

FATALISM, RELIGIOUS ATTENDANCE, HEALTH-RELATED QUALITY OF
LIFE, AND ENGAGEMENT IN HEALTH BEHAVIORS AMONG HISPANIC
AMERICANS LOW IN ACCULTURATION AND INCOME:
TESTING THE RESERVE CAPACITY MODEL

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ABSTRACT

Although health disparities are widespread between ethnic and racial minority groups and Whites in the United States, Hispanics seemingly have a relative advantage in one particular health outcome: all-cause mortality. This advantage is most pronounced among the least acculturated Hispanics. Therefore, it is plausible that this phenomenon, known as the *Hispanic Paradox*, may be explained in part by social and cultural resources that are predominate in Hispanic cultures. These resources may buffer the negative effects of low socioeconomic status on health, as postulated in the Reserve Capacity Model. Fatalism is one such cultural value, and previous results have been mixed regarding its relationship with health outcomes in Hispanics. In White populations, studies tend to find a negative association between fatalism and health outcomes. To explain these divergent results, fatalism may be conceptually related to another socio-cultural resource, religiosity. Some studies have found an association between religiosity and fatalism. In general, religiosity—

specifically religious attendance—is positively related to health outcomes and engagement in healthy behaviors. Most research has studied the connection between religiosity and fatalism to specific health outcomes, such as disease diagnosis or mortality, or health behaviors. Less research has considered the effects of religious attendance and fatalism on more general health outcomes, such as health-related quality of life. Furthermore, there is considerable variability in the results of these studies, suggesting a complex relationship and the possibility of moderating variables. Therefore, the present study used regression analyses to study relationships between fatalism, religious attendance, health-related quality of life, and engagement in healthy behaviors in a sample of 133 Hispanic Americans low in acculturation and socioeconomic status. It was hypothesized that the combination of high fatalism and high religious attendance would positively predict high levels of physical and mental health-related quality of life and engagement in healthy behaviors. However, results showed that the interaction of fatalism and religious attendance failed to predict physical health related quality of life and engagement in healthy behaviors. And, contrary to my hypothesis, the combination of high fatalism and high religious attendance was related to *low* mental health related quality of life.

APPROVAL PAGE

The faculty listed below, appointed by the Dean of the College of Arts and Sciences have examined a thesis titled “Fatalism, Religious Attendance, Health-Related Quality of Life, and Engagement in Health Behaviors Among Hispanic Americans low in Acculturation and Income: Testing the Reserve Capacity Model,” presented by Elizabeth J. Wilson, candidate for the Master of Arts degree, and certify that in their opinion it is worthy of acceptance.

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ABBREVIATIONS

12-Item Short Form Health Survey = SF-12

36-Item Short Form Health Survey = SF-36

Activities of Daily Living = ADLs

Body Mass Index = BMI

Behavioral Risk Factor Surveillance System = BRFSS

Center for Disease Control and Prevention = CDC

Glycated Hemoglobin = HbA1C

Instrumental Activities of Daily Living = IADLs

Socioeconomic Status = SES

Health-Related Quality of Life = HR-QoL

Mental Component Score = MCS

Mental Health-Related Quality of Life = MHR-QoL

Multiphasic Assessment of Cultural Constructs—Short Form = MACC-SF

Reserve Capacity Model = RCM

Performance-Based Assessments of Physical Function = POMA

Physical Component Score = PCS

Physical Health-Related Quality of Life = PHR-QoL

Sexually Transmitted Infections = STI

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CHAPTER 1

INTRODUCTION

For many years, researchers have observed disparities in health behaviors and outcomes between ethnic and racial minority groups and majority groups in the United States (Center for Disease Control and Prevention's [CDC], 2013). Additionally, socioeconomic status (SES) is negatively associated with health behaviors and outcomes (Adler et al., 1994). It has been noted, however, that—despite typically being of low SES—Hispanic Americans have lower rates of mortality than other minority groups, a phenomenon that has been called the *Hispanic Paradox* (Markides & Coreil, 1986). The *Hispanic Paradox* is most pronounced among Hispanics low in acculturation (Holmes, Driscoll, & Heron, 2015)—the process of adaptation to a dominant culture (Franzini, Ribble, & Keddie, 2001). Additionally, acculturation among Hispanics may be associated with worse health behaviors, although there are some exceptions (Abraído-Lanza, Chao, & Flórez, 2005). These patterns suggest that social and cultural variables may affect both engagement in healthy behaviors and more general health outcomes, such as health-related quality of life (HR-QoL). Researchers have hypothesized that social and cultural variables may contribute to this mortality advantage. In particular, Gallo and Matthews (2003) proposed a framework to describe how social, psychological, and cultural factors provide a buffer against the stressful life experiences associated with poverty and ethnic/racial minority status. This theory, the Reserve Capacity Model (RCM), states that—among other factors—cultural values and traditions serve as resources to ameliorate the effects of life stressors, which may result in healthy behaviors and ultimately better health outcomes, such as HR-QoL.

There is mixed evidence regarding disparities in HR-QoL between Hispanic Americans and Whites, with some researchers reporting worse HR-QoL among Hispanics relative to Whites, while other studies have found similar levels of HR-QoL between the groups (CDC, 2013; Mier et al., 2008). Nevertheless, given the disproportionate levels of low SES among Hispanics, and thus the increased risk of poor health outcomes, it is of interest what cultural variables affect HR-QoL. Furthermore, research on disparities in healthy behaviors between Hispanic and White Americans are mixed, but they suggest that less acculturated Hispanics have better health behaviors relative to more acculturated Hispanics and Whites (Abraído-Lanza, et al., 2005; Winkleby, Albright, Howard-Pitney, Lin, & Fortmann, 1994). Therefore, it is plausible that cultural factors influence not only HR-QoL, but also engagement in healthy behaviors.

Among Hispanic cultural variables is *fatalism*, or the belief that future events are fixed and outside of personal control (Cuéllar, Arnold, & González, 1995). In the general U.S. population, fatalism is often associated with worse health behaviors and health outcomes; research on the effects of fatalism in Hispanic samples is mixed. Some researchers have found a negative relationship between fatalism and health outcomes and behaviors, other researchers have found a positive relationship between fatalism and health, and yet others have found no relationship between fatalism and health in Hispanics (Espinosa de los Monteros & Gallo, 2013; Gutierrez et al., 2016; Piña-Watson & Abraído-Lanza, 2017). This variability in observed relationships suggests that there may be moderating variables that affect the association between fatalism and health.

One variable known to affect health outcomes and health behaviors is religiosity, which is considered a resource within the framework of the RCM. Though not specific to Hispanic culture, religiosity is a prominent aspect of many Hispanic cultures (Pew Research Center, 2007). Religiosity (and more specifically religious attendance) is typically positively associated with health outcomes and engagement in healthy behaviors (Arredondo, Elder, Ayala, Campbell, & Baquero, 2005; Obisesan, Livingston, Trulear, & Gillum, 2006). Fatalism represents a cognitive style of attributing control over events to other forces, while aspects of religiosity also involve a belief that a higher power has control over life events. Therefore, these two resources may be expected to co-occur. Research has found that fatalistic beliefs are associated with religious attendance (Musick, House, & Williams, 2004). This connection is important to examine when considering possible moderating factors of the effect of fatalism on health outcomes.

Acculturation status may affect the interaction between fatalism and religious attendance as well; while for less acculturated Hispanics fatalism may be positively associated with health outcomes, there may be the opposite relationship for more acculturated Hispanics (Moreno & Cardemil, 2016; Neff & Hoppe, 1993). Moreover, there is evidence that there may be disparities in HR-QoL between Hispanics and Whites (CDC, 2013). Some research has investigated the relationship between fatalism and HR-QoL in Hispanic samples with particular medical diagnoses (e.g., diabetes, cancer). However, as of yet, I have not yet identified studies in Hispanics that examine relationships between religious attendance, fatalism, and HR-QoL in Hispanics.

Some research indicates that acculturation and religious attendance may moderate the effects of fatalism on health outcomes. While research has linked fatalism and religious attendance in a diverse sample (Musick et al., 2004), I have not found studies specifically investigating these constructs as potential cultural reserves for Hispanic Americans within an RCM framework. The present study analyzed data collected from a sample of 133 Hispanic Americans low in acculturation and socioeconomic status. Acculturation was measured by participants' preference for study materials written in Spanish over English. This is a commonly-used proxy measure of acculturation (e.g., Jiménez et al., 2012).

Therefore, based on the research outlined above, the study used regression analyses to test the three hypotheses. First, the interaction of fatalism and religious attendance was expected to predict physical HR-QoL (PHR-QoL). Specifically, the combination of high fatalism and high religious attendance was expected to predict high levels of PHR-QoL. Second, the interaction of fatalism and religious attendance was expected to interact to predict mental HR-QoL (MHR-QoL). Specifically, the combination of high fatalism and high religious attendance was expected to predict high levels of MHR-QoL. Finally, the interaction of fatalism and religious attendance was expected to interact to predict engagement in healthy behaviors. Specifically, the combination of high fatalism and high religious attendance was expected to predict high levels of engagement in healthy behaviors. Results showed that the interaction of fatalism and religiosity was not significantly related to PHR-QoL and engagement in healthy behaviors. Contrary to the second hypothesis, the combination of high fatalism and high religiosity was related to low MHR-QoL.

CHAPTER 2

REVIEW OF THE LITERATURE

Health Disparities

Health disparities in ethnic and racial minority groups in the United States have been observed for many years. The Centers for Disease Control and Prevention's (CDC) Health Disparities and Inequalities Report (2013) lists several health disparities experienced by minority groups. Among them are fewer health promoting behaviors—such as lower flu vaccine coverage for African American and Hispanic adults relative to White adults—and greater chronic disease burdens, including higher rates of diabetes in African American, Hispanic, and Asian populations. Other disparities include higher rates of infectious diseases—such as Tuberculosis in Hispanic, African American, and Asian/Pacific Islander groups—and cardio-metabolic risk factors. For example, the report notes higher rates of obesity in Mexican American and African American women, higher rates of hypertension in African Americans, but lower rates of controlled blood pressure among African Americans and Hispanic Americans. Both the CDC and Operario, Lee, Kuo, and Zaller (2015) found increased odds of Sexually Transmitted Infections (STI) and HIV infections for African Americans and Hispanic Americans relative to Whites.

Furthermore, several studies have found an increased risk of metabolic syndrome for Mexican Americans (Meigs et al., 2003; Park et al., 2003). Borschuk and Everhart (2015) also found higher levels of HbA1C, a risk factor for diabetes, in ethnic minority youth relative to White youth. In addition to disease and infection rates, Williams (2012) noted disparities in mortality; in particular, Hispanics and American Indians experienced higher

mortality rates related to diabetes, liver cirrhosis, and homicide than their White counterparts. Notably, the CDC (2013) study found that most ethnic/racial minorities reported worse health-related quality of life (HR-QoL) and more mentally unhealthy days compared to their majority counterparts; HR-QoL was the focus of this study, along with engagement in health-promoting behaviors.

Health disparities along a socioeconomic gradient have long been observed (Adler et al., 1994), and differences in SES have been noted between racial and ethnic minorities and the majority population. Many racial and ethnic minorities are more likely to be at or below the federal poverty level: American Indians/Alaska Natives, African Americans, Hispanic Americans, and Native Hawaiians/Pacific Islanders have poverty rates ranging from 27% to 17%, whereas poverty rates of Whites or Asian Americans are near 11% (Macartney, Bishaw, & Fontenot, 2013). Regarding income more generally, the median incomes of Whites and Asian Americans tend to be higher than incomes of African Americans, Hispanic Americans, and American Indians/Alaska Natives (KewalRamani, Gilbertson, Fox, & Provasnik, 2007).

Disparities also appear on other measures of SES, such as educational attainment; while high school graduation rates are comparable between Pacific Islanders, Whites, and African Americans—ranging from 88% to 84%—they are substantially lower in Hispanic Americans, with a high school graduation rate of 62% (U.S. Census Bureau, Statistical Abstract of the United States, 2012). However, at higher levels of education, compared to Whites or Asian Americans, fewer African Americans, Hispanic Americans, Native Hawaiians/Pacific Islanders, and American Indians/Alaska Natives have obtained a college degree or higher (Ogunwole, Drewery, & Rios-Vargas, 2012).

As detailed above, research shows widespread disparities in health outcomes, income, and social class indicators by race and ethnicity (CDC, 2013; Macartney, et al., 2013; U.S. Census Bureau, Statistical Abstract of the United States, 2012). Health disparities include higher rates of illnesses such as diabetes among African Americans, Hispanics, and Asian Americans relative to Whites, as well as lower rates of health behaviors such as flu vaccine coverage in African Americans and Hispanics relative to Whites (CDC, 2013). Health disparities have largely been observed to negatively correlate with SES (Adler et al., 1994), and socioeconomic hardship disproportionately affects racial and ethnic minorities, with American Indians/Alaska Natives, African Americans, Hispanic Americans experiencing higher rates of poverty and overall lower median incomes than Whites or Asian Americans (KewalRamani et al., 2007; Macartney et al., 2013). Additionally, Hispanic Americans tend to have lower high school graduation rates than Pacific Islanders, Whites, and African Americans (U.S. Census Bureau, Statistical Abstract of the United States, 2012); at higher levels of education, however, fewer African Americans, Hispanic Americans, and Native Hawaiians/Pacific Islanders obtain a college degree or higher (Ogunwole et al., 2012).

Acculturation and the Hispanic Paradox

Despite documented health disparities for Hispanic Americans, researchers have noted a mortality advantage for Hispanic Americans relative to other ethnic groups, even while many Hispanic Americans face relative socioeconomic disadvantages. This unexpected pattern has been termed the *Hispanic Paradox* (Markides & Coreil, 1986). In a meta-analysis, Ruiz, Steffen, and Smith (2013) found that mortality rates for Hispanic Americans were 17.5% lower than other ethnic groups. While some researchers have proposed

explanations such as data inaccuracy and selective migration—healthier migrants arriving to the U.S. and unhealthy migrants leaving before dying—to explain this pattern, these theories are insufficient to fully account for the Hispanic Paradox (Abraído-Lanza, Dohrenwend, Ng-Mak, & Turner, 1999; Arias, Eschbach, Schauman, Backlund, & Sorlie, 2010; Franzini et al., 2001). Social variables, such as *acculturation*, may be responsible for this mortality advantage (Franzini et al., 2001); in particular, elements of Hispanic culture may be protective to Hispanic Americans.

Franzini et al. (2001) defined acculturation as a process by which individuals raised in a minority culture adapt to the social structures, traditions, values, and belief systems of the dominant culture in which they live. This process does not necessarily include complete abandonment of their culture of origin, but can result in either complete assimilation or the creation of a new, composite culture. In relation to health, research has shown that Hispanics who immigrated to the U.S. as adults older than 24—and who presumably maintained more features of their cultural heritage—had lower mortality rates than those who immigrated before the age of 18 (Holmes et al., 2015). Furthermore, Abraído-Lanza, et al. (2005) found that greater acculturation among Hispanic Americans was associated with higher odds of smoking, drinking, and having a high body mass index (BMI), although it was also associated with higher odds of exercise. These studies suggest that acculturation may have a negative effect on some health behaviors and mortality in Hispanic Americans.

Reserve Capacity Model (RCM)

Given that racial and ethnic minorities are more likely to be of lower SES than their majority counterparts, researchers have proposed many theories to help explain the interactive effects of race/ethnicity and poverty on poor health. Gallo and Matthews (2003) posited one such theory, the RCM, which proposes psychosocial mechanisms by which SES affects health. Specifically, lower SES is associated with an increase in the experience of stress and in negative cognitions and emotional states (e.g., depression, anxiety, and hostility/anger), and these psychological factors are in turn related to health. When these factors are accounted for, the relationship between SES and health outcomes is diminished. Therefore, psychological factors are plausible mediators of the association.

The RCM (Gallo & Matthews, 2003) suggests that people of lower SES have fewer material resources and have a lower perceived status in society; this increases the likelihood of negative and stressful experiences while simultaneously reduces positive experiences. At the same time, those of lower SES have fewer tangible, interpersonal, and intrapersonal resources—together known as the reserve capacity. Given the high frequency of stressful experiences, people of low SES draw more often on their reserves and are less frequently able to replenish them. The reserve capacity also affects cognitions and emotions; a lower reserve results in more negative cognitions and/or emotions while a higher reserve buffers against them. The cognitive-emotional factors influence intermediate paths—health behaviors and physiological responses to stress—that ultimately lead to adverse health outcomes.

To account for the effects of ethnic/racial and cultural minority status, Gallo, Penedo, Espinosa de Los Monteros, and Arguelles (2009) developed the culturally-expanded RCM. In this model, the cultural context as well as SES shape psychological risk and resilience. As part of one's reserve capacity, people possess culture-specific resources—attitudes, beliefs, and traditions—that serve to buffer against the effects of stressors. Stressful life events and negative cognitive-emotional states deplete reserves, whereas positive events and cognitive-emotional states can replenish them. That is, ethnic/racial minorities of low SES face additional stressors specific to their minority status (e.g., discrimination, acculturation), but also possess resources that are unique to their cultural background (see figure 1).

Importantly, the culturally specific elements of the reserve capacity may be comprised of interpersonal (e.g., tangible and intangible forms of social support) and intrapersonal resources (e.g., particular forms of meaning making or emotional regulation strategies). In the culturally expanded RCM, Gallo et al. (2009) conceptualize social support as one culture specific resource, among others. Collectivist cultures prioritize group harmony and social connections. This is reflected in the Hispanic value of *familism* (i.e., putting the needs of the family first, an emphasis on strong familial attachments) and this value may result in strong social support (Gallo et al., 2009). While researchers have found strong evidence that social support both moderates and mediates the relationship between SES and health outcomes (Gallo & Matthews, 2003), other psychosocial variables—or cultural values—may relate to health outcomes through distinct pathways. Therefore, research should investigate cultural values while controlling for the effects of social support.

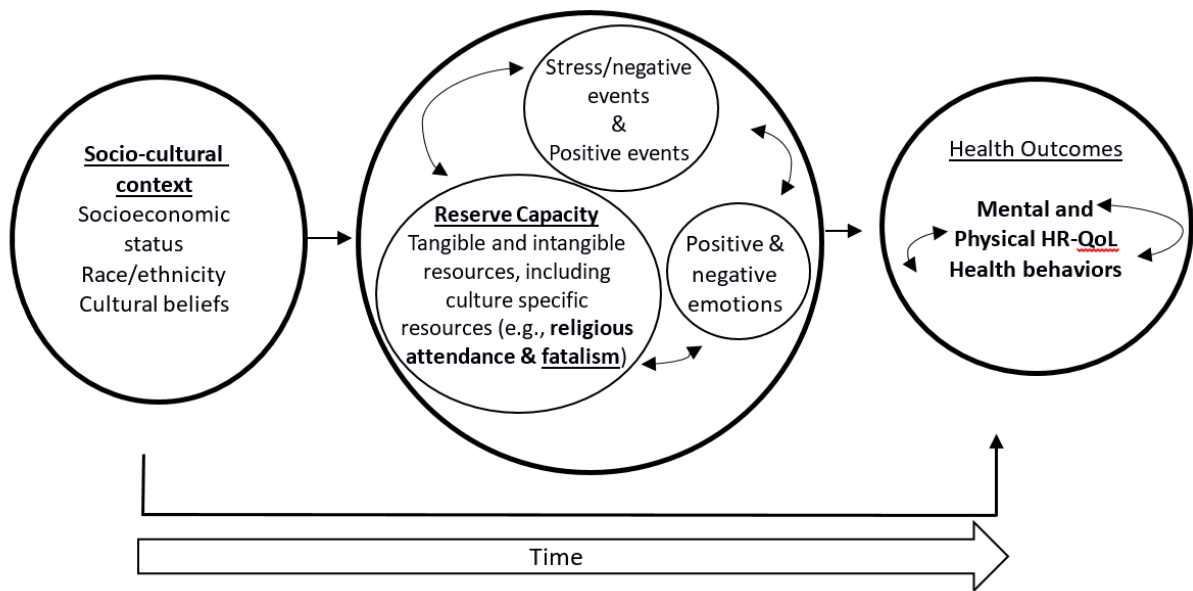


Figure 1. The Reserve Capacity Model adapted from Gallo et al. (2009), demonstrating relationships between socio-cultural context, the Reserve Capacity, positive and negative events and emotions, and health outcomes, and engagement in healthy behaviors. HR-QoL = Health Related Quality of Life.

Health Behaviors and Health-Related Quality of Life in the context of the RCM

In the context of the RCM, both health behaviors—healthy diet, exercise level, medication adherence, preventive healthcare, etc.—and HR-QoL are influenced by a person’s social and cultural background via the reserve capacity. Health behaviors can be thought of broadly as any behavior that strongly influences health or disease. For example, the CDC collects data on a variety of health behaviors that contribute to health risks through the Behavioral Risk Factor Surveillance System (BRFSS; CDC, 2011), including preventive health visits, cancer screening, tobacco and alcohol use, sleep, and physical activity. Health behaviors—as well as psychological and physiological reactions to stress—affect various

types of health outcomes. Furthermore, health behaviors and health outcomes may have reciprocal relationships, whereby behavior influences the onset or maintenance of health conditions, which in turn affect subsequent behavior. Health outcomes, such as disease occurrence and mortality, are considered ultimate (or distal) outcomes in the RCM, whereas health behaviors are treated as intermediate pathways that lead to health outcomes.

Nevertheless, given the reciprocal relationship between health behaviors and health outcomes, health behaviors may either precede or follow health outcomes. Therefore, when considering health behaviors at the same point in time as the specified health outcomes (e.g., HR-QoL), both variables may be evaluated as distinct outcomes.

Health outcomes include diagnoses of specific diseases, disability, and mortality. However, measures of *subjective health* are also relevant outcomes. Subjective health measures can include single item measures of self-rated health, which have been found to correlate with mortality (DeSalvo, Bloser, Reynolds, He, & Muntner, 2006). Self-rated health or subjective health is subsumed under HR-QoL, which encompasses more broad aspects of health and well-being, ranging across multiple domains, including physical, mental, and social role functioning (Office of Disease Prevention and Health Promotion, 2016). The 12-Item Short Form Health Survey (SF-12) is a widely used measure of HR-QoL, which measures two main components: mental health-related quality of life (MHR-QoL), which encompasses vitality, social role functioning, emotional experiences, and mental health symptoms; and physical health-related quality of life (PHR-QoL), which includes perceived physical functioning, pain experiences, and general reported health (Ware, Kosinski, & Keller, 1996).

Various measures of HR-QoL have been found to correlate with risk of mortality in older adults (Brown, Thompson, Zack, Arnold, & Barile, 2015). Demographic factors including gender, age, and ethnic/racial minority status have also been found to correlate with HR-QoL—in general, women, older adults, and most ethnic/racial minorities report worse HR-QoL than men, younger adults, and White Americans, respectively (CDC, 2013). Furthermore, adverse experiences, such as perceived discrimination, are associated with lower reported HR-QoL (Howarter & Bennett, 2013).

There is mixed evidence of disparities in HR-QoL between Hispanic and White Americans. Some research suggests that Hispanic Americans tend to have worse HR-QoL than their majority counterparts. For example, the CDC (2013) found that Hispanic Americans were more likely than White Americans to rate their health as fair or poor (as opposed to good, very good, or excellent), had more physically unhealthy days than White Americans, and reported more physically unhealthy days than White Americans. Importantly, Hispanic Americans reported more mentally and physically unhealthy days in 2010 compared to the number of mentally and physically unhealthy days in 2006.

Studies of smaller samples of Mexican Americans, however, have inconsistent findings of HR-QoL disparities between Mexican Americans and Whites. Mier et al. (2008) examined the HR-QoL of Mexican Americans living in *colonias*—unincorporated settlements along the Texas-Mexico border, often lacking basic services. Using a cross-sectional survey design, the authors collected information on HR-QoL—using the SF-8 (a shortened version of the SF-12; Ware, Kosinski, Dewey, & Gandek, 2001). In comparison

with U.S. norms, Mexican Americans living in the *colonias* had worse PHR-QoL. In contrast, MHR-QoL was similar between U.S. norms and Mexican Americans living in *colonias*.

Other research has suggested that Hispanic Americans score similarly to White Americans on measures of HR-QoL. In particular, Peek, Ray, Patel, Stoebner-May, and Ottenbacher (2004) examined the use of the Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey (SF-36; Ware & Sherbourne, 1992) to measure HR-QoL in an older Mexican American sample. After finding evidence for the validity of the use of scale in an older Mexican American population, the authors compared the HR-QoL scores of this sample to national norms. They found that in comparison to a nationally representative sample, older Mexican Americans had higher HR-QoL scores in six out of eight domains (i.e., components of PHR-QoL and MHR-QoL); in the oldest cohorts, Mexican Americans had higher HR-QoL scores in all domains compared to a nationally representative sample. Similarly, Farley, Galves, Dickinson, & Perez (2005) compared HR-QoL (assessed with the SF-36) between Mexican Americans ($n = 73$), Mexican citizens living in the U.S. ($n = 149$), and Whites ($n = 62$). Results of ANCOVA analyses indicated that Mexican Americans had higher MHR-QoL than Whites, and that Mexicans living in the U.S. had higher PHR-QoL than either Mexican Americans or Whites. However, there was no difference in PHR-QoL between Mexican Americans and Whites.

Research comparing health behaviors between Hispanics and Whites suggests that the relationship may vary based on level of acculturation. For example, Abraído-Lanza et al. (2005) found mixed evidence of disparities in health behaviors in Hispanics compared to non-Hispanic Whites. In a national sample of over 35,000 participants, the authors calculated

odds ratios of health behaviors—smoking, moderate/high alcohol intake, high BMI, and exercise. Hispanics were less likely to be smokers, consume moderate/high amounts of alcohol, but were more likely to have a high BMI, than non-Hispanic Whites. The authors also examined the role of acculturation in health behaviors, finding that more acculturated Hispanics were more likely to smoke, drink at moderate/high levels, and have a high BMI, while also being more likely to exercise, than less acculturated Hispanics. This study highlights the complex relationship between minority status and health behavior disparities, suggesting that for some behaviors, Hispanics lower in acculturation are more likely to engage in healthy behaviors relative to non-Hispanic Whites and more acculturated Hispanics. Yet, in other behaviors (exercise in particular), Hispanics high in acculturation and non-Hispanic Whites are more likely to engage in healthy behaviors than Hispanics low in acculturation.

Similarly, researchers have also compared dietary habits between Hispanics and Whites. Winkleby et al. (1994) conducted a survey in a sample of 886 adults (426 Hispanic) with low educational attainment. All participants reported which high fat foods they frequently ate, and a random sub-sample reported all foods eaten in the past 24 hours. Researchers then compared the frequency of high fat food intake between the Hispanic and White participants. T-test comparisons revealed that for most high-fat foods, Whites consumed more than Hispanics. Additionally, Whites were more likely than Hispanics to have eaten fried foods in the past 24 hours, and were more likely to add dietary fat after cooking. The researchers also examined the relationship between acculturation and dietary fat intake in Hispanics; they compared the dietary preferences of Spanish speaking Hispanics

to those of English speaking Hispanics. ANCOVA analyses revealed that there was a graded relationship between acculturation and dietary habits; across dietary measures, more acculturated, English speaking Hispanics consumed more dietary fat than less acculturated, Spanish speaking Hispanics, but still consumed less than Whites. This study suggests that health behaviors, such as dietary habits, may differ between Hispanics and Whites with low educational attainment, but that acculturation moderates that relationship. Importantly, more acculturated Hispanics have dietary habits that more closely resemble Whites than those of less acculturated Hispanics. However, this study did not examine what cultural factors contribute to healthy diet habits for less acculturated Hispanics.

In summary, the RCM postulates that cultural resources affect cognition and emotions that interact with reserve capacity to influence health outcomes, such as HR-QoL. While health behaviors influence downstream health outcomes, the relationship may be reciprocal. Therefore, research may investigate both health behaviors and HR-QoL as outcomes. Furthermore, research findings on HR-QoL disparities between Hispanics and Whites are mixed. Given this inconsistent pattern of findings, research should address in what contexts Hispanic Americans experience worse HR-QoL than their majority counterparts, and what culture-specific factors are associated with HR-QoL for Hispanic Americans. Finally, studies demonstrate that less acculturated Hispanics typically report more healthy behaviors than more acculturated Hispanics and Whites. Research should also investigate whether the same cultural resources are related to health behaviors.

Fatalism as a Cultural Resource

Predictors in the RCM fall into several categories, ranging from the socio-cultural context—that includes variables such as socioeconomic status and cultural beliefs—to the elements of the reserve capacity itself—tangible and intangible resources, including culture-specific resources (Gallo et al., 2009). These culture-specific resources may be traditions, beliefs, and values that are specific to or characteristic of a cultural identity. Cuéllar et al. (1995) identified several cultural constructs that are associated with Mexican cultural identity. These constructs comprise attitudes, beliefs, and ideas that are typical of people who identify as culturally Mexican, and they may function as cultural resources in the expanded RCM (Gallo et al., 2009). Among these constructs is *fatalism*. Fatalism resembles Rotter's (1966) construct of external control—defined as the degree to which a person perceives that outcomes are not entirely dependent on his/her actions, but rather “the result of luck, chance, fate, as under the control of powerful others, or as unpredictable due to the great complexity of the forces surrounding him” (p. 1). While fatalism is conceptually similar to cognitive orientations seen in many populations, it is a cultural construct that is predominate in Hispanic/Latino populations, particularly Mexican Americans (Espinosa de los Monteros & Gallo, 2013). Cuéllar et al. (1995) developed a scale to assess fatalism (a sub-scale of the Multitphasic Assessment of Cultural Constructs—Short Form [MACC-SF]), and found it was negatively related to acculturation in people born in Mexico or of Mexican descent. While research shows fatalism correlates with SES, and therefore may be confounded with Hispanic ethnicity, researchers have found a direct association between it and Mexican cultural identity (Ross, Mirowsky, & Cockerham, 1983).

Although fatalism is theorized to be protective of health within Hispanic cultures, it may not be among majority cultures. The connection between fatalism and health outcomes likely operates through several mechanisms, including behavioral, psychological, and biological risk pathways. For example, fatalism is associated with heightened psychological distress (Ross et al., 1983) which could lead to physiological changes. As proposed by Rotter's (1966) social learning theory, fatalism may decrease the likelihood that a person takes action to change his/her outcomes; early research indicated that people who had a low sense of control were less likely to initiate preventive care and had worse health outcomes compared to their counterparts with high perceived control (Seeman & Seeman, 1983).

As a cultural value for Hispanics, fatalism may play a role in responding to stressful life events and affect emotional and behavioral responses to such events, including health behaviors and other health outcomes. Although theorized to have a protective effect on health among Hispanic cultures, research is mixed. Some studies support its positive effects on health outcomes. For example, in a sample of Hispanic adolescents, Piña-Watson and Abraído-Lanza (2017) examined the relationship between fatalism and pessimism in predicting mental health symptoms, specifically depressive symptoms and suicidality. The researchers first collected data on fatalism and pessimism using a scale that contained three sub-scales—predetermination, luck, and pessimism. The authors contended that the first two factors represented the construct of fatalism, whereas the third was a separate construct—a pessimistic attribution style. While fatalistic beliefs did not predict mental health symptoms, pessimism was positively related to depressive symptoms and suicidality. The interaction of fatalism and pessimism showed that fatalistic beliefs attenuated the relationship between

pessimism and suicidality, suggesting that fatalism is a protective factor for Hispanic adolescents.

In other cases, the co-occurrence of other—potentially protective—psychosocial factors change the effect of fatalism on outcomes. Neff and Hoppe (1993) analyzed relationships between acculturation, religiosity, and fatalism in Whites, Mexican Americans, and African Americans in order to disentangle the effects of SES, racial minority status, and culture on depressive symptoms. In the most acculturated Mexican American males (as well as White males), the combination of high fatalism and high religiosity was associated with the highest levels of depressive symptoms; however, for the least acculturated Mexican American men (and African American men), this same combination resulted in the lowest levels of depressive symptoms. The patterns were somewhat different for women; yet still, in the least acculturated Mexican American women, higher fatalism in conjunction with higher religiosity resulted in lower levels of depressive symptoms. Results of this study suggest that fatalism can be an adaptive cultural cognitive orientation—perhaps only in minimally acculturated Mexican Americans—particularly when it occurs alongside religiosity.

In other studies, fatalism has been associated with negative health outcomes, including increased risk of metabolic syndrome and cardiometabolic dysfunction. For example, Espinosa de los Monteros and Gallo (2013) studied relationships between cardiometabolic dysfunction risk—defined by high blood pressure, waist circumference, plasma glucose, and triglycerides and low high-density lipoprotein cholesterol—SES, and fatalism. The researchers collected data from a sample of 300 Mexican American women in and around San Diego, CA, most of whom were born in Mexico. Results indicated that

fatalism mediated the relationship between cardiometabolic dysfunction risk and SES. That is, SES was negatively related to fatalism. In turn, fatalism was positively related to cardiometabolic dysfunction risk. Additionally, although SES slightly attenuated the relationship between fatalism and cardiometabolic dysfunction risk in a multiple regression analysis, it remained a statistically significant predictor, suggesting that fatalism affects health outcomes independently of socioeconomic disadvantage.

Research has also shown correlations between fatalism about cancer and poor adherence to recommended guidelines for exercise, smoking, and diet, as well as healthcare utilization. For example, Niederdeppe and Levy (2007) analyzed data collected from a diverse sample of over 6000 American adults (11.7% Hispanic), exploring the relationship between fatalistic beliefs about cancer (e.g., “There’s not much people can do to lower their chances of getting cancer.”) and preventive health behaviors (e.g., physical activity, not smoking, and fruit and vegetable consumption). In general, results indicated that the odds of meeting health behavior recommendations were lower for participants who endorsed fatalistic beliefs compared to their less fatalistic counterparts. When all fatalistic beliefs were entered in the same model, two beliefs independently predicted adherence to health behaviors. In particular, those who endorsed “almost everything causes cancer” were less likely to be nonsmokers or eat recommended amounts of fruits and vegetables than those who did not endorse that item. Additionally, those who endorsed “there’s not much a person can do to reduce their risk of cancer” were less likely to exercise weekly than their counterparts who did not endorse this item. This study indicates that beliefs that a disease outcome is outside of personal control may contribute to poor adherence to health behaviors.

Anastasia and Bridges (2015) studied relationships between fatalism, depressive symptoms, mental health service utilization, and medical health service utilization. The authors recruited 83 participants who self-identified as Latino and said that they were a parent of a child aged 6 to 12. Participants completed questionnaires that measured fatalism and affective symptoms, as well as how frequently they sought mental or medical services. Path analyses showed that fatalism had a direct, negative effect on medical service utilization. In addition, fatalism had a direct, positive association with depressive symptoms. Unexpectedly, however, depressive symptoms mediated an indirect, positive effect on mental health service utilization. That is, fatalism was directly positively related to depressive symptoms; depressive symptoms were then positively related to mental health service utilization. On one hand, these findings suggest that fatalism may directly and negatively affect the extent to which Hispanic/Latino Americans seek *medical* services. On the other hand, the connection between fatalism and mental health symptoms complicates the relationship between fatalism and *mental health* service utilization.

Furthermore, some studies have failed to find a significant relationship between fatalism and health outcomes, health behaviors, and healthcare utilization. For example, Gutierrez and colleagues (2016) examined connections between fatalism, hypertension prevalence, hypertension treatment, and hypertension awareness in a sample of Hispanics/Latinos recruited in four U.S. cities (Bronx, NY, Chicago, IL, Miami, FL, and San Diego, CA). Participants with hypertension at baseline subsequently completed questionnaires assessing fatalism. The researchers conducted a series of logistic regressions to predict hypertension prevalence, hypertension treatment, and hypertension awareness from

fatalism, as well as sociodemographic variables (i.e., age, sex, Hispanic/Latino background, SES, acculturation, and health covariates). Results indicated that while fatalism was associated with increased odds of hypertension when accounting for SES and acculturation, the relationship became non-significant when accounting for health covariates. Specifically, diabetes prevalence most strongly attenuated the relationship between fatalism and hypertension. This research suggests that the relationship between fatalism and hypertension prevalence may be dependent on the presence of other health factors.

In a diverse sample ($N = 452$; 11% Hispanic) of patients with diabetes, Lange and Piette (2006) researched the relationship between fatalistic beliefs and HR-QoL. They indexed fatalistic beliefs with two questions regarding chance and personal control of diabetes, and captured MHR-QoL and PHR-QoL with the SF-12 (Ware et al., 1996). The authors found that Hispanic participants reported higher levels of fatalism than did other participants (White, African American, or Asian American). Linear regression results indicated that fatalism was negatively related to PHR-QoL and MHR-QoL, but after controlling for SES and disease severity, fatalism did not predict either. These results suggest that other factors (sociocultural factors and disease severity) account for a relationship between fatalism and HR-QoL in patients with diabetes. However, these results may be limited in their application to healthy individuals; furthermore, Hispanics comprised a relatively small percentage of its sample. Future research should investigate a possible relationship between fatalism and HR-QoL in larger, healthy Hispanic samples.

Ward (2012) investigated the relationship between sense of control—assessed with two items measuring personal mastery and perceived constraints—and subjective health,

which was measured with three self-report items. In a sample of 6,815 older adults (6.5% Hispanic), the author found that personal mastery was positively related to self-reported overall health; that is, higher ratings on the sense of control question corresponded to a higher likelihood of reporting “good” or “excellent” health. Furthermore, the likelihood of reporting “poor” or “fair” health was higher for participants who perceived more constraints. The author reported that there were no significant interactions between ethnicity and the associations between either measure of sense of control and self-reported health. Therefore, these results indicate that sense of control—a construct closely linked to fatalism—is positively related to self-reported health (a component of HR-QoL). This finding suggests that a negative relationship may exist between fatalism and HR-QoL for majority participants.

Urizar and Sears (2006) examined psychosocial and cultural factors related to cardiovascular health and quality of life in a sample of Hispanic cardiac patients ($n = 120$). The authors measured fatalism with a seven-item scale and assessed HR-QoL with a scale specific to patients who have experienced a cardiac event (measuring global, physical, emotional, and social functioning). Hierarchical multiple regression analyses, controlling for psychosocial variables including social support, indicated that fatalism was significantly related to social functioning, although there was a significant interaction between fatalism and gender. For Hispanic women, higher levels of fatalism were related to *worse* social functioning, but for Hispanic men higher levels of fatalism were related to *better* social functioning. The participants in this study had experienced a cardiac event, and so these results may not generalize to a healthy population. Nevertheless, this study suggests that there may be a relationship between fatalism and aspects of HR-QoL, and demographic

variables may moderate that relationship. In addition, it adds strength to the claim that cultural variables such as fatalism operate independently of social support.

Abraído-Lanza, Martins, Shelton, and Flórez (2015) investigated how fatalism might affect preventive health practices, namely, breast cancer screening (i.e., mammography) in Dominican women. The authors recruited 318 women of Dominican ethnicity; the women completed questionnaires that assessed sociodemographic variables, acculturation, fatalism, barriers to breast cancer screening, access to health care, and health insurance. Participants also responded to questions about whether they had ever had a mammogram and if so, how long it had been since they were screened. Multiple regression analyses indicated that barriers to healthcare were the strongest (negative) predictor of mammography, and that age was a positive predictor of mammography and acculturation was a negative predictor of mammography. Fatalism, by itself, was not significantly related to mammography. Therefore, this study suggests that fatalism may not be related to health screenings in Dominican women.

Thus, within the context of the RCM, fatalism may serve as a reserve (or cultural resource) that mediates or moderates the effect of life stressors on health outcomes. As a cognitive orientation predominate in Hispanic cultures, it theoretically serves as a protective factor, buffering against the negative effects of stressful—and often uncontrollable—life events. However, research on fatalism and health suggests a complex relationship, even in Hispanic samples. While some research finds a negative relationship between fatalism and health outcomes (Espinosa de los Monteros & Gallo, 2013), other studies have found no relationship once other variables are controlled (Gutierrez et al., 2016). Furthermore,

research has found that other psychosocial variables (e.g., race, acculturation, and religiosity) moderate the effect of fatalism on outcomes—relating to both better and worse health outcomes, depending on the group (Neff & Hoppe, 1993). Therefore, in order to better understand the relationship between fatalism and health outcomes and behaviors, research should investigate potential moderators. Previous research has suggested that both religiosity and acculturation are related to fatalism, as well as to health outcomes, creating the possibility that there could be an interaction between these variables to predict health outcomes.

Religious Engagement as a Cultural Resource

While not specific to Hispanic cultures, religiosity may serve as a component of one's reserve capacity, and may be thought of as a cultural resource (Gallo et al., 2009). Ample research has studied associations between religiosity, health outcomes, and health behaviors, with most reporting positive relationships. In studies regarding health behaviors and health outcomes, researchers have generally operationalized religiosity as *religious attendance*. For example, studies have linked religious attendance to reduced risk of stroke (Obisesan et al., 2006) and disability in older adults (Berges, Kuo, Markides, & Ottenbacher, 2007). Additionally, general measures of religiosity—including attendance and other assessments of religious beliefs and practices—are associated with reduced risk of mortality (Koenig et al., 1999; McCullough, Hoyt, Larson, Koenig, & Thoresen, 2000; Powell, Shahabi, & Thoresen, 2003).

Importantly, the protective effect of religious attendance has been observed in a sample of Mexican Americans. Hill, Angel, Ellison, and Angel (2005) investigated the

relationship between religious attendance and mortality in a sample of 3,050 Mexican Americans who were 65 or older and residents of Texas, California, New Mexico, Arizona, or Colorado. The researchers contacted participants to assess for mortality at four time points and inquired about their frequency of religious attendance. Cox proportional hazard regression results indicated that, in general, attending religious services once per week was associated with lower odds of mortality. While accounting for poor mobility, cognitive functioning, and sociodemographic factors (i.e., age, sex, education, income, marital status) attenuated the association, the relationship remained significant, suggesting that religious attendance operates as a protective factor in older Mexican Americans.

In a cross-sectional study of 117 Latina breast cancer survivors, Wildes, Miller, San Miguel de Majors, and Ramirez (2009) found religiosity/spirituality was positively related to certain domains of HR-QoL. The authors assessed religiosity/spirituality with a multicomponent measure that included items measuring religious attendance as well beliefs and social support from a religious/spiritual community. HR-QoL was measured with a cancer-specific HR-QoL scale that assessed the domains of physical, functional, psychological/emotional, and social well-being, as well as relationship with doctor. Religiosity/spirituality was positively correlated with multiple domains of cancer HR-QoL, including social well-being and functional well-being, and multiple regression analyses (controlling for sociodemographic variables and illness characteristics) indicated that religiosity/spirituality was positively related to functional well-being. These findings are limited in their application to a healthy Hispanic population, yet they suggest aspects of religiosity—including religious service attendance—may be positively related to HR-QoL.

The association between health outcomes and religiosity may be partially explained by health behaviors that are related to church attendance, including greater physical activity and reduced tobacco and alcohol use. Within the RCM, these types of health behaviors are referred to as *intermediate pathways* (Gallo & Matthews, 2003). For example, Musick et al., (2004) found that physical activity explained the reduced risk of mortality associated with religious attendance. The authors analyzed data from a diverse sample of 3,617 American adults, investigating the relationship between religious attendance, mortality, and potential confounding or mediating variables such as SES, health status, health behaviors, social integration and support, and other religious factors/beliefs. Using Cox proportional hazard models, the researchers found that when controlling for age and race, attending religious services once a month or more was associated with a reduced risk of mortality. Moreover, when the researchers accounted for physical activity, the effects of attendance became non-significant. These results suggest that religious attendance is related to healthy behaviors (i.e., regular physical activity), and it is these behaviors that mediate the relationship between religious attendance and reduced risk of death.

Similarly, Strawbridge, Shema, Cohen, and Kaplan (2001) investigated relationships between religious attendance, mortality, and health behaviors. The researchers tracked 6,928 predominately White, Christian adults in the San Francisco Bay area over the course of nearly thirty years, collecting data on health outcomes, religious attendance, smoking, physical activity, alcohol consumption, medical check-ups, depressive symptoms, social involvement, and marriage. Logistic regression results indicated that, in general, weekly religious attendance was associated with quitting smoking, becoming physically active,

reduced risk of depressive symptoms, increased quantity of personal relationships, and getting married. All effects were stronger for women than for men. As this was a longitudinal study, results suggest that religious attendance precedes these protective factors; therefore, it is plausible that the connection between religious attendance and health outcomes—while mediated by behaviors—is not a spurious connection.

Furthermore, researchers found that Hispanic women who attended church frequently ate more fiber and had more physical activity than those who did not attend services (Arredondo et al., 2005). Arredondo and colleagues recruited a sample of 357 women who spoke and read Spanish from San Diego County, CA. They conducted interviews over the phone and assessed religious attendance, self-rated health, fat and fiber intake, physical activity, demographic information, and acculturation. Multiple regression analyses indicated that women who attended church most frequently (i.e., four times or more per month) had better self-rated health, higher fiber intake, lower fat intake, and more physical activity than women who did not attend church. While controlling for SES reduced the association between church attendance and self-rated health to non-significance, the relationships between attendance, fiber intake, and moderate or vigorous physical activity remained significant. In addition, adjusting for acculturation reduced the association between religious attendance and vigorous physical activity. These results suggest that a positive relationship between SES and attendance explains the positive relationship between attendance and self-rated health. Likewise, in this sample, the positive relationship between acculturation and attendance explains the positive association between attendance and vigorous physical activity. Nevertheless, there remains an independent relationship between attendance and

some health behaviors, e.g., moderate physical activity. The connections between religious attendance, health behaviors, and health outcomes are complex and intertwined with other psychosocial factors; however, attendance likely plays a unique role as well.

In addition to measures of physical health, survival, and health behaviors, religious attendance has been found to be positively related to aspects of mental health. For Mexican Americans immigrants, religious attendance is associated with reduced rates of depression, anxiety, and substance use disorders. For example, Moreno and Cardemil (2016) analyzed data collected as part of a larger study investigating relationships between religious attendance, immigrant generational status, and mental health in Mexican Americans. The participants were 868 U.S.- and Mexico-born Mexican Americans; the researchers measured religious attendance and generational status with single item questions. Using diagnoses obtained through a standardized interview, the authors created three composite variables: lifetime prevalence of depressive disorders, anxiety disorders, and substance use disorders. Path analysis revealed that generational status was associated with lower rates of depressive, anxiety, and substance use disorders. In addition, religious attendance was associated with lower rates of depressive, anxiety, and substance use disorders. Finally, religious attendance partially mediated the association between generational status and substance use disorders. That is, Mexico-born Mexican Americans were more likely to attend religious services than U.S.-born Mexican Americans; attendance was then negatively associated with substance use. Overall, these results suggest that higher rates of religious attendance are related to lower rates of mental illness, and religious attendance may mediate the relationship between generational status and substance use disorders in Mexican Americans.

Furthermore, research in a Mexican American population suggests that religious attendance is a protective factor against physical function declines following a stroke. Berges et al. (2007) conducted longitudinal analyses on a sample of 118 Mexican Americans in the Southwestern U.S. who were over 65 years old, suffered a stroke, and reported residual symptoms. The researchers collected information on physical functioning, including measures of activities of daily living (ADLs), instrumental activities of daily living (IADLs), and performance-based assessments of physical function (POMAs) at baseline and at follow-ups, as well as information on the participants' frequency of attendance at religious services. General linear model repeated measures ANOVA indicated that when controlling for sociodemographic variables and chronic conditions, higher rates of church attendance at baseline predicted less disability in ADLs, IADLs, and less decline in POMAs—specifically declines in lower body function performance. Cross-sectional analyses leave open the possibility that positive associations between religious attendance and physical functioning are due to the fact that people with better physical functioning are more able to attend church. That is, this association could reflect a latent construct of physical mobility. However, this study used longitudinal data and took into account baseline physical functioning, finding that religious service attendance at baseline predicted less disability at later time points as well as improvements in lower body function. That is, although more physically mobile people are also more likely to attend religious services, this study indicates that attendance is protective against declines in functioning, and that there may be a protective effect of religious attendance on health.

The Interconnection between Fatalism and Religious Engagement

Fatalism, as measured by Cuéllar et al. (1995), may overlap with religious beliefs, to the extent that it identifies an external power who controls personal outcomes (i.e., “It doesn’t do any good to try to change the future because the future is in the hands of God,” p. 350). In a study of 3,617 American adults, Musick et al. (2004) investigated connections between four fatalistic beliefs (e.g., “If bad things happen, it is because they were meant to be,” p. 204) and religious service attendance. Results indicated that attendance positively correlated with fatalism. Similarly, Shaw and Krause (2001) found that higher levels of religiosity were associated with a lower sense of control. Analyzing data from 3,149 African American and White adults living in the United States, these researchers investigated how sense of control is related to age, race, and other predictors—notably religious attendance. Sense of control was operationalized based on three items which measured the extent to which participants perceived themselves to be in control of what happened to them (e.g., “People die when it is their time to die, and nothing can change that,” p. S121). Results indicated that religious attendance was negatively associated with sense of control. Together, these studies point to a connection between religious attendance and fatalism, suggesting that religious attendance may help to disentangle the mixed findings of the effects of fatalism on health among Hispanic cultures.

Notably, Hispanic Americans tend to be more religious—attending services more frequently and endorsing the importance of religion at higher rates—than non-Hispanic Americans (Pew Research Center, 2007). Given the prevalence of fatalistic beliefs among Hispanic Americans, the combination of religious attendance and fatalism may be especially

relevant in this population. Since fatalism and health may be connected—and both factors have been shown to relate to health outcomes and behaviors—their combination may have an interactive effect on health. In particular, high amounts of fatalism tend to be associated with worse health outcomes and poor adherence to healthy behaviors (e.g., Niederdeppe & Levy, 2007), while religious attendance is typically associated with improved health outcomes and adherence to healthy behaviors (e.g., Musick et al., 2004). However, given the evidence that fatalism may have a positive relationship with religious attendance, the question becomes, “How does the (likely) combination of fatalistic beliefs and religiosity affect health behaviors and outcomes?” While fatalism in isolation may have a negative relationship with health outcomes and behaviors (e.g., Espinosa de los Monteros & Gallo, 2013), high fatalism in combination with high religious involvement may have a neutral or positive relationship with health outcomes and behaviors. In contrast, high fatalism combined with low religious involvement may have a negative relationship with health outcomes and behaviors.

Acculturation and the RCM

In the context of the RCM, level of acculturation may affect what sorts of cultural resources individuals use when coping with life stressors. The effect of acculturation complicates the typical gradient seen between SES and ethnic minority status on health outcomes. As stated above, research finds that although Hispanic Americans tend to be of lower SES and face more stressful life situations, overall mortality rates are surprisingly equal or better than non-Hispanic Americans (Franzini et al., 2001); researchers typically refer to this effect as the Hispanic Paradox. Nevertheless, Hispanic Americans face higher

rates of occurrence for certain conditions—documented more extensively above—such as type II Diabetes (Franzini et al., 2001).

Given the complex relationship between acculturation and health in Hispanic Americans, it is plausible that cultural variables influence the relationship. For example, Cuéllar, et al. (1995) investigated relationships between five cultural constructs and level of acculturation in Mexican Americans: familism, fatalism, machismo, folk beliefs, and personalismo. Using a sample of largely Mexican (89%) first to fifth generation Americans in Texas, the authors administered a questionnaire to assess the degree to which respondents identified with these five constructs associated with Mexican culture. In addition, they measured the degree to which respondents were oriented to both Mexican culture and Anglo culture. ANOVA revealed that across generational statuses, respondents varied in their endorsement of the cultural constructs. In particular, for respondents in the first through third generations, fatalism scores were higher than scores from those in the fifth generation—no significant differences were found between the fourth and fifth generations. Regression results also indicated a significant negative relationship between acculturation (higher endorsement of Anglo orientation) and fatalism.

Because fatalism appears to be negatively related to acculturation in Hispanic Americans, it is possible that fatalism plays a role in understanding the relationship between acculturation and health. For example, research by Neff and Hoppe (1993) sought to disentangle the effects of ethnic minority status, acculturation, fatalism, and religiosity on mental health in a study of 1,789 African American, Mexican American, and White residents of a large city in Texas. Religiosity was assessed with a composite measure that included

frequency of religious attendance along with items that measured the influence of religion on one's life, self-reported religiosity, and frequency of prayer and talks with religious leaders. Preliminary analyses suggested that White participants had lower levels of fatalism than African Americans and than the two less acculturated groups of Mexican Americans. ANCOVA results suggested that while overall fatalism was associated with more depressive symptoms, there was a three-way interaction between fatalism, religiosity, and acculturation. That is, while high fatalism and high religiosity were associated with more depressive symptoms in the most acculturated Mexican American (and White men), this same combination was associated with fewer depressive symptoms in the least acculturated Mexican American men. Similarly, among the least acculturated Mexican American women, higher levels of religiosity in combination with higher levels of fatalism were associated with fewer depressive symptoms. These results suggest that acculturation moderates the effects of psychosocial variables—like religiosity and fatalism—on mental health symptoms.

Therefore, religious attendance may function as a cultural resource for Hispanic Americans low in acculturation. For example, Moreno and Cardemil (2016) found that generational status was negatively related to religious attendance, such that U.S.-born Mexican Americans were less religious than those born in Mexico. Furthermore, religious attendance mediated the negative relationship between acculturation and substance use. That is, Mexican Americans born in Mexico—in contrast to those born in the United States—were more likely to attend religious services. Religious attendance was then negatively associated with substance use. Overall, greater acculturation—those born in the U.S. vs. foreign born—was associated with worse anxiety, depression, and substance use symptoms.

Gaps in the Literature and Hypotheses

Fatalism and Health

In samples of Hispanics, research on the relationship between fatalism and health outcomes has been mixed. For example, Piña-Watson and Abraído-Lanza (2017) found that fatalism attenuated the negative relationship between pessimism and suicidality, suggesting that fatalism has a protective effect. Similarly, Neff and Hoppe (1993) found that in the least acculturated Mexican American men and women, the most fatalistic participants who attended religious services the most had the lowest levels of depressive symptoms. However, other findings have suggested a detrimental effect of fatalism on health outcomes. Espinosa de los Monteros and Gallo (2013) found a positive relationship between fatalism and cardiometabolic dysfunction in a sample of mostly Mexico-born Mexican American women. Finally, Gutierrez et al. (2016) found no relationship between fatalism and hypertension prevalence, hypertension treatment, and hypertension awareness, when controlling for SES, acculturation, and health covariates. Overall, results have suggested that the relationship between fatalism and health outcomes in Hispanic Americans is complex, and may vary according to cultural and psychosocial variables. More specifically, research points to moderating effects of acculturation and religious attendance (e.g., Neff & Hoppe, 1993) on the relationship between fatalism and health.

Fatalism and Religious Attendance

Research has linked fatalistic beliefs and religious attendance in a diverse sample of American adults (Musick et al., 2004). Likewise, sense of control—a construct closely linked to fatalism—has been found to negatively correlate with religious attendance (Shaw & Krause, 2001). However, to the author’s knowledge, no research has directly examined the relationship between fatalism and religious attendance specifically in Hispanic samples. However, Hispanic Americans attend religious services and endorse the importance of religion at higher rates than non-Hispanic Americans (Pew Research Center, 2007), and studies suggest that Hispanic Americans are more likely to endorse fatalistic beliefs than non-Hispanic Americans (e.g., Ross et al., 1983). Therefore, a gap in the literature exists and research should investigate whether religious attendance and fatalism function as cultural reserves for Hispanic Americans.

Religious Attendance and Health

Religious attendance is typically associated with better health outcomes and behaviors; in research conducted with Hispanic Americans, results suggest negative relationships between religious attendance and mortality, disability, mental health diagnoses, and positive relationships between religious attendance and health behaviors. Hill et al. (2005) found that religious attendance reduced the risk of mortality in older Mexican Americans, even when accounting for poor mobility, cognitive functioning, and sociodemographic factors (i.e., age, sex, education, income, marital status). In regards to disability outcomes following a stroke, Berges et al. (2007) found that religious attendance negatively predicted declines in daily and performance functioning for older Mexican

Americans. Furthermore, research has shown a positive relationship between religious attendance and health behaviors. In a study of Spanish speaking Hispanic women, Arredondo et al. (2005) found that—when controlling for SES—religious attendance was positively related to fiber intake and moderate and vigorous physical activity. Finally, Moreno and Cardemil’s (2016) study of Mexican Americans found that religious attendance was negatively related to diagnoses of substance use, depressive, and anxiety disorders. Therefore, extensive evidence supports the protective effect of religious attendance on varied health outcomes among Hispanics.

Health-Related Quality of Life (HR-QoL) and Engagement in Healthy Behaviors as Relevant Health Outcomes

While research has found relationships between religious attendance and fatalism on specific health outcomes in Hispanics (e.g., mortality and disability; Berges et al., 2007; Hill et al., 2005), little research has focused on how attendance or fatalism may be related to HR-QoL specifically. Importantly, The CDC (2013) found that minorities, including Hispanics, reported worse HR-QoL and more mentally unhealthy days compared to Whites. Most research examining fatalism and religious attendance in relationship to HR-QoL outcomes has been conducted in in populations with specific diagnoses (e.g., diabetes, cancer). Some of these studies suggest that fatalism is negatively correlated with MHR-QoL and PHR-QoL. For example, in a sample of patients with diabetes, MHR-QoL and PHR-QoL were negatively related to agreement with two items capturing fatalistic beliefs (Lange & Piette, 2006). Similarly, Ward (2012) found that among older adults, personal mastery (an opposing construct to fatalism) was positively related to self-rated health, while perceived constraints

(which may be a component of fatalism) were negatively related to self-rated health. Only one study I found assessed the relationship between religiosity/spirituality (a construct that conceptually includes religious attendance) and HR-QoL in Hispanics. Wildes et al. (2009) found that Latina breast cancer survivors with higher levels of religiosity/spirituality had better social and functional well-being (which are conceptually related to HR-QoL) compared to their counterparts with low levels of religiosity/spirituality.

In addition to health outcomes, health behaviors constitute outcomes in the RCM, and have been found to be related to cultural reserves such as fatalism and religious attendance. Although some researchers have found that fatalism is negatively related to health behaviors (Niederdeppe & Levy (2007), others have not found any relationship (Abraído-Lanza et al., 2015). As noted, fatalism may be conceptually related to some aspects of religiosity. Importantly, religious attendance (a component of religiosity) is consistently positively related to health behaviors (Arredondo et al., 2005; Strawbridge et al., 2001). I have not found any research that specifically examines the possible interaction between fatalism and religious attendance in relation to health behaviors. Given that the connection between fatalism and health behaviors may vary in the presence of other cultural reserves (e.g., religious attendance), future research should investigate if fatalism has a consistent relationship to health behaviors.

Hypotheses

This study used an existing data set of low income, low acculturation Hispanic Americans. Based on the research summarized above on the complex interconnections

between fatalism, acculturation, and religiosity, I hypothesized the following relationships in my secondary analysis of this project:

1. Fatalism and religious attendance would interact to predict PHR-QoL.

Specifically, the combination of high fatalism and high religious attendance would predict high levels of PHR-QoL.

2. Fatalism and religious attendance would interact to predict MHR-QoL.

Specifically, the combination of high fatalism and high religious attendance would predict high levels of MHR-QoL.

3. Fatalism and religious attendance would interact to predict engagement in healthy behaviors. Specifically, the combination of high fatalism and high religious attendance would predict high levels of engagement in healthy behaviors.

CHAPTER 3
METHODOLOGY

Participants

This project analyzed an existing data set collected from Hispanic residents of a Midwestern city. The participants were recruited between 2012 and 2013 from a Salvation Army holiday assistance program. Participants were recruited when they signed up for the holiday assistance program, which was available to families under the U.S. poverty line. If an individual agreed to participate, research assistants provided him/her with a letter that explained that by completing the questionnaires they were consenting to the study's procedures. Since study data were anonymous, no other consent documents were used. In total, 133 individuals completed study materials.

Table 1 provides descriptive statistics for the study sample. Participants ranged in age from 16 to 67 years, with a mean age of 34.6 years ($SD = 9.2$). The majority of participants was female (89.3%), and most self-identified as Hispanic/Latino (82.7%) or Mexican (14.3%). Most participants were married or living with a partner (67.6%). Educational attainment ranged from less than 9th grade (43.6%) to completion of a two- or four-year degree (10.5%). A plurality of participants earned less than \$10,000 per year (40.7%). Although acculturation is a multidimensional construct, language preference is the single strongest predictor of acculturation status (Cruz, Marshall, Bowling, & Villaveces, 2008). Using language as a proxy for acculturation, therefore, participants were largely low in acculturation, as indicated by their language preference, with 78.8 % completing the survey in Spanish.

Table 1

Descriptive statistics of participant characteristics (N=133).

Participant characteristics	<i>M (SD) or %</i>
Age (years)	34.65 (9.16)
Religious attendance	3.18 (1.80)
Never attended service in the past year	20.6
Rarely	27.5
Once per month	9.9
Twice per month	11.5
Once per week	18.3
Twice per week	10.7
Once or more per day	1.6
Female	89.3
Language preference	
Spanish	78.8
English	21.2
Marital Status	
Partnered	67.6
Not partnered	32.4
Insurance Status	
Insured	41.4
Uninsured	58.6
Education	2.04 (1.25)
Less than 9 th grade	43.6
Some high school (did not finish)	27.1
High school diploma/GED	18.8
2 or 4 year college	10.5
Employment	
Working full-time outside the home	24.8
Working part-time outside the home	13.6
Unemployed but looking for work	28.0
Unemployed but not looking for work	5.6
Student	6.4
Annual Income	1.97 (1.10)
<\$10,000	40.7
\$10,000-\$20,000	34.3
\$20,001-\$30,000	15.7
More than \$30,001	9.3

Note: GED = general equivalency diploma

Procedures

These data were collected as part of a larger study analyzing psychosocial factors, perceived discrimination, and health outcomes in low income Hispanic Americans. Research assistants approached potential participants who were enrolling in a holiday assistance program, explaining the purpose of the study and the nature of participating in it. If potential participants expressed an interest in participating, they were provided the study materials, which included a letter explaining more about the study, the study's questionnaire, and an envelope. If they returned the questionnaire in the envelope, they were given a \$5 gift card to a local convenience mart. No identifying information was collected from participants. The University of Missouri-Kansas City Institutional Review Board approved all study procedures.

Measures

Measures for this study included standardized scales as well as items and questions adapted specifically for this study. The survey also collected demographic information. All items in the survey were publicly available or available for purchase in both Spanish and English.

Religious Attendance

Religious attendance was operationalized as frequency of attendance at religious services over the past year. Participants responded to a single question (“For the past year, how often have you attended worship services?”) with one of eight possible selections, ranging from *never* to *more than once a day*.

Fatalism

Fatalism was measured using the 8-item fatalism scale from the Multiphasic Assessment of Cultural Constructs—Short Form (Cuéllar et al., 1995). This self-report scale (see Appendix A-1) assesses participants' agreement (True/False) with statements indicating that events of the future are inevitable (e.g., "People die when it is their time and there is not much that can be done about it."). One item on the scale was reverse scored, as the content implied control over future outcomes ("When I make plans, I am almost certain I can make them work."). Higher scores on the scale indicate greater belief that future events are outside the participant's control. Unfortunately, internal reliability for this scale is typically questionable, with Kuder-Richardson coefficients near .60 (Cuéllar et al., 1995). In this sample, initial internal reliability was less than optimal ($\alpha = .62$), so an item was dropped, and internal reliability approached acceptable standards ($\alpha = .70$). The resulting scale included 7 items, with total possible scores ranging from 0-7, and higher scores indicating higher fatalism.

PHR-QoL and MHR-QoL

Participants' health-related quality of life (HR-QoL) was measured by the SF-12 (Ware et al., 1996). The SF-12 is a 12-item self-report measure that assesses overall perceived health as well as functional limitations resulting from physical health and mental health issues (e.g., "During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities [like visiting with friends, relatives, etc.]?"). Overall perceived health is rated on a 5-point scale ranging from *Excellent* to *Poor*. Most functional impairment items and all mental health status items are rated on a 5-

point scale ranging from *All of the time* to *None of the time*. Two functional impairment from health items are rated on a 3-point scale ranging from *Yes, limited a lot* to *No, not limited at all*. Items are weighted and scored based on norms to derive a physical component score (PCS) and a mental component score (MCS). Higher PCS and MCS scores indicate better physical health-related quality of life (PHR-QoL) and mental health-related quality of life (MHR-QoL), respectively. The PCS has shown good test-retest reliability ($r = 0.89$) and the MCS has shown acceptable test-retest reliability ($r = 0.76$) (Ware et al., 1996).

Raw scores on the SF-12 are transformed into normed scores for the MCS and PCS scales, which range from 0-100, with a mean of 50 and a standard deviation of 10 in the general U.S. population (Ware, Kosinski, & Keller, 1995). Franzini and Fernandez-Esquer (2004) used the SF-12 to measure PHR-QoL and MHR-QoL in a sample of 1,745 low-income Mexican-origin individuals (85% completed the survey in Spanish). They reported means for PCS and MCS the follows: for foreign-born Spanish-speakers ($n=836$), the mean PCS score was 49.07, and the mean MCS score was 49.82. For foreign-born English-speakers ($n = 303$), the mean PCS score was 49.69, and the mean MCS score was 50.12. For US born Spanish-speakers ($n = 108$), the mean PCS score was 48.53, and the mean MCS score was 52.34. Finally, for US born English-speakers ($n = 437$), the mean PCS score was 49.92, and the mean MCS score was 51.17.

While the Spanish version of SF-12 has not been normed in Hispanic populations, studies have found evidence of validity and reliability in Hispanic American samples in both the SF-12 and related instruments. The SF-12 is derived from the 36-Item Short Form Health Survey (SF-36), a longer survey measuring HR-QoL. Peek et al. (2004) examined the use of

the SF-36 in an older Hispanic sample ($N = 621$), and found evidence of validity. In particular, the researchers found that the SF-36 factor structure in the Hispanic sample was the same as the normative sample, with eight dimensions and two higher order factors (MCS and PCS). The internal reliability estimates—ranging from .76-.96 across the eight dimensions—for the scale were similar to other studies of the scale.

Of note, Guerra and Shea (2007) found evidence for validity using SF-12 (Ware et al., 1996) in Hispanic American samples. The authors investigated the relationship between health literacy and scores on the SF-12 in a sample of Hispanic Americans and African Americans ($N = 1,279$; 60% Hispanic). Results of multiple regression analyses indicated that health literacy did not predict MHR-QoL or PHR-QoL (measured by MCS and PCS, respectively). Rather, age, Medicaid status, and comorbidities predicted PHR-QoL, whereas education and comorbidities predicted MHR-QoL. These results suggest that scores on SF-12 in Hispanic Americans reflect true HR-QoL and are not due to low health literacy.

Engagement in Healthy Behaviors

Five questions from the Behavioral Risk Factor Surveillance System questionnaire (BRFSS, 2011; see Appendix A-2) were used to measure engagement in healthy behaviors. The BRFSS is an instrument used for over 10 years by the CDC to collect data on engagement in healthy behaviors. The items selected for this study asked participants how frequently they used tobacco products, consumed alcohol, performed non-work related physical activity, and consumed fruits and vegetables over the past four weeks. Response options were on a 5-point scale (1 = *once a day or more*, 5 = *never*). Responses to the last three items were reverse coded so that higher numbers reflected healthy behaviors.

Pierannunzi, Hu, and Balluz (2013) conducted a review of the literature on the reliability and validity of the BRFSS, and found evidence of validity and internal reliability for measures of tobacco use, alcohol/substance use, and physical activity.

Social Support

The Interpersonal Support Evaluation List-12 (ISEL-12) was used to measure social support (Merz et al., 2013). The ISEL is a 12-item measure (see Appendix A-3) that assesses perceived social support (e.g., “If I were sick, I could easily find someone to help me with my daily chores.”). Participants were asked to rate each item on a 4-point response scale (0 = *definitely false*, 3 = *definitely true*). This scale has been validated in a sample of 5,313 Hispanic Americans, and was found to have adequate internal reliability ($\alpha = .82$) (Merz et al., 2013). Additionally, there was evidence of convergent validity for the ISEL-12, with it being positively related to social network integration, and negatively related to perceived stress and negative affect.

Comparison to Other Samples

Fatalism. The mean score for participants in this study was 4.60; therefore, the average participant endorsed 65% of the fatalistic statements. In comparison, Gutierrez et al. (2016) measured fatalism in sample of 5,313 Hispanic American adults (62.1% female) using a 6-item fatalism scale modified from Cuéllar et al. (1995). Participants responded to True/False statements, and the total possible scores ranges from 0-6. In that sample, the mean fatalism score was 3.86. That is, the average participant endorsed 64% of the fatalistic statements, making that sample very comparable to this sample on fatalistic beliefs.

Other studies have used fatalism scales with continuous response options. Espinosa de Los Monteros and Gallo (2013) used a modified fatalism scale, also based on Cuéllar et al. (1995), with four response options, ranging from *disagree a lot* to *agree a lot*. The total possible scores ranged from four to 16. In a sample of 300 Mexican–American women, the mean score was 10.23. That is, the average item score was 2.56, which represents a response between *disagree* and *agree*. Likewise, Urizar and Sears (2006) used a 7-item fatalism scale with a 4-point response scale (ranging from 4 = *strongly disagree* to 1 = *strongly agree*). Total possible scores ranged from four to 28, with lower scores indicating higher fatalism. In a sample of 120 Hispanic adults, the mean fatalism score was 18.9, with an average item score of 2.70, which represents a response between *agree* and *disagree*.

PHR-QoL and MHR-QoL. In this sample, the mean PCS score was 45.18 and the mean MCS score was 46.64. These scores are somewhat higher than scores in the sample used by Guerra and Shea (2007), which had scores of 41.50 and 44.00 for PCS and MCS, respectively. However, the current sample's PCS and MCS scores are lower than the normative score (50), and those found by Franzini and Fernandez-Esquer (2004). PCS scores in that sample ranged from 48.53 (in US born Spanish-speakers) to 49.92 (in US born English-speakers). MCS scores ranged from 49.82 in foreign-born Spanish-speakers to 52.34 in US born Spanish speakers.

Engagement in healthy behaviors. In this study, the average composite health behavior score was 20.87, which equates to a response of 4.17 per item (when reversed scored on three healthy behaviors). That response corresponds to a frequency between *less than once per month* and *never* for the health behaviors of tobacco and alcohol consumption.

For exercise and eating fruits and vegetables, the average response fell between *at least once a week, but not every day* and *less than once a week, at least once a month*. These health behavior rates, while quantified in a different manner, align with the health behaviors measured by Abraído-Lanza et al. (2005). The authors reported that only 20.90% of Hispanic Americans in their sample were current smokers—that they operationalized as anyone who had smoked at least 100 cigarettes in their life and currently smoked every day or some days. Likewise, only 9.60% of Hispanic Americans in their sample had a moderate/high alcohol intake, quantified as having more than one drink per day in the past year. Finally, 57.80% of Hispanic Americans reported recent exercise. On the other hand, the eating habits reported by the current sample do not align with those assessed by Niederdeppe and Levy (2007), in a sample that comprised 11.7% Hispanic Americans. Those authors reported that only 13.50% of their participants consumed five servings of fruits and vegetables per day.

Data Analysis Plan

I conducted descriptive and inferential statistics using the statistical analysis program SPSS 24.0 (IBM Corp, 2016). The data were screened for accuracy and statistical/normality assumptions prior to testing the hypotheses. In order to ensure there were no missing data, descriptive statistics were run first. Next, to ensure that independent and dependent variables were normally distributed with no outliers, histograms were created. Then, to identify potential covariates for inclusion in our regression models, correlation analyses and independent samples *t*-tests were conducted with several demographic variables, including gender, language preference, insurance status, health provider access, relationship status, employment, age, income, social support, and education. Finally, scores on the predictor

variables (fatalism and religious attendance) and the outcome variables (MCS, PCS, and healthy behaviors) were centered at their means.

Power and Sample Size

Cohen (1992) recommends a sample size of 686 to have 0.80 power to detect a small effect in a multiple regression analysis with six predictors at alpha .05. The six predictor variables included fatalism, religious attendance, the interaction between fatalism and religious attendance, and up to three control variables. A sample size of 97 is required to have 0.80 power to detect a medium effect in a multiple regression analysis with six predictors at alpha .05. Therefore, a medium effect was detectable with the current sample size of 133.

Analyses

Hierarchical regression analyses was used to test relationships between fatalism, religious attendance, health behaviors, PCS, and MCS. That is, a hierarchical regression was used to model relationships between fatalism, religious attendance, and their interaction term on PCS (Hypothesis #1). A second hierarchical regression was used to model relationships between fatalism, religious attendance, and their interaction term on MCS (Hypothesis #2). And, a third hierarchical regression was used to model relationships between fatalism, religious attendance, and their interaction term on engagement in health behaviors (Hypothesis #3). Significant covariates was entered into the regression equations prior to predictor variables, which were entered in the same step.

CHAPTER 4

RESULTS

Descriptive Statistics and Assumptions

Prior to analysis, study variables were examined for accuracy of data entry, missing values, and fit between their distributions and the assumptions of multivariate analysis with SPSS 24.0. Descriptive statistics revealed that religious attendance, fatalism, social support, PCS, MCS, and health behaviors had 16, 2, 12, 12, 11, and 10 missing values, respectively. Missing values were excluded pairwise for the purposes of all analyses. Inspection of histograms and skew and kurtosis values indicated that MCS was normally distributed, but that PCS and health behaviors were negatively skewed. To address violations of normality, PCS was transformed, first by reversing the direction of skew (subtracting all PCS values from the highest PCS value), and then taking the square root of the reversed values. This procedure improved normality to an acceptable level (see Table 2). Likewise, to transform health behaviors, values were first subtracted from the highest value plus one, then the square root was taken of these values, resulting in an approximately normal distribution (see Table 2). Transformed values were used in the regression models. Please note that the inverse transformations result in inverse coefficients presented in Tables 5-7.

All other descriptive statistics for study variables are summarized in Table 2. This table also presents correlations between all study variables. Not depicted, however, are three correlations between transformed and raw variables, all non-significant: (1) transformed PCS with non-transformed health behaviors was $-.02$, (2) non-transformed PCS with transformed health behaviors was $-.03$, and (3) transformed PCS and transformed MCS was $.03$.

Table 2

Descriptive statistics and correlations for all study variables

	1	2	3	4	5	6
1. Fatalism	--	.04	-.33**	-.03	-.19*	-.15
2. Religious Attendance	--	--	-.04	.02	.03	.01
3. Social Support	--	--	--	.10	.30**	.12
4. PCS	.01	.01	-.07	--	-.01	.00
5. MCS	--	--	--	--	--	.29**
6. Health Behaviors	.13	-.01	-.12	-.02	-.29**	--
<i>M</i>	4.60	3.18	34.72	49.67	46.63	20.87
<i>SD</i>	1.82	1.80	5.81	8.03	9.75	.22
Range	0-7	1-8	19-46	26.99-64.62	20.24-72.24	13-25
Skew	-0.46	0.40	-0.15	-0.75	-0.08	-0.71
Kurtosis	-0.64	-1.05	-0.38	-0.00	-0.05	-0.34
Transformed Skew	--	--	--	-0.12	--	-0.02
Transformed Kurtosis	--	--	--	0.50	--	-0.45

Note: * $p < .05$; ** $p < .01$; correlations for non-transformed variables are reported above the diagonal, while correlations for transformed variables (where appropriate) are reported below the diagonal.

Covariates

Potential covariates examined were social support, age, gender, language preference, education level achieved, relationship status, employment, income, insurance status, and access to a healthcare provider. Correlation analyses were conducted between continuous variables (Table 3). Social support was significantly positively correlated with MCS, $p = .02$, but no other potential covariates had significant correlations with outcome measures. Due to

theoretical significance, however, social support was retained as a covariate to predict all outcomes. *T*-tests were conducted with gender, language preference, insurance status, healthcare provider access, and relationship status (Table 4). Only the *t*-test of relationship status and MCS was statistically significant, $t(120) = -2.05, p = .04$, with partnered participants reporting higher MCS than non-partnered participants. Therefore, for analyses predicting MCS, relationship status was included as a covariate. No other *t*-tests were significant.

All regression models were run in a stepwise fashion, first entering the covariate(s), and then entering the predictors of interest—fatalism, religious attendance, and the centered interaction of the two. Statistics presented in tables and text for social support, age, and relationship status are reported from the first step to represent the largest possible amount of variance related to covariates.

Table 3

Correlations for control variables.

	1	2	3	4	5	6
1. Age	--	.06	.03	.19*	.06	-.02
2. Income		--	-.04	-.10	-.06	.02
3. Education			--	.11	-.10	.04
4. PCS				--	.03	.04
5. MCS					--	-.30**
6. Health Behaviors						--

Note: * $p < .05$; ** $p < .01$; Correlations are reported for transformed PCS and Health Behaviors.

Table 4

Results of t-tests for PCS, MCS and Health Behaviors by gender, language preference, insurance, access to doctor, relationship status, and employment.

	Gender						95% CI for Mean Difference	<i>t</i>	df
	Male			Female					
	<i>M</i>	<i>SD</i>	n	<i>M</i>	<i>SD</i>	n			
PCS†	35.98	24.24	14	46.78	14.19	117	-3.36, 24.97	1.63	14
MCS	49.81	9.82	10	46.34	9.78	111	-9.86, 2.93	-1.07	119
Health Behaviors	20.36	2.29	11	20.91	3.00	111	-1.30, 2.39	0.59	120
	Language Preference						95% CI for Mean Difference	<i>t</i>	df
	Spanish			English					
	<i>M</i>	<i>SD</i>	n	<i>M</i>	<i>SD</i>	n			
PCS	45.32	17.10	104	46.31	9.58	28	-5.68, 7.66	.30	130
MCS	47.13	9.75	94	45.10	9.75	28	-6.28, 2.03	-1.01	120
Health Behaviors	21.01	2.93	95	20.39	2.93	28	-1.87, 0.63	-0.98	121
	Insurance Status						95% CI for Mean Difference	<i>t</i>	df
	Insured			Uninsured					
	<i>M</i>	<i>SD</i>	n	<i>M</i>	<i>SD</i>	n			
PCS	46.99	12.00	27	45.93	15.59	102	-5.32, 7.46	0.33	127
MCS	44.99	11.11	26	46.99	9.36	95	-6.28, 2.27	-0.93	119
Health Behaviors	21.08	3.19	26	20.83	2.89	96	-1.05, 1.54	0.37	120

Table continues

	Access to a Doctor						95% CI for Mean Difference	<i>t</i>	df
	Yes			No					
	<i>M</i>	<i>SD</i>	n	<i>M</i>	<i>SD</i>	n			
PCS	45.90	13.66	53	46.94	14.90	75	-6.16, 4.07	-0.41	126
MCS	45.91	8.62	51	47.03	10.52	70	-4.68, 2.45	-0.62	119
Health Behaviors	20.71	3.16	51	21.01	2.79	71	-1.38, 0.76	-0.57	120
	Relationship Status						95% CI for Mean Difference	<i>t</i>	df
	Partnered			Not Partnered					
	<i>M</i>	<i>SD</i>	n	<i>M</i>	<i>SD</i>	n			
PCS	45.54	15.91	90	44.44	16.97	43	-7.07, 4.86	-0.37	131
MCS	47.89	9.96	82	44.08	8.87	40	-7.48, -0.14	-2.05*	120
Health Behaviors	20.82	2.76	83	20.98	3.29	40	-.97, 1.28	0.28	121
	Employment Status						95% CI for Mean Difference	<i>t</i>	df
	Working			Not working					
	<i>M</i>	<i>SD</i>	n	<i>M</i>	<i>SD</i>	n			
PCS†	42.31	19.72	47	47.47	12.18	78	-11.53, 1.20	-1.62	67
MCS	46.94	9.89	41	46.27	9.78	75	-3.10, 4.44	0.35	114
Health Behaviors	21.00	2.88	43	20.81	3.04	75	-0.94, 1.32	0.33	116

Note. * $p < .05$; †Levene's test was significant for PCS with gender and employment status, so degrees of freedom were adjusted from 129 to 14 and from 123 to 67, respectively.

Hypothesized Models

Prior to analyses, predictors were centered at their means, and the interaction of fatalism and religious attendance was computed.

Hypothesis One

Table 5 summarizes the results of the regression models for hypothesis one, predicting PCS from fatalism, religious attendance, and the interaction of fatalism and religious attendance. First, transformed PCS was predicted from fatalism, religious attendance, the interaction of the two variables, with age and social support as covariates. The overall model (#1 in Table 5) was not significant, $F(5, 97) = 1.14, p = .34$, and no predictors were significant. Since age, $t(100) = 1.90, p = .06$, and social support, $t(100) = 0.29, p = .77$, were not significant, a second model predicted transformed PCS from the hypothesized predictors only. That model (#2 in Table 5), however, also was not significant, $F(3, 108) = 0.50, p = .68$. Across both models, fatalism, $t(108) = -0.09, p = .93$, religious attendance, $t(108) = 0.07, p = .94$, and the interaction of the two, $t(108) = 1.19, p = .23$, failed to predict PCS. Therefore, hypothesis one was not supported.

Table 5

Regression analyses predicting PCS from fatalism, religious attendance, and covariates.

Regression Model	R^2	ΔR^2	β	B	$SE B$	sr^2
Model 1: Transformed PCS with covariates						
Step 1	.04	-				
Social Support			.19	0.02	0.01	.04
Age			.03	0.01	0.02	.001
Step 2	.06	.02				
Fatalism			.01	0.01	0.06	.0001
Religious attendance			-.02	-0.01	0.07	.0004
Fatalism x Religious attendance			.14	0.06	0.04	.02

Table continues

Regression Model	R^2	ΔR^2	β	B	$SE B$	sr^2
Model 2: Transformed PCS without covariates						
Step 1	.01	-				
Fatalism			-.01	0.00	0.10	.00
Religious attendance			.01	0.00	0.06	.00
Fatalism x Religious attendance			.12	0.04	0.04	.01

Hypothesis Two

Table 6 presents the results of the regression for hypothesis two, predicting MCS from fatalism, religious attendance, and their interaction. Two different models were run, predicting MCS. The first model predicted MCS from fatalism, religious attendance, the interaction of the two variables, with social support and relationship status as covariates. The overall model (#1 in Table 6) was significant, $F(5, 105) = 3.48, p = .006$. However, social support was not significantly correlated with the outcome, $t(108) = -0.54, p = .59$, and relationship status only approached a significant relationship with MCS, $t(108) = 1.94, p = .06$. Of the predictors, only the interaction term between fatalism and religious attendance was significant. So a trimmed model was run, predicting MCS from only hypothesized variables (no covariates). The trimmed model (#2 in Table 6) was significant, $F(3, 109) = 4.25, p = .007$. Neither fatalism, $t(109) = -1.90, p = .06$, nor religious attendance, $t(109) = 1.16, p = .25$, alone were significantly related to MCS. The interaction, however, was significantly negatively related to MCS, $t(109) = -2.84, p = .005$.

Figure 2 illustrates the nature of this interaction, showing that for participants who reported high religious attendance, fatalism had a negative relationship with MCS. That is, for the most religious participants, higher levels of fatalism were associated with lower MCS,

while for those with low religious attendance, the relationship of fatalism and MCS appeared positive. For participants with average levels of religious attendance, there was a slight negative slope of fatalism and MCS. As shown in Figure 2, the slope of MCS to fatalism is flatter for participants with average or low religious attendance compared to that of those with high religious attendance. This pattern suggests that there is a weaker relationship between fatalism and MCS among participants with low and average levels of religious attendance. Therefore, hypothesis two was not supported.

Table 6

Regression analyses predicting MCS from fatalism, religious attendance, and covariates.

Regression Model	R^2	ΔR^2	β	B	$SE B$	sr^2
Model 1: MCS with covariates						
Step 1	.04	-				
Social Support			-.05	-0.08	-.15	.003
Relationship status			.19	3.88	2.00	.03
Step 2	.14**	.11**				
Fatalism			-.17	-0.93	0.50	.03
Religious attendance			.08	0.45	0.54	.01
Fatalism x Religious attendance			.31**	-0.93	0.31	.07
Model 2: MCS without covariates						
Step 1	.11**	-				
Fatalism			-.17	-0.95	0.50	.03
Religious attendance			.11	0.61	0.53	.01
Fatalism x Religious attendance			-.26**	-0.89	0.31	.07

Note. ** $p < .01$.

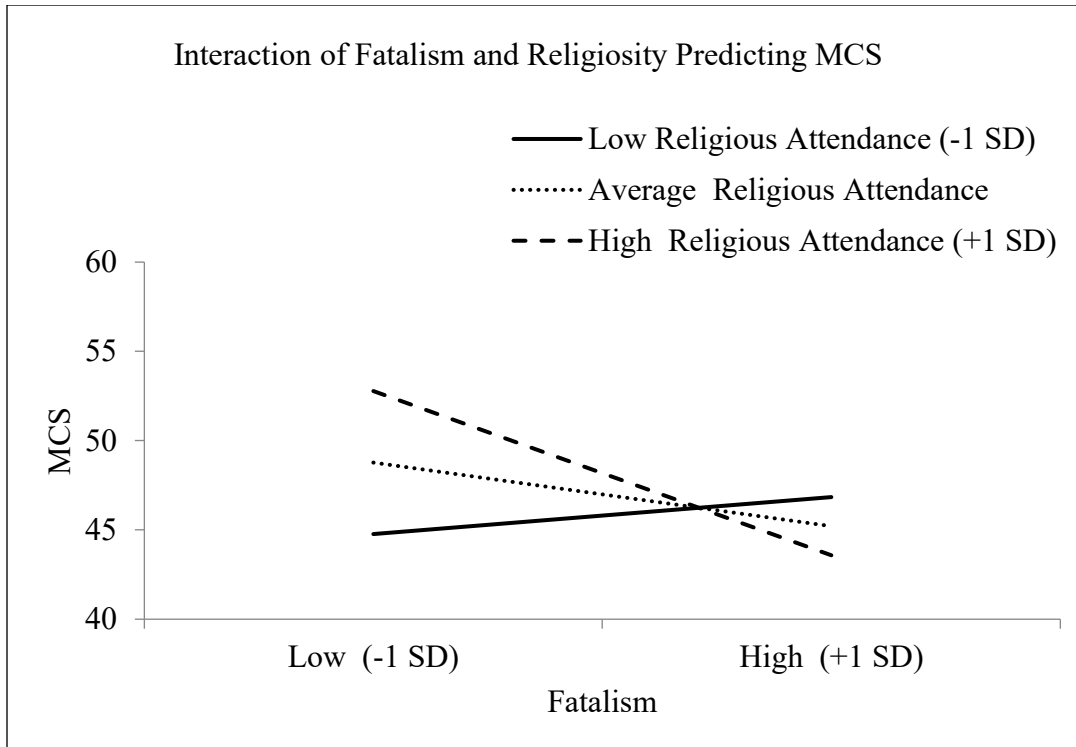


Figure 2. Predicting MCS from Fatalism at three levels of religious attendance (-1 SD, average, +1 SD).

Hypothesis Three

The results of the regression for hypothesis three, predicting health behaviors from fatalism, religious attendance, and the interaction of fatalism and religious attendance, are presented in Table 7. The first model predicted transformed health behaviors from fatalism, religious attendance, the interaction of the two variables, and included social support as a covariate. The overall model (#1 in Table 7) was not significant, $F(4, 107) = 1.92, p = .11$. The covariate was not significantly correlated with the outcome, $t(100) = -0.13, p = .90$, but the interaction between fatalism and religious attendance was significant. To simplify the analyses, the next model predicted transformed health behaviors from only hypothesized predictors (no covariate). Again, the model (#2 in Table 7) was not significant, $F(3, 111) =$

1.73, $p = .17$, and neither was fatalism, $t(111) = 1.28$, $p = .20$, nor religious attendance, $t(111) = -0.27$, $p = .13$. And, the interaction term was no longer significant, $t(111) = 1.77$, $p = .08$.

Therefore, hypothesis three was not supported.

Table 7

Regression analyses predicting Health Behaviors from fatalism, religious attendance, and covariates.

Regression Model	R^2	ΔR^2	β	B	$SE B$	sr^2
Model 1: Transformed Health Behaviors with covariates						
Step 1	.00	-				
Social Support			-.01	-0.00	0.01	.0001
Step 2	.07	0.07				
Fatalism			.09	0.03	0.03	.01
Religious attendance			-.01	-0.01	0.04	.0001
Fatalism x Religious attendance			.24*	0.05	0.02	.05
Model 2: Transformed Health Behaviors without covariates						
Step 1	.05	-				
Fatalism			.12	-0.16	0.14	.01
Religious attendance			-.03	-0.02	0.15	.001
Fatalism x Religious attendance			.17	-0.20	0.09	.03

Note. * $p < .05$.

CHAPTER 5

DISCUSSION

Using the culturally expanded RCM (Gallo et al., 2009) as a theoretical framework, this project investigated the relationship of fatalism and religious attendance to health outcomes and behaviors. Hypotheses were based on the complex pattern of results present in the literature—inconsistent relationships between fatalism and health, established connections between religious attendance and health outcomes, and correlations between fatalism and religious attendance. Specifically, I hypothesized that the interaction between fatalism and religious attendance would be related to PHR-QoL, MHR-QoL, and health behaviors. Therefore, I ran three regression models to test whether the combination of high fatalism and high religious attendance would be positively related to these three health outcomes. Results did not support any of my hypotheses. Contrary to my predictions, the interaction terms and overall regression models were not significant in predicting PHR-QoL or health behaviors. Surprisingly, however, the combination of high fatalism and high religious attendance was significantly negatively related to MHR-QoL. That is, participants who endorsed high fatalism and attended religious services the most had the worst MHR-QoL. The sections below will discuss these results in greater detail.

Hypotheses

Hypothesis One: PHR-QoL

Hypothesis One was tested with a regression model predicting PCS from fatalism, religious attendance, and the interaction of the two; age was included as a covariate. Results showed that the overall model was not significant, nor were the main effects or the

interaction term. Therefore, my results suggest that fatalism, religious attendance, or their combination are not cultural resources for Hispanics in regards to PHR-QoL. These results contrast with a previous study that found that religious attendance is protective against losses in mobility after stroke (Berges et al., 2007), as well as a study that showed lowered mortality for older Mexican Americans who attend church weekly (Hill et al., 2005). Furthermore, while previous research found a protective effect of high fatalism and high religious attendance in low acculturated Hispanics (Neff & Hoppe, 1993), there was no such pattern in this sample. It may be that the protective effect of religious attendance is more apparent in recovery following specific health challenges (e.g., stroke) or in longitudinal measures (e.g., mortality rates), but outcomes such as PHR-QoL, which largely measure functional health, are not closely related to religious attendance in non-medical populations. Notably, religious attendance was found to be positively associated with functional well-being (an aspect of PHR-QoL) in Latina breast cancer survivors (Wildes et al., 2009). In combination with the current results, this suggests that religious attendance may be most protective in response to acute health challenges and in delaying mortality, but that it does not generally correlate with PHR-QoL in otherwise healthy individuals.

Moreover, while some previous studies have linked fatalism to increased risk of metabolic syndrome and cardiometabolic dysfunction (Espinosa de los Monteros & Gallo, 2013), others have failed to find an association between fatalism and health outcomes (Gutierrez et al., 2016). Therefore, the current finding suggests that for certain Hispanic populations (e.g., female, low income, and low in acculturation), fatalism is not related to PHR-QoL. This finding requires further investigation, specifically examining for whom (e.g.,

men or women, high or low acculturated Hispanics, high or low income), and for what health outcomes (e.g., mobility after stroke, diabetes management, cardiovascular disease) religious attendance, fatalism, and their combination may be protective or detrimental.

Hypothesis Two: MHR-QoL

Hypothesis Two was tested with a regression model predicting MCS from fatalism, religious attendance, and the interaction of the two. Results showed that the overall regression was significant, and that the interaction term between fatalism and religious attendance predicted mental health-related quality of life. Contrary to my hypothesis, however, the interaction term was a *negative* predictor. That is, for those who were highest in religious attendance—attending church the most—higher levels of fatalism were associated with lower MHR-QoL. These results indicate that religious attendance does not buffer any negative relationship of fatalism to MHR-QoL, contrary to previous findings (Neff & Hoppe, 1993). Furthermore, religious attendance alone was not related to MHR-QoL, contrasting with other research that found religious attendance was associated with lower rates of depressive, anxiety, and substance use disorders (Moreno & Cardemil, 2016). The current study's results are particularly surprising given the large body of literature demonstrating a protective effect of religious attendance on mental health, particularly in low acculturated Hispanics (e.g., Moreno & Cardemil, 2016; Neff & Hoppe, 1993). In addition, these results do not align with research that found a negative relationship between fatalism and mental health (Anastasia & Bridges, 2015). However, other research found that fatalism (when considered apart from pessimism) was un-related to poor mental health outcomes (Piña-Watson & Abraído-Lanza, 2017).

These findings are important because they indicate that fatalism does not operate as a cultural resource, even for low acculturated Hispanics, as predicted by the RCM (Gallo et al., 2009). Instead, fatalism, while prevalent in Hispanic populations, may be a cultural vulnerability. That is, while the RCM generally predicts that cultural values are recruited by ethnic minorities to cope with the challenges of financial strain, discrimination, and other life stressors, it may also be the case that there are particular cultural values (like fatalism) that negatively affect coping. Since fatalism—in combination with religious attendance—was negatively related to MHR-QoL, it may be that fatalism, for highly religious Hispanic Americans, operates similar to how an external locus of control operates in majority populations (Rotter, 1966). In addition, the related construct of low perceived control is related to poor health outcomes in White Americans (Seeman & Seeman, 1983); therefore, the results of this study indicate that perhaps fatalism, although prevalent in Hispanic cultures, is closely related to an external locus of control for those who are highly religious.

On the other hand, when considering the potential life stressors of the participants in the sample (e.g., ethnic minorities, low income), cultural reserves such as fatalism and religious attendance may simply not be sufficient to buffer the negative effects of stressors. That is, fatalism and religious attendance may indeed be protective for Hispanics who are of higher socioeconomic status, or who do not face racial/ethnic discrimination, or who otherwise have strong reserves to cope with stressors. Participants in this sample, however, likely faced significant stressors every day, having very low income and being ethnic minorities. Furthermore, more than half did not have health insurance and most did not have

access to a doctor. These very tangible barriers to care may have a higher impact on health than intrapersonal reserves, like cognitive orientations.

Notably, the negative effect of high fatalism was only seen in those who were also highly religious. For those who attended an average amount of services and those who were less religious than average, there did not appear to be a strong relationship between fatalism and MHR-QoL. Perhaps, then, fatalism is only a cultural vulnerability for highly religious, low income, low acculturated Hispanic women. Given that these data were cross sectional, various explanations may underlie the observed pattern. One explanation may be that the low acculturated Hispanic women who are highly fatalistic tend to increase religious attendance during times of mental distress. Alternatively, highly religious Hispanic women who experience mental distress might adopt more fatalistic mindsets. Future studies should investigate the relationship between fatalism, religious attendance and mental health outcomes over multiple time points to clarify the temporal relationship between the variables.

Hypothesis Three: Health behaviors

Hypothesis Three was tested with a regression model predicting health behaviors from fatalism, religious attendance, and the interaction of the two. Results showed that the overall model was not significant, nor were the main effects or the interaction term. Therefore, like the findings for physical health-related quality of life, these results suggest that neither fatalism nor religious attendance are cultural resources for Hispanics. Furthermore, the combination of high fatalism and high religious attendance does not have a significant relationship to health behaviors. Previous findings have been mixed in regards to a connection between fatalism and health behaviors. Some studies have found a negative

relationship between fatalism and health behaviors (Niederdeppe & Levy, 2007), while others have not found any significant connection (Abraído-Lanza et al., 2015; Gutierrez et al., 2016). Therefore, this study adds to the list of ones that do not support a protective effect of fatalism on health behaviors.

In contrast to my results, another study found that religious attendance was related to healthy diets and physical activity (Arredondo et al., 2005). It is important to note one caveat of these results: the positive relationship between religious attendance and vigorous physical activity was reduced when accounting for acculturation. Because my sample was comprised of mostly participants with low acculturation, my null findings may be similar to those reported by Arredondo and colleagues. Nevertheless, research has found a convincing connection between religious attendance and health behaviors, although in diverse samples (Musick et al., 2004; Strawbridge et al., 2001). Since previous research has found a connection between religious engagement and health behaviors in other samples (e.g., White Americans), it could be that acculturation, race, ethnicity, and social class moderate the association. Therefore, as with PHR-QoL, future studies should investigate for whom fatalism and religious attendance are predictive of health behaviors.

Theoretical implications

Taken together, the results of this study—in particular the finding that high fatalism predicts poor MHR-QoL for those who are highly religious—suggest that fatalism does not function as a cultural resource. Beyond the results of the regression models, correlations among study variables indicated that fatalism had a negative relationships to MHR-QoL ($r = -.19, p = .046$) and social support ($r = -.33, p < .001$; see Table 2). This adds support to the

conclusion that fatalism is a cultural vulnerability rather than a resource. It may be that fatalism operates similar to an external locus of control (Rotter, 1966), even for Hispanic Americans low in acculturation. That is, the belief that future events are outside personal control is detrimental to health outcomes and behaviors. Interestingly, fatalism was not correlated with PHR-QoL, health behaviors, or religious attendance. Therefore, it may be that fatalism related specifically to mental distress, perhaps through reducing perceptions of social support. Or, alternatively, lower amounts of social support may cause worse MHR-QoL, and fatalism is a by-product of that psychological distress.

While the RCM predicts that cultural values can attenuate the negative relationship of life stress on health outcomes, it is also the case that a cultural value or prevalent cognitive orientation such as fatalism can intensify the effects of life stressors. This further complicates the Hispanic paradox (Franzini et al., 2001), in that while some aspects of Hispanic culture may enhance health outcomes, others increase health risks or are neutral in regards to health outcomes. My prediction was grounded in the fact that the participants in this study were largely low in acculturation, and therefore would be most likely to draw on traditional Hispanic cultural values. Therefore, this finding suggests that even in Hispanics low in acculturation, fatalism is not a resource. In addition, religious attendance, which is negatively related to acculturation, does not buffer the risks of fatalism. Perhaps there are other protective cultural reserves that outweigh negative effects of fatalism on mental health. Alternatively, the Hispanic Paradox may be limited to outcomes such as mortality, but not functional mental health outcomes like MHR-QoL.

Intervention implications

Clinicians who work with low acculturated Hispanic populations should carefully consider the role any cultural value or tradition plays in mental health outcomes. Fatalism may be associated with poor MHR-QoL through a variety of mechanisms, and it may lead to psychological distress, or it may be a by-product of psychological distress. In either case, fatalism may be a maintaining factor in poor MHR-QoL, and interventions should seek to target maladaptive cognitive orientations. Cognitive behavioral therapy is a well-supported intervention for depression, anxiety, and other mental health disorders, and it is particularly well suited to addressing maladaptive cognitions (Beck & Dozois, 2011). Further research should investigate culturally tailored CBT to treat psychological distress associated with fatalism in low acculturated Hispanics. Interian and Díaz-Martínez (2007) suggest that CBT is acceptable to Hispanic patients, supporting use of CBT with this population. Another implication of this study is that highly religious, low acculturated Hispanics who are highly fatalistic suffer the most psychological distress. Future research could explore the role of religious attendance as a resource to engage low acculturated Hispanics who are experiencing psychological distress.

Limitations

There are several limitations to these findings. First, most participants were female, of low SES, and low in acculturation, and so findings may only apply to similar populations. Specifically, gender may be a moderating factor for the relationship between fatalism and health behaviors and outcomes (Neff & Hoppe, 1993). In particular, Hispanic American women have lower rates of tobacco use than Hispanic men, and are more likely to abstain

from alcohol use than Hispanic American men (CDC, 2011), which may reflect a traditionally Hispanic value of *marianismo* (i.e., female purity and morality; Gallo et al., 2009). Therefore, relationships between health behaviors and predictors may be not be representative for Hispanic American men. In addition, women generally (across ethnicities) have lower HR-QoL, and therefore this sample may not adequately represent the HR-QoL of Hispanic American men (Fleishman & Lawrence, 2003). Methodologically, this study is limited by data collection procedures. In particular, all data were self-reported, introducing the possibility of mono-method bias and response bias. Response bias may also have affected reporting of religious attendance, as data were collected at a religiously affiliated institution (i.e., Salvation Army). Furthermore, the setting may have induced feelings of social support, as participants were receiving tangible support in the form of holiday gift assistance. Finally, these data were cross-sectional, so causal inferences cannot be made. It is possible that poor MHR-QoL preceded fatalistic attitudes, religious attendance, or both, or any other number of temporal configurations.

The measures used in this study also present some limitations to interpretation. Religiosity was assessed using a single item measure, purely recording the frequency of religious service attendance. While previous studies have similarly quantified religiosity (e.g., Moreno & Cardemil, 2016; Obisesan et al., 2006), there are other aspects of religiosity and spirituality that cannot be examined with this measure. Therefore, while religious attendance was not associated with PHR-QoL or health behaviors, other aspects of religiosity—perhaps private expressions of religiosity such as prayer and reading of religious texts—may in fact be connected to health outcomes and behaviors in low acculturated

Hispanic American women. Furthermore, it is possible that other aspects of religiosity do buffer negative associations between fatalism and MHR-QoL or psychological distress. In addition, since HR-QoL measurement includes aspects of physical mobility, the relationship between religious attendance and HR-QoL may be inflated because the proposed analyses do not control for the potential overlap between religious attendance and physical activity.

Likewise, acculturation was measured with a single item—language preference. While this measure has been found to be the strongest single predictor of acculturation status (Cruz et al., 2008), other aspects of acculturation, such as endorsement of traditional cultural values like fatalism, are not inherent in language preference. Future research could include multidimensional measures of acculturation in studies of cultural values and health. Finally, the measure used to index fatalism may have affected results. First, the reliability of the scale was only acceptable, which may have suppressed statistical power to detect hypothesized relationships. Furthermore, Piña-Watson and Abraído-Lanza (2017) found that some measures of fatalism contain a factor better conceptualized as pessimism, and that pessimism—rather than fatalism—is related to poor mental health outcomes in Hispanic adolescents. Therefore, future research should focus on developing a valid and reliable fatalism scale that is not also mistakenly measuring other constructs (e.g., pessimism).

APPENDIX

Appendix A. Measures

A-1. Fatalism

Multiphasic Assessment of Cultural Constructs Short Form-Fatalism Subscale	
<p>1. It is more important to enjoy life now than to plan for the future.</p> <p><i>Es más importante disfrutar la vida hoy que hacer planes para el futuro.</i></p>	<p>1 = True or Mostly True <i>Verdadera o Casi Siempre Verdadera</i> 2 = False or Mostly False <i>Falsa o Casi Siempre Falsa</i></p>
<p>2. People die when it is their time and there is not much that can be done about it.</p> <p><i>La gente se muere cuando le toca y no hay nada que lo pueda remediar.</i></p>	<p>1 = True or Mostly True <i>Verdadera o Casi Siempre Verdadera</i> 2 = False or Mostly False <i>Falsa o Casi Siempre Falsa</i></p>
<p>3. We must live for the present, who knows what the future may bring.</p> <p>Debemos vivir en el presente, uno nunca sabe lo que el futuro traerá.</p>	<p>1 = True or Mostly True <i>Verdadera o Casi Siempre Verdadera</i> 2 = False or Mostly False <i>Falsa o Casi Siempre Falsa</i></p>
<p>4. If my doctor said I was disabled, I would believe it even if I disagreed.</p> <p><i>Si mi doctor me dice que estoy deshabilitado, le creo aunque no esté de acuerdo.</i></p>	<p>1 = True or Mostly True <i>Verdadera o Casi Siempre Verdadera</i> 2 = False or Mostly False <i>Falsa o Casi Siempre Falsa</i></p>
<p>5. It is not always wise to plan too far ahead because many things turn out to be a matter of good and bad fortune anyway.</p> <p><i>No siempre es bueno hacer muchos planes para el futuro porque muchas cosas dependen de la buena o la mala suerte.</i></p>	<p>1 = True or Mostly True <i>Verdadera o Casi Siempre Verdadera</i> 2 = False or Mostly False <i>Falsa o Casi Siempre Falsa</i></p>
<p>6. It doesn't do any good to try to change the future because the future is in the hands of God.</p> <p><i>De nada sirve tratar de cambiar el futuro porque el futuro está en manos de Dios.</i></p>	<p>1 = True or Mostly True <i>Verdadera o Casi Siempre Verdadera</i> 2 = False or Mostly False <i>Falsa o Casi Siempre Falsa</i></p>

<p>7. When I make plans, I am almost certain I can make them work.</p> <p><i>Cada vez que hago planes, casi estoy seguro(a) de que me saldrán bien.</i></p>	<p>1 = True or Mostly True <i>Verdadera o Casi Siempre Verdadera</i></p> <p>2 = False or Mostly False <i>Falsa o Casi Siempre Falsa</i></p>
<p>8. I sometimes feel that someone controls me.</p> <p><i>A veces siento que alguien me controla.</i></p>	<p>1 = True or Mostly True <i>Verdadera o Casi Siempre Verdadera</i></p> <p>2 = False or Mostly False <i>Falsa o Casi Siempre Falsa</i></p>

A-2. Health Behaviors

BRFSS Survey Questions	
<p>1. During the past 4 weeks, how often have you smoked cigarettes or used chewing tobacco, snuff, or snus?</p> <p><i>Durante las últimas 4 semanas, ¿con qué frecuencia ha fumado cigarrillos, usado tabaco para mascar, rapé, o snus?</i></p>	<p>1 = Once a day, or more <i>Una vez por día, o más</i></p> <p>2 = At least once a week, but not every day <i>Al menos una vez a la semana, pero no todos los días</i></p> <p>3 = Less than once a week, at least once a month <i>Menos de una vez a la semana, al menos una vez al mes</i></p> <p>4 = Less than once a month <i>Menos de una vez al mes</i></p> <p>5 = Never <i>Nunca</i></p>
<p>2. During the past 4 weeks, how often did you have at least one drink of any alcoholic beverage such as beer, wine, a malt beverage, or liquor?</p> <p><i>Durante las últimas 4 semanas, ¿con qué frecuencia bebió al menos un trago de cualquier bebida alcohólica como cerveza, bebida a base de malta, o licor?</i></p>	<p>1 = Once a day, or more <i>Una vez por día, o más</i></p> <p>2 = At least once a week, but not every day <i>Al menos una vez a la semana, pero no todos los días</i></p> <p>3 = Less than once a week, at least once a month <i>Menos de una vez a la semana, al menos una vez al mes</i></p> <p>4 = Less than once a month <i>Menos de una vez al mes</i></p> <p>5 = Never <i>Nunca</i></p>

<p>3. During the past 4 weeks, other than in your regular job, how often did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?</p> <p><i>Durante las últimas 4 semanas, sin contar su trabajo diario, ¿con qué frecuencia realizó alguna actividad física o algún tipo de ejercicio como correr, caminar, calistenia, jugar al golf, o labores de jardinería?</i></p>	<p>1 = Once a day, or more <i>Una vez por día, o más</i></p> <p>2 = At least once a week, but not every day <i>Al menos una vez a la semana, pero no todos los días</i></p> <p>3 = Less than once a week, at least once a month <i>Menos de una vez a la semana, al menos una vez al mes</i></p> <p>4 = Less than once a month <i>Menos de una vez al mes</i></p> <p>5 = Never <i>Nunca</i></p>
<p>4. During the past 4 weeks, not counting juice, how often did you eat fruit? Count fresh, frozen, or canned fruit.</p> <p><i>Durante las últimas 4 semanas, sin contar el jugo, ¿con qué frecuencia comió frutas? Puede ser fruta fresca, congelada, o enlatada.</i></p>	<p>1 = Once a day, or more <i>Una vez por día, o más</i></p> <p>2 = At least once a week, but not every day <i>Al menos una vez a la semana, pero no todos los días</i></p> <p>3 = Less than once a week, at least once a month <i>Menos de una vez a la semana, al menos una vez al mes</i></p> <p>4 = Less than once a month <i>Menos de una vez al mes</i></p> <p>5 = Never <i>Nunca</i></p>

<p>5. During the past 4 weeks, how often did you eat cooked or raw vegetables such as broccoli, spinach, peas, or carrots?</p> <p><i>Durante las últimas 4 semanas, ¿con qué frecuencia comió verduras (cocidos o crudos) como brócoli, espinaca, guisantes de olor, o zanahorias?</i></p>	<p>1 = Once a day, or more <i>Una vez por día, o más</i></p> <p>2 = At least once a week, but not every day <i>Al menos una vez a la semana, pero no todos los días</i></p> <p>3 = Less than once a week, at least once a month <i>Menos de una vez a la semana, al menos una vez al mes</i></p> <p>4 = Less than once a month <i>Menos de una vez al mes</i></p> <p>5 = Never <i>Nunca</i></p>
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A-3. Social Support

Interpersonal Support Evaluation List	
<p>1. If I wanted to go on a trip for a day (for example to the beach, the country, or mountains), I would have a hard time finding someone to go with me</p> <p><i>Si yo quisiera hacer una excursión de un día (por ejemplo a la playa, el campo o las montañas) tendría dificultades para encontrar a alguien que fuera conmigo.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>
<p>2. I feel that there is no one I can share my most private worries and fears with.</p> <p><i>Siento que no hay nadie con quien pueda compartir mis preocupaciones o miedos más íntimos.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>
<p>3. If I were sick, I could easily find someone to help me with my daily chores.</p> <p><i>Si yo estuviera enfermo(a), podría facilitarme encontrar a alguien para ayudar con mis quehaceres diarios.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>
<p>4. There is someone I can turn to for advice about handling problems with my family.</p> <p><i>Hay alguien con quien puedo contar para pedir consejos sobre cómo manejar los problemas con mi familia.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>
<p>5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.</p> <p><i>Si decido una tarde que me gustaría ir al cine esa noche podría fácilmente encontrar a alguien para ir conmigo.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>

<p>6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.</p> <p><i>Cuando necesito sugerencias sobre cómo afrontar un problema personal, sé a quién puedo acudir.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>
<p>7. I don't often get invited to do things with others.</p> <p><i>No recibo a menudo invitaciones para hacer cosas con otros.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>
<p>8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).</p> <p><i>Si tuviera que salir de la ciudad durante unas semanas, tendría dificultad encontrar a alguien que pueda cuidar mi casa o apartamento (las plantas, animales, jardín, etc.).</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>
<p>9. If I wanted to have lunch with someone, I could easily find someone to join me.</p> <p><i>Si quisiera almorzar con alguien, podría encontrar fácilmente a alguien con quien hacerlo.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>
<p>10. If I was stranded 10 miles from home, there is someone I could call who could come and get me.</p> <p><i>Si yo me encontrara a 10 millas de mi casa, hay alguien a quien yo podría llamar para que me recogiera.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>

<p>11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.</p> <p><i>Si tuviera problemas familiares (una crisis) tendría dificultad de encontrar a alguien que me aconsejara</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>
<p>12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.</p> <p><i>Si fuera a necesitar ayuda en mudarme de casa, tendría dificultad de encontrar a alguien que me ayudara.</i></p>	<p>1 = Definitely False <i>Definitivamente Falso</i></p> <p>2 = Probably False <i>Probablemente Falso</i></p> <p>3 = Probably True <i>Probablemente Verdadera</i></p> <p>4 = Definitely True <i>Definitivamente Verdadera</i></p>

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