

COPING STRATEGIES AMONG OBESE
LATINOS WITH CHRONIC PAIN

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ABSTRACT

Having a better understanding of how Latinos with chronic pain and obesity cope with pain can be valuable for public health professionals in determining appropriate treatment with this at risk population. Although Latino adults are more likely to have higher levels of pain and pain intensity compared to non-Latino white adults, they are less likely to utilize pain medications. Beyond that, pain coping among Latinos is not well understood. Studies that have examined the types of coping strategies used for persistent pain found that religion and social support are among the most frequently used strategies among Latinos. However, studies on coping with pain using religion and social support have found mixed results on whether these methods are helpful. The objective of the present study was to learn whether religious beliefs and social support as coping strategies to manage chronic pain in low-income obese Latinos are beneficial or detrimental. The present investigation used secondary data from a study conducted by the Cal State Fullerton Fibromyalgia and Chronic Pain Center, which included about 100 adults ranging in age from 40 to 79 years old. Controlling for age, gender, BMI, and pain, a series of hierarchical linear regression analyses revealed that social support, but not religious coping, significantly predicts levels of depression and mental and physical functioning. In all cases, those with more support had better outcomes. Higher perceived social support could be a potential protective factor against depression and associated with better mental and physical health for individuals with chronic pain.

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CHAPTER 1

INTRODUCTION

Background

Research has shown that the combination of chronic pain and obesity is common, particularly among Latino adults (Plesh, Adams, & Gansky, 2011). Latino adults are more likely to have higher levels of pain compared to non-Latino white adults (Plesh, Adams, & Gansky, 2011). Due to financial constraints, less access to healthcare, lack of insurance, and fears about addiction to opioids, Latino adults are hesitant to take strong medications to treat pain (Hollingshead, Ashburn-Nardo, Stewart, & Hirsh, 2016). Research suggests that religious coping and social support are two common strategies utilized among Latinos to cope with chronic pain (Campbell et al., 2009). Pain related coping involves any attempt to minimize the physical, emotional, and psychological effects of pain (Campbell et al., 2009). However, benefits to using social support and religious coping for coping with pain are not clear (Campbell et al., 2009). Therefore, more research needs to be conducted in this area because unrelieved pain in obese Latinos can have mental health and emotional consequences (Campbell et al., 2009). The following pages offer a review of what is currently known regarding obesity and chronic pain in Latinos, as well as existing research on the use of religion and social support as coping mechanisms.

Obesity and Chronic Pain

The prevalence of obesity in the United States is and continues to be a major public health concern (Janke et al., 2014). This “obesity epidemic” is associated with high rates of morbidity and mortality and has caused a rise in health care costs (Greenhalgh & Carnery, 2014; Janke et al., 2014). In adults, obesity is defined as a Body Mass Index (BMI) greater than or equal to 30 (National Institutes of Health, 1998). Based on a nationally representative National Health and Nutrition Examination Survey from 2011 to 2012, which measured weight and height in 9120 participants, more than 77% of Latino adults in the United States are considered overweight or obese (Ogden, Carroll, Kit, & Flegal, 2014). Obesity is a risk factor for cardiovascular disease, hypertension, and diabetes, especially among Latinos (Berrington et al., 2010; Narouze & Souzdalnitski, 2015). In addition, obesity can cause a significant decrease in health-related quality of life, an increase in mood disorders, and persistent pain. Higher BMI is associated with more pain and impairment (Narouze & Souzdalnitski, 2015).

The prevalence of people suffering from persistent pain is comparable to the prevalence of obesity (Narouze & Souzdalnitski, 2015). About 100 million adults in the United States experience chronic pain (Dzau & Pizzo, 2014). Chronic pain is defined as pain lasting more than three months (U.S. Department of Health & Human Services, 2010). Pain that is persistent can have negative consequences in a person’s life such as physical disability and work absences, which result in financial and employment difficulties (Takai, Yamamoto-Mitani, Abe, & Suzuki, 2015). Whereas limiting physical activity for acute pain may be beneficial, because rest allows an injury to heal, in the presence of persistent pain, limiting physical activity can often lead to a recurring pattern

of restrictions and decreased participation in activities that can be detrimental to a person's well-being (Molton & Terrill, 2014). For instance, individuals with chronic pain often become isolated due to a reduction in social engagement and meaningful activities (Parkinson, Gibson, Robinson, & Byles, 2010).

If chronic pain is not effectively treated, it can interfere with an individual's health-related quality of life and produce emotional stress (Dysvik, Lindstrøm, Eikeland, & Natvig, 2004). In fact, there is a substantial body of literature that suggests that chronic pain has a comorbid relationship with depressive disorders and can lead to worse patient outcomes (Arnow et al., 2006; Bair, Robinson, Katon, & Kroenke, 2003). In addition, individuals with persistent pain often have difficulties falling asleep and maintaining sleep (Chen, Hayman, Shmerling, Bean, & Leveille, 2011).

Although pain is one of the primary reasons that individuals seek health care, many patients, especially minorities, receive inadequate pain treatment (Asbill, Sweitzer, Spigener, & Romero-Sandoval, 2014; Lavin & Park, 2014). Much literature suggests that minorities disproportionately suffer from chronic pain (Anderson, Green, & Payne, 2009). However, there has been little research focusing on pain-related coping among minorities, especially Latinos (Campbell et al., 2009). Racial and ethnic disparities in pain have been found in cancer, palliative, acute, and chronic pain care in different types of settings and among different age groups (Anderson, Green, & Payne, 2009). A review of studies conducted from 1998 to 2010 on pain disparities among ethnic minorities found that minority older adults reported higher levels of pain and pain intensity compared to non-Latino white older adults (Lavin & Park, 2014). In addition, the results from the review found that minority older adults are less likely than non-Latino white

counterparts to receive prescription pharmacologic treatments or undergo surgical treatments for pain such as joint replacement or knee arthroplasties.

A recent study found that individuals living in the United States who are obese are considerably more susceptible to having daily pain (Stone & Broderick, 2012). According to Stone and Broderick (2012), pain levels increase with an individual's weight. For example, individuals with a BMI greater than 40 were 2.3 times more likely to experience moderate to severe levels of pain. This finding remained significant even after controlling for demographic variables such as age, gender, race, education, and the presence of health coverage. Similarly, the results of another investigation also indicated that obesity is associated with higher levels of pain in elderly people (Patel, Guralnik, Dansie, & Turk, 2013). A total of 74.9% of the sample reported feeling pain in multiple sites such as in the neck, back, and knees. Among the nationally representative sample, individuals who reported pain, especially those with multiple locations, had decreased physical functioning.

The combination of obesity and pain could exacerbate an individual's quality of life and impair functioning more than each condition alone (Narouze & Souzdalnitski, 2015). For instance, pain is more severe in obese individuals with anxiety and depression (Tietjen et al., 2007). Another investigation suggests that less physical activity because of persistent pain can result in weight gain and obesity in adults, which can lead to greater levels of pain, particularly in the knees and hips (Jensen, Moore, Bockow, Ehde, & Engel, 2011). The data from another study found that obese patients who needed hip or knee replacements reported higher levels of pain than did nonobese patients (Thomazeau

et al., 2014). In addition, the study also found that the pain restricted the obese patient's ability to sleep, walk, and socialize.

Chronic pain and obesity can impact both physical and psychological well-being (Molton & Terrill, 2014). Conditions related to pain and being overweight include lower back pain, chronic headaches, osteoarthritis pain, and/or rheumatoid arthritis (Janke et al., 2014; Ray, Lipton, Zimmerman, Katz, & Derby, 2011). One study found that unhealthy body weight in middle-aged and older adults was associated with the onset of depression (Xiang & An, 2014). Likewise, the results of another study revealed that obesity among women aged 20 and older was associated with depression (Hicken et al., 2013). However, the relationship between obesity and depression was not present among Black or Mexican-American women, indicating that this finding varies significantly by race/ethnicity (Hicken et al., 2013).

The link between obesity and chronic pain has not been well documented in Spanish-speaking Latino adults (Zettel-Watson et al., 2011). Latinos comprise approximately 45 million of the total population living in the United States and are the fastest growing population in the United States (Greenhalgh & Carney, 2014; Waldrop & Long, 2002). Indeed, by 2050, it is estimated that individuals of Latino origin will make up 30% of the United States population (Waldrop & Long, 2002). In 2011 to 2012, the prevalence of obesity among Latino adults was 42.5% (Ogden et al., 2014). In addition, the results of a survey that examined pain prevalence in a national sample found that among Latinos, 24.4% reported experiencing low back pain, and 15.6 % reported headache pain during the past three months (Plesh, Adams, & Gansky, 2011). Taken together, these results provide evidence that Latinos could be at higher risk for suffering

from obesity and/or chronic pain. Obesity and persistent pain in the Latino community is a public health priority because of the personal and societal burden (e.g., reduced work productivity and increased cost of healthcare) associated with these conditions (Plesh, Adams, & Gansky, 2011).

Research indicates that culture is an important factor in how a person views their social world, including mental and physical health (López et al., 2004). In fact, culture shapes an individual's coping beliefs, preferences, and practices (Bates, Edwards, & Anderson, 1993). For instance, research on pain management among Latinos suggest they are more likely to use nonprescription analgesic medications and cultural remedies to relieve pain (Hollingshead et al., 2016). Cultural values about family and work also influence Latinos' pain behaviors. For example, one study found that Mexican men reported enduring pain to provide financially for their family and Mexican women reported enduring pain to care for their family (Villarruel, 1995). This same study also found that Latinos felt a sense of pride to be able to work in and out of the house despite being in pain. Another study found that Latinas with chronic pain who were unable to complete housework were more likely to feel "useless" and "incompetent" (Abraído-Lanza, 2004).

Another part of culture that is believed to contribute to the experience of pain among Latinos is acculturation. Acculturation, the process of adopting the behaviors, beliefs, and cultural aspects of the host country, is typically assessed in terms of adoption of the language of the host country (Jimenez, Dansie, Buchwald, & Goldberg, 2013; Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). The level of acculturation in Latinos has been linked to health outcomes and health behaviors (Lara et al., 2005). After

controlling for sociodemographic factors such as gender, age, education level, and immigration status, one study found that Spanish-speaking Latinos did not report significantly higher levels of pain prevalence and intensity than English-speaking Latinos (Jimenez et al., 2013). However, the results of this study also found that functional limitations among Spanish-speaking Latinos were significantly lower than English-speaking Latinos.

Other potential demographic factors that contribute to the way Latinos experience pain is age, gender, and employment. A large survey found that the prevalence of chronic pain for Latinas increased up to age 60 and remained higher than for white females (Plesh, Adams, & Gansky, 2011). Research has found that pain from occupational hazards is a common complaint among Latinos (Hollingshead et al., 2016). Latinos are at great safety risks for pain because of the types of job they hold (Anderson, Hunting, & Welch, 2000). In fact, Latinos disproportionately work manual labor occupations and report more occupational injury and pain (Todd, Lee, & Hoffman, 1994). Latinos who work in agriculture, construction, and the service industry commonly report acute and chronic pain (Hollingshead et al., 2016). Manual labor and agricultural occupations often require individuals to hold awkward postures and perform repetitive movements (Hastie, Riley, & Fillingim, 2005). Latinos who work in these occupations tend to report higher rates of low back pain. In addition, the results of these studies suggest that culture may be contributing to important differences in pain-related coping among Latinos. Therefore, in order to provide adequate pain treatment and outcomes to Latinos, knowledge about the effectiveness of these pain management strategies is important.

Little is known about pain experiences and pain management among obese Latinos. A study involving about 100 overweight Latinos aged 40 years and older found that most participants had widespread pain, a measure of the global burden of pain (Zettel-Watson et al., 2011). In this small community sample, only 11% had health care insurance and one-quarter reported being unable to pay for health care. In addition, only 20% of the participants reported using medication for pain. This finding is consistent with previous studies with minority older adults that found that they are more likely to use complementary and alternative medicine to treat persistent pain (Lavin & Park, 2014). However, more research needs to be conducted to determine whether this finding is true among other Latino samples because increasing our knowledge of Latinos' pain related coping preferences could lead to more effective treatment.

A qualitative study that examined what types of strategies are used by Latinos to manage chronic pain found that participants had many different nonpharmacological strategies to manage pain: massage, creams/ointments, and position changes (Rutledge, Cantero, & Ruiz, 2013). Out of 16 adults, only two took medications for pain around-the-clock. Most of the participants only took pain medication when pain worsened (Rutledge et al., 2013). Over half of the participants reported trying to remain calm, praying or talking to someone. In fact, most participants of the study preferred to talk to a family member who also had some type of chronic condition (Rutledge et al., 2013).

Empirical findings support that the lack of use of pain medication among Latinos may be influenced by familiarity with and access to pain medication in their country of origin (Campbell et al., 2009). However, another study found that an additional factor that influences pain medication use by Latinos is concern about addiction (Anderson et

al., 2002). The existing literature on coping with pain has also documented that Latinos are concerned about the effectiveness of pain medications (Campbell et al., 2009). On the basis of these findings, it seems this hesitation to use medication for pain could be driven by cultural beliefs. Studies that have examined the type of coping strategies used for persistent pain found that religious coping is one of the most frequently used strategies among Latinos (Campbell et al., 2009).

Religious Coping

To our knowledge, few studies have examined religious coping for obese Latinos who have persistent pain. Although there has been a decline of Christians in the United States population since 2007, the large majority of Americans continue to identify as Christian (Smith et al., 2015). In fact, the results of a nationally representative telephone survey of 35,071 adults aged 18 years and older revealed that 70.6% of individuals living in the United States described themselves as Christians. The data showed that Latinos continue to be less likely than Caucasians to identify as having no religion. Therefore, there is an urgent need to learn about the impact of religion on Latinos' pain experiences.

Ehman, Ott, Short, Ciampa, and Hansen-Flaschen (1999) found that in a sample of 177 ambulatory adult patients, 90% believed that prayer could influence a person's recovery from an illness. In addition, 94% of the sample also "agreed" or "strongly agreed" that physicians should ask them if their religious beliefs would influence their medical decisions in the case that they became gravely ill. However, the data showed that only 15% of the participants in the study recalled having been asked whether spiritual or religious beliefs would affect their medical decisions. The results indicated that most

individuals in the study would like to be offered some basic spiritual care by their health care providers.

Past research has primarily focused on examining the influence of religion on addiction and issues of mental and physical health (Koenig et al., 2001). Understanding the relationship between religious coping and chronic pain is important because religion is entangled with beliefs about pain and has a significant impact on an individual's understanding of pain and decisions about pain management (Unruh, 2007). For instance, Koenig (2003) stated that some individuals with strong religious views believe that pain relief should only be achieved through spiritual terms, and using any other method to manage pain symptoms signifies depending on something else other than God to overcome a difficult situation.

However, the longer an individual has lived with chronic pain, the more likely he or she is to lose hope that there is a cure and become angry (Rippentrop, Altmaier, Chen, Found, & Keffala, 2005). Therefore, a person's ability to accept pain is essential for effective coping. One study found that spiritual strength was an essential component of some participants' ability to accept their chronic pain (Risdon, Eccleston, Crombez, & McCracken, 2002).

Most of the research on the role of religion and spirituality in health has focused on individuals with potentially life threatening diagnoses such as coronary disease, cancer, and cardiovascular disease (Rippentrop, 2005). However, many individuals who have chronic pain use religion and spiritual beliefs and activities to cope with pain (Rippentrop, 2005). Religious coping is often defined by a person's religious beliefs and/or practices such as praying or reading the bible (Abraído-Lanza et al., 2004).

Available research on the link between religion and chronic pain has begun to identify both positive and negative associations (Unruh, 2007).

Although many studies have found that prayer may not be an effective coping mechanism to relieve pain, research suggests that prayer is a common practice to cope with pain (Abraído-Lanza et al., 2004). In fact, one study found that individuals who used prayer as a coping mechanism for chronic pain were more likely to report a greater degree of disability (Ashby & Lenhart, 1994). Similarly, another study using an online survey found that prayer was also associated with higher depression and anxiety scores. In fact, any variable that had an association with prayer was associated with more distress (Andersson, 2008). In a sample of 61 individuals with lower back pain, Rosenstiel and Keefe (1983) found that those who scored higher on diverting attention and praying using the Coping Strategies Questionnaire also reported higher levels of pain and functional impairment compared to participants who scored lower on this scale.

In another study of 122 participants with chronic musculoskeletal pain, results revealed that participants who engaged in more private religious behaviors such as praying, reading religious material, and meditation had poorer physical health (Rippentrop et al., 2005). Moreover, participants who had better mental health were more likely to pray more each day and also reported suffering more pain. Religion was not related to pain intensity or interference of pain in daily life. These participants were also more likely to feel abandoned by God.

Other studies on the use of religious coping with chronic pain have found mixed results. One study found that positive religious coping, an individual's reliance on God or religion to provide strength, comfort, or personal growth, was associated with positive

but not negative affect. In addition, negative religious coping (e.g., an individual's feelings of anger towards God or beliefs of abandonment by God) was not correlated with positive or negative affect (Pargament et al., 1990). Similarly, another study found that more frequent daily spiritual experiences among individuals with rheumatoid arthritis were associated with lower levels of negative mood, higher levels of daily positive mood, and higher levels of social support (Keefe et al., 2001). Another study found that patients with advanced cancer who had religious beliefs reported higher levels of well-being and less pain (Yetes, Chalmers, St. James, Follansbee, & McKegney, 1981). In addition, the results of another study with a sample of 50 African-Americans diagnosed with sickle cell disease revealed that attending church "weekly" or "more often" was associated with lower pain levels (Harrison et al., 2005).

Research suggests Latinos use religion to cope with pain with greater frequency than Caucasians (Campbell et al., 2009). This finding has been found in Latino adults who are not suffering from a chronic condition as well as in Latinos who are suffering from a chronic disease such as cancer or HIV (Anderson et al., 2002; Hastie, Riley, & Fillingim, 2005). In fact, in a pain treatment outcome study, researchers found that Latinos were more likely to report using prayer than non-Latino White counterparts (Gagnon, Matsuura, Smith, & Stanos, 2014). Similar results were found in a study with a Latino sample with musculoskeletal disorders. Many of these participants discussed using faith and religion as a coping strategy (Katz et al., 2011). The use of prayer as a coping strategy among Latinos with chronic pain is associated with greater disability, increased pain intensity and interference (Edwards et al., 2005). Conversely, a study with 200 Latinos found that religious coping was not related to pain or depression (Abraído-Lanza

et al., 2004). In addition, the findings of this study found a modest effect indicating that religious coping was associated with greater psychological well-being. These findings highlight the fact that religious coping among Latinos may be beneficial.

Overall, it appears that religious coping is one common method by which many individuals, especially Latinos, cope with chronic pain (Campbell et al., 2009). However, available research has yielded mixed results as to whether this method is beneficial or detrimental among Latinos. The ways in which religious coping functions among Latinos with chronic pain remains unclear.

Perceived Social Support

Another way to cope with pain is to seek social support from family and friends to reduce the emotional impact associated with persistent pain (Campbell et al., 2009). In fact, numerous studies suggest that social support is another strategy commonly utilized to cope with pain (Takai et al., 2015). West and colleagues (2012) reported that individuals with persistent pain sought social support from family members. Similarly, another study on individuals with fibromyalgia found it useful to talk to a friend and participate in a support group for fibromyalgia (Kengen Traska et al., 2012). This finding has also been replicated among Latinos with chronic pain. In fact, a qualitative study that examined nonpharmacological strategies used by Latinos to manage chronic pain found that over half of the participants reported talking to someone about their pain (Rutledge et al., 2013).

Among the studies that have examined the types of coping strategies used for persistent pain by Latinos, social support is another domain frequently used (Campbell et al., 2009). In the literature, social support as a form of coping with pain has been

described as important for Latinos (Campbell et al., 2009). Perceived social support is defined as an individual's perception of the resources available through his or her social network (Molton & Terrill, 2014). A study with 372 cancer patients with pain found that Latino patients were more likely to report seeking advice from friends and family than other ethnic groups (Bates, Edwards, & Anderson, 1993). Another study found that older Latinos with chronic pain with higher perceived social support were more likely to resume exercise and more likely to visit professionals such as chiropractors (Park, Hirz, Manotas, & Hooyman, 2013). In a Latino sample with musculoskeletal disorder, participants were considerably more likely to discuss the importance of having family members care for them in the event of surgery (Katz et al., 2011). The potentially therapeutic role of social support on chronic pain needs to be investigated further.

Previous studies in this area suggest that increased levels of perceived social support served as a protective factor in the development of chronic pain (Bergman, Herrström, Jacobsson, & Petersson, 2002). Perceived social support is defined as an individual's perception of the resources available through his or her social network (Molton & Terrill, 2014). Higher perceived social support is associated with less distress and less severe pain among individuals with persistent pain (Lincoln, 2014). One investigation found that chronic-pain patients recruited from a multidisciplinary pain management program who reported higher social support had better mental health compared to other patient groups and normal controls (Dysvik et al., 2004). Similarly, another study found that higher levels of social support were negatively correlated with depressive symptoms and pain intensity, but not with functional disability (López-Martínez, Esteve-Zarazaga, & Ramírez-Maestre, 2008). Therefore, more research is

needed in this area to determine if social support serves as a protective factor for obese Latinos with chronic pain.

Another study found evidence that individuals with higher levels of perceived social support have lower levels of mortality rates in cardiovascular disease, infectious diseases, and cancer (Uchino, 2006). In addition, lower levels of perceived social support have been linked to higher levels of depression and anxiety (Kawachi & Berkman, 2001). However, among low-income women who feel obligated to provide social support to others, social connections may increase levels of mental illness symptoms (Kawachi & Berkman, 2001).

Perceived social support has demonstrated the buffering effects on psychological and physical well-being in the general population as well as Latinos (Berkman & Syme, 1979; Molton & Terrill, 2014; Uchino, 2006). In fact, in a study with Latino families who had a family member with a mental illness, results suggested that warmth was a protective factor (López et al., 2004). Moreover, individuals with a mental illness who reported higher perceived social support were less likely to have relapses. Similarly, using data from a nationally representative study, a study involving 2554 Latinos suggests that family and friend support was positively associated with better physical and mental health (Mulvaney-Day et al., 2007).

The benefits of social support have been seen particularly evident among Latinos (Shavitt et al., 2016). A study involving 603 adults comprising about an equal number of non-Hispanic Whites, Korean Americans, African Americans, and Mexican Americans found that culture moderated the relationship between perceived stress and social support, and physical and mental physical health (Shavitt et al., 2016). In the other words, the role

of social support in physical and mental health varied by cultural groups. The data suggested that perceived social support was more important to the mental as well as physical health of Mexican-American adults than others. The positive role of social support was only seen in Mexican-American adults.

Available research on the role of social support on chronic pain has yielded mixed findings. In a study involving 109 individuals with complex regional pain syndrome, Feldman, Downey, and Schaffer-Neitz (1999) examined the relationship between daily pain, negative mood, and social support for 28 consecutive days and found that depressed mood, but not anger or anxiety, contributed to increases in self-reported pain. The data also demonstrated that those higher in perceived social support had fewer depressive symptoms. In addition, the results found that higher levels of social support predicted lower levels of pain on the following day. Likewise, another study that examined the influence of family support on the pain of individuals that completed a one-year outpatient pain program found that individuals who reported higher levels of social support from family members at the beginning of the program were more likely to report less pain intensity, greater activity levels, and less reliance on medication (Jamison, & Virts, 1990).

Studies that have looked at the different types of social support have found mixed results on whether this method is helpful for individuals with chronic pain. Social support can take the form of tangible or emotional aide (Molton & Terrill, 2014). Much literature suggests that social support is helpful for psychological adjustment to chronic illness (Lincoln, 2014). However, it has also been suggested that social support can sometimes have unintended negative consequences for the recipient's psychological well-being

(Abraído-Lanza, 2004; Newsom & Schulz, 1998). Although emotional aid is consistently cited as beneficial and desirable, tangible support's benefit is dependent upon who provides the aid and the receiver's level of disability. Tangible support is often well-intended. However, individuals with a chronic condition often feel worse if the social support is directed at helping the receiver fulfill an important role. For example, one study found that approximately 40% of individuals who were physically disabled who received assistance from a spouse reported some emotional distress in response to the help they received. However, other studies suggest this finding might not be consistent in Latinos. A study involving Latinas with arthritis found that receiving tangible housework was associated with less psychological distress (Abraído-Lanza, 2004). In addition, the same study also found that emotional support predicted better mental health.

The use of social support as a form of coping in Latinos has been documented to some degree. However, the outcomes related to social support as a form of coping in Latinos are less clear. One study found that Latinos who reported higher levels of support from friends also reported higher levels of disabling pain (Anderson et al., 2002). However, this finding was not related to ethnicity. These mixed findings highlight the fact that it is unclear if social support is beneficial or detrimental among Latinos.

Current Study

Given that chronic pain and obesity can be more debilitating than each condition alone and that pain disparities have been found to be greater for minority adults than for White adults, it is important to understand pain coping among obese Latinos. However, to date, few models of pain management have incorporated a cross-cultural perspective.

Attention to the social context of pain is necessary because uncontrolled pain can lead to an increased risk for disability. Having a better understanding of how Latinos with chronic pain and obesity cope with pain can be valuable for public health professionals in determining appropriate treatment with for at risk population. Effective pain management is a key component to improving the lives of adults with persistent pain, which will increase their quality of life.

The present study aimed to expand knowledge about pain management in Latinos. Various aspects of chronic pain and obesity have been assessed and studied separately, but few studies have investigated the comorbidity of obesity and chronic pain in the Latino population. Due to the limited research available on pain management among Latinos, more empirical work needs to be conducted in this area.

This study examined the interplay between demographic variables (age and gender), obesity (as measured by BMI), chronic pain (pain troublesomeness and pain intensity), religious coping (four items from an original measure by Jessor & Jessor (1977), social support (the Medical Outcomes Study Social Support Survey), mental and physical functioning (the Short Form 12 Health Survey), and depressive symptoms (the Center of Epidemiological Studies-Depression Scale). Specifically, this study assessed the extent to which religious coping and social support as coping strategies to manage chronic pain are beneficial or detrimental in a sample of low-income obese Latinos adults with chronic pain.

Hypotheses

Hypothesis 1

The use of religious coping as a method to manage pain will be negatively associated with depressive symptoms and positively associated with mental and physical functioning.

Hypothesis 2

The use of social support as a method to manage pain will be negatively associated with depressive symptoms and positively associated with mental and physical functioning.

CHAPTER 2

METHOD

The present study used secondary data from a study conducted by the Fibromyalgia and Chronic Pain Center located on the campus of California State University, Fullerton. The study utilized a community-based participatory research method. This method is a partnership approach that involves the population affected by the issue being studied and engages organizational representatives in all stages of the project, including follow-up (Sánchez-Johnsen, Escamilla, Rodriguez, Vega, & Bolaños, 2015). This partnership was developed through assessing the community's needs in a townhall meeting supported by the University's Health Promotion Research Institute. After interacting and getting to know the local Latino community, a lack of information about the seriousness of pain was identified. One organization that was crucial for recruitment and data collection was Latino Health Access (LHA) *Promotores de Salud* (community health workers). LHA is dedicated to serving uninsured, underserved, low-income Latinos in Orange County, California. The *promotores*, individuals from this organization, were trained on the study protocol (e.g., administration of the interview and how to perform anthropometric measures) and collected the data through face-to-face interviews in Spanish. The *promotores* were monitored by LHA personnel throughout the study. This approach facilitated recruitment of this vulnerable sample because, given culture differences as well as language barriers, recruiting low-income Latinos can be

difficult. Recruitment among undocumented Latinos can be especially difficult for researchers at universities.

Participants

The study population consisted of 100 low-income older adults residing in Latino Neighborhoods in Orange County, California. To be eligible to participate in this study, individuals had to be Latino, aged 40 years or older, either overweight or obese as defined by body mass index (BMI) scores greater than 24, and with reported pain for at least three months. The participants were recruited from programs and classes sponsored through LHA.

Interviews

Four trained bilingual staff from LHA collected data by verbally administering the study questionnaire in structured face-to-face interviews. Although the participants had the option to be interviewed in Spanish or English, all participants preferred to be interviewed in Spanish. Depending on the participant's preference, the interview was conducted either at one of the LHA program sites or the participant's home. The interviews took about 45-150 minutes to complete. Upon completion of the interview, the participants received a \$15 dollar gift card to buy food at a local market and a packet containing weight management tools such as a BMI chart and nutritional information. Participants were also given a list of local community clinics and a \$4 coupon for any generic medication.

Interview Questionnaire Development and Translation

A 151-item questionnaire consisting of 12 sections was used for interviews. The questionnaire was available in Spanish and English. Since the interviewers verbally

administered the questionnaires, the formatting of the questions was changed from first person to second person. To improve the readability of the questionnaire, the investigators made numerous iterations of the question placement and formatting. Two trained bilingual graduate students in the Public Health department at California State University, Fullerton translated and back translated the entire questionnaire. The interviewers who administered the questionnaires were given an opportunity to express any concerns about the translation of the questions to the investigators and translators. However, no major concerns were expressed about the interpretation of English terms in Spanish. Interviewers received training on the study protocols by the investigators from LHA and the university research team. After explaining the definitions of key terms and ensuring that all the questions were understood, the interviewers conducted a mock interview with an investigator. The current study only reported on demographic information, pain troublesomeness, pain intensity, religious coping, social support, mental and physical functioning, and depressive symptoms. The scales used for religious coping, social support, mental and physical functioning, and depressive symptoms were global measures and not pain-specific measures.

Measures

Demographic Information

Demographic variables included questions about participant's age, gender, marital status, acculturation, employment status, and education. Participants were asked about their nationality or ancestry, age of arrival to the United States, and number of years living in the United States to evaluate acculturation. Education was determined by the number of years of schooling completed.

Weight Status

To compute BMI, the participant's height and weight were measured and entered into the National Health Lung and Blood Institute BMI calculator (National Institutes of Health, 1998). BMI categories used were: overweight 25 - <30; obese 30 - <40; extremely obese ≥ 40 . Waist circumference was obtained by placing a tape at a point two finger breadths above the iliac crest (a standard protocol measure).

Pain

Two self-report pain measures were used to assess chronic pain: pain intensity and pain troublesomeness. Pain intensity experienced during the past week was measured using an 11-point scale (0 = *no pain*, 10 = *worst pain*). The Pain Troublesome Grid measured the bothersomeness of pain at 14 specific body sites: headache, neck, jaw/teeth, shoulder, elbow, wrist/hand, chest, abdominal, upper back, lower back, hip/thigh, knee pain, ankle/foot, other pain. The original measure by Persons et al. (2006) only contained 13 specific body sites. However, an additional site was added to measure the degree of pain in the jaw/teeth area because this was an area of interest among the university's community partners. Pain troublesomeness experienced in the past month was measured using a composite score of each of the bothersomeness pain scores (0 = *no pain experienced*, 5 = *extremely troublesome*). The difference between the pain measures was that pain intensity was used to assess an individual's overall pain level and pain troublesomeness was used to assess pain in 14 specific body sites. The possible range for pain troublesomeness was 0 to 70. A composite score of both pain measures was created to make a single score for chronic pain. The possible range for the composite score of pain was 0 to 80. Higher scores were indicative of more pain.

Religious Coping

Religious coping was measured using four questions based on an original measure by Jessor & Jessor (1977). Participants were asked to indicate, “How important is it for you to have . . . ?”: religious teachings when you have a problem, a belief in God, your religious beliefs as a guide to your daily living, and a prayer when facing a personal problem. The response options ranged from 1 to 3 (1 = *not important*, 3 = *very important*). Responses to the four items were averaged to create a single score for religious values.

Perceived Social Support

Perceived social support was measured using 19 questions based on an original measure by Sherbourne & Stewart (1991). The Medical Outcomes Study Social Support Survey (MOS) was used to assess perceived availability of support: tangible and emotional support, positive interactions, and affection. Participants were asked to indicate how often each type of support was available to them if they needed it. The items were scored on a five-point Likert scale (1 = *none of the time*, 5 = *all of the time*). Responses to the 19 items were averaged to create a single score for perceived social support. Higher scores indicate a better perception of social support. Cronbach’s α for the Spanish version created by Young et al. (2003) was 0.96, similar to that of the original instrument in English version at 0.97.

Depression

Depressive symptoms were measured with seven items from the Center of Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977). To evaluate depressive symptoms, participants were asked to indicate how many days out of the week

they felt or acted in a certain way in the past week. The response options ranged from 0 to 3 (0 = *rarely or none of the time [less than 1 day]*, 3 = *most or all of the time [5-7 days]*). Two of the items had to be reverse-coded. The scores were summed. The possible range for the CES-D was 0 to 21. Higher scores indicated more depressive symptoms. The Spanish version of the CES-D has been used previously with Mexican American samples (Miller, Markides, & Black, 1997) and shown to be valid and reliable despite using brief versions; Cronbach's $\alpha = 0.81$ (Kohout et. al, 1993).

Mental and Physical Health

Two subscales from the Spanish version Short Form 12 Health Survey (SF12; Ware, Kosinski, & Keller, 1996) were used to measure mental and physical function. These subscales have been shown to be reliable and valid in multiple samples and in individuals suffering from chronic pain, such as fibromyalgia (Hoffman & Duke, 2008). The short form reduces the participant burden and has been shown to have convergent validity in a low-income minority sample (Franks et al., 2003). The possible range of scores for the SF-12 is 0 to 100. The subscales of the SF-12 are scored using a weighted algorithm based on population norms and standard deviations (Ware et al., 1996). Higher scores are indicative of better mental and physical health.

Statistical Analysis

Preliminary analyses were used to determine relevant covariates using SPSS. Pearson product moment correlations were used to evaluate associations between depression, mental functioning, and physical functioning (dependent variables) and the composite pain score, and continuous independent variables, such as BMI and age. One-

way analyses of variance (ANOVA) were used to evaluate gender differences in depression, mental functioning, and physical functioning.

The hypotheses were tested using a series of hierarchical linear regression analyses. Independent variables included the measures of religion and social support. Dependent variables included measures of depression, mental functioning, and physical functioning. Separate analyses were conducted for each of the three outcome variables. Religion and social support were entered in separate models, so two hierarchical linear regressions were conducted for each of the three dependent variables (depressive symptoms, mental function, physical function). For each regression analysis, covariates as determined from preliminary analyses (Gender; Male = 0), age, BMI and the composite pain score were entered in Step 1. Religious coping (religion score) or social support (MOS score) was entered in Step 2.

CHAPTER 3

RESULTS

Table 1 contains relevant demographic characteristics of the sample such as gender, age, education level, depressive symptoms, physical functioning, and mental functioning. Most of the participants were female (80%). The sample ranged in age from 40 to 79 years old ($M = 52.06$; $SD = 8.82$). About half of the sample was married. Only 38.6% of the participants reported working either full-or part-time. The majority of the sample (95%) had a high school education or less. The participants in the current study felt religion was important as indicated by the high endorsement of religious coping items, averaging 2.64 ($SD = .41$; 1-3 possible) and also reported fairly high levels of perceived social support, averaging 3.57 ($SD = 1.07$; 1-5 possible).

Preliminary analyses to determine relevant covariates found that age, gender, BMI, and pain were significantly associated with depression, mental functioning and physical functioning, with the exception that BMI was unrelated with mental functioning. Thus, these four variables were included in the model as covariates. Although religion and social support were not highly correlated ($r = .13$, $p = .18$), separate analyses were conducted for each of the independent variables in an effort to conserve power and avoid any multicollinearity.

As shown in Table 2, the results did not indicate strong support for Hypothesis 1. The use of religious coping as a coping strategy to manage pain was not significantly

associated with depressive symptoms or with mental and physical functioning, although the results trended in the expected direction. The overall models, however, did account for a significant amount of the variance in the outcome measures, but these were driven mostly by pain.

Controlling for age, gender, BMI, and pain, a series of hierarchical linear regression analyses revealed that the overall model for religious coping predicting depression was significant [$F(5, 94) = 6.21, p < .01, R^2 = .25$], although religious coping itself did not contribute enough variance to reach significance. Higher pain level ($b = .12, t = 3.62, p < .01$) was associated with increased levels of depression. With regard to mental health, the overall model for religious coping predicting mental health was significant [$F(5, 94) = 3.92, p < .01, R^2 = .17$], although again religious coping did not contribute enough variance to reach significance. Lower pain level ($b = -.19, t = -2.57, p < .01$) was associated with better mental health. For physical health, the overall model for religious coping predicting physical health was significant [$F(5, 94) = 4.27, p < .01, R^2 = .19$], although again religious coping did not contribute enough variance to reach significance. In this case, lower BMI ($b = -.35, t = -2.44, p < .01$) was associated with increased levels of physical health. BMI was not significant in predicting depression and mental health. Overall, religious coping was not beneficial in boosting well-being among individuals with pain in this sample.

As expected in Hypothesis 2, the use of social support as a coping strategy to manage pain was negatively associated with depressive symptoms and positively associated with physical and mental functioning. Controlling for age, gender, BMI, and pain, a series of hierarchical linear regression analyses revealed that the overall model for

social support predicting depression was significant [$F(5, 94) = 10.01, p < .01, R^2 = .35$]. Both higher pain ($b = .10, t = 3.02, p < .01$) and lower social support ($b = -1.66, t = -3.40, p < .01$) were associated with increased levels of depression. BMI was not significant in predicting depression. With regard to mental health, controlling for age, gender, BMI, and pain, a series of hierarchical linear regression analyses revealed that the overall model for social support predicting mental health was significant [$F(5, 94) = 7.26, p < .01, R^2 = .28$]. Higher social support ($b = 3.80, t = 4.02, p < .01$) was associated with increased levels of mental health. BMI and pain were not significant in predicting mental health. For physical health, the overall model for social support predicting physical health was significant [$F(5, 94) = 5.60, p < .01, R^2 = .23$]. Both lower BMI ($b = -.35, t = -2.56, p < .01$) and higher social support ($b = 2.15, t = 2.64, p < .01$) were associated with increased levels of physical health. Therefore, in this sample, social support was beneficial in terms of overall well-being.

Overall, the findings of the present study suggest that social support, but not religious coping, significantly predicts levels of depression and mental and physical functioning. For all three measures of well-being, those with more support had better outcomes. Higher perceived social support could be a potential protective factor against depression and associated with better mental and physical health for individuals with chronic pain.

CHAPTER 4

DISCUSSION

The purpose of this study was to examine whether the use of religious coping and social support to manage chronic pain was beneficial or detrimental among low-income obese Latino adults with chronic pain aged 40 years and older. Hierarchical regression analyses controlling for age, gender, BMI, and pain levels, revealed a consistent main effect for social support for all three dependent variables. In other words, obese individuals who reported higher perceived social support had fewer depressive symptoms and better mental and physical functioning. Religious coping did not show a significant association with depressive symptoms or mental and physical functioning. Thus, the results seem to indicate that using religious coping as a method for coping with chronic pain was not beneficial. However, the study suggests that using social support as a coping mechanism for chronic pain appears to be associated with improved physical and mental well-being in overweight/obese Latinos.

Despite our prediction that the use of religious coping as a method to manage pain would be beneficial, the results did not support our hypothesis. Contrary to our hypothesis, the use of religious coping did not seem to yield relief for chronic pain in our sample, although the results trended in the expected direction. Interestingly, these results seem inconsistent with previous results on religious coping, especially studies focusing on positive religious coping. The measure used in the current study to assess religious

coping did not include any negative aspects of spiritual and religious coping (e.g., trying to work through the situation without God), but rather measured other aspects more closely related to positive coping (e.g., how important is it for you to have a belief in God or religious teachings when you have a personal problems). The use of positive and negative religious coping styles has been linked to different health outcomes (Bush et al., 1999; Pargament, 1990). For example, positive religious coping has been associated with positive but not negative affect (Pargament, 1990). Negative religious coping has been found to not be associated with positive or negative affect (Pargament, 1990). In Latinos caring for an older relative with disabilities, either with or without dementia, negative religious coping was associated with depression (Herrera, Lee, Nanyonjo, Laufman, & Torres-Vigil, 2009).

One possible explanation for the diverging results of this study is that the measure used to assess for religious coping captured private domains (e.g., praying or reading religious material) rather than public domains (e.g., religious attendance) of religious coping. A study by Rippentrop et al. (2005) found that individuals with chronic pain who had poorer mental health engaged in more private religious behavior. It is plausible that individuals with poorer mental health engage in more private religious behavior to manage more serious health problems. Thus, the results of this study could be a reflection of individuals who are in more distress turning to religious coping for relief.

Studies have also found that private domains of religiosity do not offer the benefits of social support that are possibly gained from public domains of religiosity (Herrera et al., 2009). For example, Ferraro and Koch (1994) found that religion was a source of social support for black adults in a health crisis. A study investigating religious

coping and caregiver well-being in Mexican-American families found that organizational religiosity (e.g., attending church) predicted lower perceived burden but non-organizational religiosity (e.g., praying) predicted poorer mental health (Herrera et al., 2009). Another study using data from the Hispanic Established Population for Epidemiologic Studies of the Elderly found that Mexican Americans aged 65 and older who attended church once per week had a 32% reduction in the risk of mortality compared to others who did not attend church. This finding remained significant even after controlling for sociodemographic characteristics, cognitive functioning, activities of daily living, cardiovascular health, social support, physical mobility and functioning, and health behaviors, as well as mental health and subjective health (Hill, Angel, Ellison, & Angel, 2005).

Despite a lack of support for Hypothesis 1, Hypothesis 2 was consistent with our expectations; perceived social support appears to be an effective method for relieving pain among obese Latinos. Our findings suggest social support is an important resource for chronic pain. This finding is consistent with previous results on social support and pain. For instance, among 109 low-income Latinas with arthritis, higher levels of social support were associated with less psychological distress and greater psychological well-being (Abraído-Lanza, 2004). Other studies among individuals with chronic pain have also found that higher levels of perceived social support were associated with less reliance on medication, less distress, less pain intensity, and greater activity levels (Jamison, & Virts, 1990; Lincoln, 2014). In addition, another study found that low levels of social support among individuals with rheumatoid arthritis predicted functional disability and pain up to three to five years after initial diagnosis (Evers, Kraaimaat,

Geene, Jacobs, & Bijlsma, 2003). One important consideration about this finding is that we are unable to determine causal direction, without longitudinal data. Thus, it is plausible that individuals with better health are more inclined to engage with their social networks due to less serious health problems.

In sum, social support, but not religious coping, was beneficial as a coping strategy to manage chronic pain in our sample of low-income obese Latino adults. Due to the cross-sectional design of the current study, we are not able to provide firm conclusions about the benefits (or lack thereof) associated with either coping strategy to manage chronic pain; however, given the importance of both social networks and religion in the lives of Latinos, the results from the current study have real-world implications for coping with chronic pain.

Implications

The findings of our study are significant because social support has been linked to the use of more adaptive pain coping methods (López-Martínez et al., 2008). For example, one study found that higher levels of perceived social support were associated with greater use of cognitive reframing (Holtzman, Newth, & Delongis, 2004). Cognitive reframing can help individuals with chronic pain reinterpret their situation in a less upsetting way (Holtzman et al., 2004). In addition, active coping can decrease depression and increase daily activity among individuals with chronic pain (Evers et al., 2003). On the other hand, the use of passive coping, feeling helpless or relying on others to resolve a problem, can increase depression as well as pain severity (López-Martínez et al., 2008).

The results of this study may prove to be useful in clinical settings by improving our understanding regarding obese Latinos' pain experiences and advance the field's

knowledge on health disparities. In light of the current results, it seems critical when creating and providing culturally competent pain care for obese Latinos, to acknowledge the potential benefits of social support. Our findings indicate that it could be beneficial for obese Latinos with chronic pain to maintain close ties with their social networks. For obese Latinos with chronic pain who use religious coping, organizational religiosity such as attending church and religious activities that include family members, friends or a spouse could be an acceptable strategy for coping with pain. For example, an individual who prays as part of their pain-related coping may benefit from praying with a friend or family members.

Limitations

There were several limitations to this study that should be noted. A limitation regarding statistical power should be considered. Given that the results for Hypothesis 1 trended in the expected direction, one reason for our inability to detect if religious coping can be an effective method for relieving pain among obese Latinos may be because we had limited statistical power due to a small sample. Also, the current study is cross-sectional. Therefore, the results of this investigation are correlational and causality could not be tested. In addition, the results of this study might not generalize across males, ethnic groups, and/or sub-groups of Latinos because the sample was predominately Mexican American overweight females living in Southern California and recruited from LHA. As such, caution is warranted in generalizing these findings to other ethnic groups or all Latino populations. Another potential limitation of the study may be that the results have selection bias because all the participants were recruited from LHA programs. Since the method of collecting the data was face-to-face interviews between the *promotores* and

the participants, this may have resulted in a response bias. However, given that *promotores* seem to be trusted members of communities, the use of face-to-face interviews conducted by *promotores* could be a potential strength of the study.

Despite the limitations of the current study, a major strength of the study was integrating a community-based participatory research method in the study's design because researchers were able to recruit low-income Latino participants and tailor the study questionnaires to a low-literate population. In fact, the use of *promotores* and interview techniques facilitated data collection from this understudied population. By allowing community partners to express concerns to the investigators and translators about interpretation of some English terms in Spanish, the investigators surpassed the common methods for conducting translations which simply involve translation and back-translation (Marin & Marin, 1991; Sperbber et al., 1994). This inclusion improved the Spanish language translation. However, since the community partners did not participate in the translation process and no mock trials were conducted with a community sample, it is possible that some of the terminology used in the questionnaire is not commonly used by this sample (Sánchez-Johnsen, Escamilla, Rodriguez, Vega, & Bolaños, 2015).

Future Research Directions

A replication of this study should use a longitudinal design to provide more firm conclusions about the benefits associated with religious coping and social support to manage chronic pain. Future studies in this area should also consider examining if religious attendance is a better predictor of mental and physical well-being than religious coping among Latinos. Studies have found that religious attendance has a stronger association with positive health outcomes than prayer (Herrera et al., 2009). In fact,

results of another study have found that more frequent religious attendance, but not religious coping, was significantly associated with less depression among Asian Americans (Ai, Huang, Bjorck, & Appel, 2013). The study also provided evidence that social support mediated the relationship between religious attendance and depression. Given that the use of private and public domains of religiosity have been linked to different health outcomes, future studies should include measures of both religious coping (private domain) and religious attendance (public domain) to test whether these findings are consistent among obese Latinos (Herrera et al., 2009).

Future studies should also evaluate the effectiveness of using social support for chronic pain among older Latinos. A number of studies have reported that pain is a commonly cited symptom that causes disability among older adults (Leveille, Fried, & Guralnik, 2002). In fact, older adults who are experiencing persistent pain may be limited in what they can do, either because activity worsens pain or because of fear of falling or injury (Molton & Terrill, 2014). In older adults, pain-related sleep deprivation can lead to persistent fatigue, which ultimately results in less physical activity and leads to more disability (Molton & Terrill, 2014). Additionally, a growing body of research suggests unrelieved pain in older adults is associated with isolation, depression, anxiety, and suicidal ideation (Tse, Wan, & Wong, 2013). Inadequate pain control among older adults is one of the primary obstacles of achieving an active lifestyle (Molton & Terrill, 2014). Moreover, in older employed adults, uncontrolled pain can lead to a decline in income as a result of frequent absences at work (Zettel-Watson et al., 2011).

As people age, an individual's social context becomes more and more important, especially for older adults with a disability or chronic pain (Molton & Terrill, 2014).

Research on aging shows strong evidence to support that as people get older, their social support network size becomes smaller (Molton & Terrill, 2014). In fact, older adults report having fewer friends and social supports than younger people (Broese Van Groenou, Hoogendijk, & Van Tilburg, 2013).

The decrease in social support network size among older adults is often seen as intentional “downsizing,” which is done in an attempt to reduce the energy spent in maintaining these relationships (Lang, 2000). In fact, older adults seem to become more selective in whom they choose to befriend and prefer individuals who share things in common with them (Brown, Asher, & Cialdini, 2005). It has been suggested that this “downsizing” is especially evident in older adults who have a physical disability because they may not have the energy or resources to maintain a large group of close friends (Molton & Terrill, 2014).

One disadvantage of having a small group of friends is the increased possibility for relationship loss and strain (Broese Van Groenou et al., 2013). Unfortunately, older adults often have more difficulties replacing and gaining friends. Many older adults who have chronic pain depend on their same-age spouse or friends for help in accomplishing daily tasks (Broese Van Groenou et al., 2013). This reliance on their social support group becomes problematic when their friends or spouses begin to have health problems or disabilities of their own (Broese Van Groenou et al., 2013). Therefore, understanding the role of perceived social support in obese Latinos in late life is crucial because much of the research on aging has been primarily focused on older white Americans (Whitfield & Baker, 2013).

There is research to suggest that minority aging may differ from the aging of non-Latino whites because ethnicity, national origin, and culture all contribute to the aging process (Whitfield, 2013). Moreover, the existing literature on Latino family networks suggests that Latinos have strong bonds with family members (Lincoln, 2014). Research suggests that older Latinos tend to have higher levels of interaction with their adult children, especially during difficult times (Lincoln, 2014). Studies have highlighted that minority older adults tend to rely more on informal sources for support for their daily needs (Whitfield, 2013). Therefore, the strain and the potential burden is especially high for the social networks of older Latinos. In fact, according to Yamada, Barrio, and Valle (2004), Latino caregivers of an older adult with dementia reported being less help-seeking in terms of obtaining formal assistance than were non-Latino White caregivers.

Conclusion

Despite the study's cross-sectional design and other potential limitations, the current study contributes to the limited existing research on pain management among obese Latinos with chronic pain. Understanding obese Latinos' pain experiences is necessary to eliminate health disparities and provide useful psychological interventions. In fact, past research has found that Latinos are particularly reluctant to seek mental health service (Hollingshead et al., 2016). Studies have found that Latinos whose primary language is Spanish and who have lower levels of acculturation have less access to pain care (Hollingshead et al., 2016). In addition, Latinos face many barriers to pain care: lack of insurance, immigration status, and financial constraints (Hollingshead et al., 2016). Given that Latinos whose primary language is Spanish are less likely to use medical management for their pain, especially opioids, our findings are crucial in helping

individuals cope with persistent pain (Campbell et al., 2009). The results of the current study provide preliminary evidence that perceived social support can be an effective alternative method to cope with persistent pain among obese/overweight Latinos. Social support can be particularly valuable for low-income obese Latinos with chronic pain because it can provide long-term support with minimal costs.

APPENDIX

TABLES

Table 1. Demographic Characteristics (N = 100)

Characteristics	%	<i>M</i>	<i>SD</i>
Gender, Female	80.2		
Age (years; range 40-79)		52.06	8.82
Education (high school or less)	95		
Current marital status			
Never married	26.7		
Divorced/separated	11.9		
Married	52.5		
Current employment status			
Working full-time	15.8		
Working part-time	22.8		
Looking for work/temporary leave	31.7		
Permanently disabled or retired	5.9		
Other	23.8		
Chronic Pain (range 0-80)		43.16	18.13
Health Status			
Depressive symptoms (range 0-21)		6.76	5.04
Mental function (Short-Form 12; range 0-100)		44.32	10.89
Physical function (Short-Form 12; range 0-100)		38.58	9.1
Coping Method			
Religious coping (range 1-3)		2.64	0.41
Perceived social support (range 1-5)		3.57	1.07

Table 2. Hierarchical Regression Results for Religious Coping Predicting Depression, Mental Health, and Physical Health (N = 100)

Predictor	Depression			Mental Health			Physical Health		
	B	SE B	β	B	SE B	β	B	SE B	β
Step 1									
Gender	2.37	1.28	0.19	-5.1	2.90	-0.19	-3.96	2.40	-0.18
Age	-0.08	0.05	-0.14	0.21	0.12	0.17	-0.22	0.1	-0.21
BMI	0.01	0.08	0.01	0.21	0.17	0.12	-0.35	0.14	-0.24**
Pain	0.12	0.03	0.36***	-0.19	0.08	-0.27**	-0.1	0.06	-0.17
Step 2									
Religious Coping	-1.45	1.2	-0.18	3.84	2.71	0.14	2.73	2.25	0.12
R^2 Step 1	0.24***			0.16***			0.17***		
ΔR^2 Step 2	0.01			0.02			0.01		

Note: Coefficients are from final 2-step model; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 3. Hierarchical Regression Results for Perceived Social Support Predicting Depression, Mental Health, and Physical Health (N = 100)

Predictor	Depression			Mental Health			Physical Health		
	B	SE B	β	B	SE B	β	B	SE B	β
Step 1									
Gender	1.04	1.14	0.08	-1.85	2.58	-0.07	-1.91	2.23	-0.08
Age	-0.08	0.05	-0.15	0.21	0.11	0.17	-0.22	0.10	-0.21
BMI	0.02	0.07	0.02	0.20	0.16	0.11	-0.35	0.14	-0.25**
Pain	0.10	0.03	0.29**	-0.14	0.07	-0.19	-0.07	0.06	-0.12
Step 2									
Social Support	-1.66	0.42	-0.35***	3.80	0.95	0.37***	2.15	0.82	0.25**
R^2 Step 1	0.24***			0.16***			0.17***		
ΔR^2 Step 2	0.11***			0.12***			0.06***		

Note: Coefficients are from final 2-step model; * $p < .05$; ** $p < .01$; *** $p < .001$

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