DISSERTATION

THE ROLE OF COPING IN DEPRESSION AND ANXIETY OUTCOMES OF US LATINX CANCER PATIENTS

Submitted by

Eva Victoria Vigodnier

Department of Psychology

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Doctoral Committee:

Advisor: Ernest Chavez
Co-Advisor: Evelinn Borrayo

Mark Prince
Jessica Gonzalez-Voller

ABSTRACT

THE ROLE OF COPING IN DEPRESSION AND ANXIETY OUTCOMES OF US LATINX CANCER PATIENTS

Cancer diagnosis and treatment are related to adverse mental health outcomes, including increased depression and anxiety symptoms. Literature shows that lung cancer (LC) and head and neck cancer (HNC) patients report among the highest rates of depression and anxiety. These outcomes have been shown to be worse among medically underserved cancer patients, including the US Latinx population. However, no research exists that investigates rates of depression and anxiety among US Latinx LC and HNC patients nor potential protective factors. Further, research shows that the ways in which people cope with stressors has both positive and negative impact on mental health factors. The present study analyzed coping, depression, and anxiety outcomes among medically underserved US Latinx cancer patients. Results indicate that 29.51% of medically underserved US Latinx people newly diagnosed with LC or HNC report clinically relevant depression symptoms and 59.02% report clinically relevant anxiety symptoms. Self-efficacy in several forms of adaptive coping were also found to serve as protective factors toward depression and/or anxiety symptomatology and differences in coping self-efficacy were observed between individuals that met the clinical cut-offs for depression and/or anxiety across various coping strategies. Self-efficacy in coping strategies that were problem-focused and aimed at stopping unpleasant thoughts and emotions, were found to be most predictive of reduced depressive and anxious symptomatology. The present study is the first to explicate mental health outcomes among US Latinx people newly diagnosed with LC or HNC and to identify salient coping factors that buffer depression and anxiety symptoms. Implications for mental health intervention in oncological treatment settings are discussed.

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DEDICATION

To my Latina/o/x community:

You are beautiful.

You are powerful.

Tu puedes.

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Chapter 1: Introduction

Cancer is a pertinent health issue across the world, including in the United States (US) (Siegel, Miller & Jemal, 2021; U.S. Census Bureau, 2017). Cancer diagnosis and treatment have been shown to contribute to adverse mental health outcomes, including depression and anxiety symptoms (Akechi et al., 2008; Derogatis et al., 1983; Nasreldin et al., 2012; Spiegel, 1995). These adverse mental health outcomes have been shown to be worse among individuals belonging to medically underserved populations. In the US, this disparity has been shown to markedly impact the Latinx cancer patient population (Luckett et al., 2011). Given this group's increased vulnerability along with the current and projected composition of the US populace, informing the mental health treatment needs of Latinx cancer patients is a serious US public health concern (Colby & Ortman, 2017; Pan et al., 2017; Sauer, Siegel, Jemal & Fedewa, 2017; Selvin, Parrinello, Sacks & Coresh, 2014). Even so, the literature remains severely underinformed in various domains related to US Latinx cancer patient mental health, including rates of depression and anxiety as well as factors that may serve to buffer adverse outcomes. Lazarus & Folkman's (1984) Transactional Model of Stress and Coping (TMSC) predicts that individuals who are able to cope and adapt to the stress related to cancer diagnosis and treatment will report less psychological distress than those unable to cope (Lazarus & Folkman, 1984). This inference has been supported by the literature, which indicates that adaptive coping is related to better mental health outcomes among cancer patients while maladaptive coping has been shown to result in worse mental health outcomes (Carrion, Nedjat-Haiem, Macip-Billbe, & Black, 2017; Morris, Moghaddam, Tickle & Biswas, 2018; Morton & Broadbent, 2016; Siegel et al., 2012; Siegel et al., 2015; Ries et al., 2007). Further, the literature suggests that lung cancer

(LC) and head and neck cancer (HNC) are perhaps the most burdensome and traumatic forms of cancer, resulting in markedly high psychological distress that has severe implications for quality of life and survivorship (Pinquart & Duberstein, 2010; Prasad et al., 2014; Satin, Linden, & Phillips, 2009; Vodermaier et al., 2014). Despite this understanding, the literature on the effects of self-efficacy across various forms of adaptive coping and their implications for the mental health of the vulnerable Latinx population is essentially non-existent. Therefore, the present study sought to explore the rates of depression and anxiety symptoms as well as the potential protective effect of adaptive coping self-efficacy on these mental health outcomes in US Latinx LC and HNC patients newly diagnosed cancer. Coping and mental health factors were measured using previously validated measures and current analyses validated their use in the present population. Primary analysis consisted of traditional null hypothesis testing using a model building approach as well as reporting of confidence intervals and effect sizes per recommendations of *The New Statistics (Cumming, 2013).*

Cancer Impact Worldwide

Today, cancer is estimated to account for 1 in every 6 deaths worldwide. In 2018, there were 17.0 million people diagnosed with cancer around the world and 9.5 million cancer deaths (U.S. Census Bureau, 2017). Cancer is defined as a group of diseases that result in the uncontrolled growth and spread of abnormal cells (American Cancer Society, 2019). If the spread of these cells remains uncontrolled, it can ultimately result in death (American Cancer Society, 2019). The causes of cancer are only partially understood. However, various genetic and environmental risk factors have been identified and the cumulative or subsequent occurrence of these is believed to prompt or promote cancer growth (American Cancer Society, 2019).

Cancer In The US

Cancer is the second leading cause of death in the United States (US). In 2021, it was estimated that there would be 1,898,160 cancer cases diagnosed and 608,570 deaths from cancer (Siegel, Miller & Jemal, 2021). For most of the 20th century the overall cancer death rate rose and this was largely driven by the proliferation of lung cancer (LC) deaths among men as a consequence of the tobacco epidemic (Siegel, Miller & Jemal, 2021). For the past 2 decades there has been a decline in cancer mortality and this is highly attributed to reductions in smoking, as well as advances in cancer prevention, early detection, and treatment. However, improvement in survival rates of LC patients is among the slowest (Siegel, Miller & Jemal, 2021).

Among US Latinx individuals, Cancer is the leading cause of death (Miller et al., 2018). Cancer incidence trends are similar in US Latinx men compared to US non-Latinx White (NLW) men. From 2006 through 2015 cancer incidence declined by 2.3% per year in Latinx men. However, among Latinx women rates of cancer increased slightly by 0.4% annually while rates remained stable in NLW women (Miller et al., 2018). The lifetime likelihood of developing cancer among Latinx men and women is generally lower than for NLW, 36% and 35% compared to 40% and 39%, but likelihoods vary by cancer types (Miller et al., 2018). Among Latinx men, LC and bronchus cancers are among the most diagnosed cancers (8%) and LC persists as the leading cause of cancer death (16%) (Miller et al., 2018). Among Latinx women, the leading cause of cancer death is breast cancer (16%), followed by LC (13%) (Miller et al., 2018).

LC & HNC

Lung & bronchus cancers persist as the primary cause of cancer death in the US, making up almost 25% of all cancer deaths (American Cancer Society, 2021). Between 1990 and 2016, there was a 48% drop in the LC death rate among males; while between 2002 and 2016 there was a 23% drop in the LC death rate among females. Further, since 1991 the cancer death rate has dropped 29% and this is primarily related to reduced rates of smoking and advancements in the treatment of LC (Siegel, Miller & Jemal, 2021). Still, among men aged 40 years and older and women aged 60 years and older LC deaths amounted to more than breast cancer, prostate cancer, colorectal cancer, and leukemia deaths combined in 2016 (Siegel, Miller & Jemal, 2019). It is estimated that in 2021 there will be 235,760 new cases of LC & bronchus (119,100 male and 119,100 female) diagnosed and about 131,880 deaths from LC (69,410 male and 62,470 female) (American Cancer Society, 2021). In addition, a large number of LC patients have a primary diagnosis of head-and-neck cancer (HNC) or are at risk of developing these forms of cancer (Kuriakose et al., 2002; Ries et al., 2007). HNCs include those cancers that occur in the paranasal sinuses, nasal cavity, oral cavity, pharynx, and larynx (Argiris, Karamouzis, Raben & Ferris, 2008). Among HNC patients there is also an increased chance of developing a new cancer, typically in the head, neck, esophagus, or lungs (Argiris et al., 2004; Chuang et al., 2008; Do et al., 2003). The site of the original cancer as well as tobacco and alcohol use significantly impact the chance of acquiring a second primary cancer (Do et al., 2003). Similar to LC, the incidence of HNC had decreased over the past two decades (Guo, McGorray, Riggs Jr & Logan, 2013; Mehta, Yu & Schantz, 2010; Shiboski, Schmidt & Jordan, 2007). However, most recently rates for HNC have been stagnant, reflecting tobacco use trends (Centers for Disease Control and Prevention, 2012). LC incidence has consistently been twice as high for men as in women, mirroring historical differences in tobacco consumption and cessation, as well as increases in female smoking rates in some birth cohorts (Harris; 1983; Jemal, Ma, Rosenberg, Siegel, & Anderson, 2012). In 2015, about 45,785 new patients were diagnosed with HNC. This accounted for 4% of all cancers and 2% of fatal cancers (American Cancer Society, 2015). In 2021, it is estimated that 72,420 people (52,610 male and 19,8100 female) will develop a HNC and that 16,010 people (11,550 male and 4,460 women) will die from a HNC (Siegel, Miller & Jemal, 2021).

Latinx males and females experience LC at lower rates than the general US population (8% in men and 6% in women, compared to 14% and 13% in NLWs) (Siegel, Miller & Jemal, 2016). Literature suggests that age, lifestyle, and environmental factors explain distinctions in distribution of cancers among Latinx people compared to the general US population (Miller et al., 2018). For example**,** US Latinx people are a relatively young population. In 2016, the median age among the US Latinx population was 27 years compared with 42 years among NLWs (Miller et al., 2018). However, notably, median age has been shown to vary based on Latinx ethnic subgroup. The 2000 US census report indicates that the median age for Latinx people in the US was 25.9 years, compared to 35.3 year for the entire U.S. population at that time, but varied by subgroup as follows: Mexicans - 24.2 years; Puerto Ricans -27.3 years; Central Americans - 29.2 years; Dominicans - 29.5 years; South Americans - 33.1 years; Spaniards 36.4 years; Cubans 40.7 years; other groups – 24.7. This indicates that aggregate reporting of health outcomes by age in the US Latinx population, may not be most accurate. Still, aggregate US Latinx data remains standard; therefore, the following cancer statistics are formatted as such.

Latinx people also have an older median age of diagnosis for LC compared to the general US population (age 70) and low smoking prevalence (Noone et al., 2017; Sauer et al., 2017). A meta-analysis by Klugman, Xue & Hosgood (2019) also concluded that after adjusting for clinical factors and smoking status, Latinx experienced improved survival compared to NHWs (Klugman, Xue & Hosgood, 2019). These results are further supported by a recent study which demonstrated that Latinx ethnicity was associated with better survival in non-small cell lung cancer (Kumar et al. 2021). However, despite relatively reduced prevalence of LC and HNC diagnoses and deaths among Latinx people compared to the general US population, research has shown the Latinx community is especially vulnerable to cancer related inequalities and adverse outcomes (Miller et al., 2018). For instance: Yang at al. (2010) found that Latinx ethnicity in LC patients significantly predicted residence in the highest poverty areas and decreased likelihood of receiving radiotherapy. The study also suggested that Latinx patients that smoked had significantly shorter survival rates compared to NLWs that smoked (Yang et al., 2010).

Unique Needs of LC & HNC Patients

The 5-year relative survival rates for LC vary depending on the stage (extent) of the cancer when it is diagnosed. **The stages include: Localized** -No indication that the cancer has spread outside of the lung; **Regional -**The cancer has spread outside the lung to nearby structures or lymph nodes; **Distant -** The cancer has spread to distant parts of the body (American Cancer Society, 2021). From 2010 to 2016, the 5-year relative average survival rate across, Localized, Regional, and Distant Stage non-small cell LCs was 25% and 7% for small cell LCs. (American Cancer Society, 2021). In 2019, the American Cancer Society reported that only 16% of LC patients are diagnosed at a localized stage, and for this group the 5-year survival rate was 56% (American Cancer Society, 2019). More than half of LC cases were estimated to be diagnosed at a later stage, and the 5-year survival rate was approximately 4% (Siegel, Miller & Jemal, 2016). HNC survivors only accounted for only 3% of all cancer survivors in the US (Cohen et al., 2016).

Although LC and HNC patients represent a relatively small portion of cancer survivors, LC and HNC patients suffer from heavy disease and treatment burden (De Boer, McCormick, Pruyn, Ryckman & van den Borne, 1999; Fialka-Moser, et al., 2003; List & Bilir, 2004;

Mehanna & Morton, 2006; Pozo, Morgan & Gray, 2014; Rogers et al, 2009). LC and HNCs often require multiple modalities of care due to the effects of how these cancers progress. Treatments are often aggressive and invasive, including radiotherapy, chemotherapy, and/or surgery (Marur & Forastiere, 2008). In patients diagnosed with HNC, many vital functions, such as mastication, swallowing, speaking, taste, and smell, can be affected, both before and after treatment. In addition, these forms of cancer can impact physical appearance (Morris, 1994; De Boer et al., 1999). Even small disruptions to the anatomy that may occur during surgery or through other forms of treatment can lead to significant dysfunction. Given LC and HNC's link to avoidable hazardous behaviors, there is also stigma associated with these cancers (Grattan, Kubrak, Caine, O'Connell, & Olson, 2018). This stigma has been shown to negatively impact psychological wellbeing (Gonzalez & Jacobsen, 2012; Lebel et al., 2013), including in patients who have not taken part in the stigmatized behaviors (Cataldo, Jahan & Pongquan, 2012). These findings are in line with the assertions of Goffman (1963), which state that having characteristics devalued by the dominant group result in stigmatization and that regardless of the sources of stigma there is shame with being marked. Although severely understudied, in the extant literature HNC has been described as a psychologically highly traumatic cancer type (Koster, M. E. T. A., & Bergsma, 1990; De Boer et al., 1999; Morris, 1994). Research also suggests that certain cancer patient populations are at increased risk of experiencing psychological distress following diagnosis. This may indicate increased risk of disease burden and related adverse outcomes among vulnerable LC and HNC populations.

Vulnerable LC & HNC Populations

Currently, the Latinx population is the second largest racial/ethnic group in the US (Colby & Ortman, 2017). The Latinx population is projected to increase from 55 million in 2014 to 119 million in 2060, at which time Latinx people will account for more than one-quarter (29%) of the total population (Colby & Ortman, 2017). Given this current and projected composition of the US populace, along with increased vulnerability to cancer inequalities faced by the US Latinx population, understanding the needs of Latinx LC and HNC patients is a pertinent US public health concern (Colby & Ortman, 2017; Pan et al., 2017; Sauer, Siegel, Jemal & Fedewa, 2017; Selvin, Parrinello, Sacks & Coresh, 2014).

Research on medically underserved LC and HNC patients is limited. However, a recent study of lower socioeconomic status (SES) patients found that those with advanced LC experienced more psychological distress relative to higher SES patients (Fagundes, Jones, Vichaya & Cleeland, 2014). The SES association was shown to persist regardless of ethnic minority background or type of treatment center (Fagundes et al., 2014). A meta-analysis by Luckett et al. (2011) also found that medically underserved cancer patients are significantly more likely to experience worse distress, higher levels of clinical depression, and lower quality of life (QoL) compared with other cancer patients (Luckett et al., 2011). In addition, further analyses found that in the US, these disparities are present even more dramatically in Latinx patients, for whom poorer outcomes were consistent with clinically important differences for distress, social QoL, and overall QoL (Luckett et al., 2011).

Increased Vulnerabilities in US Latinx Cancer Patients

The US Latinx population is particularly vulnerable to cancer inequalities. Latinx people experience disproportionately high rates of poverty and have among the highest prevalence of certain cancer risk factors including obesity (42.5% compared to 34.5% in NLWs) (Ogden et al., 2014) and type 2 diabetes (Pan et al., 2017; Sauer et al., 2017). In addition, US Latinx people and those individuals whose primary language is Spanish are less likely to have health insurance than primarily-English-speaking NLWs (Goldman, Smith & Sood, 2005; Kirby, Taliaferro & Zuvekas; 2006; McCollister et al., 2010; Rutledge & McLaughlin, 2008; Vargas Bustamante et al., 2014). From 2007 through 2012 the Latinx population between the ages of 18 to 64 were more than twice as likely as NLWs to be uninsured or Medicaid-insured (Selvin et al., 2014). Further, Latinx people are generally diagnosed with cancer at later stages relative to NLWs (Borrayo, Scott, Drennen, MacDonald & Nguyen, 2016). Advanced stage diagnosis is associated with reduced chance of survival and contributes to increased disease burden factors (Morris, 1994; Ries et al., 2007; Siegel et al., 2012). Research suggests that lower SES and reduced access to high-quality care contribute to this disparity (Fang & Tseng, 2018; Harvey, Enos, Chen, Galadima & Eschbach, 2017). Still, some studies have shown that advanced stage diagnosis persists in the Latinx population even when SES and health care access are similar to NLWs (Iqbal, Ginsburg, Rochon, Sun & Narod, 2015; Ward et al., 2008). Some researchers also suggest that the sociocultural stressor of racial/ethnic perceived discrimination (i.e., differential treatment or lack of opportunity based on group membership) (Allport, 1979) contributes to reduced screening adherence and this effect has been shown among Latinx cancer patients (Crawley, Ahn & Winkleby, 2008; Facione & Facione, 2007; Mouton et al., 2010).

Various disparities put US Latinx people at increased risk for distress and subsequent adverse outcomes related to cancer diagnoses and treatment. These risk factors may be most detrimental in severely burdensome and traumatic cancers such as LC and HNC in which rates of psychological distress are markedly high and have severe implications for QoL and survivorship (Pinquart & Duberstein, 2010; Prasad et al., 2014; Satin, Linden, & Phillips, 2009; Vodermaier et al., 2014). Yet, no research exists that investigates US Latinx LC and HNC patients' perceived ability to cope with cancer upon diagnosis, nor the psychological distress implications of perceived coping capacity among this population.

Psychological Distress

Psychological distress is described as a complex unpleasant emotional experience of a psychological (i.e., cognitive, behavioral, emotional), social, and/or spiritual nature that may restrict the ability to cope effectively with cancer, its physical symptoms, and its treatment (National Comprehensive Cancer Network, 2003). Screening for and addressing psychological distress factors (e.g., depression and anxiety) is considered essential to comprehensive cancer treatment (Akechi et al., 2008; Derogatis et al., 1983; Nasreldin et al., 2012; Spiegel, 1995). Psychological distress encompasses depression and anxiety (Mcmullen et al., 2018), factors which are recognized as having adverse effects on cancer patients' level of distress, quality of life (QoL), and chance of survival (Archer, Hutchison, & Korszun, 2008; Colleoni et al., 2000; Dunne et al., 2017; Howren, Christensen, Karnell & Funk, 2010; Laurence, Mould-Millman, Nero Jr, Salter & Sagoo, 2017; Lopez-Class et al., 2011; Pinquart & Duberstein, 2010; Prasad et al., 2014; Rieke et al., 2017; Satin et al., 2009; Vodermaier et al., 2014). A recent analysis of cancer morality in the US from 1997 to 2014, showed that when controlling for age and SES cancer mortality risk was 33% higher in adults with serious psychological distress, compared to adults without psychological distress (Lee & Singh, 2021).

Depression and Anxiety

Depressive disorders encompass the presence of "sad, empty, or irritable mood, accompanied by somatic and cognitive changes that significantly affect the individual's capacity to function" (American Psychiatric Association, 2013). Such changes may include: loss of interest or pleasure, changes in appetite, sleep disturbance, decreased energy, psychomotor change, and/or suicidal ideation (American Psychiatric Association, 2013). The risk of being depressed has been shown to be 3.55 times higher in newly diagnosed patients with cancer compared with healthy persons (Singer et al., 2012). Rates of depression are between 11% and 44% in LC patients and up to 57% for HNC patients -the highest rate of occurrence among all cancer types (Alfano & Rowland, 2006; Duffy et al., 2007; Lydiatt, Moran & Burke, 2009; Singer et al., 2008; Massie, 2004). Research indicates that increased rates of depression among cancer patients are associated with higher mortality risk (Pinquart & Duberstein, 2010; Pirl et al., 2012; Prasad et al., 2014; Satin et al., 2009; Vodermaier et al., 2014). This association has been show to remain when adjusting for clinical comorbidities (Satin et al., 2009). Yet, the relationship between depression and mortality in cancer patients is not fully understood. Some literature suggests that depression in cancer patients is associated with increased smoking, drinking alcohol (Aguado et al., 2013; Grant et al., 2004; Haukkala, Uutela, Vartiainen, Mcalister & Knekt, 2000; Kendler, Gardner, & Prescott, 2002), and non-compliance with treatment (Spiegel & Giese-Davis, 2003). Among HNC survivors, depressive symptomatology present near the time of diagnosis has been significantly associated with, deleterious impact on health related QoL over time (Howren et al., 2010). In addition to facing high rates of depression, LC and HNC patients also face high rates of anxiety and high rates of depression/anxiety comorbidity (Brintzenhofe-Szoc, Levin, Li, Kissane & Zabora, 2009).

Anxiety disorders include disorders that share features of excessive fear and anxiety and related behavioral disturbances (American Psychiatric Association, 2013). 37% of LC patients and 36% of HNC patients experience high levels of anxiety (Linden, Vodermaier, MacKenzie & Greig, 2012). Literature shows that anxiety increases as side-effects increase and physical functioning decreases (Buchanan, Milroy, Baker, Thompson & Levack, 2010; Davies, Davies &

Delpo, 1986; Hopwood, Stephens & British Medical Research Council Lung Cancer Working Party, 2000; Zabora, BrintzenhofeSzoc, Curbow, Hooker & Piantadosi, 2001). Fear of recurrence has also been shown to be a salient fear that contributes to anxiety in cancer patients (Hodges & Humphris, 2009). A study by Brintzenhofe-Szoc and colleagues (2009), of 8,265 cancer patients, found that 2 out of 3 patients experienced comorbid depression/anxiety (Brintzenhofe-Szoc et al., 2009). In addition, LC and HNC were among the 4 types of cancers for which mixed depression/anxiety symptoms were highest (14.4% & 15% compared to 12.4% in the sample overall) (Brintzenhofe-Szoc et al., 2009). Given the difficult and debilitating nature of depressive and anxiety disorders, these conditions can pose additional burden to cancer diagnosis as well as treatment (Archer, Hutchison, & Korszun, 2008). Accordingly, research has shown that distress factors, fear, and advanced cancer staging contribute to high suicidality among LC and HNC patients compared to other cancer patients (Hammerlid, Silander, Hörnestam & Sullivan, 2001; Misono, Weiss, Fann, Redman & Yueh, 2008; Zeller, 2006).

Depression and anxiety are acknowledged across the literature as common and pertinent mental health concerns in newly diagnosed cancer patients (Akechi, Okuyama, Onishi, Morita, & Furukawa, 2008; Singer, et al. 2012; Spiegel, 1995). Taking measures to identify depression and anxiety symptoms early relative to cancer diagnosis has been highlighted as ideal to optimizing patient outcomes (Pandey et al., 2006; Pandey, Thomas, Ramdas & NandaMohan, 2006; Thomas, Pandey, Ramdas & Nair, 2002). However, current research is severely limited in understanding depression and anxiety symptoms in newly diagnosed LC and HNC patients. Research suggests that medically underserved cancer patients, including Latinx patients, are significantly more likely to experience worse distress, higher levels of clinical depression, and lower QoL compared with other cancer patients (Luckett et al., 2011). Yet, a review of the literature suggests that research focusing on depression and anxiety outcomes among underserved LC and HNC patients is nonexistent.

Psychological Distress in US Latinx Cancer Patients

Estimates of depression and anxiety prevalence in the US Latinx cancer patient population are limited. Estimates of depression vary substantially and prevalence of anxiety symptoms remains largely unknown (Lee et al., 2018). However, a recent study of Latinx cancer survivors (breast, colorectal, thoracic, and urologic cancers) showed that rates of depression where highest among Latinx compared to NLW, Black, and Asian survivors (Bevilacqua et al., 2018). Research that has sought to understand psychological distress factors among Latinx cancer patients has focused primarily on breast cancer cases (Ashing-Giwa, Rosales, Lai & Weitzel, 2013; Bevilacqua et al., 2018; Ell et al., 2005; Lee et al., 2018; Holden, Ramirez & Gallion, 2014). These studies have shown that depression and anxiety are common in the US Latinx community diagnosed with cancer. Among Latina breast cancer survivors, prevalence of depressive symptoms has been shown to be as high as 53% (Ashing-Giwa et al., 2013; Holden, Ramirez & Gallion, 2014). Another estimate indicates a prevalence of 45.6% within 5-years of diagnosis (Aguado et al., 2013). In a study of primarily Spanish-speaking female Latinx breast cancer patients, Ell et al. (2005) found that 24% met criteria for Major Depressive Disorder (MDD), with 20% of them (n=23) endorsing suicidal ideation. A more recent study of primarily Spanish-speaking Latinx women breast cancer patients found that prior to starting chemotherapy 27% of patients met the cutoff for clinically significant depressive symptomatology (Lee et al., 2018). This study also found that 52% of participants met the cutoff for clinically significant anxious symptomatology, and 23% met the cutoff for clinical significance for both anxiety and depression (Lee et al., 2018). However, in line with previous research on coping (McClain, Rosenfeld & Breitbart, 2003; Nelson, Rosenfeld, Breitbart & Galietta, 2002), greater spiritual well-being was significantly related to lower anxiety (r = −.53, $p < .001$) and depression scores (r = −.62, $p < .001$). Relationships were stronger for the meaning/peace subscale than for the faith subscale (Lee et al., 2018). The literature has consistently shown spiritual and religious coping to be particularly salient among female Latinx breast cancer patients (Campbell, Andrews, Scipio, Flores, Feliu & Keefe, 2009; Culver, Arena, Antoni & Carver, 2002; Culver, Arena, Wimberly, Antoni & Carver, 2004; Gonzalez, Nuñez, Wang-Letzkus, Lim, Flores & Nápoles, 2016).

The US Latinx breast cancer patient literature shows that depression and anxiety are pertinent concerns among Latinx cancer patients. This literature also suggests that spiritual forms of coping may be a protective factor against depression and anxiety symptoms. Further, this literature is in line with Lazarus & Folkman's (1984) Transactional Model of Stress and Coping (TMSC) which predicts that individuals who are able to cope and adapt to the stress related to cancer diagnosis and treatment will report less psychological distress than those unable to cope (Lazarus & Folkman, 1984).

Coping

Coping refers to the cognitive and behavioral approaches that people use to manage situations that are perceived as stressful (Lazarus & Folkman, 1984). According to the Transactional Model of Stress and Coping (TMSC), personal methods of coping are determined by a two-step appraisal process: 'Primary appraisal' describes the initial process of assessing the presence of a stressor. Upon determining that a stressor is present, 'Secondary appraisal' describes the subsequent process of choosing a method for coping based on perceived coping options. The TMSC asserts that coping involves both *emotion-focused coping* and *problem-*

focused coping and that the extent to which these are helpful (adaptive) or not (maladaptive) depends on their congruence with the demands of the stressor (Lazarus & Folkman, 1984).

Coping with Cancer

Cancer diagnosis and treatments have been shown to cause severe stress among LC and HNC patients (Archer, Hutchison, & Korszun, 2008; Bleiker, Pouwer, Van Der Ploeg, Leer & Ader, 2000; Edgar, Rosberger & Nowlis, 1992; Golden-Kreuts et al., 2005; Hansen& Sawatzky, 2008; Holzner et al., 2001; Katz, Irish, Devins, Rodin & Gullane, 2003; Singer, et al. 2012). Literature supports the TMSC model of coping in those diagnosed with cancer. Coping has been significantly associated with distress and overall QoL (Faller & Schmidt, 2004; Henoch et al., 2007; Kershaw, Northouse, Kritpracha, Schafenacker, & Mood, 2004; Tarakeshwar, et al., 2006; Vallurupalli et al., 2012), as well as health-related QoL (Ell, Mantell, Hamovitch & Nishimoto, 1989; Sherman, Simonton, Adams, Vural & Hanna, 2000). Across various types of cancer, adaptive coping strategies have been shown to positively impact QoL and mental health, while maladaptive coping strategies have been shown to negatively impact them (Carrion, Nedjat-Haiem, Macip-Billbe, & Black, 2017; Morris, Moghaddam, Tickle & Biswas, 2018; Morton & Broadbent, 2016; Siegel et al., 2012; Siegel et al., 2015; Ries et al., 2007). Maladaptive coping strategies have been associated with increased risk for stress, anxiety, and depression symptoms as well as Post-Traumatic Stress Disorder (Lazarus & Folkman, 1984; Richardson, Morton & Broadbent, 2016; Walker, Zona & Fisher, 2006). In HNC patients, research has shown an association between levels of anxiety and depression and the type of coping strategies used (Elani & Allison, 2011). There is mixed evidence regarding the relationship between coping strategies and mortality risk. An early study (Faller, Bülzebruck, Drings & Lang, 1999) showed that high values of depressive coping (a composite score of 5 measure items: brooding, arguing with fate, pitying oneself, acting impatiently and taking it out on others, and withdrawing from other people) was associated with significantly shorter survival. Later a systematic review (Petticrew, Bell & Hunter, 2002) concluded that the evidence for a link between coping style and survival was not strongly supported in the literature. However, a recent study (Svensson et al., 2016) found approach-oriented (i.e., planning, consulting someone, or positive reappraisal) strategies to be inversely associated with cancer mortality.

Coping and Distress in LC & HNC Patients

In a study by Walker et al. (2006) post-operative LC patients, who did not disengage from or deny their illness, who were action-oriented, and sought social support in dealing with their illness, tended to have fewer depressive symptoms. Conversely, coping that involved disengaging and denying illness was associated with more severe depressive symptoms (Walker et al., 2006). Repressive coping styles have also been shown to be associated with statistically significant lower mean scores for pain quality, pain catastrophizing, and depression in LC patients (Prasertsri, Holden, Keefe & Wilkie, 2011). Among pre-treatment HNC patients, negative coping styles including denial, venting, substance use, and behavioral disengagement have been associated with increased levels of anxiety (Horney et al., 2011). In HNC patients 6-12 months post-diagnosis, higher use of self-blame, wishful thinking, and avoidance coping strategies has been associated with higher levels of anxiety and depression, even when controlling for age, gender, time since end of treatment, tumor stage, and occupation (Elani & Allison, 2011). In a systematic review of coping styles and psychological distress in people with HNC, the most consistently found relationship was between coping styles aimed at disengaging/distancing from the cancer and increased psychological distress (Morris and colleagues, 2017). More recently, a study of Japanese HNC patients by Ichikura et al. (2018)

indicated that dependent-coping, characterized by smoking, drinking, seeking support, or engaging in self-distraction, was the most common form of coping and was associated with likelihood of suffering depression (Ichikura et al., 2018). A qualitative study by Grattan et al. (2018) investigated the experiences of HNC patients and found that the consequences of HNC and coping with HNC were the two main themes. Subthemes of coping with HNC included seeking information, discovering inner strengths, relying on a support network, establishing a sense of normalcy, and finding meaning within the experience (Grattan et al., 2018). Currently no literature exists that investigates which forms of coping are most salient to the US Latinx LC and HNC patient population, nor how discrete forms of coping impact the mental health outcomes of this vulnerable population. Therefore, further research is needed.

Coping and Distress in Latinx LC & HNC Patients

Among Latinx cancer patients the literature has focused primarily on challenges and barriers faced upon their diagnosis (Kirkendall, Holland, Keene & Luna 2015; Yoo, Levine & Pasick, 2014). Literature that examines the relationship between coping strategies and mental health among Latinx cancer patients is sparse. The few studies that exist have primarily examined breast cancer patient samples or samples that represent patients with a broad range of cancer diagnoses (Alferi, Culver, Carver, Arena & Antoni, 1999; Carrion et al, 2017; Nedjat-Haiem, Carrion, Ell & Palinkas, 2012). In a 2009 study of pain coping among Latinx cancer patients (Campbell et al, 2009), the use of religious coping was found to be more common among the Latinx group than other groups. A recent qualitative study among US immigrant Latinx women with advanced breast cancer showed that spirituality was important to participants and that staying positive was their primary means of coping (Glaser et al., 2020). However, the limited research on the association between religious coping and outcomes related to pain in

Latinx cancer patients is mixed, showing both protective and hazardous outcomes (Campbell et al, 2009; Edwards et al., 2005; Griswold, Evans Spielman & Fishman, 2005). Despite potential increased vulnerability to poor distress outcomes during cancer treatment, literature on US Latinx cancer patients' mental health needs is largely absent. Further, no research has been done to investigate coping strategies pertinent to US Latinx LC and HNC patients nor the impact of these on their mental health.

Coping Self-Efficacy

According to Bandura's Social Cognitive Theory (SCT), self-efficacy is a belief about one's ability to execute a certain behavior (Bandura, 1997, 2006). Self-Efficacy Theory posits that people who have greater confidence in their ability to execute certain behaviors, such as coping, have a higher probability of attaining goals, including mitigating distress (Bandura, 1997, 2006). From a TMSC model perspective, Self-efficacy contributes to coping by influencing judgment in the 'secondary appraisal' phase (Park & Folkman, 1997). The concept of "Coping self-efficacy" has emerged from the established theories of Bandura (1997) and Lazarus & Folkman (Chesney, Neilands, Chambers, Taylor & Folkman, 2006). Chesney et al. (2006) assert that measuring coping directly limits the interpretation of coping outcomes, particularly in intervention studies as it pertains to changes in coping. They reason that when coping is measured directly, it is measured in relation to a particular stressful event and that even when people are asked to focus on a chronic or recurrent event, such events differ in multiple ways from occasion to occasion. Measuring coping indirectly through coping self-efficacy allows changes in scores to be attributable to confidence in one's ability to cope (Chesney et al., 2006). Therefore, assessing general coping may be most beneficial to precision and interpretability of results through avoiding confounding sources of variance. Literature shows that scores on coping self-efficacy scales specific to cancer coping behaviors demonstrate the adverse relationships between coping and mental health outcomes observed when coping is measured directly, including relationships with anxiety and depression symptoms (Chirico et al., 2017). However, coping self-efficacy remains unexplored in US Latinx cancer patients. Therefore, a primary aim of the present study is to explore coping among US Latinx Cancer patients in order to contribute to our understanding in this area.

Current Study

The proposed study will be conducted using data from the baseline phase of a larger longitudinal study. The primary study is a randomized control trial (RCT) that seeks to understand the effectiveness of a Stepped-Care conceptual framework in providing intervention to address the mental health needs of underserved LC and HNC patients and their caregivers (Common mental health disorders, 2012; National Collaborating Centre for Mental Health, 2011). The primary study sought to recruit a patient sample of 440 participants and estimated that 80 of those participants would identify as Latinx. The primary study ultimately recruited 66 underserved Latinx LC and HNC cancer patients. This sub-sample (N = 66) of the primary RCT study will be the main sample for the current proposed study. The clinician stakeholders (e.g., oncologists, nurses, patient navigators) of the primary study emphasized that the RCT should not focus solely on underserved Latinx LC and HNC patients, based on a significant need for mental health services among all medically underserved LC and HNC patients. However, given the increased risk of facing disease burden factors and the lack of literature focused on the mental health needs of the US Latinx LC and HNC cancer patient population, the current study seeks to identify the coping strategies that are most salient to underserved US Latinx cancer patients newly diagnosed with LC and/or HNC and the impact that these have on their mental health outcomes. The proposed study will be conducted using data from the baseline phase of the RCT in order to understand these factors independent of the effects of the intervention. Due to the lack of literature on the coping strategies used by US Latinx LC and HNC patients and their impact on distress outcomes, the present study will use an exploratory approach. The research questions of this study are: R1: What are the rates of depression and anxiety symptoms among medically underserved US Latinx people newly diagnosed with LC or HNC? R2: Which forms of coping are most salient among medically underserved US Latinx people newly diagnosed with LC or HNC? R3(a): Do distinct forms of coping predict depression and anxiety outcomes among medically underserved US Latinx people newly diagnosed with LC or HNC? R3(b): If distinct forms of coping do predict depression and anxiety outcomes, among medically underserved US Latinx people newly diagnosed with LC or HNC, which coping strategies function as protective vs. risk factors for depression and anxiety?

Chapter 2: Methods

Participants

Participants were recruited from the Denver Health and Hospital Authority (DHHA), the Cancer Centers of Colorado at Saint Joseph Hospital (St. Joe's), National Jewish Health (NJH), and the University of Colorado Cancer Center (UCCC) in Denver, Colorado, and from Saint Mary's Hospital, Medical Center (St. Mary's), in Grand Junction, Colorado. These sites serve demographically diverse communities, with DHHA and St. Joe's serving a primarily low-income urban population and St. Mary's serving a low-income rural population. In order to participate in the primary study, individuals were required to be: over the age of 18, newly diagnosed (within a month) with LC and/or HNC (Stages I-IV), undergoing treatment, English or Spanish speaking, either low-income (below Federal poverty levels), uninsured, or underinsured, and have a caregiver (e.g., spouse) who consents to participate. Exclusion criteria included: not meeting eligibility criteria and having a cognitive impairment, suicidality, or intoxication that would interfere with their ability to consent or participate in the study. The study was approved by the University of Colorado Denver Institutional Review Board (IRB).

Design

This exploratory empirical study used descriptive statistics as well as a model building approach to answer research questions. Descriptive statistics allowed for assessment of the salience of distinct coping strategies through observed frequencies, means, percentages, and Z calculations. Exploratory model building allowed for assessment of the relationship between forms of coping and mental health outcomes of interest, depression and anxiety, in a step-wise manner.

Procedure

Recruitment

Across the study sites, Site Research Coordinators conducted Electronic Medical Records (EMRs) searches to determine patient eligibility and served as the primary recruiters for the study. However, the patients' oncology providers also actively invited qualified patients to participate in the study. We have previously found these two methods of recruitment to be the most effective among cancer patients. Site Research Coordinators were responsible for enrolling and consenting qualified patients.

Informed Consent.

All five of the site coordinators were trained in consenting, confidentiality, and HIPAA regulations, as well as certified through COMIRB to engage in research with human subjects. The informed consent process was conducted in person and provided information on: measures to be collected, potential benefits and risks of participating in the study, steps taken/institutions in place to protect privacy, and the right to leave the study at any time. This process took approximately 20 minutes and took place in a private and quiet exam room in order to allow adequate time and focus on participants to clarify questions regarding the study. Once the informed consent process was completed, the study participant was provided a printed copy of the informed consent form. Documentation of informed consent is maintained in a locked room and in a separate locked file.

Data Collection.

All data collection occurred following the consent process. The measures package took about 30 minutes or less to complete. Clinicians (e.g., oncologists, nurses, patient navigators) and patient stakeholders were consulted regarding content, format, literacy, time frame and delivery prior to administration. Participants were provided the measures package with a pre-stamped envelope and were asked to complete and return the measures at their earliest convenience, either in person to the Site Research Coordinator or by mail. Bilingual research assistants were available in person and via phone to answer participant questions during the measures package completion process and/or to administer questionnaires if the participant required or requested it. All questionnaire and demographic forms in the measures package were available in English and Spanish. Participants were compensated with a $25 gift card upon returning their questionnaire.

Measures

The present study used valid and reliable measures that are widely used with cancer patients, have been properly translated for use with Spanish speaking populations, and have been deemed appropriate for low literacy populations (Cella et al., 2010; Choi, Schalet, Cook & Cella, 2014; Dunkel-Schetter, Feinstein, Taylor & Falke, 1992; Schalet, Cook, Choi & Cella, 2014).

Demographics

Participants were asked to provide demographic information including: contact information, income, insurance type, language preference (i.e. English, Spanish, or Either), sex, age, education level, cancer type (i.e., LC, HNC, Thyroid Cancer, or Other), and cancer stage (i.e., Stage 0 to Stage IV). These demographics were used to inform inclusion/exclusion criteria and analyzed for potential covariation with predictors of interest (i.e., forms of coping) and outcomes of interest (i.e., depression and anxiety) (Kirkendall, Holland, Keene & Luna 2015; Yoo, Levine & Pasick, 2014).

Mental Health Measures

The present study utilized the Patient-Reported Outcomes Measurement Information System –Cancer version (PROMIS-Ca) measure to assess depression and anxiety symptoms (Cella, et al., 2014). The PROMIS item banks, including short forms, are all scored on a T score metric with a mean of 50 and the standard deviation of 10. High scores indicate more of the concept being measured. The present study utilized the PROMIS Short Form v1.0 - Anxiety 8a (8 items) to assess anxiety and the PROMIS Short Form v1.0 - Depression 8b (8 items) to assess depression. The 8-item forms were used because these provide the most precise measure of the study outcomes. These measures can be hand scores when not items are left unanswered. However, both the PROMIS Short Form v1.0 - Anxiety 8a and the PROMIS Short Form v1.0 - Depression 8b data had two unanswered items. Therefore, the data was uploaded to the HealthMeasures.net assessment scoring system. Toward validity, scores were calibrated to the Cancer patient population. This resulted in 7 of 8 original items in the Anxiety measure being calculated toward final T scores and 8 of 8 items in the Depression measure being calculated toward final T scores. Before proceeding with statistics analyses, a Cronbach's Alpha reliability estimate was calculated for all scales to validate their use in the current population ($\alpha \leq .70$). Estimates showed that both the final 8-item depression scale ($\alpha = .92$) and the 7-item anxiety scale ($\alpha = .92$) had excellent internal consistency and were valid for use in the current population.

Coping Measure

The present study assessed coping indirectly using the Coping Self-Efficacy (CSE) scale (Chesney et al., 2006). The CSE is a 26-item scale that measures a person's confidence in their ability to engage in adaptive coping behaviors when facing life challenges. An exploratory factor analysis (EFA) and a confirmatory factor analysis (CFA) revealed a 13-item subscale consisting of 3 factors: problem-focused coping (6 items, α = .91), stop unpleasant emotions and thoughts (4 items, α = .91), and get support from friends (3 items, α = .80). Possible responses include: “Cannot do”, “Maybe I can do”, “Certain I can”. The CSE scale will be used in the interest of interpretability and reducing confounding sources of variance.

Chapter 3: Results

The present study utilized two theoretically distinct yet computationally related statistical analysis methods: null hypotheses significance testing (NHST), using a path analysis model building approach, and "*The New Statistics"* (Cumming, 2013), using effect size (ES) (i.e., β, partial η^2, Cohen's *d*, Pearson's *r*, and Spearman's *p*) and confidence interval (CI) measures. NHST is an *all-or-nothing* approach that has historically been used in psychological science to make conclusions about the existence of statistically meaningful relationships between variables. In studies that use NHST, ES and CI's are often used solely to make observations about general data configurations or patterns. The New Statistics (Cumming, 2013) proposes that the NHST approach often provides a limited and less accurate understanding of the relationships between variables. The New Statistics (Cumming, 2013) also argues that analyses focused on ES and CI allow for easier integration of statistical information acquired by distinct studies, through meta-analysis. The present study followed current NHST standards for testing relationships between variables of interest and also followed the recommendations of Cumming (2013) to gain further insight on effects present in the data collected.

Sample Characteristics

Participants were 61 underserved Latinx cancer patients recently diagnosed with lung cancer (LC) and/or head and neck cancer (HNC). Participants ranged in age from 24 to 87 (*M* = 61.41, *SD* = 13.94), were primarily English speakers (65.57%), primarily identified as White (68.42%), had a primary diagnosis of lung cancer (57.37%), and were diagnosed at an advanced cancer stage (stage III or IV, 52.45%). See Table 1 for all sample characteristics (i.e., age, sex, race, primary language, income, education, hospital, cancer type, cancer stage, and insurance type).

NHST Analyses

Using NHST parameters, a model building approach, following the steps outlined below, was used to determine the pathways by which coping variables interact to influence depression and anxiety in medically underserved US Latinx people newly diagnosed with LC or HNC.

Model Building

Step 1: Descriptive Analyses. Initial descriptive analyses were conducted in order to attain an overview of the acquired data. Mean (*M*), standard deviation (*SD*), range, and frequency statistics were calculated for primary variables of interest to answers two of the research questions of the proposed study: the rate and degree to which medically underserved US Latinx people newly diagnosed with LC or HNC experienced clinically relevant depression and anxiety symptoms (R1) and the rate and degree to which medically underserved US Latinx people newly diagnosed with LC or HNC feel confident in their ability to employ distinct forms of coping (R2). Cella et al. (2014) suggest that for depression and anxiety measures derived from PROMIS oncology item banks, scores of 55 or greater indicate clinically significant symptomatology (i.e., 55–64 mild; 65–74 moderate; <=75 severe). Regarding R1 for depression, participant's scores ranged from 37.1 to 66.2, with 29.51% of participants showing clinically significant scores. Among those that met the clinical cutoff, the majority fell in the "mild" symptoms range (88.89%) and remaining participants fell in the moderate range of symptoms (11.11%). Regarding R1 for anxiety, participant's scores ranged from 37.2 to 68, with 59.02% of participants showing clinically significant scores. Among those that met the clinical cutoff, the majority fell in the "mild" symptoms range (69.23%) and remaining participants fell in the moderate range of symptoms (30.77%). Regarding R2, all 26 coping items were shown to be salient in the present sample. The lowest possible score self-efficacy score on each coping items was 0 and the highest possible score was 10. Answer choices for reporting coping self-efficacy across the 26 items included: “Cannot” (coded 0), “Maybe Can” (coded 5), and “Absolutely Can” (coded 10). Overall, average scores across the 26 coping items ranged from 6.5 to 8.525, with 22 out of 26 scores being greater than 7.5. See table 2 for CSE item content and mean scores. Further, participants reported that they could “Absolutely” (as opposed to “Cannot” and “Maybe Can”) employ each of the 26 coping strategies at a rate that ranged from 45.00% to 77.05% of participants ($M = 65.02$, $SD = 7.94$).

Z-tests were also conducted at this stage in order to determine whether there is a significant proportion of the population that experienced depressive symptoms, anxiety symptoms, and/or employed one of the 26 distinct coping strategies. Fifty-two Z calculations compared whether individuals that met the clinical cutoffs for depressive symptoms and anxiety, discretely, differed from those that did not meet the clinical cutoffs in their coping self-efficacy (i.e., answered “Absolutely Can” rather than “Cannot” or “Maybe Can”) for each of the CSE’s 26 coping strategies. For depression, the difference in coping self-efficacy between those that met the clinical cut-off vs those that did not was statistically significant across 24 coping strategies and of the 2 strategies that were not statistically significant, one had a large effect size (i.e., Item 4: $Z = 1.9152$, $p = 0.055$). See Table 3a for frequencies, Z and *p* statistics describing proportion calculations for depressive symptoms across CSE items 1-26. For anxiety, the difference in coping self-efficacy between those that met the clinical cut-off vs those that did not was statistically significant across 15 coping strategies and of the 11 that were not statistically significant, one had a notable effect size (i.e., Item 26: $Z = 1.886$, $p = 0.059$). See Table 3b for frequencies, Z and *p* statistics describing proportion calculations for anxiety symptoms across CSE items 1-26.

Step 2: Correlation Analyses. Following preliminary descriptive analyses, Pearson correlations were conducted to determine if any primary independent variables (IVs) of interest (i.e., forms of coping) significantly covary with the dependent variables (DVs) of interest (i.e., depression and anxiety) (Table 4a) and whether DVs covary with one another (Table 4b). Relevant analyses (i.e., Pearson and Spearman correlations, t-tests, and ANOVAS) were also conducted to determine whether demographic factors (i.e., age, education, income, sex, preferred language, treatment site, race, cancer stage, cancer type, and/or insurance type) had statistically significant relationship with DVs (Tables 5a - 5d). A total of 19 IVs were found to significantly covary with depression and 12 IVs were found to significantly covary with anxiety. See Table 5a for full statistical outcomes. Depression and anxiety were also found to covary ($r = .71$, $p < .01$, 95% CI [.55, .81]), with the strength of this effect falling in the strong positive range (i.e., r value was between .7 and 1). This means that there is a strong relationship between depression and anxiety where when the level of one increases the other increases in a similar manner. Due to their statistically significant relationship, both depression and anxiety included as DVs in single models for the subsequent multiple linear regression analyses described in Step 4. In addition, the demographic factors of age, income, and insurance type (i.e., Medicare only, Medicaid only, Medicare and Medicaid, Medicare and Private, Private, VA Coverage Only, Medicare and VA Coverage and Private, Medicaid and VA, and None) were found to significantly predict anxiety, while no demographic factors were found to significantly predict depression (See Tables 5a - 5d). Therefore, only age, income, and insurance type were included as predictor variables along with IVs in subsequent steps of model building that tested IVs as predictors of DVs.

Step 3: Simple Linear Regression Analyses. Due to IVs significantly covarying with DVs in Step 2 correlation analyses, simple linear regressions were conducted in Step 3 to answer R3(a), whether coping variable (i.e., 26 CSE items) predict depression and/or anxiety, and R3(b), which coping strategies function as protective vs. risk factors for depression and anxiety. Fifty-two total simple linear regressions were conducted, 26 for each coping item as a predictor of depression and 26 for each coping item as a predictor of anxiety. These analyses confirmed the statistically significant relationships between IVs and DVs found in Step 2 while also confirming model direction with IVs of interest predicting the DVs of interest. For all statistically significant models the regression coefficient (β) was negative. This indicates that as form of coping increased, depression and/or anxiety decreased. Therefore, all statistically significant coping strategies severed as protective factors toward depression and/or anxiety. MLR also served to provide insights regarding effect sizes for both significant and non-significant relationships (see coefficients for simple linear regression models in Tables 6a-6d). Of note, all statistically significant relationships (i.e., $p <.05$), for both depression (Table 5a) and anxiety (Table 5c), were found to have a large effect (i.e., $\beta > 0.5$, $p < .05$). All non-statistically significant relationships (i.e., $p =>.05$) with depression (Table 5b) were found to have at least a medium effect (i.e., $\beta = 0.50$, $p < .05$) and all non-statistically significant relationships with anxiety (Table 3d) were found to have at least a small effect (i.e., $\beta = 0.10$, $p < .05$). Effect size findings are discussed further in the “Effect Size Analyses” section below.

Step 4: Multiple Linear Regression Analyses. Coping items found to significantly predict depression and/or anxiety as well as demographic covariates (i.e., age, income, and insurance type) were used as IVs in 26 multiple linear regression analyses which contained both depression and anxiety as DVs. Both depression and anxiety were included as DVs because they were determined to covary in Step 2. Insurance type was dummy coded into 8 variables representing 9 insurance type categories in the data: Medicare only (X1), Medicaid only (X2), Medicare and Medicaid (X3), Medicare and Private (X4), Private (X5), VA Coverage Only (X6), Medicare and VA Coverage and Private (X7), Medicaid and VA (X8), and the category "None" was represented by zeros across all categories. However, initial run of Multiple Linear Regression analyses produced errors in MPlus software which would not allow models to run. These errors seemed to result from variables X6, X7, and X8 containing only 1 response each, and potentially disrupting the model. Therefore, in order to maintain the most parsimonious explanatory model, variables X6, X7, and X8 were removed. Multiple linear regression analyses were conducted for all 26 coping IVs, including those which did not predict either depression or anxiety in the simple linear regression. This was done in order to determine whether including demographic covariates in the model changed the statistical significance of relationships determined previously as well as to acquire further estimate statistics that could inform findings beyond understanding whether a relationship is statistically significant by NHST standards. When accounting for age, income, and insurance type as predictors of anxiety as well as accounting for depression and anxiety as covariates, level of depression was shown to be significantly predicted by 25 of 26 coping strategies. In these same models, 21 of 26 coping strategies significantly predicted anxiety. Age and income did not statistically predict anxiety in any of the 26 coping strategy models. However, having both Medicaid and Medicare insurance remained a significant predictor of anxiety across 25 of 26 models, having both Medicare and Private insurance predicted anxiety in 7 of 26 models, and having only Medicaid predicted anxiety in 1 model. In models that significantly predicted depression, the Standard Error (S.E.) for Depression ranged from 0.097 to 0.131. In models that significantly predicted anxiety, the Standard Error (S.E.) for anxiety ranged from 0.102 to 0.130. See coefficients for multiple linear regression models in Tables 7a-7i. All statistically significant relationships (i.e., $p = <.05$) were found to have at least a small effect (i.e., $\beta = 0.10$, $p < .05$). Due to the comprehensive models achieved in this step of analyses, it was determined that further model building would be unlikely to yield more parsimonious models or contribute meaningfully to statistical understanding gained thus far. Therefore, model building ceased at Step 4.

ES Analyses

Effect sizes (ESs) and Confidence Intervals (CIs) of the final 26 Multiple Linear Regression (MLR) models were interpreted to better comprehend meaningful relationships in the data, including those that were not sufficiently explained by the traditional NHST approach of highlighting solely those relationships significant at the $p<.05$ level (Cumming, 2013). ES coefficients were analyzed in order to deduce the amount of variance in depression and anxiety that is explained by the forms of coping that were in the models. CI coefficients, the range of values that we are certain contains the population mean, informed how precise and meaningful the estimate was.

The final 26 MLR models contained 1 of the 26 coping items assessed, age, income, and insurance type categories as predictors of depression and anxiety (Tables 6a-6i). Inspection of ES values in these models indicated various notable patterns. First, among models that significantly predicted depression and/or anxiety by NHST standards (i.e., $p = <.05$), the lowest ES values were $\beta = -.275$ for depression (Table 6f, *CSES16 Model*) and $\beta = -.251$ for anxiety (Table 6f, *CSES16 Model*). This indicates that in the models where the coping items explained the least amount of variance in depression and/or anxiety, the effect was considered small (i.e., $\beta = 0.10$, $p < .05$). Among these same models, the highest ES values were $\beta = -.558$ for depression

(Table 6h, *CSES22 Model*) and β = -.551 for anxiety (Table 64, *CSES14 Model*). This indicates that in the models where the coping items explained the greatest amount of variance in depression and/or anxiety, the effect was considered large (i.e., β≥ 0.5, p < .05). Of the 25 models that significantly predicted depression, ESs indicated that 4 coping items had a small effect, 15 had a moderate effect, and 6 had a large effect on depression. Of the 21 models that significantly predicted depression, ESs indicated that 1 coping item had a small effect, 18 had a moderate effect, and 2 had a large effect on anxiety. Overall, these ESs indicate that in statistically significant MLR models, coping strategies most often had a moderate effect on depression and/or anxiety. CI estimates across models that significantly predicted depression and/or anxiety were wide, with CI width ranging from 0.382 (Model CSES22) to .557 (Model CSES17) for depression and from 0.395 (Model CSES05) to 1.103 (Model CSES14) for anxiety. these CIs indicate that the range of values that we are certain contains the population mean is wide. It is possible that a replication study using a larger sample size could yield more narrow/precise CI estimates. In addition, while the majority (78.63%) of non-statistically significant β values across the 26 MLR models indicted an effect that was at least small (i.e., β = 0.10, p < .05), the CIs were also wide. Therefore, it limits our ability to make a prediction regarding whether these effects could potentially be meaningful with replication.

Chapter 4: Discussion

Cancer diagnosis and treatment are related to adverse mental health outcomes, including increased depression and anxiety symptoms. Literature shows that Lung cancer (LC) and head and neck cancer (HNC) patients report among the highest rates of depression and anxiety. A recent meta-analysis found that medically underserved cancer patients were significantly more likely to experience worse distress, higher levels of clinical depression, and lower quality of life. In the US, these disparities were shown to be present most dramatically in Latinx patients. The US Latinx population faces various vulnerabilities related to cancer inequalities including: disproportionately high rates of poverty, among the highest prevalence of obesity and type 2 diabetes, and diagnosis at more advanced cancer stages than their Non-Latinx White counterparts. However, no literature exists that investigates the rates of depression and anxiety among US Latinx LC and HNC patients. Further, the Transactional Model of Stress and Coping (TMSC) predicts that individuals who are able to cope and adapt to the stress related to cancer diagnosis and treatment will report less psychological distress than those unable to cope. Yet, the extent to which medically underserved US Latinx LC and HNC patients feel capable of coping also remains unknown. Therefore, the present study sought to analyze coping, depression, and anxiety outcomes among medically underserved US Latinx cancer patients. Medically underserved US Latinx people newly diagnosed with LC or HNC were found to report clinically relevant depression and/or anxiety symptoms (R1). In addition, all of the 26 coping items for which coping self-efficacy was assessed were shown to be relevant among the current sample (R2). Level of depression and/or anxiety were shown to be significantly predict coping self-efficacy across the majority of models (R3[a]). Further, all statistically predictive coping strategies were shown to function as buffers for depression and anxiety (R3[b]).

Depression and Anxiety Rates Among Recently Diagnosed Latinx Cancer Patients

The present study investigated the prevalence of clinically significant depression and anxiety symptoms among medically underserved US Latinx people newly diagnosed with LC or HNC. Medically underserved US Latinx people newly diagnosed with LC or HNC were found to report clinically relevant depression symptoms at a rate of 29.51% and clinically relevant anxiety symptoms at a rate of 59.02% (R1). These results appear to replicate those of a previous study by Lee and colleagues (2018). The former study found that prior to starting chemotherapy 27% of Latinx women breast cancer patients reported clinically significant depressive symptomatology and 52% reported clinically significant anxious symptomatology. In addition to differences in sex composition and diagnosis between Lee (2018)'s sample and the current sample, the patients in the former study were also primarily Spanish-speaking while the current study was comprised of primarily English-speaking patients. Therefore, while the two samples cannot be said to represent the same population, the seeming overlap in clinical levels of depressive and anxious symptomatology contribute to potential accumulation of evidence regarding mental health presentation and needs among US Latinx Cancer patients recently diagnosed with cancer. Further, the present study is the first to explicate rates of clinical depression and anxiety among US Latinx cancer patients newly diagnosed with LC and HNC as well as to explore the role of coping on these mental health outcomes.

Coping Self-Efficacy Predictors of Depression and Anxiety

The present study evaluated the role of coping self-efficacy on depression and anxiety outcomes among medically underserved US Latinx people newly diagnosed with LC or HNC.

All 26 coping items for which coping self-efficacy was assessed were shown to be relevant among the current sample (R2), with coping self-efficacy scores ranging from 6.5 to 8.53 (out of 10). The majority of scores (84.62%) were greater than 7.5 on a scale consisting of options: “Cannot” (coded 0), “Maybe Can” (coded 5), and “Absolutely Can” (coded 10). This indicates that on average patients felt at least some self-efficacy in their ability to employ one of the 26 coping strategies. This finding is meaningful, given that the results of the current study indicates that as coping self-efficacy increased across 25 of 26 coping items, there was a decrease in depressive or anxious symptomatology, and sometimes in both. When accounting for demographic covariates (i.e., age, income, and insurance type) in MLR analyses, level of depression was shown to be significantly predicted by self-efficacy in 25 of 26 coping strategies and anxiety was shown to be significantly predicted by 21 of 26 coping strategies (R3[a]). An examination of the coping items that did predict depression and/or anxiety and those that did not, revealed differences in predictiveness between coping items based on factor loading indicated by Chesney et al. (2006). The single CSE coping item that did not predict depression fell into the *get support from friends and family* factor (i.e., CSES04). Of the 5 CSE coping item that did not predict anxiety, 3 fell into the *get support from friends and family* factor (i.e., CSES04, CSES17 and CSES24), 1 fell into the *problem-focused coping* factor (i.e., CSES09), and 1 fell into the *stop unpleasant emotions and thoughts* factor (i.e., CSES23). Therefore, the current study’s findings seem to indicate that self-efficacy in coping strategies toward accessing support from friends and family, may have the least salience toward reducing depressive and anxious symptomatology overall.

Given that the findings of the current study may be most critical toward intervention among individuals experiencing clinically relevant depression an anxiety symptoms, the present study further investigated whether individuals that met the clinical cutoffs for depression symptoms and anxiety, discretely, differed from those that did not meet the clinical cutoffs in their coping self-efficacy. For depression, the difference in coping self-efficacy between those that met the clinical cut-off and those that did not was statistically significant across 24 coping strategies. An examination of factor loadings showed that both items (i.e., CSES04 and CSES16) for which there was not a statistically significant difference, belonged to the *get support from friends and family* factor. For anxiety in coping self-efficacy between those that met the clinical cut-off and those that did not was statistically significant across 15 of 26 coping strategies. An examination of factor loadings showed that among items for which there was not a statistically significant difference, 4 belonged to the *get support from friends and family* factor (i.e., CSES04, CSES16, CSES17, and CSES24), 5 belonged to the *problem-focused coping* factor (i.e., CSES03, CSES09, CSES13, CSES25 and CSE26), and 2 fell into the *stop unpleasant emotions and thoughts* factor (i.e., CSES15 and CSES23).

Taken together, the results of MLR and Z-test analyses indicate that increases in coping-self efficacy predicts decreases in depressive and anxious symptomatology overall and that the impact of self-efficacy across coping items, is distinct when focusing on clinical populations specifically. Current findings point to coping strategies which stop unpleasant emotions and thoughts as well as those that are problem-focused as most salient toward reducing depressive and anxious symptomatology. When focusing just on individuals with clinically elevated levels of depression, these forms of coping also predicted significant differences in depression scores. However, when focusing just on individuals with clinically elevated levels of anxiety, coping strategies aimed at stopping unpleasant emotions and thoughts were most predictive of differences in anxiety scores (7 of 9 items in this factor significantly predicted differences), followed by problem-focused coping (7 of 12 items in this factor significantly predicted differences), and coping aimed at getting support from friends and family was the lest predictive (1 of 5 items in this factor significantly predicted differences). These findings indicate distinct salience of coping categories in non-clinical vs clinical contexts and in depression vs anxiety. A review of the literature indicates that the current study is the first to expound such findings. Therefore, further research is needed toward building a body of literature that informs the relationship between coping and the mental health outcomes of depression and anxiety among Latinx cancer patients newly diagnosed with LC and HNC. Moreover, this accumulation of evidence is critical toward accurate conclusions that can inform effective interventions.

Coping as a Protective Factor Toward Depression and Anxiety

A primary objective of the current study was to determine whether the 26 coping items measured functioned as risk or protective factors toward depression and anxiety in the population of interest. The TMSC asserts that coping involves both *emotion-focused coping* and *problem-focused coping* and that the extent to which these are helpful (adaptive) or not (maladaptive) depends on their congruence with the demands of the stressor (Lazarus & Folkman, 1984). With a recent diagnosis of LC or HNC as the relevant stressor in the current study, all statistically significant MLR models indicated a negative relationship between the coping item in the model and depression and/or anxiety. More specifically, coping self-efficacy on 25 coping strategies were shown to be adaptive toward reducing depression and 21 were shown to be adaptive toward reducing anxiety. The current study did not identify any forms of coping that served as risk factors for increasing depression and/or anxiety symptoms. Therefore, all statistically predictive coping strategies were shown to function as buffers for depression and anxiety (R3[b]).

Demographic predictors of Depression and Anxiety

The present study explored the potential impact of demographic covariates in the relationship between coping-self efficacy and mental health outcomes (depression and anxiety). Based on the literature, the following demographic variables were assessed: income, insurance status, language preference, sex, age, education level, diagnosis, and/or cancer stage. Only age, income, and insurance were found to be relevant covariates early on in the model-building process, all as predictors of anxiety. In the final step of model building, MLR analyses determined that insurance type remained a significant predictor of anxiety outcomes (i.e., having Medicaid and Medicare, having Medicare and Private, and having only Medicaid), but age and income did not. When comparing SLR and MLR results, it appears that including demographic factors in the model benefitted our ability to conclude significant relationships between forms of coping and anxiety as well as forms of coping and depression. However, it remains unclear whether characteristics of the insurance types or their perceived influence played a role in their impact on anxiety. Further research is needed to elucidate current findings regarding insurance type as well as to either support current findings regarding the null role of other demographic factors.

Strengths and limitations

The present study had several strengths as well as limitations. The present study benefitted form being part of a larger study, which accessed participants through the hospital at which they received cancer diagnosis and/or care. This access may have increased trust in the study and aided likelihood of participation. Still, a foremost weakness of the current study is the small sample size (n = 61), which limits this study's ability to generalize findings. The baseline data collection design of our study was also beneficial, since it eliminated the possibility of attrition. However, this design also limits the present study's ability to make comparison or observe changes in coping self-efficacy and/or depression and anxiety as treatment progresses, disease changes, or other factors emerge. The present study also present study benefitted from multi-site recruitment, which allowed the sample to be comprised of individuals accessing cancer care in metropolitan, suburban, and rural settings.

A foremost strength of the present study was the analysis of depression and anxiety outcomes in an underserved and previously unstudied population (medically underserved US Latinx LC and HNC patients), and validation of their use on the present sample. An additional strength of the present study is that it highlights potential means of intervention in the form of coping strategies, which were identified as protective against depression and anxiety symptomatology. However, the current study did not measure maladaptive forms of coping and their primary role in depression and anxiety outcomes. Therefore, the present study cannot make conclusions regarding what some particularly salient maladaptive forms of coping might be among the present population and their role in mental health treatment.

The present study's analyses also benefited from accounting for the role of various demographic factors, including: income, insurance type, language preference, sex, age, education level, cancer type (i.e., LC, HNC, Thyroid Cancer, or Other), and cancer stage (i.e., Stage 0 to Stage IV). However, since the current study assessed data from a larger study that was not aimed at understanding US Latinx cancer patients in particular, a major limitation of the current study is that some potentially salient demographic factors were not unexplored, including Latinx ethnic group, place of birth, and generation in the US. These demographic factors are meaningful due to Latinx subgroups holding distinct US migration and social histories (Pinheiro et al., 2020). In line with this, the literature shows differences in overall cancer rates, cancer rates by type, and cancer mortality rates tend to vary based on Latinx ethnic subgroup (Pinheiro et al., 2009; Martinez-Tyson et al., 2009) as well as a potential role of US lifestyle factors and related health changes (Pinheiro, 2017). Research has also shown that cancer death rates tend to substantially increase with age for the US Latinx population overall, but this association has been shown to be different where Latinx ethnic groups are disaggregated (Martinez-Tyson et al., 2009). A 2020 study by Pinheiro and colleagues asserted that thus far there has been a tendency in the literature to promote an advantage in mortality rates among US Latinx cancer patients, in the context of comparison with NHW cancer patients. However, this assertion is inaccurate when looking at US-born Latinx males who hardly differ in cancer death rates compared to NHW males (Pinheiro et al., 2020). Therefore, the current study is limited in its ability to expound differences and constitutes a need for caution in the interpretation and application of results. Nevertheless, a major strength of the current study is its method of analyses which relied both on traditional null hypothesis significance testing (NHST) as well as examination of effect sizes (ESs) and confidence intervals (CIs). Examination of ESs and CIs allows for observations of meaningful effects in the data not captured by NHST. Further, ESs and CIs can be extracts from both small and large sample studies to conduct meta-analyses and provide accumulated evidence for meaningful effects.

Future Directions

The current study contributes to evidence of clinically relevant depression and anxiety symptoms among US Latinx cancer patients prior to treatment. A review of the literature suggests that the current study is one of the first to explore these mental health outcomes in US Latinx cancer patients newly diagnosed with LC and HNC. Therefore, further and larger studies needed to determine whether these findings replicate and whether depression and/or anxiety rates differ based on demographic factors, such as Latinx country of origin, generation in the US, lifestyle factors, etc. The current study also indicates that on average US Latinx cancer patients newly diagnosed with LC and HNC felt at least some self-efficacy in their ability to employ 26 adaptive coping strategies, 25 of which were shown to significantly negatively predict depressive and anxious symptomatology. However, further research is needed to explore maladaptive forms of coping that are salient to the population of interest and inform risk factors toward mental health care in cancer care settings. In addition, it remains unclear whether and how coping self-efficacy can be improved among this population and whether improved coping self-efficacy would also result in improved depressive and/or anxiety symptoms. Further, the current study indicates that the impact of coping-self efficacy is distinct for individuals experiencing clinically relevant levels of depression and anxiety. This constitutes a need for further research that targets and informs intervention among clinical populations. Finally, it is important that these future research aims be pursued regardless of the sample sizes that can be acquired by single studies. Utilizing the new statistics method of exploring ESs and CIs can allow for meaningful interpretation of data as well as accumulation of evidence through meta-analysis. This accrual of information can ultimately serve toward meeting the mental health needs of US Latinx cancer patients newly diagnosed with LC and HNC.

Tables

Table 1.
Participant Demographics

Characteristic	N	Percentage
Age		
24-40	4	6.56%
41-49	7	11.47%
50-59	17	27.86%
60-69	15	24.59%
70-79	12	19.67%
80-87	6	9.36%
Sex		
Female	26	42.62%
Male	35	57.38%
Race		
American Indian/Alaska	3	5.26%
Native		
Black	3	5.26%
Multiracial	2	3.51%
Other	10	17.54%
White	39	68.42%
Primary Language		
English	40	65.57%
Spanish	21	34.42%
Monthly Household Income		
< $4,000	41	82.00%
< $5,400	4	8.00%
< $9,500	1	2.00%
< $10,900	1	2.00%
< $13,700	1	2.00%
>$13,700	2	4.00%
Education		
Grade School	16	27.11%
High School	32	54.23%
College	11	18.64%
Hospital		
Denver Health	32	52.54%
National Jewish	5	8.20%
St Joe's	4	6.56%
St Mary's	14	22.95%
UCCC	6	9.84%
Cancer Type		

Head and Neck	18	29.5%
Lung	35	57.37%
Thyroid	8	13.11%
Cancer Stage		
0	3	4.92%
I	15	24.59%
II	11	18.03%
III	7	11.47%
IV	25	40.98%
Insurance Type		
Medicare Only	10	16.39%
Medicaid Only	16	26.22%
Medicare + Medicaid	16	26.22%
Medicare + private	7	11.47%
Private	3	04.92%
VA Coverage Only	1	1.64%
Medicare + VA + Private	1	1.64%
Medicaid + VA	1	1.64%
None	6	9.84%

Note. (*n*=61). Insurance type category “None” represents individuals who did not mark any insurance option (i.e., Medicaid, Medicare, VA, and/or Private).

Table 2.

Coping self-efficacy scale (CSES) items content, factor, and mean score.

CSES Item	Factor	Item Content	Mean Score
1	SUEAT	*Keep from getting down in the dumps*	8
2	PF	*Talk positively to yourself*	8.36
3	PF	*Sort out what can be changed, and what cannot be changed*	8.33
4	GSFFAF	*Get emotional support from friends and family*	8.44
5	PF	*Find solutions to your most difficult problems*	7.71
6	PF	*Break an upsetting problem down into smaller parts*	7.95
7	PF	*Leave options open when things get stressful*	8.08
8	PF	*Make a plan of action and follow it when confronted with a problem*	7.71
9	PF	*Develop new hobbies or recreations*	7.46
10	SUEAT	*Take your mind o unpleasant thoughts*	7.95
11	SUEAT	*Look for something good in a negative situation*	7.87
12	SUEAT	*Keep from feeling sad*	7.62
13	PF	*See things from the other person's point of view during a heated argument*	7.62
14	PF	*Try other solutions to your problems if your first solutions don't work*	8.08
15	SUEAT	*Stop yourself from being upset by unpleasant thoughts*	7.87
16	GSFFAF	*Make new friends*	7.83
17	GSFFAF	*Get friends to help you with the things you need*	7.30
18	GSFFAF	*Do something positive for yourself when you are feeling discouraged*	8.28
19	SUEAT	*Make unpleasant thoughts go away*	8.03
20	PF	*Think about one part of the problem at a time*	8.44
21	SUEAT	*Visualize a pleasant activity or place*	8.53
22	SUEAT	*Keep yourself from feeling lonely*	7.79
23	SUEAT	*Pray or meditate*	8.14
24	GSFFAF	*Get emotional support from community organizations or resources*	6.5
25	PF	*Stand your ground and fight for what you want*	8.28
26	PF	*Resist the impulse to act hastily when under pressure*	7.21

Note. (*n*=61). Abbreviations: SUEAT, Stop unpleasant emotions and thoughts; PF, Problem-Focused; GSFFAF, Get support from friends and family.

Table 3a.

Z proportions for coping self-efficacy between participants that reported clinically significant depressive symptoms(n1) and those that did not report clinically significant depressive symptoms(n2).

	Parameter Estimates					
	Dep (n1)	Self-efficacy >= 10 for n1	No Dep (n2)	Self-efficacy >= 10 for n2	Z	*p*
CSES1	18	5	42	35	4.18	<0.001
CSES2	18	8	43	38	3.63	0.001
CSES3	18	9	42	35	2.68	0.007
CSES4	18	11	43	36	1.92	0.055
CSES5	18	6	43	29	2.46	0.014
CSES6	18	4	43	34	4.18	<.001
CSES7	17	7	43	33	2.63	0.009
CSES8	18	5	43	32	3.40	0.001
CSES9	18	5	43	32	3.40	0.001
CSES10	18	7	43	45	3.27	0.001
CSES11	18	7	43	33	2.84	0.005
CSES12	18	3	43	32	4.16	<0.001
CSES13	18	6	43	28	2.28	0.023
CSES14	18	5	42	34	3.96	0.001
CSES15	18	6	43	32	3.02	0.003
CSES16	18	9	42	30	1.59	0.112
CSES17	18	7	43	30	2.25	0.024
CSES18	18	7	43	38	4.01	<.001
CSES19	18	7	43	33	2.84	0.005
CSES20	18	8	43	38	3.63	0.001
CSES21	18	7	43	40	4.59	<.001
CSES22	18	4	43	33	3.98	0.001
CSES23	16	7	43	35	2.84	0.005
CSES24	17	1	43	26	3.83	<.001

			Parameter Estimates			
CSES25	18	7	43	35	3.27	0.001
CSES26	18	4	43	28	3.06	0.002

Note. (*n*=61) **Bold** indicates significant proportion difference in coping self-efficacy for the item, between participants that reported clinically significant depressive symptoms and those that did not report clinically significant depressive symptoms. Abbreviations: CSES, coping self-efficacy scale item; Dep, clinically relevant depression symptoms; n1, proportion of individuals that reported clinically significant depression symptoms and coping self-efficacy for the CSES item; n2, proportion of individuals that reported non-clinically significant depression symptoms and coping self-efficacy for the CSES item.

Table 3b.

Z proportions for coping self-efficacy between participants that reported clinically significant anxiety symptoms(n1) and those that did not report clinically significant anxiety symptoms(n2).

	Parameter Estimates					
	Anx (n3)	Self-efficacy >= 10 for n3	No Anx (n4)	Self-efficacy >= 10 for n14	Z	*p*
CSES1	26	12	34	28	2.95	0.003
CSES2	26	16	35	30	2.17	0.03
CSES3	26	17	34	27	1.22	0.222
CSES4	26	18	35	29	1.25	0.211
CSES5	26	11	35	24	2.05	0.040
CSES6	26	12	35	26	2.24	0.025
CSES7	25	13	35	27	2.04	0.041
CSES8	26	12	35	25	2.00	0.046
CSES9	26	15	35	22	0.41	0.682
CSES10	26	12	35	30	3.30	0.001
CSES11	26	13	35	27	2.21	0.027
CSES12	26	8	35	27	3.62	<0.001
CSES13	26	11	35	23	1.82	0.069
CSES14	26	12	34	27	2.68	0.007
CSES15	26	13	35	25	1.71	0.087
CSES16	26	15	35	24	1.04	0.298
CSES17	26	14	35	23	0.94	0.348
CSES18	26	15	35	30	2.46	0.014
CSES19	26	12	35	28	2.75	0.006
CSES20	26	16	35	30	2.17	0.03
CSES21	26	16	35	31	2.48	0.013
CSES22	26	10	35	27	3.06	0.002
CSES23	24	15	35	27	1.22	0.222
CSES24	25	9	35	18	1.18	0.238
CSES25	26	16	35	26	1.06	0.289

Parameter Estimates						
CSES26	26	10	35	22	1.89	0.059

Note. (*n*=61) **Bold** indicates significant proportion difference in coping self-efficacy item, between participants that reported clinically significant depressive symptoms and those that did not report clinically significant depressive symptoms. Abbreviations: CSES, coping self-efficacy scale item; Anx, clinically relevant anxiety symptoms; n3, proportion of individuals that reported clinically significant anxiety symptoms and coping self-efficacy for the CSES item; n4, proportion of individuals that reported non-clinically significant anxiety symptoms and coping self-efficacy for the CSES item.

Table 4a.

Means, standard deviations, and correlations with confidence intervals for IVs (coping self-efficacy scale items) and DVs (depression and anxiety).

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Variable	*M*	*SD*	Anxiety	Depression
CSES01	8.00	3.08	-.32* [-.53, -.07]	-.43** [-.62, -.20]
CSES02	8.36	3.13	-.22 [-.44, .04]	-.37** [-.57, -.13]
CSES03	8.33	3.01	-.16 [-.40, .10]	-.25 [-.48, .00]
CSES04	8.44	3.10	-.09 [-.33, .17]	-.11 [-.36, .14]
CSES05	7.70	2.82	-.35** [-.55, -.11]	-.31* [-.52, -.06]
CSES06	7.95	2.80	-.31* [-.52, -.07]	-.38** [-.58, -.14]
CSES07	8.08	2.92	-.31* [-.52, -.06]	-.32* [-.53, -.07]
CSES08	7.70	3.11	-.29* [-.50, -.04]	-.46** [-.64, -.23]
CSES09	7.46	3.49	-.08 [-.33, .17]	-.32* [-.53, -.07]
CSES10	7.95	3.34	-.33* [-.53, -.08]	-.38** [-.57, -.14]
CSES11	7.87	3.22	-.29* [-.51, -.04]	-.33** [-.54, -.09]
CSES12	7.62	2.97	-.42** [-.61, -.19]	-.47** [-.65, -.25]
CSES13	7.62	2.83	-.17 [-.40, .09]	-.20 [-.43, .05]
CSES14	8.08	2.78	-.31*	-.32*

			[-.52, -.06]	[-.53, -.07]
CSES15	7.87	2.95	-.20 [-.43, .06]	-.31* [-.52, -.06]
CSES16	7.83	3.24	-.08 [-.33, .18]	-.14 [-.38, .11]
CSES17	7.30	3.72	-.02 [-.27, .23]	-.22 [-.44, .04]
CSES18	8.28	3.15	-.21 [-.44, .04]	-.33** [-.54, -.08]
CSES19	8.03	2.93	-.37** [-.57, -.13]	-.44** [-.62, -.21]
CSES20	8.44	2.96	-.27* [-.49, -.02]	-.39** [-.58, -.15]
CSES21	8.52	2.94	-.21 [-.44, .05]	-.36** [-.56, -.12]
CSES22	7.79	2.96	-.28* [-.50, -.04]	-.42** [-.61, -.19]
CSES23	8.14	3.20	-.11 [-.36, .15]	-.22 [-.45, .04]
CSES24	6.50	3.60	-.06 [-.31, .20]	-.19 [-.42, .07]
CSES25	8.28	2.72	-.15 [-.39, .10]	-.28* [-.50, -.04]
CSES26	7.21	3.23	-.25 [-.47, .00] -.02	-.37** [-.57, -.13]

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Note. (*n*=61). Abbreviation: CSES, Coping Self-Efficacy Scale item.

Table 4b.

Means, standard deviations, and correlations with confidence intervals for IVs (coping self-efficacy scale items) and DVs (depression and anxiety).

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Variable	*M*	*SD*	Anxiety
Anxiety	51.97	10.16	
Depression	49.04	9.23	.71** [.55, .81]

** Correlation is significant at the 0.01 level (2-tailed).

Note. (*n*=61). Abbreviation: CSES, Coping Self-Efficacy Scale item.

Table 5a.

Demographic variables as predictors of anxiety and depression: Means, standard deviations, and Pearson correlations with confidence intervals for age.

Variable	*M*	*SD*	Depression	Anxiety
Age	49.04	9.23	-.16 [-.40, .09]	-.33** [-.54, -.08]

** Correlation is significant at the 0.01 level (2-tailed).

Note. (*n*=61).

Table 5b.

Demographic variables as predictors of anxiety and depression: Means, standard deviations, and Spearman correlations with confidence intervals for education and income.

Variable	Depression	Anxiety
Education	.011	.15
Income	.093	.297*

* Correlation is significant at the 0.05 level (2-tailed).

Note. (*n*=61)

Table 5c.

Demographic variables as predictors of anxiety and depression: Differences by sex (female - male) and language (Spanish – English) subgroups.

Parameters								
	Females	Males					*95% CI*	*95% CI*
	M	*M*	*t*	*df*	*p*	*d*	*Lower*	*Upper*
Depression	49.22	48.92	0.13	55.90	0.901	0.03	-4.48	5.08
Anxiety	53.17	51.08	0.81	57.26	0.423	0.20	-3.09	7.27
	Spanish	English					*95% CI*	*95% CI*
	M	*M*	*t*	*df*	*p*	*d*	*Lower*	*Upper*
Depression	48.70	49.70	0.44	51.99	0.661	0.11	-5.60	3.58
Anxiety	52.11	51.70	0.17	53.70	0.870	0.04	-4.56	5.39

Note. (*n*=61).

Table 5d.

Demographic variables as predictors of anxiety and depression: ANOVA models for hospital (treatment site), race, cancer stage, cancer type, and insurance type.

Predictor	*df*	Sum of Squares	Mean of Squares	*F*	*p*	η_p^2
Hospital- Dep	4	565	141.36	1.741	0.154	0.111
Hospital- Anx	4	382	95.51	0.921	0.458	0.062
Race- Dep	4	414	103.45	1.267	0.295	0.089
Race- Anx	4	55	13.84	0.132	0.97	0.010
C Stage- Dep	4	383	95.69	1.133	0.035	0.175
C Stage- Anx	4	764	191.10	1.973	0.111	0.124
C Type- Dep	2	114	56.79	0.659	0.521	0.022
C Type- Anx	2	161	80.35	0.773	0.466	0.026
Insurance- Dep	8	790	98.74	1.188	0.324	0.155
Insurance- Anx	8	1546	193.20	2.164	0.046*	0.250

* Predictor is significant at the 0.05 level (2-tailed).

Note. (*n*=61) Abbreviations: Dep, Depression; Anx, Anxiety; C Stage, Cancer Stage; C Type, Cancer Type.

Table 6a.

Simple linear regression analysis of underserved Latinx cancer patients recently diagnosed with lung cancer and/or head and neck cancer's self-efficacy across CSES coping items as predictors of depression, for CSES coping items that had statistically significant correlation relationships with depression.

			Parameter Estimates			
Predictor	β	SE(*b*)	*p*	*Lower*	*Upper*	R^2
CSES01	-1.291	0.352	0.001	-1.996	-1.585	0.188
CSES02	-1.097	0.357	0.003	-1.812	-0.383	0.138
CSES05	-1.016	0.404	0.015	-1.825	-0.207	0.097
CSES06	-1.262	0.397	0.002	-2.056	-0.467	0.146
CSES07	-1.004	0.391	0.391	-1.786	-0.222	0.102
CSES08	-1.36	0.344	0.000	-2.049	-0.672	0.210
CSES09	-0.836	0.327	0.013	-1.489	-0.182	0.100
CSES10	-1.037	0.334	0.003	-1.704	-0.369	0.141
CSES11	-0.947	0.352	0.009	-1.651	-0.242	0.109
CSES12	-1.469	0.356	0.000	-2.182	-0.757	0.224
CSES14	-1.075	0.417	0.013	-1.91	-0.24	0.103
CSES15	-0.958	0.387	0.016	-1.733	-0.182	0.094
CSES18	-0.963	0.361	0.010	-1.685	-0.241	0.108
CSES19	-1.389	0.369	0.000	-2.126	-0.651	0.194
CSES20	-1.204	0.374	0.002	-1.953	-0.456	0.150
CSES21	-1.128	0.382	0.005	-1.893	-0.364	0.129
CSES22	-1.306	0.368	0.001	-2.043	-0.568	0.175
CSES25	-0.966	0.423	0.026	-1.814	-0.119	0.081
CSES26	-1.052	-0.346	0.003	-1.744	-0.36	0.136

Note. (*n*=61) Abbreviation: CSES, Coping Self-Efficacy Scale item.

Table 6b.

Simple linear regression analysis of underserved Latinx cancer patients recently diagnosed with lung cancer and/or head and neck cancer's self-efficacy across CSES coping items as predictors of depression, for CSES coping items that had statistically non-significant correlation relationships with depression.

	Parameter Estimates					
Predictor	β	SE(*b*)	*p*	*Lower*	*Upper*	R^2
CSES03	-0.769	0.388	0.052	-1.545	0.007	0.064
CSES04	-0.342	0.385	0.378	-1.112	0.428	0.013
CSES13	-0.652	0.416	0.123	-1.485	0.181	0.040
CSES16	-0.409	0.368	0.271	-1.146	0.328	0.021
CSES17	-0.538	0.316	0.094	-1.17	0.094	0.047
CSES23	-0.636	0.372	0.093	-1.38	0.108	0.049
CSES24	-0.488	0.329	0.143	-1.146	0.17	0.037

Note. (*n*=61) Abbreviation: CSES, Coping Self-Efficacy Scale item.

Table 6c.

Simple linear regression analysis of underserved Latinx cancer patients recently diagnosed with lung cancer and/or head and neck cancer's self-efficacy across CSES coping items as predictors of anxiety, for CSES coping items that had statistically significant correlation relationships with anxiety.

			Parameter Estimates			
Predictor	β	SE(*b*)	*p*	*Lower*	*Upper*	R^2
CSES01	-1.063	0.413	0.013	-1.89	-0.237	0.103
CSES05	-1.258	0.439	0.006	-2.135	-0.38	0.122
CSES06	-1.138	0.449	0.014	-2.037	-0.239	0.098
CSES07	-1.078	0.43	0.015	-1.94	-0.217	0.098
CSES08	-0.947	0.408	0.024	-1.763	-0.132	0.084
CSES10	-0.989	0.375	0.011	-1.739	-0.24	0.106
CSES11	-0.923	0.392	0.022	-1.708	-0.137	0.086
CSES12	-1.438	0.403	0.001	-2.246	0.631	0.177
CSES14	-1.129	0.461	0.017	-2.052	-0.206	0.094
CSES19	-1.281	0.42	0.003	-2.121	-0.441	0.136
CSES20	-0.94	0.429	0.032	-1.799	-0.082	0.075
CSES22	-0.977	0.428	0.026	-1.833	-0.12	0.081

Note. (*n*=61) Abbreviation: CSES, Coping Self-Efficacy Scale item.

Table 6d.

Simple linear regression analysis of underserved Latinx cancer patients recently diagnosed with lung cancer and/or head and neck cancer's self-efficacy across CSES coping items as predictors of anxiety, for CSES coping items that had statistically non-significant correlation relationships with anxiety.

	Parameter Estimates					
Predictor	β	SE(*b*)	*p*	*Lower*	*Upper*	R^2
CSES02	-0.7	0.413	0.095	-1.527	0.127	0.046
CSES03	-0.544	0.433	0.214	-1.412	0.323	0.026
CSES04	0.28	0.425	0.512	-1.13	0.57	0.007
CSES09	-0.235	0.378	0.573	-0.99	0.521	0.007
CSES13	-0.605	0.461	0.194	-1.527	0.316	0.028
CSES15	-0.68	0.439	0.127	-1.559	0.198	0.039
CSES16	-0.26	0.413	0.532	-1.087	0.568	0.007
CSES17	-0.064	0.356	0.858	-0.776	0.648	0.001
CSES18	-0.685	0.411	0.101	-1.506	0.137	0.045
CSES21	-0.714	0.441	0.11	-1.596	0.167	0.043
CSES23	-0.34	0.41	0.41	-1.161	0.48	0.012
CSES24	-0.17	0.367	0.644	-0.906	0.565	0.004
CSES25	-0.566	0.48	0.243	-1.527	0.395	0.023
CSES26	-0.781	0.396	0.054	-1.574	0.012	0.062

Note. (*n*=61) Abbreviation: CSES, Coping Self-Efficacy Scale item.

Table 7a.

Multiple linear regression analysis of underserved Latinx cancer patients' self-efficacy across CSES coping items 1 through 3, age, income, and insurance type on depression and anxiety.

Model	*Variables*	β	S.E.	Lower	Upper	*p* value	R^2
CSES01	Depression	**-0.532**	0.101	-0.731	-0.334	0.000	0.289
	Anxiety	**-0.381**	0.118	-0.613	-0.149	0.001	0.284
	Age	-0.178	0.118	-0.409	0.052	0.129	
	Income	0.053	0.103	-0.148	0.254	0.608	
	X1	-0.149	0.143	-0.430	0.132	0.298	
	X2	-0.230	0.168	-0.559	0.099	0.171	
	X3	**-0.399**	0.159	-0.709	-0.088	0.012	
	X4	-0.214	0.136	-0.480	0.053	0.116	
	X5	-0.033	0.120	-0.269	0.202	0.781	
CSES02	Depression	**-0.452**	0.113	-0.672	-0.231	0.000	0.244
	Anxiety	**-0.379**	0.119	-0.611	-0.147	0.001	0.204
	Age	-0.186	0.120	-0.421	0.049	0.121	
	Income	0.073	0.100	-0.123	0.269	0.464	
	X1	-0.162	.147	-0.450	0.127	0.272	
	X2	-0.226	0.172	-0.563	0.112	0.190	
	X3	**-0.432**	0.164	-0.754	-0.110	0.009	
	X4	-0.241	0.139	-0.514	0.032	0.084	
	X5	-0.036	0.123	-0.276	0.204	0.771	
CSES03	Depression	**-0.321**	0.128	-0.572	-0.070	0.012	0.257
	Anxiety	**-0.333**	0.122	-0.572	-0.095	0.006	0.103
	Age	-0.174	0.119	-0.406	0.059	0.144	
	Income	0.081	0.100	-0.115	0.277	0.418	
	X1	-0.309	0.162	-0.627	0.009	0.057	
	X2	**-0.386**	0.182	-0.742	-0.029	0.034	
	X3	**-0.614**	0.183	-0.972	-0.255	0.001	
	X4	**-0.395**	0.156	-0.701	-0.090	0.011	
	X5	-0.143	0.130	-0.397	0.112	0.272	

Note. (*n*=61). **Bold** indicates significant predictor variables $p = <.05$. Abbreviation: CSES, Coping Self-Efficacy Scale item. X1-X5 represent insurance categories: X1 = Medicare only; X2 = Medicaid only; X3 = Medicare + Medicaid; X4 = Medicare + private; X5 = Private only. Lower and Upper bounds based on 95% CI.

Table 7b.

Multiple linear regression analysis of underserved Latinx cancer patients' self-efficacy across CSES coping items 4 through 6, age, income, and insurance type on depression and anxiety.

Model	*Variables*	β	S.E.	Lower	Upper	*p* value	R^2
CSES04	Depression	-0.172	0.137	-0.441	0.097	0.211	0.176
	Anxiety	-0.228	0.129	-0.480	0.025	0.078	0.029
	Age	-0.153	0.119	-0.386	0.079	0.197	
	Income	0.076	0.098	-0.117	0.269	0.439	
	X1	-0.163	0.145	-0.446	0.121	0.262	
	X2	-0.210	0.169	-0.542	0.122	0.215	
	X3	**-0.6423**	0.160	-0.738	-0.109	0.008	
	X4	-0.244	0.137	-0.513	0.024	0.075	
	X5	-0.025	0.121	-0.262	0.211	0.833	
CSES05	Depression	**-0.427**	0.116	-0.653	-0.200	0.000	0.401
	Anxiety	**-0.527**	0.101	-0.725	-0.330	0.000	0.182
	Age	-0.137	0.109	-0.350	0.077	0.210	
	Income	0.082	0.091	-0.096	0.260	0.368	
	X1	-0.116	0.133	-0.378	0.145	0.383	
	X2	-0.208	0.157	-0.515	0.099	0.184	
	X3	**-0.403**	0.149	-0.695	-0.111	0.007	
	X4	**-0.290**	0.129	-0.543	-0.036	0.025	
	X5	-0.074	0.112	-0.293	0.145	0.509	
CSES06	Depression	**-0.503**	0.106	-0.710	-0.296	0.000	0.357
	Anxiety	**-0.490**	0.107	-0.700	-0.279	0.000	0.253
	Age	-0.166	0.115	-0.391	0.059	0.148	
	Income	0.075	0.096	-0.114	0.263	0.438	
	X1	-0.214	0.146	-0.499	0.072	0.142	
	X2	-0.292	0.169	-0.623	0.039	0.083	
	X3	**-0.485**	0.164	-0.806	-0.164	0.003	
	X4	**-0.304**	0.141	-0.580	-0.028	0.031	
	X5	-0.110	0.124	-0.352	0.132	0.372	

Note. (*n*=61). **Bold** indicates significant predictor variables $p = <.05$. Abbreviation: CSES, Coping Self-Efficacy Scale item. X1-X5 represent insurance categories: X1 = Medicare only; X2 = Medicaid only; X3 = Medicare + Medicaid; X4 = Medicare + private; X5 = Private only. Lower and Upper bounds based on 95% CI.

Table 7c.

Multiple linear regression analysis of underserved Latinx cancer patients' self-efficacy across CSES coping items 7 through 9, age, income, and insurance type on depression and anxiety.

Model	*Variables*	β	S.E.	Lower	Upper	*p* value	R^2
CSES07	Depression	**-0.420**	0.118	-0.651	-0.190	0.000	0.320
	Anxiety	**-0.441**	0.113	-0.662	-0.219	0.000	0.823
	Age	-0.129	0.118	-0.362	0.103	0.274	
	Income	0.099	0.098	-0.094	0.292	0.313	
	X1	-0.147	0.151	-0.443	0.150	0.332	
	X2	-0.214	0.185	-0.576	0.147	0.246	
	X3	**-0.412**	0.171	-0.747	-0.078	0.016	
	X4	-0.268	0.143	-0.550	0.012	0.060	
	X5	-0.067	0.125	-0.312	0.178	0.593	
CSES08	Depression	**-0.505**	0.105	-0.712	-0.299	0.000	0.281
	Anxiety	**-0.427**	0.117	-0.656	-0.199	0.000	0.255
	Age	-0.199	0.122	-0.438	0.039	0.102	
	Income	0.068	0.100	-0.129	0.264	0.500	
	X1	-0.178	0.149	-0.470	0.115	0.223	
	X2	-0.231	0.173	-0.570	0.107	0.181	
	X3	**-0.454**	0.168	-0.784	-0.124	0.007	
	X4	-0.256	0.141	-0.533	0.021	0.071	
	X5	-0.077	0.127	-0.327	0.173	0.547	
CSES09	Depression	**-0.390**	.120	-0.625	-0.155	0.001	0.130
	Anxiety	-0.184	0.138	-0.454	0.086	0.181	0.152
	Age	-0.182	0.119	-0.415	0.052	0.127	
	Income	0.070	0.100	-0.125	0.265	0.483	
	X1	-0.169	.147	-0.458	0.119	0.250	
	X2	-0.271	0.175	-0.614	0.072	0.121	
	X3	**-0.408**	0.162	-0.726	-0.090	0.012	
	X4	-0.224	0.138	-0.495	0.047	0.106	
	X5	-0.058	0.124	-0.301	0.185	0.638	

Note. (*n*=61). **Bold** indicates significant predictor variables $p = <.05$. Abbreviation: CSES, Coping Self-Efficacy Scale item. X1-X5 represent insurance categories: X1 = Medicare only; X2 = Medicaid only; X3 = Medicare + Medicaid; X4 = Medicare + private; X5 = Private only. Lower and Upper bounds based on 95% CI.

Table 7d.

Multiple linear regression analysis of underserved Latinx cancer patients' self-efficacy across CSES coping items 10 through 12, age, income, and insurance type on depression and anxiety.

Model	*Variables*	β	S.E.	Lower	Upper	*p* value	R^2
CSES10	Depression	**-0.447**	0.113	-0.669	-0.225	0.000	0.367
	Anxiety	**-0.496**	0.106	-0.704	-0.288	0.000	0.200
	Age	-0.157	0.114	-0.380	0.067	0.169	
	Income	0.031	0.097	-0.159	0.221	0.749	
	X1	-0.205	0.142	-0.484	0.074	0.150	
	X2	-0.192	0.165	-0.516	0.132	0.245	
	X3	**-0.481**	0.160	-0.795	-0.167	0.003	
	X4	-0.228	0.132	-0.487	0.031	0.085	
	X5	-0.059	0.117	-0.288	0.171	0.617	
CSES11	Depression	**-0.410**	0.118	-0.641	-0.179	0.000	0.311
	Anxiety	**-0.421**	0.110	-0.637	-0.205	0.001	0.168
	Age	-0.156	0.115	-0.382	0.070	0.177	
	Income	0.087	0.097	-0.103	0.277	0.370	
	X1	-0.152	0.142	-0.430	0.125	0.282	
	X2	-0.182	0.168	-0.511	0.148	0.280	
	X3	**-0.396**	0.157	-0.704	-0.089	0.011	
	X4	-0.249	0.135	-0.513	0.015	0.064	
	X5	-0.034	0.118	-0.265	0.197	0.774	
CSES12	Depression	**-0.538**	0.101	-0.735	-0.340	0.000	0.368
	Anxiety	**-0.459**	0.107	-0.669	-0.250	0.000	0.289
	Age	-0.153	0.114	-0.377	0.072	0.182	
	Income	0.073	0.096	-0.114	0.261	0.442	
	X1	-0.204	0.147	-0.491	0.084	0.165	
	X2	-0.248	0.165	-0.572	0.076	0.134	
	X3	**-0.419**	0.157	-0.727	-0.111	0.008	
	X4	-0.227	0.133	-0.487	0.033	0.086	
	X5	-0.076	0.120	-0.310	0.159	0.528	

Note. (*n*=61). **Bold** indicates significant predictor variables *p* = <.05. Abbreviation: CSES, Coping Self-Efficacy Scale item. X1-X5 represent insurance categories: X1 = Medicare only; X2 = Medicaid only; X3 = Medicare + Medicaid; X4 = Medicare + private; X5 = Private only. Lower and Upper bounds based on 95% CI.

Table 7e.

Multiple linear regression analysis of underserved Latinx cancer patients' self-efficacy across CSES coping items 13 through 15, age, income, and insurance type on depression and anxiety

Model	*Variables*	β	S.E.	Lower	Upper	*p* value	R^2
CSES13	Depression	**-0.293**	0.129	-0.546	-0.039	0.024	0.277
	Anxiety	**-0.340**	0.127	-0.589	-0.091	0.007	0.086
	Age	-0.150	0.119	-0.382	0.083	0.208	
	Income	0.072	0.099	-0.121	0.265	0.464	
	X1	-0.210	0.151	-0.505	0.085	0.164	
	X2	-0.245	0.169	-0.576	0.087	0.148	
	X3	**-0.481**	0.169	-0.812	-0.151	0.004	
	X4	**-0.307**	0.148	-0.597	-0.017	0.038	
	X5	-0.088	0.125	-0.333	0.157	0.481	
CSES14	Depression	**-0.463**	0.112	-0.683	-0.243	0.000	0.421
	Anxiety	**-0.551**	0.101	-0.749	0.354	0.000	0.214
	Age	-0.145	0.112	-0.364	0.074	0.193	
	Income	0.108	0.094	-0.076	0.292	0.250	
	X1	-0.198	0.146	-0.485	0.088	0.174	
	X2	-0.239	0.173	-0.578	0.100	0.168	
	X3	**-0.510**	0.167	-0.837	-0.183	0.002	
	X4	**-0.344**	0.140	-0.619	0.068	0.014	
	X5	-0.081	0.119	-0.314	0.153	0.497	
CSES15	Depression	**-0.440**	0.114	-0.664	-0.217	0.000	0.257
	Anxiety	**-0.360**	0.118	-0.591	-0.129	0.002	0.194
	Age	-0.178	0.118	-0.409	0.054	0.132	
	Income	0.069	0.099	-0.125	0.262	0.487	
	X1	-0.167	0.146	-0.454	0.120	0.254	
	X2	-0.226	0.170	-0.559	0.106	0.182	
	X3	**-0.420**	0.162	-0.737	-0.103	0.009	
	X4	-0.249	0.140	-0.523	0.026	0.076	
	X5	-0.065	0.124	-0.309	0.179	0.601	

Note. (*n*=61). **Bold** indicates significant predictor variables *p* = <.05. Abbreviation: CSES, Coping Self-Efficacy Scale item. X1-X5 represent insurance categories: X1 = Medicare only; X2 = Medicaid only; X3 = Medicare + Medicaid; X4 = Medicare + private; X5 = Private only. Lower and Upper bounds based on 95% CI.

Table 7f.

Multiple linear regression analysis of underserved Latinx cancer patients' self-efficacy across CSES coping items 16 through 18, age, income, and insurance type on depression and anxiety.

Model	*Variables*	β	S.E.	Lower	Upper	*p* value	R^2
CSES16	Depression	**-0.275**	0.131	-0.532	-0.019	0.035	0.185
	Anxiety	**-0.251**	0.126	-0.498	-0.003	0.047	0.076
	Age	-0.170	0.118	-0.401	0.061	0.150	
	Income	0.071	0.099	-0.122	0.265	0.470	
	X1	-0.156	0.145	-0.441	0.129	0.282	
	X2	-0.227	0.169	-0.558	0.105	0.180	
	X3	**-0.415**	0.161	-0.731	-0.100	0.010	
	X4	-0.227	0.137	-0.495	0.041	0.097	
	X5	-0.028	0.122	-0.267	0.210	0.816	
CSES17	Depression	**-0.362**	0.123	-0.679	-0.122	0.003	0.139
	Anxiety	-0.178	0.134	-0.523	0.084	0.183	0.131
	Age	-0.180	0.119	-0.486	0.052	0.129	
	Income	0.067	0.100	-0.189	0.262	0.501	
	X1	-0.160	.146	-0.537	0.126	0.273	
	X2	-0.254	0.172	-0.696	0.083	0.140	
	X3	**-0.402**	0.163	-0.821	-0.082	0.014	
	X4	-0.234	0.137	-0.588	0.036	0.089	
	X5	-0.046	0.122	-0.360	0.192	0.704	
CSES18	Depression	**-0.449**	0.113	-0.671	-0.228	0.000	0.307
	Anxiety	**-0.453**	0.114	-0.676	-0.230	0.000	0.202
	Age	-0.192	0.119	-0.424	0.041	0.106	
	Income	0.054	0.099	-0.141	0.249	0.585	
	X1	-0.185	0.147	-0.472	0.102	0.207	
	X2	-0.194	0.172	-0.532	0.143	0.258	
	X3	**-0.451**	0.163	-0.770	-0.132	0.006	
	X4	-0.270	0.139	-0.543	0.004	0.053	
	X5	-0.032	0.121	-0.269	0.206	0.793	

Note. (*n*=61). **Bold** indicates significant predictor variables *p* = <.05. Abbreviation: CSES, Coping Self-Efficacy Scale item. X1-X5 represent insurance categories: X1 = Medicare only; X2 = Medicaid only; X3 = Medicare + Medicaid; X4 = Medicare + private; X5 = Private only. Lower and Upper bounds based on 95% CI.

Table 7g.

Multiple linear regression analysis of underserved Latinx cancer patients' self-efficacy across CSES coping items 19 through 21, age, income, and insurance type on depression and anxiety.

Model	*Variables*	β	S.E.	Lower	Upper	*p* value	R^2
CSES19	Depression	**-0.470**	0.110	-0.686	-0.254	0.000	0.312
	Anxiety	**-0.438**	0.112	-0.659	-0.218	0.000	0.779
	Age	-0.170	0.117	-0.400	0.060	0.147	
	Income	0.074	0.098	-0.119	0.266	0.455	
	X1	-0.180	0.146	-0.465	0.106	0.217	
	X2	-0.213	0.170	-0.545	0.119	0.209	
	X3	**-0.439**	0.162	-0.756	-0.122	0.007	
	X4	**-0.282**	0.142	-0.561	-0.004	0.047	
	X5	-0.078	0.123	-0.318	0.163	0.528	
CSES20	Depression	**-0.490**	0.107	-0.710	-0.279	0.000	0.276
	Anxiety	**-0.413**	0.116	-0.640	-0.187	0.000	0.240
	Age	-0.174	0.119	-0.407	0.060	0.145	
	Income	0.082	0.100	-0.115	0.279	0.414	
	X1	-0.164	0.147	-0.452	0.124	0.263	
	X2	-0.215	0.172	-0.552	0.122	0.211	
	X3	**-0.441**	0.165	-0.766	-0.117	0.008	
	X4	-0.247	0.139	-0.520	0.027	0.077	
	X5	-0.050	0.122	-0.290	0.190	0.683	
CSES21	Depression	**-0.451**	0.113	-0.741	-0.230	0.000	0.247
	Anxiety	**-0.404**	0.121	-0.714	-0.167	0.001	0.203
	Age	-0.194	0.121	-0.506	0.043	0.109	
	Income	0.071	0.101	-0.188	0.269	0.479	
	X1	-0.185	0.150	-0.572	0.110	0.219	
	X2	-0.242	0.173	-0.687	0.098	0.163	
	X3	**-0.471**	0.172	-0.913	-0.134	0.006	
	X4	-0.249	0.140	-0.611	0.026	0.076	
	X5	-0.048	0.123	-0.365	0.194	0.699	

Note. (*n*=61). **Bold** indicates significant predictor variables $p = <.05$. Abbreviation: CSES, Coping Self-Efficacy Scale item. X1-X5 represent insurance categories: X1 = Medicare only; X2 = Medicaid only; X3 = Medicare + Medicaid; X4 = Medicare + private; X5 = Private only. Lower and Upper bounds based on 95% CI.

Table 7h.

Multiple linear regression analysis of underserved Latinx cancer patients' self-efficacy across CSES coping items 22 through 24, age, income, and insurance type on depression and anxiety.

Model	*Variables*	β	S.E.	Lower	Upper	*p* value	R^2
CSES22	Depression	**-0.558**	0.097	-0.749	-0.367	0.000	0.320
	Anxiety	**-0.414**	0.108	-0.626	-0.201	0.000	0.311
	Age	-0.171	0.116	-0.399	0.057	0.142	
	Income	0.065	0.098	-0.126	0.256	0.504	
	X1	-0.140	.143	-0.421	0.141	0.329	
	X2	-0.201	0.171	-0.536	0.135	0.242	
	X3	**-0.387**	0.159	-0.698	-0.076	0.015	
	X4	-0.212	0.135	-0.478	0.053	0.117	
	X5	-0.032	0.120	-0.266	0.203	0.792	
CSES23	Depression	**-0.292**	0.131	-0.548	-0.036	0.025	0.160
	Anxiety	-0.099	0.134	-0.363	0.164	0.461	0.085
	Age	-0.196	0.118	-0.428	0.036	0.098	
	Income	0.062	0.098	-0.131	0.255	0.530	
	X1	-0.184	0.148	-0.475	0.106	0.214	
	X2	-0.282	0.168	-0.611	0.047	0.093	
	X3	**-0.430**	0.161	-0.744	-0.115	0.008	
	X4	-0.235	0.136	-0.502	-0.033	0.086	
	X5	-0.042	0.120	-0.278	0.194	0.727	
CSES24	Depression	**-0.286**	0.131	-0.543	-0.029	0.029	0.151
	Anxiety	-0.211	0.137	-0.479	0.058	0.124	0.082
	Age	-0.177	0.133	-0.416	0.063	0.148	
	Income	0.077	0.105	-0.128	0.283	0.462	
	X1	-0.158	0.159	-0.470	0.154	0.321	
	X2	-0.241	0.193	-0.620	0.138	0.213	
	X3	**-0.420**	0.177	-0.768	-0.073	0.018	
	X4	-0.239	0.148	-0.529	0.051	0.106	
	X5	-0.038	0.135	-0.303	0.228	0.781	

Note. (*n*=61). **Bold** indicates significant predictor variables p = <.05. Abbreviation: CSES, Coping Self-Efficacy Scale item. X1-X5 represent insurance categories: X1 = Medicare only; X2 = Medicaid only; X3 = Medicare + Medicaid; X4 = Medicare + private; X5 = Private only. Lower and Upper bounds based on 95% CI.

Table 7i.

Multiple linear regression analysis of underserved Latinx cancer patients' self-efficacy across CSES coping items 25 and 26, age, income, and insurance type on depression and anxiety.

Model	*Variables*	β	S.E.	Lower	Upper	*p* value	R^2
CSES25	Depression	**-0.418**	0.117	-0.646	-0.189	0.000	0.232
	Anxiety	**-0.338**	0.121	-0.576	-0.100	0.005	0.174
	Age	-0.169	0.118	-0.400	0.063	0.154	
	Income	0.07	0.099	-0.117	0.272	0.436	
	X1	-0.156	0.145	-0.440	0.129	0.284	
	X2	-0.234	0.170	-0.568	0.098	0.167	
	X3	**-0.413**	0.161	-0.728	-0.098	0.010	
	X4	-0.248	0.141	-0.524	0.027	0.077	
	X5	-0.032	0.121	-0.270	0.206	0.792	
CSES26	Depression	**-0.524**	0.103	-0.725	-0.322	0.000	0.284
	Anxiety	**-0.398**	0.114	-0.621	-0.175	0.000	0.274
	Age	-0.171	0.118	-0.402	0.060	0.148	
	Income	0.081	0.100	-0.115	0.277	0.418	
	X1	-0.155	0.145	-0.440	0.129	0.284	
	X2	-0.226	0.170	-0.559	0.107	0.184	
	X3	**-0.416**	0.162	-0.733	-0.099	0.010	
	X4	-0.237	0.138	-0.507	0.034	0.086	
	X5	-0.050	0.122	-0.289	0.188	0.679	

Note. (*n*=61). **Bold** indicates significant predictor variables *p* = <.05. Abbreviation: CSES, Coping Self-Efficacy Scale item. X1-X5 represent insurance categories: X1 = Medicare only; X2 = Medicaid only; X3 = Medicare + Medicaid; X4 = Medicare + private; X5 = Private only. Lower and Upper bounds based on 95% CI.

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