat a special diet. Most reported trying to avoid getting sick and avoiding tobacco smoke. On the self-care monitoring scale, a sizeable proportion never, rarely or sometimes monitor for
medication side-effects or feeling more tired than usual doing when doing normal activities. On the self-care management scale, a sizeable proportion never, rarely or sometimes call a provider for symptoms or change what they eat or drink to make symptoms go away (Table 4.3).

Table 4.3: Descriptive statistics and ranking of self-care behaviors of African immigrants with chronic illness.

<table>
<thead>
<tr>
<th>N</th>
<th>Mean item score</th>
<th>Never, rarely or sometimes %</th>
<th>Frequently or Always %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-care maintenance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often or routinely do you do the following?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eat a special diet?</td>
<td>88</td>
<td>3.31</td>
<td>61.4</td>
</tr>
<tr>
<td>Make sure to get enough sleep?</td>
<td>88</td>
<td>4.05</td>
<td>41.9</td>
</tr>
<tr>
<td>Do physical activity?</td>
<td>88</td>
<td>4.10</td>
<td>33.0</td>
</tr>
<tr>
<td>Take prescribed medicines without missing a dose?</td>
<td>88</td>
<td>4.14</td>
<td>30.7</td>
</tr>
<tr>
<td>Do something to relieve stress?</td>
<td>88</td>
<td>4.15</td>
<td>30.7</td>
</tr>
<tr>
<td>See your healthcare provider for routine health care?</td>
<td>87</td>
<td>4.21</td>
<td>27.6</td>
</tr>
<tr>
<td>Do you avoid tobacco smoke?</td>
<td>88</td>
<td>4.50</td>
<td>12.5</td>
</tr>
<tr>
<td>Try to avoid getting sick?</td>
<td>86</td>
<td>4.73</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Self-care monitoring</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often do you do the following?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor for medication side-effects?</td>
<td>86</td>
<td>3.69</td>
<td>40.7</td>
</tr>
<tr>
<td>Monitor whether you tire more than usual doing normal activities?</td>
<td>87</td>
<td>3.98</td>
<td>33.3</td>
</tr>
<tr>
<td>Monitor for symptoms?</td>
<td>87</td>
<td>4.20</td>
<td>24.1</td>
</tr>
<tr>
<td>Monitor your condition?</td>
<td>87</td>
<td>4.25</td>
<td>24.1</td>
</tr>
<tr>
<td>Pay attention to changes in how you feel?</td>
<td>87</td>
<td>4.45</td>
<td>18.4</td>
</tr>
<tr>
<td><strong>Self-care management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When you have symptoms, how likely are you to use one of these?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Call your healthcare provider for guidance?</td>
<td>88</td>
<td>3.36</td>
<td>42.0</td>
</tr>
<tr>
<td>Change what you eat or drink to make the symptom decrease or go away?</td>
<td>87</td>
<td>3.85</td>
<td>36.8</td>
</tr>
<tr>
<td>Change your activity level?</td>
<td>87</td>
<td>4.11</td>
<td>24.1</td>
</tr>
</tbody>
</table>
Take a medicine to make the symptom decrease or go away?  
88  4.24  21.6  78.4

Tell your healthcare provider about the symptom at the next office visit?  
88  4.36  22.7  77.3

None of the three measures of acculturation were associated with self-care maintenance, monitoring, or management, even after adjusting for confounding variables.

**Exploratory sensitivity multivariate analysis**

Self-care self-efficacy was an independent determinant of self-care maintenance, monitoring and management (Table 4). Specifically, low self-care self-efficacy was associated with low self-care maintenance, monitoring and management. Additionally, the perception of income inadequacy was associated with lower self-care management (Table 4.4). These variables explained 15%, 35% and 46% of the variance of the self-care maintenance, self-care monitoring, and self-care management respectively (Table 4.4).

**Table 4.4: Determinants of self-care**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>95% Confidence Limits</th>
<th>Pr &gt;</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Determinants of self-care maintenance</strong> (R²=0.15; F=7.47)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modified acculturation scale</td>
<td>0.74</td>
<td>2.33</td>
<td>-3.90  5.37</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>Self-Care Self-Efficacy</td>
<td>0.29</td>
<td>0.08</td>
<td>0.14  0.45</td>
<td>0.0003</td>
<td></td>
</tr>
<tr>
<td><strong>Determinants of self-care monitoring</strong> (R²=0.35; F=11.18)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.33</td>
<td>0.18</td>
<td>-0.70  0.03</td>
<td>0.07</td>
<td></td>
</tr>
<tr>
<td>Length of chronic condition</td>
<td>0.05</td>
<td>0.02</td>
<td>-0.002  0.10</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>Modified acculturation scale</td>
<td>3.39</td>
<td>3.25</td>
<td>-3.08  9.86</td>
<td>0.30</td>
<td></td>
</tr>
<tr>
<td>Self-Care Self-Efficacy</td>
<td>0.64</td>
<td>0.10</td>
<td>0.43  0.85</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
<tr>
<td><strong>Determinants of self-care management</strong> (R²=0.46; F=17.78)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status (Married versus Single, separated or widowed)</td>
<td>-5.64</td>
<td>2.96</td>
<td>-11.52  0.25</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>Perceived income adequacy (Have enough or more versus Do not have enough to meet my needs)</td>
<td>6.35</td>
<td>2.85</td>
<td>0.69  12.02</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>Modified acculturation scale</td>
<td>0.64</td>
<td>2.48</td>
<td>-4.30  5.58</td>
<td>0.80</td>
<td></td>
</tr>
<tr>
<td>Self-Care Self-Efficacy</td>
<td>0.61</td>
<td>0.08</td>
<td>0.45  0.77</td>
<td>&lt;0.0001</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

To our knowledge, this is the first investigation to describe self-care in African immigrants with chronic illness in the U.S. and the first to examine the relationship between acculturation and self-care in this population. Self-care was adequate overall and acculturation was not associated with self-care. Specific self-care behaviors were poor in this sample, suggesting areas to target for intervention. Self-care self-efficacy and perceived income adequacy may help identify African immigrants most at risk for poor self-care.

The African immigrants were best at self-care maintenance and worst at self-care management. These findings reflect a typical self-care pattern observed in persons with chronic conditions in other minority U.S. populations (Dickson, V. V., McCarthy, Howe, Schipper, & Katz, 2013; Luciani et al., 2020). Dickson et al., 2013 reported that Blacks with heart failure did best at self-care maintenance behaviors and worst with self-care management behaviors. In their study, self-care confidence scores were the highest across all domains of self-care. The self-care maintenance behavior that was particularly low in our sample was eating a special diet. This is unsurprising, since several studies have shown that this population tends to adhere to a traditional African diet and preserve culture through food preferences and choices (Cooper Brathwaite & Lemeonde, 2016; Turk, Fapohunda, & Zoucha, 2015). African immigrants’ food choices are culturally framed, incorporating family perceptions of the food (Jakub, Turk, Fapohunda, & Zoucha, 2018), cultural taste or preference (Jakub et al., 2018), cultural and social implications and quality of life (Kindarara, McEwen, Crist, & Loescher, 2017; Njeru et al., 2016). Culturally, food evokes pleasant memories, provides comfort and provides a
connection to their home countries (Jakub et al., 2018). Additionally, food has an integral role in religious celebrations and traditions, providing family bonding, religious fellowship (Jakub et al., 2018) and a strong sense of community. In addition, African diets are thought to be more nutritious than western diets. For these reasons, dietary practices may be more resistant to acculturation than other self-care maintenance behaviors (Akinlua, Meakin, & Freemantle, 2017) and may explain the unwillingness to change food choices in response to symptoms. It is, however, possible to modify dietary habits of African immigrants to avoid or manage chronic illness (Hjelm & Mufunda, 2010) through public health interventions that use culturally-tailored strategies to build meal preparation skills that include traditional African foods (Dickson, Victoria Vaughan & Riegel, 2009; Dickson, V. V. et al., 2014) and increase healthy dietary choices.

African immigrants overwhelmingly endorsed trying to avoid tobacco smoke. This result is consistent with prior studies showing that cigarette smoking is low in this population (Baluja, Park, & Myers, 2003; Commodore-Mensah, Y. et al., 2016; Hamilton & Green, 2017; Nyaaba et al., 2019; Sewali et al., 2015) compared to African Americans (Turkson-Ocran et al., 2020). Smoking is considered a cultural taboo in certain African countries (e.g., Nigeria) and is contrary to “faith-based” norms of Christianity, Islam and African traditional religions (Odusola et al., 2014). African social and cultural norms regarding smoking persist even after migration to countries outside Africa (Nyaaba et al., 2019). Africans who smoke are perceived as irresponsible. This cultural asset can be reinforced when designing public health interventions for this population.

Participants overwhelmingly endorsed trying to avoid getting sick. Meeting family obligations is a source of cultural pride for this population, leading to a strong
commitment to provide for their families in the U.S. and back home in Africa. As a result, African immigrants tend to feel that they cannot afford to get sick and will do everything in their power to avoid it. The current COVID-19 pandemic may have added to the participants’ overwhelming desire to try to avoid getting sick.

We found that African immigrants monitor their symptoms but may not monitor for medication side-effects or feeling more tired than usual when doing normal activities. Two separate studies reported that, for the most part, African immigrants monitor their illnesses, except for lapses due to forgetfulness (Njeru et al., 2016; Siad et al., 2018). One reason that they may not monitor for medication side effects may be their inability to understand discharge instructions (Omenka, Watson, & Hendrie, 2020) due to language differences during patient-provider interactions, during which providers use technical names and descriptions that are unfamiliar (Kindarara et al., 2017) to this population. Negative provider attitudes such as impatience in educating African immigrants about medication side-effects, for example, may also contribute to poor understanding (Omenka et al., 2020; Woodgate et al., 2017).

There is a need to intensify health literacy efforts, including peer-based education on self-care monitoring, specifically monitoring medication side-effects and feelings of being more tired than usual doing when doing normal activities in this population (Baghianimoghadam et al., 2013; Njeru et al., 2016). Almost half of the participants were unlikely or only somewhat likely to call their healthcare provider for guidance when they have symptoms. Some possible explanations for this finding include lack of trust or difficulty navigating the complex U.S. health system, previous unpleasant experiences (e.g. discrimination, provider dismissiveness, stereotyping, condescending or hostile
attitudes) (Njeru et al., 2016; Omenka et al., 2020), financial constraints (Kindarara et al., 2017; Nyaaba et al., 2019) and limited access to culturally-competent providers (Omenka et al., 2020). Another possible explanation for failure to seek guidance may stem from experiences in Africa, where healthcare providers are only contacted when illness is out of control (Omenka et al., 2020). Due to cultural and religious norms based on collectivism, African immigrants may seek guidance from community elders and religious leaders as an initial response to illness symptoms.

We found that higher self-care self-efficacy was associated with higher self-care. In persons with chronic illness (e.g., diabetes, heart failure), studies suggest self-care efficacy as a strong determinant of self-care: the higher the self-care self-efficacy, the higher the self-care maintenance, monitoring, and management (Ausili et al., 2016; Irani et al., 2019; Koirala et al., 2018; Luciani et al., 2020; Riegel, Barbara, Dickson, Kuhn, Page, & Worrall-Carter, 2010). Self-care self-efficacy affects a person’s decision-making process regarding self-care (Buck et al., 2012). Additionally, self-care self-efficacy has been associated with health-promoting self-care behaviors and positive health outcomes (Eller, Lev, Yuan, & Watkins, 2018).

Although the above studies suggest that the self-care self-efficacy construct applies across diverse cultures, its relevance to non-Western cultures is in question because of its emphasis on control (Eller et al., 2018; Markus & Kitayama, 1991). However, self-efficacy is important both in individualistic and collectivist cultures (Bandura, Freeman, & Lightsey, 1999; Eller et al., 2018). Since this is the first study to measure self-care self-efficacy in African immigrants living with chronic illness in countries outside Africa, more studies would confirm the importance of self-care self-
efficacy in this population. Additionally, based on our findings, culturally concordant trials of interventions designed to improve self-care among African immigrants with chronic illness should include core elements to increase self-care self-efficacy.

Lower income adequacy was associated with lower self-management scores, probably due to the cost of healthcare, financial constraints (Kindarara et al., 2017; Nyaaba et al., 2019), and family obligations (Afulani, Torres, Sudhinaraset, & Asunka, 2016). This characteristic cannot be modified but screening for income inadequacy may help to identify patients at risk for poor self-care.

Limitations of the study include the cross-sectional design and the use of a convenience sample, which limits the generalizability of results. However, the chronic illness profile of the participants enrolled is representative of the African immigrant population in the U.S. We enrolled a bilingual, well-educated sample with adequate perceived income, which may have interfered with our ability to identify a relationship between acculturation and self-care.

Conclusion
Self-care is important for chronic illness management. Although self-care in this sample was adequate for the most part, further investigation of the reasons for the items that were poor in this population would inform culturally concordant interventions to promote self-care. Additionally, our findings about the determinants of self-care provides effect sizes estimates that can be used for a larger study examining the determinants of self-care in African immigrants with chronic illness in the U.S. In this study, we identified only two significant determinants of self-care and the amount of variance explained by the regression models was low to moderate (between 15% and 46%). This suggests that other
variables that may serve as determinants of self-care in African immigrants with chronic illness are still unknown. Acculturation was not a significant influence on self-care. Acculturation is a complex and multifactorial social concept that may not lend itself to quantitative methods alone. Perhaps qualitative or mixed methods approaches would facilitate our understanding of the influence of acculturation on self-care in this population.
References


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doi:10.1097/JCN.0000000000000581 [doi]


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Blacks are disproportionately affected by common chronic illnesses (e.g., heart disease, stroke, diabetes, chronic kidney disease) compared to Whites (Hayward, Miles, Crimmins, & Yang, 2000; Schoeni, Martin, Andreski, & Freedman, 2005). U.S. Blacks experience worse outcomes of chronic illness such as preventable hospitalization, increased symptom burden, disability and death (Doshi, Aseltine, Sabina, & Graham, 2017). Self-care is important in chronic illness management and influences outcomes in persons living with these illnesses. Studies have shown that those who engage effectively in self-care tend to have increases in self-rated health (Wong, Wong, Yeung, & Chang, 2017), improved perceived control over the illness (Jonkman, N. H., Groenwold, Trappenburg, Hoes, & Schuurmans, 2017), better quality of life (Auld, Mudd, Gelow, Hiatt, & Lee, 2018; Wong et al., 2017), lower hospitalization rates (Xu et al., 2018), and less mortality (Jonkman, Nini H. et al., 2016; Kessing, Denollet, Widdershoven, & Kupper, 2016) compared to those with poor self-care.

The self-care of Blacks varies from those of their White counterparts. Studies have suggested that the lower self-care scores reported among Blacks living with chronic illness (Dickson, Knafl, & Riegel, 2015; Jonkman, Nini H. et al., 2016; Vellone et al., 2017) can be attributed to structural, socioeconomic and cultural factors (Boen, 2016; Commodore-Mensah, Y., Himmelfarb, Agyemang, & Sumner, 2015; Dickson, McCarthy, Howe, Schipper, & Katz, 2013; Gyamfi et al., 2017; Karlamangla, Merkin,
Crimmins, & Seeman, 2010). The emphasis of this study is on the cultural contributions to self-care.

There is significant growth of the African immigrant population in the U.S. as well as a high burden and growing problem of chronic illness in this population. In 1980, the American population of African immigrants was about 150,000; by 2018, more than two million Africans had immigrated to the U.S. (Echeverria-Estrada & Batalova, 2019). The prevalence of chronic illness (e.g. hypertension, diabetes) is high and rising among African immigrants (Adu-Boahene, Laws, & Dapaah-Afriyie, 2017; Commodore-Mensah, Yvonne et al., 2018; Commodore-Mensah, Y. et al., 2016; O'Connor et al., 2014; Sewali et al., 2015) even when compared with other U.S. immigrants (Oza-Frank & Narayan, 2010). Studies suggest that African immigrants in developed countries experience worsening health as the duration of residency in their host country increases (Agyemang, Addo, Bhopal, de Graft Aikins, & Stronks, 2009; Alidu & Grunfeld, 2017; Commodore-Mensah, Y. et al., 2016; Creatore et al., 2010). The reasons for the worsening health of this population have not been sufficiently explored.

Despite the high prevalence of chronic illness in these population and the role these factors play in influencing their health, we know little about the self-care of African immigrants living with chronic illness. To date, much of the self-care research has grouped all African-descent (i.e., U.S., Caribbean, and African-born) populations into the category of “Black/African-American”. This general approach does not consider the cultural differences of subgroups and how these differences may influence self-care. Therefore, there is a crucial need to understand the social, cultural, and contextual factors
that serve as facilitators or barriers to self-care among African immigrants living with chronic illness in the U.S.

To address these gaps, this dissertation 1) examined the influence of culture on self-care behaviors in different cardiovascular disease (CVD) populations (chapter 2), 2) examined the influence of cultural factors on self-care in African immigrants living with chronic illness in countries outside Africa (Chapter 3), 3) described the self-care behaviors and explored the influence of acculturation of adult African immigrants in the U.S. living with chronic illness (chapter 4). Previously identified sociodemographic and clinical variables associated with self-care were also explored in chapter 4.

The integrative review presented in Chapter 2 revealed that culture influences self-care in general, but predominantly self-care maintenance behaviors like treatment adherence. Cultural beliefs make adherence to recommended diets challenging in persons with CVD. Cultural beliefs and norms influenced medication adherence as well. The review also revealed gaps in the literature such as research examining the influence of culture on self-care among African immigrants outside their home continent.

Chapter 3 addressed some of these gaps. In a systematic mixed studies review, a methodological advance from the integrative review methodology, we found that maintaining culture identity was both a driver and a constraint to engaging in self-care among African immigrants living with chronic illness. Cultural expectations and experiences informed the self-care decisions of African immigrants. Certain health behaviors were uncommon because they were considered unhealthy based on cultural norms. For example, adherence to prescribed Western medicines was sub-optimal, because herbal remedies were perceived as efficacious, harmless, and natural. Physical
activity was thought to be Eurocentric or Americentric, so adherence to exercise recommendations was poor among African immigrants. Cultural taste preferences made adherence to recommended diets challenging for African immigrants. Family members of African immigrants played a key role in dietary and medication adherence by providing instrumental support such as grocery shopping, meal preparation, reminders to take medications, and help with the costs of medications. In self-care monitoring, African immigrants described trusting changes in “body sensations” to alert them to illness changes and responded to illness changes by using traditional remedies, prescribed medication and/or seeking medical advice. In addition to the influences of these cultural factors on the self-care practices of African immigrants, structural factors such as unemployment, working multiple jobs, immigration status, and linguistic challenges hindered self-care. This systematic mixed studies review also revealed certain gaps. We found that self-care had not been studied among African immigrants in the U.S.

Despite the exponential increase in migration from sub-Saharan African countries to the U.S., and studies suggesting that acculturation intermingles with structural factors to influence health behaviors and negative health outcomes among immigrant groups (Hall & Cuellar, 2016; Mukaz et al., 2020; O’Brien, Alos, Davey, Bueno, & Whitaker, 2014), the influence of acculturation on self-care is not known. The issue of acculturation is unique to immigrants (Commodore-Mensah, Yvonne et al., 2018). So, in Chapter 4 we describe the self-care of African immigrants and explore the influence of acculturation.

In chapter 4 we discuss our results demonstrating that overall, the self-care of African immigrants across the three domains of self-care maintenance, monitoring, and management was adequate. We found, however, that African immigrants do not routinely
eat the special diet prescribed for their chronic illness. An explanation for this may be that African immigrants’ food choices and practices are culturally framed (Jakub, Turk, Fapohunda, & Zoucha, 2018; Kindarara, McEwen, Crist, & Loescher, 2017) and may be resistant to acculturation (Akinlua, Meakin, & Freemantle, 2017).

On the self-care monitoring scale, the lowest scores were monitoring for medication side-effects or fatigue. Poor monitoring may be related to inability to understand discharge instructions, unfamiliarity with medical terminology and concepts, linguistic discordance during patient-provider interactions, and negative provider attitudes such as impatience in educating African immigrants about medication side-effects or fatigue (Kindarara et al., 2017; Omenka, Watson, & Hendrie, 2020; Woodgate et al., 2017).

On the self-care management scale, calling healthcare provider for guidance about symptoms scored the lowest. Studies have suggested that lack of trust in or difficulty navigating the complex U.S. health system, previous unpleasant experiences with providers and healthcare staff, limited access to culturally-competent providers, financial constraints, unfamiliarity with preventive care, and a proclivity for culturally-framed non-westernized responses to illness symptoms may explain this finding (Arrey, Bilsen, Lacor, & Deschepper, 2016; Kindarara et al., 2017; Njeru et al., 2016; Omenka et al., 2020).

Interestingly, acculturation was not associated with self-care even after adjusting for confounding variables. Exploratory sensitivity multivariate analysis revealed that neither age, gender, level of education, immigration status, insurance status, length of chronic illness, nor employment status were determinants of self-care maintenance,
monitoring, or management. Only perceived income adequacy was associated with self-care management. The perception of having enough or more than enough income was associated with higher self-care management scores. The cost of healthcare (e.g., co-pays and bills) and financial constraints may explain this finding. The familial obligation of sending money to relatives in Africa and the economic challenge that comes with this obligation may contribute to hesitation to seek medical care especially in persons without health insurance (Afulani, Torres, Sudhinaraset, & Asunka, 2016). Screening for income adequacy can help to target African immigrants at risk for poor self-care.

The African immigrants in this sample reported high self-care self-efficacy or high confidence in their ability to perform and persist in performing self-care. Self-care self-efficacy was a powerful determinant of self-care in this sample. In other populations with diabetes, a recent systematic review and meta-analysis demonstrated that self-efficacy-focused education promoted self-care management behaviors (Jiang, Wang, Lu, Jiang, & Li, 2019). This review lends support to the need to examine the influence of self-care self-efficacy in African immigrants living with chronic illness in a larger study.

Self-care self-efficacy may vary by culture, although current evidence suggests that self-care self-efficacy is important in both individualistic and collectivistic (e.g., Asian) cultures (Eller, Lev, Yuan, & Watkins, 2018); however, none of these studies included Africans or African immigrants. To assess the relevance and the role of this construct to African culture, researchers must understand factors that promote or hinder self-care self-efficacy (e.g., cultural and faith-based beliefs, norms, and perceptions about health and illness), assess if intervention is needed and what types of intervention are needed to increase self-care self-efficacy, and examine the association between self-care
self-efficacy and health or behavioral outcomes in Africans or African immigrants. It is also necessary to examine the relationship of potential sociodemographic and structural factors to self-care self-efficacy in African immigrants with chronic illness.

Together, this dissertation reveals that self-care may be adequate in African immigrants with chronic illness and factors other than acculturation may influence the self-care behaviors of this population. At this stage, it appears that cultural dietary preferences, perceived income adequacy, and self-care self-efficacy are important to consider in intervention development. Deeper understanding of these factors (e.g., perceived income adequacy) warrants further investigation in this population.

**Three Interconnected Perspectives: Behavioral, Cultural and Structural**

Broadly and conceptually, these findings should be understood from three interconnected perspectives: behavioral, cultural and structural perspectives. Identifying behavioral factors that may explain the healthy immigrant effect is not enough (Castañeda et al., 2015; National Academies of Sciences, Engineering, and Medicine, 2018). The cultural, social, and economic contexts influencing individual behavioral choices (e.g., calling a provider for symptoms) must be recognized. A focus on only the individual’s behavioral choices is limiting and largely deficit based. Individually oriented perspectives centralize personal responsibility, risk, and self-efficacy for uptake of self-care behaviors without accounting for the contextual drivers (e.g., access to care, cost of care, immigrant status-related stressors) of these behaviors (Castañeda et al., 2015). An assessment of deficits in self-care should not be viewed primarily from a narrow focus on individual education, motivation, or self-efficacy; rather, cultural and social systems that drive health and behavioral outcomes should be identified (Castañeda et al., 2015).
In a cultural perspective, self-care behaviors are acquired through shared normative values, knowledge, and backgrounds (Airhihenbuwa, Ford, & Iwelunmor, 2014; Iwelunmor, Newsome, & Airhihenbuwa, 2014; Kagawa Singer et al., 2016; Kagawa-Singer, Dressler, George, & Elwood, 2014). To some extent, all human behavior is cultural and people’s realities are culturally shaped (Kagawa-Singer et al., 2014). Culture significantly influences self-care perspectives, acceptance, and adoption (Joseph, Ramaswamy, & Wang, 2018; Osokpo & Riegel, 2019; Turner, 1996). Culture can promote, hinder, or have a neutral effect on self-care because different aspects of a culture (e.g., family, gender roles, diet) are more salient than others in shaping specific health behaviors (Airhihenbuwa et al., 2014; Kagawa-Singer et al., 2014; Osokpo & Riegel, 2019).

For example, in some communities, in making certain health choices, guidance from community leaders or godparents may carry more weight than that offered by blood relatives (Airhihenbuwa et al., 2014; Kagawa-Singer et al., 2014). It is therefore imperative to explore and incorporate the cultural realities and salient issues of the target population into any scholarly inquiry. Within any social or cultural context, certain health issues take priority (Airhihenbuwa et al., 2014). Some practices, though strange to an outsider, have an internal cultural logic and lead to important functions and health-promoting impact to members of a group (Kagawa-Singer et al., 2014). Therefore, culture is a powerful asset that should not overlooked, misused, or thought of as a barrier or obstacle. Instead, the potential explanatory power of culture should be leveraged. A culturally informed approach will enable the development of relevant and sustainable interventions to meet the needs of vulnerable populations.
Although the results of this dissertation highlight the role of shared beliefs, cultural norms, and practices in influencing self-care behaviors, care must be taken not to assume that cultural-group membership is the major or primary determinant of self-care and that culture primarily affects individual self-care behaviors. Additionally, stereotypes around immigrant groups “acculturating” toward the mainstream population or being bicultural is ethnocentric (Castañeda et al., 2015; National Academies of Sciences, Engineering, and Medicine, 2018), considering that the dominant scientific approach is grounded in a Western cultural perspective. The fact that the culture of immigrants can be a protective factor for self-care does not imply homogeneity or permanence, as other factors are constantly shaping one’s culture. That said, self-care interventions can be made effective if they are culturally appropriate and relevant.

Adopting a structural perspective, an overreliance on the influence of cultural factors on self-care or other health outcomes may obscure the impact of other contributing sociocultural contexts to poor outcomes (e.g. high cost of health care) (Castañeda et al., 2015; Drevdahl, 2018; Martinez et al., 2015; National Academies of Sciences, Engineering, and Medicine, 2018). The process of “assimilating” or “integrating” intersects with larger social, economic, and political forces (e.g., access to health care) that influence health and behavioral outcomes. For example, In addition to what U.S.-born Blacks and other low-income communities of color face, African immigrants may face an additional layer of challenges, including accent- and name-based discrimination that often results in poor health and illness complications (Castañeda et al., 2015; Martinez et al., 2015; National Academies of Sciences, Engineering, and Medicine, 2018). The focus only on purported cultural beliefs and individual behaviors without due
attention to social and structural determinants of health related to immigration, such as immigration policy, poor access to health care, challenges related to limited English proficiency, ethnic hierarchies, anti-immigrant prejudice, immigration fears and stress, and differential access to resources is limiting (Castañeda et al., 2015; National Academies of Sciences, Engineering, and Medicine, 2018; Perreira & Pedroza, 2019). These issues have significant effects on health and behavioral outcomes (Castañeda et al., 2015; National Academies of Sciences, Engineering, and Medicine, 2018).

For example, immigration status excludes some legal residents from resources U.S. citizens receive, which may limit one’s behavioral choices and cultural preferences. Further, these challenges sometimes result in a complete realignment of daily life with significant health consequences (Castañeda et al., 2015; Martinez et al., 2015; Perreira & Pedroza, 2019). It is imperative that the experiences of African immigrants be examined through the lens of social determinants in order to create targeted interventions that address the root causes of negative health and behavior outcomes. To more fully understand and address factors influencing self-care among foreign-born Blacks, we must account for macro-level social factors and institutional contexts that influence individual behaviors and diminish cultural assets.

**Implications of This Research**

Given the growing number of African immigrants in the U.S., these findings provide evidence of the importance of revisiting the current approach to self-care research among Blacks with chronic illness. Blacks in the U.S. are not homogenous. Disaggregating the “Black/African American” data regarding people of African ancestry in the U.S. will enhance our understanding of the factors influencing health and self-care in the African
immigrant community and inform future robust culturally concordant interventions and public health strategies to improve health and minimize illness complications in this population.

Providers who care for African immigrants are encouraged to learn about the cultural norms, cultural preferences, cultural identity and expectations of this population. Providers are encouraged to seize every opportunity during healthcare visits to gain a broader understanding of their African immigrant patients by maintaining an accommodating outlook. Ask questions about cultural and religious beliefs that may not align with recommendations based on a western perspective. Avoiding a condescending or dismissive attitude can show respect for the non-Western values, norms and practices that some African immigrants live by. Providers are encouraged to demonstrate cultural humility as they engage with African immigrants in the clinical setting. Being intentional in avoiding cultural stereotypes in response to different looks, accents and names of African immigrants can encourage communication concerning health issues. Providers are encouraged to work to avoid suspicion founded on cultural stereotypes.

In addition to considering these cultural factors, providers and policy makers are encouraged to consider structural factors to encourage uptake of self-care among African immigrant populations. These structural factors include the complexity of the U.S. healthcare system, cost of healthcare, access to health insurance, limited coverage of health insurance, availability of transportation, linguistic discordance, and other factors reported in a recent scoping review (Omenka et al., 2020). The findings from this dissertation can help facilitate the design of effective, tailored culturally concordant interventions that can address or compensate for these structural factors.
Directions for Future Work

African immigrants have unique social realities, lifestyle patterns, and cultural practices (Commodore-Mensah, Y. et al., 2015). Future studies will aim to further characterize the sociocultural factors that influence health and health behaviors of this population. It is important to explore further how African immigrants in the U.S. think about health and health care, including expectations and preferences for formal versus informal care systems and how these preferences influence the health of this population. Among informal approaches and components, I will seek to explore other cultural features (e.g., faith/religion, lay health providers) of African immigrants while accounting for significant variations, if any, across age, type of disease, and particular immigrant population. For example, it is important to understand the role that religion/spirituality plays in the self-care of African immigrants. Additionally, we know little about providers’ perspectives of self-care behaviors this population, and hence patient-provider factors shaping preferences and adherence should be explored. Perceived racial discrimination has been associated with poor health and behavioral outcomes in the general Black population (Forsyth, Schoenthaler, Chaplin, Ogedegbe, & Ravenell, 2014; Lockwood, Marsland, Matthews, & Gianaros, 2018). It is unknown if perceived racial discrimination influences adherence to self-care recommendations in the African immigrant population.

A much broader question to investigate is: what is the association between social determinants of health and self-care among Africans living with chronic illness? The challenges of addressing the health needs of this population and intervening on different disease states may vary; thus, it will be important to investigate similarities and
differences. Cultural identity has been helpful in predicting healthy lifestyle behaviors in other immigrant groups (Moise et al., 2019), but it is unknown if cultural identity quantitatively predicts the self-care behaviors of African immigrant populations with chronic illness.

Next steps include testing the feasibility and effectiveness of interventions informed by the above findings. Is a culturally concordant behavioral intervention effective in achieving maintenance of behavior change or promoting uptake of self-care (e.g., traditional healthy diets)? Will a group-based intervention increase self-care and decrease health service utilization for community-dwelling African immigrants with chronic illness? Can leveraging methods from behavioral economics and mobile technology (e.g., WhatsApp) facilitate engagement in healthy behaviors? Two systematic reviews revealed that an intervention using text messages guided by behavioral economics was effective in facilitating medication adherence in sub-Saharan Africa (Bärnighausen et al., 2011; Mbuagbaw et al., 2013). WhatsApp is a widely embraced, affordable messaging app used by African immigrants in the U.S. and other countries outside Africa to communicate with family and friends in their host countries and country of birth. It has been reported to be an effective tool for recruitment, dissemination of health information, and for assessing African immigrant’s perspectives regarding health-related research (Commodore-Mensah, Y. et al., 2019; Cudjoe et al., 2019). In another population, the investigators posited that an educational intervention using WhatsApp may be a useful tool in facilitating medication adherence in persons with chronic illness (Sartori, Rodrigues Lucena, Lopes, Picinin Bernuci, & Yamaguchi,
2020). It will be useful to also explore African immigrants' perspectives to a WhatsApp-delivered behavioral intervention to increase uptake of self-care behaviors. These are several important questions that should be pursued in order to promote health in this population.

Methodologically, data from quantitative measures alone are insufficient to examine all of the above questions and research gaps because cultural and structural issues do not lend themselves to simple quantitative measurements. Thus, qualitative research is needed to examine the cultural, societal, and structural factors underlying the self-care of African immigrants with chronic illness while also identifying barriers to and facilitators of adequate self-care. Qualitative research methodologies may facilitate the examination of structural, systemic barriers to, or facilitators of adequate self-care and healthcare utilization of African immigrants. Such findings would be extremely useful for healthcare providers.

In future research I will employ a mixed methods research design to identify socio-cultural factors that may serve as barriers to or facilitators of self-care in this population. Mixed-methods research is needed to invoke culture or structural factors as explanatory variables, since data from quantitative measures alone are insufficient to provide a multi-level perspective. In addition, the use of mixed methods increases the external validity of results; qualitative findings alone lack generalizability (Klassen, Creswell, Plano Clark, Smith, & Meissner, 2012; van Griensven, Moore, & Hall, 2014). A mixed methods design will allow different but complementary data to be obtained (Creswell & Clark, 2017). Mixed methods design allows for gathering in-depth perspectives from different levels by bringing together the strength of both quantitative
and qualitative methods. This approach will allow me gain broader perspectives on self-care among African immigrants living with chronic illness in the U.S. Ultimately, I plan to use a rigorous experimental approach to examine the feasibility, acceptability, and preliminary efficacy of a group-based culturally tailored behavioral intervention to increase self-care of African immigrants living with chronic illnesses.

**Conclusion**

This three-article dissertation increased our understanding of the influence of cultural factors on self-care. The integrative review revealed that culture influences self-care. Cultural factors help or hinder self-care behaviors in persons with CVD. The Systematic Mixed Studies review revealed that the interplay of cultural and structural factors influences whether or not Africans immigrants will follow recommended self-care practices. The cross-sectional study demonstrated that self-care is adequate in this population, but close attention should be paid to African immigrants with low income and poor self-efficacy because they reported lower self-care. Acculturation does not appear to influence self-care, but acculturation is a complex concept that cannot be fully assessed by quantitative measures alone. These findings offer preliminary information to policy makers to allow them to craft policies that are culturally relevant to promote self-care behaviors and improve health for this population.
References


