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The Moderating Effect of Social Support on the Impact of Perceived Loneliness on the Mental Health of Long-Term Care Nursing Home Residents

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ABSTRACT

The purpose of the present study is to examine the moderating effect of social support on the impact of loneliness on anxiety and depression in long-term care residents in nursing homes. Recent research suggests that a relationship exists between loneliness and rates of depression and anxiety in long-term care nursing home residents. The present study seeks to examine the buffering effect of social support and utilize the findings to provide suggestions for policy, practice, and research. A binary logistic regression and a series of multiple linear regressions were conducted to examine the relationships between the variables. The present study's sample consists of 12 long-term care nursing home residents from a nursing home in West Texas. Due to the small sample size, there were few statistically significant findings in the present study. Some of these findings did not align with the findings in recent research, such as the finding that loneliness and depression did not have a statistically significant correlation. However, loneliness did have a statistically significant relationship with anxiety in the present study. Social support was not found to have a moderating effect on the impact of loneliness on depression or anxiety. The implications of the findings for policy and practice would be to place more emphasis on the impact of loneliness on anxiety, as well as to standardize the utilization of anxiety testing in nursing home settings. Further research is needed to explore the buffering effect of social support on the mental health of long-term care nursing home residents.

The Moderating Effect of Social Support on the Impact of Perceived Loneliness on the Mental Health of Long-Term Care Nursing Home Residents

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To all of the residents of Mesa Springs, Northern Oaks, SilverSpring, and St. Joseph's.

To my grandparents who have always modeled Christlike love and service, been there to love and support me, and helped me become the person I am today.

To my friends, family, and all who have loved and supported me over the years.

I could not have done any of this without you.

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CHAPTER I

INTRODUCTION

Loneliness is a pervasive problem that can impact people of all ages. The impact of loneliness on the overall wellbeing of individuals has been widely discussed in recent years. Several news stories have come out in the past several years that address the issue of loneliness and what is being done to remedy and prevent it. In January 2018, the United Kingdom appointed a Minister for Loneliness in order to address the growing issue of loneliness in their nation (Yeginsu, 2018). Recently, society has grown in its understanding of loneliness and has recently begun to recognize the impact that it has on humanity. Many agencies, communities, states, and nations are taking steps to reduce the incidence and prevalence of loneliness and individuals, as well as reducing its negative consequences.

Recently, research both on loneliness and the factors influencing the wellbeing of nursing home residents has increased in popularity and prevalence. One population that is often disproportionately impacted by the experience of loneliness is long-term care residents in nursing homes. Nursing homes can be particularly isolating places for their residents, as the residents are in a place away from home and the life they once knew, surrounded by people and things that are unfamiliar to them. Recent research has suggested that this experience of loneliness in elderly individuals living in nursing homes may have negative implications for their overall mental and physical health.

Recent research has suggested that loneliness may be a factor in increased rates of physical illness or even in early mortality rates (Chan, Raman, & Malhotra, 2015; Leigh-Hunt et al., 2017; Richard et al., 2017). A meta-analysis of social relationships and health suggests that strong evidence exists in support of the idea that social isolation and loneliness may have an equivalent impact to smoking or obesity on early rates of mortality (House, Landis, & Umberson, 1988). Recent research has recommended that social relationships be taken more seriously by healthcare professionals as risk factors for poor health (Holt-Lunstad, Smith, & Layton, 2010). A meta-analysis of research on the consequences of social isolation and loneliness found that both social isolation and loneliness had statistically significant associations with increased levels of all-cause mortality (Leigh-Hunt et al., 2017). However, some studies have suggested that loneliness is not independently associated with early mortality (Julsing, Kromhout, Geleijnse, & Giltay, 2016). Other research has suggested that social isolation, rather than loneliness, is what impacts rates of early mortality (Tanskanen & Anttila, 2016). Thus, the exact manner and extent to which loneliness impacts physical health and mortality rates in elderly individuals is debated in the research community.

Some studies have looked at loneliness in the elderly as a public health issue. In these studies, the researchers largely focus on whether loneliness indicates an increase in healthcare utilization in elderly individuals. This topic has been disagreed upon in recent studies. Some studies have indicated that loneliness in the elderly is significantly related to higher rates of healthcare utilization (Zhang et al., 2018). However, some studies have suggested that, although rates of depression are associated with increased rates of healthcare consumption, loneliness may not directly be associated with increased

healthcare consumption (Taube, Kristensson, Sandberg, Midlöv, & Jakobsson, 2015). Due to the fact that this is a public health issue and that a consensus has not been made in the research community, further research is needed in order to assess whether loneliness in the elderly has a significant impact on healthcare utilization.

In nursing homes, residents' physical needs are prioritized, but their social and emotional needs often are not. Some agencies have created programs and interventions that address the issue of loneliness that faces long-term care nursing home residents. Nonprofit agencies such as the American Association of Retired Persons (AARP), Friends for Life, Bessie's Hope, Adopt-A-Grandparent, and more have programs that share the goal of serving the elderly and decreasing their feelings of loneliness and social isolation. Agencies such as these often partner with nursing facilities with the overall goal of enriching the lives and experiences of long-term care nursing home residents. Although this can be a positive way to address this issue for nursing home residents, many nursing homes are not partnered with other organizations for the sole purpose of resident socialization. Due to the focus on meeting physical needs and the lack of prioritizing meeting the social and emotional needs of long-term care residents, many agencies lack programs and policies that address these needs and thus promote the psychological wellbeing of residents.

Depression and anxiety are prevalent in elderly individuals. Recent research on depression and anxiety has sought to examine the ways in which depression and anxiety in elderly individuals impact their quality of life, physical health, healthcare utilization, mortality rates, and more. The prevalence of depression is lower in the community than in medical settings (Phelan et al., 2010). It has also been suggested that depression is

associated with higher rates of healthcare consumption, which indicates that depression is a public health issue (Taube et al., 2015). Thus, depression could have several negative implications for long-term care nursing home residents and for the general public. Anxiety may also have negative implications for long-term care nursing home residents, and it may disproportionally affect residents with neurocognitive disorders. Several sources (as cited by Calleo et al., 2011) found that anxiety symptoms are present in nearly three out of every four residents with dementia and that severe anxiety in these residents may lower their quality of life. Thus, further research is necessary in order to gain a deeper understanding of the extent to which depression and anxiety impact long-term care nursing home residents.

Over the past decade, research on loneliness and mental health in the elderly has grown in prevalence. Fortunately, the research community has come to recognize the importance of exploring the ways in which loneliness may impact elderly individuals. Studies have recently been conducted on whether levels of loneliness are higher in elderly individuals and what the consequences of that may be for those individuals. The consequences of loneliness in the elderly that have recently been studied have included the incidence of physical and mental illnesses, increased healthcare utilization, and rates of early mortality. Although some studies have been conducted on how loneliness impacts the mental health of individuals receiving long-term care in nursing homes, more knowledge is needed about the extent to which social support may moderate the influence of loneliness on levels of depression and anxiety in the elderly.

The purpose of the present study is to examine the moderating effect of social support while examining the relationship between loneliness and anxiety and depression

in long-term care residents in nursing homes. The implications of the findings of this research for policy and practice can be utilized in nursing home facilities with residents receiving long-term care and the companies that own them. If the findings of this study indicate that social support positively moderates the relationship between loneliness and depression and anxiety in long-term care nursing home residents, this may indicate the need for the creation or alteration of programs and policies that could increase residents' social support.

CHAPTER II

LITERATURE REVIEW

Literature Search Strategy

The criteria for inclusion in this study were that the literature was written in English, was peer-reviewed, and had been published in the past decade. The search was limited to sources that were published on or after January 1, 2010, to ensure that the only resources referenced in this study were recent. Any study from before January 1, 2010, included in the research was only included if it had relevant content that positively contributed to the literature review. In order to locate relevant literature, various databases were utilized, including the ACU Library Database, ScienceDirect, Google Scholar, and Google. Search terms utilized to locate appropriate sources for this research included "loneliness elderly," "loneliness health," "loneliness physical health," "family support nursing homes," "family involvement elderly," "elder orphans," "social nursing homes," "interventions for loneliness in the elderly," "nursing home activities," and more. An initial scan was conducted of titles and abstracts in order to identify sources that may be relevant to the present study. Articles were then chosen based on their relevance to the purpose of the study. Additional literature was found in cases when an article referenced other literature that appeared relevant to the present study.

Depression in the Elderly

One of the most prevalent and pervasive mental health issues facing the elderly population is depression. The fifth edition of the *Diagnostic and Statistical Manual of*

Mental Disorders (*DSM-5*) identifies that the commonality between all depressive disorders is that they are associated with feelings of sadness, emptiness, or irritability that have cognitive or somatic implications and significantly impact the individual's functioning (American Psychiatric Association [APA], 2013). Recent research suggests that up to 50% of residents living in nursing homes experience depression, which can impact the life span and quality of life in long-term care nursing home residents (Nauert & Johnson, 2011). This research has also indicated that levels of depression may be correlated with the experience of chronic health conditions (Nauert & Johnson, 2011). Depression is an issue that impacts several members of the elderly and those living in nursing homes, and it appears to have negative implications for those individuals.

When compared with those living in their homes, long-term care nursing home residents often experience higher levels of depression and lower quality of life (Karakaya, Bilgin, Ekici, Köse, & Otman, 2009). Depression is associated with various health implications (Chen & Austin, 2019). Several negative implications have been shown to exist for elderly individuals struggling with anxiety, including physical and mental health consequences. According to the *DSM-5*, elderly individuals who face depression when admitted to a nursing home have higher rates of mortality in their first year at the facility (APA, 2013). Due to its prevalence and the severity of its consequences, depression in the elderly is not an issue that should be overlooked.

Anxiety in the Elderly

Another prominent mental health issue facing the elderly population is anxiety. The DSM-5 defines *anxiety* as the anticipation of a perceived impending threat and identifies fear and anxiety as major characterizations of anxiety disorders (APA, 2013).

Anxiety significantly impacts the elderly population. One population within the elderly community that is disproportionately affected by anxiety is those who are also affected by dementia. Due to the symptoms of dementia, such as difficulty concentrating and restlessness, it can be challenging to distinguish between the disease and anxiety in dementia patients (Calleo et al., 2011). As the disease progresses, fewer diagnoses of generalized anxiety disorder re given due to the decreased cognitive abilities of the individual (Calleo et al., 2011). Although it is possible that individuals with dementia may grow decreasingly aware of their specific worries, they may still experience several of the symptoms of generalized anxiety disorder (Calleo et al., 2011). Thus, it is important to address the issue of anxiety in all residents, with or without dementia, due to the significantly distressing symptoms that it causes them.

The Impact of Loneliness on Depression and Anxiety in the Elderly

Several studies have suggested that loneliness may be correlated with levels of depression and anxiety. A study examining the reliability and validity of the UCLA Loneliness Scale found that loneliness had a significant relationship with depression (Russell, 1996). More recent research by Domènech-Abella et al. suggested that a bidirectional relationship exists between loneliness and the risk of experiencing major depressive disorder or generalized anxiety disorder (2019). Thus, the present study will focus on examining the relationship between loneliness and depression and anxiety in long-term care nursing home residents.

Recent research indicates that perceived loneliness may lead to higher levels of depression (Richard et al., 2017). It has been suggested that loneliness is a risk factor for depression in the nursing home residents (Zhao et al., 2018). In 2018, Grover et al. found

that both the level and severity of depression are associated with loneliness in the elderly population. Further, higher levels of loneliness may be associated with a higher prevalence of suicidal thoughts (Grover et al., 2018). In addition to high levels of loneliness being a risk factor for depression, it has been suggested that high levels of loneliness are also a risk factor for anxiety (Domènech-Abella et al., 2019). More specifically, loneliness has been found in recent studies to be associated with higher severity of anxiety in the elderly (Grover et al., 2018).

Social Support as a Moderating Factor

Due to the fact that human beings are social creatures, social support is a factor that impacts all of society. Social support may have positive impacts in several areas of one's life. Social support can help one to experience increased happiness due to interactions with others and can help one to have feelings of being cared for, emotionally supported, and loved. According to a large survey by Lei et al., lack of social support from family, neighbors, and other social networks was associated with negative impacts in several areas of one's physical quality of life (2016). In addition to having direct effects, social support may also be a moderator for health outcomes. A recent study examined social support and resilience and determined that higher levels of social support were associated with a less severe impact of loneliness on levels of depression in long-term care nursing home residents through resilience (Zhao et al., 2018). Although it may not eliminate loneliness, higher levels of social support may be correlated to a decreased influence of loneliness on depression and anxiety in long-term care nursing home residents. For this reason, social support will be examined as a moderating factor in the present study.

Recent studies have indicated that social support does have an influence on loneliness (Drageset, Kirkevold, & Espehaug, 2011). According to Boen, Dalgard, and Bjertness, a lack of social support has a relationship with the experience of psychological distress in elderly individuals (2012). Lacking social support has been associated with negative medical health implications, including early mortality rates (Carney, Fujiwara, Emmert, Liberman, & Paris, 2016). A meta-analytic review examining mortality rates and social support found that those with more social support had a 50% higher chance of surviving than those who did not have strong social support (Holt-Lunstad, 2010). Social support is a significant factor in the lives of long-term care nursing home residents and may influence their overall wellbeing and mortality rates.

One specific population of individuals within the elderly community that deserves special attention in terms of lacking social support is the "elder orphan" population. Elder orphans are aged individuals who experience social and/or physical isolation and do not have family or other caregivers available to them (Carney el al., 2016). Elder orphans lack familial support and are often more socially isolated than their counterparts. This population should not be overlooked due to their increased levels of isolation and subsequent loneliness. It will be important to assess whether the participants of this study fit the definition of an elder orphan in order to understand how deeply their loneliness and isolation impact their overall wellbeing.

The levels of social support vary greatly among long-term care nursing home residents, and the ways in which they receive social support also vary greatly. There are several ways that individuals can provide social support to their loved ones, such as visiting them, calling them, writing them, and more. There are several avenues through

which long-term care nursing home individuals may receive social support, such as through their children, spouse, siblings, close friends, neighbors at the facility, staff members at the facility, and more. Largely, social support can largely be broken into three main sources: support from family, support from peers, and support from nursing home staff.

Family Support

Family support is one of the most common sources of social support that long-term care nursing home residents receive. Research on familial support has been conducted across many nations, including several that are known for having collectivist, family-centered cultures. The impact of family support on factors such as the quality of life, wellbeing, and psychological health of elderly individuals has been studied in several contexts (Fuller-Iglesias & Antonucci, 2016; Li, Ji, & Chen, 2014). Further, these studies also suggested that higher levels of family support could be associated with lower levels of depression and higher quality of life. While studying nursing home residents in China, Xu et al. found that nursing home residents who had more than two children received more frequent child visits and more family support and thus experienced a higher quality of life (2019). Family support may play a significant role in the overall wellbeing of long-term care nursing home residents.

Peer Support

Although many first think of family support when they consider social support for elderly individuals, peer support is also an important avenue through which elderly individuals receive support. Peer support has the power to have a positive influence on all residents, but it may be especially helpful for those who do not have regular contact with

family members. Recent research has indicated that social support from peers may be more sought out by elderly men than by elderly women (Mathur, 2015). This research suggested that, although spousal support was the primary preference of receiving social support for both genders, women may be partial to support from other family members rather than from their peers (Mathur, 2015).

Nursing Home Staff Support

It is possible that family and peer support may not be enough to moderate the experience of loneliness in the lives of long-term care nursing home residents (Drageset et al., 2011). Thus, it is recommended that those working in nursing homes keep this in mind and work to ensure that the residents are receiving social support each day (Drageset et al., 2011). Further, it could be helpful to encourage residents to engage in actions that enable them to stay in contact with friends and family (Drageset et al., 2011). Recent research has suggested that presenting residents with opportunities to socialize with one another may improve their quality of life (Scocco & Nassuato, 2017). Nursing homes providing social opportunities for residents and prioritizing their social support could be beneficial for long-term care nursing home residents.

Demographic Information

There are several demographic factors that could influence the levels of depression and anxiety in long-term care nursing home residents, including gender, age, visits from family members, marital status, number of children, socioeconomic status, length of stay, and perceived physical health. Although they are not the main factors being studied in this research, it is important to recognize the moderating effect that these

factors may have on the levels of depression and anxiety in long-term care nursing home residents.

Gender may also influence levels of depression in long-term care nursing home residents. A systematic review by Djernes indicates that female gender is one of the predominant predictors of depression in the elderly (2006). However, other studies have indicated that rates of suicidal thinking, which is often related to depression, are higher in elderly males (Ko et al., 2019). In addition to gender, a recent study suggested that age could moderate the association of loneliness with physical health, mental health, and lifestyle characteristics (Richard et al., 2017). Thus, common factors such as gender and age could influence the experience of depression and other challenges in elderly individuals.

It is possible that the frequency of contact with friends and family could also impact the mental health of long-term care nursing home residents. Recent studies (as cited by Drageset et al., 2011) have not agreed on whether frequency of contact influences loneliness in elderly individuals. Although it has been suggested by some studies that frequency of contact may not be associated with loneliness, it is possible that frequency of contact with friends and family may be associated with other factors impacting long-term care nursing home residents (Drageset et al., 2011). A recent comprehensive review revealed that low frequency of contact was correlated with anxiety (Vink et al., 2008). This review also indicated that marital status and whether one had children could have an impact on one's mental health, suggesting that having no children was associated with anxiety and being unmarried was associated with depression (Vink et

al., 2008). Thus, family status may have an influence on the levels of depression and anxiety in long-term care nursing home individuals.

Socioeconomic status may influence levels of loneliness in elderly individuals. Recent research has indicated that low income may be associated with higher levels of loneliness (Tanskanen & Anttila, 2016). Due to the cost of living in a nursing home, socioeconomic status may change throughout one's stay in a nursing home facility. The length of time that an individual has lived in a nursing home may have an impact on the loneliness that they experience. Recent studies (as cited by Scocco & Nassuato, 2017) have suggested that, although the feelings of loneliness and lack of social support may be intense for those who recently moved into a nursing home, it is conceivable that those who have lived in a nursing home for longer periods of time may experience lower levels of loneliness due to making friends in the facility. The length of stay in nursing homes may impact the loneliness experienced by long-term care nursing home residents and as a result may lead to lower rates of depression and anxiety.

Recent research has suggested that perceived health of elderly individuals could have an impact on their mental health and overall wellbeing. Loneliness has shown to have a statistically significant relationship with lower rates of perceived health (Richard et al., 2017). Although the correlation was strongest amongst middle-aged adults, there was also a significant relationship between loneliness and perceived health in elderly individuals (Richard et al., 2017). Levels of loneliness could be related with one's lower perception of his or her health, which could contribute to higher rates of depression and anxiety due to negative self-beliefs about one's prognosis.

Conclusion of Literature Review

According to the reviewed literature, there are several factors that influence levels of depression and anxiety in elderly individuals. It is suggested that loneliness is associated with negative implications on the depression and anxiety levels of elderly individuals. Based on the findings of existing literature, it is possible that social support could moderate the impact of loneliness on levels of depression and anxiety in long-term care nursing home residents.

The conceptual model for the present study includes four hypotheses that have been developed for this research. The first hypothesis is that perceived loneliness will have a positive correlation with the level of depression among long-term care nursing home residents. The second hypothesis is that perceived loneliness will have a positive correlation with level of anxiety among long-term care nursing home residents. The third hypothesis is that the impact of loneliness on the level of depression in long-term care nursing home residents will be lower when rates of social support are higher. The fourth and final hypothesis is that the impact of loneliness on the level of anxiety in long-term care nursing home residents will be lower when rates of social support are higher.

Based on the literature, social support was studied as a moderating factor on the extent to which loneliness influences depression and anxiety in long-term care residents in nursing homes. The conceptual model below (Figure 1) was created based on the literature review in order to formulate the present study's methodology. By utilizing this model for the research study, social support was able to be viewed as a moderating factor of the impact of perceived loneliness on depression and anxiety in long-term care nursing home residents. It is possible that control variables, such as demographic information,

might exist in this study that could have also moderated the impact of perceived loneliness on depression and anxiety.

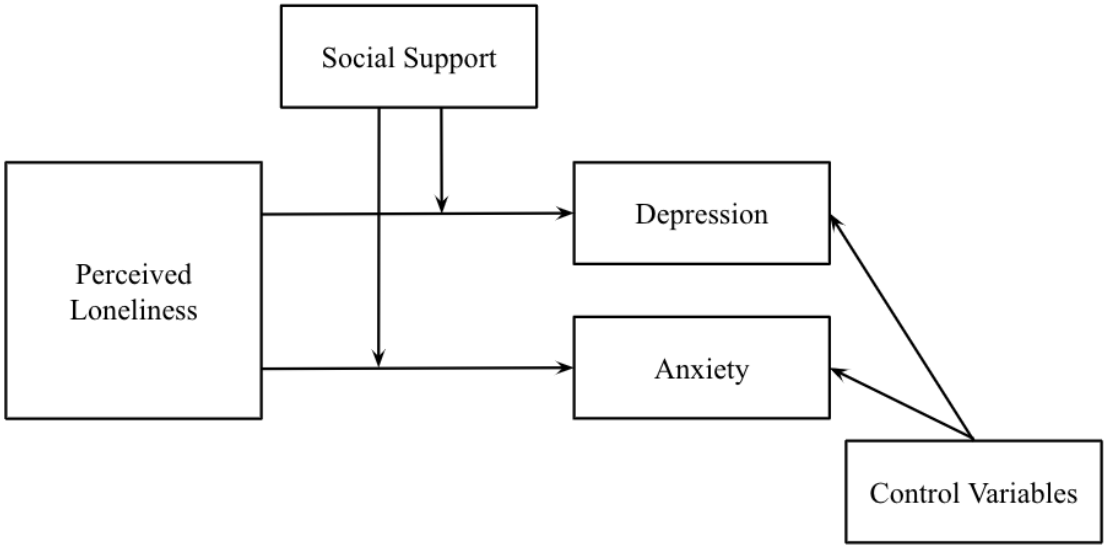

Figure 1. Conceptual Model

CHAPTER III

METHODOLOGY

The purpose of the study is to examine the moderating effect of social support on the impact of loneliness on depression and anxiety at nursing homes in Texas. Based on an extensive literature review, it appears that it is possible that increased social support could decrease the negative impact of loneliness on levels of depression and anxiety in elderly individuals. The overarching goal of this study is to provide practical implications for policy and practice that advocate for programs, policies, and practices that seek to decrease levels of depression and anxiety in long-term care nursing home residents. In order to fulfill this purpose, the present study administered a survey that sought to measure levels of depression, anxiety, loneliness, and social support in long-term care nursing home residents.

Research Design and Sample

The present study is a cross-sectional survey study that was initially intended to take place at several nursing homes in West and North Central Texas. Due to time constraints, the study took place at one nursing home in West Texas. There are three main eligibility criteria that had to be met in order to participate in this study: the participant must have long-term care status, be above the age of 65, and not have a legal guardian or power of attorney. The eligibility criteria are in place to ensure that the sample is representative of the elderly population living in nursing homes and to protect vulnerable individuals who may not be able to provide consent. In order to select

participants, the researcher asked the nursing home social worker for a list of residents who met the above eligibility criteria. Due to the limited pool of eligible participants, convenience sampling was utilized. Thus, all participants who met the eligibility criteria and consented to participate were included in the study. Of the 26 residents who were eligible for the study, 12 residents provided informed consent and completed the survey, yielding a 46.15% response rate. No cases had to be excluded from the sample, so the working sample includes 12 cases.

Ethical Considerations

There are various ethical considerations to take into account when conducting research amongst the elderly population in a clinical setting. Researchers must take into account the various factors that impact their participants, such as decisional impairment, social desirability, clinical responsibility to prioritize safety, HIPAA considerations, possible effects of participation in the study, and data management. Each of these factors was carefully considered before conducting this study.

Special Population: Decisionally Impaired Individuals

Due to the high rates of neurocognitive disorders that cause mental decline in elderly individuals, one of the primary considerations should be determining that the individuals are able to properly consent to participate in the study. When working with this population, all actions should be taken to ensure that participants in this age demographic will be able to understand the procedures, risks, and benefits of the study, as well as their rights as participants. Individuals who are not deemed able to knowingly and willingly provide consent to participate in the study will not be eligible. In order to address this issue in this study, restrictions were placed on eligibility based on whether

the resident has a power of attorney or legal guardian. This action was taken in order to protect the vulnerable population of individuals with neurocognitive decline from entering and participating in the study without being fully informed or willing.

Social Desirability When creating this study, the original plan was to administer the survey with each participant in a face-to-face interview where the questions would be orally posed by the researcher and answered by the participant. However, due to the nature of some of the questions posed in the survey regarding mental health, it is possible that participants would be tempted to answer questions in a socially acceptable manner rather than answering truthfully. For this reason, the researcher chose to alter the method of data collection to address and attempt to avoid this issue. In order to achieve this, the researcher chose to include the option of a hard copy of the survey for participants in order to address the issue of social desirability as much as possible in the study.

Although it may have still been present, the risk of the issue of social desirability impacting the study was low when residents were administered a hard copy of the survey. This is largely due to their ability to record their responses without the researcher knowing their individual responses. However, the risk of social desirability impacting responses increased when alternative measures had to be used for this study. The researcher conducted face-to-face interviews with residents who struggle with their vision or preferred that option over being administered a hard copy of the survey. It is important to remember that the issue of social desirability may impact the results of this study, especially for those who chose or needed to utilize the alternate procedure of survey administration.

Clinical Responsibility to Prioritize Safety

Another ethical consideration in conducting this study is related to one of the items that was used to assess levels of depression in long-term care residents. After asking the participant to report how often they have been impacted by the following problems in the past two weeks, the question is posed of whether residents have had "thoughts that [they] would be better off dead, or of hurting [themselves] in some way" (Kroenke & Spitzer, 2002, p. 6). A conflict exists between clinical responsibility to report suicidal thoughts and seeking accurate responses from responses. In order to address this issue, the informed consent form for this study included a section that alerted the participant that any answer indicating suicidal ideation would have to be reported by the researcher to the social worker at that nursing home. Although this could have altered participants' responses, the clinical responsibility to protect and prioritize the safety of residents outweighed the benefits of possibly having more accurate responses if a positive response to that item did not mandate a report.

HIPAA Considerations

Due to utilizing nursing home residents as participants, several HIPAA considerations were made in this study. No medical information was collected about the participants of this study, so there were minimal risks of violating HIPAA rules or regulations. The only personal information the researcher needed access to was the names of the residents who were eligible to participate in the study. Upon arriving at the facility, the researcher obtained a list of names of residents who may have been eligible for the study from the social worker at each facility. Upon completing the surveys, the researcher shredded the list of participants in the study before leaving each nursing home facility.

This action was taken in order to ensure that the residents remained unidentifiable and could not be linked to their responses. Every action was taken to ensure that no HIPAA violations were made during the course of this study.

Possible Effects of Participation

Due to the nature of the topics discussed in the study, it is possible that participants may feel down or upset after participating in the study. It can be challenging for some to reflect on their feelings of depression, anxiety, loneliness, and social support. If any residents report feeling as though they do not have strong social support or have been feeling lonely, it could bring up negative emotions about their overall situation. In order to prevent these negative feelings as much as possible, the researcher ensured that each participant had a copy of the facility's activities and events calendar. This helped ensure that residents knew that there were options for socialization in case they felt lonely or that they were lacking social support.

Data Management

Data collected from the surveys were compiled into a spreadsheet within a week of data collection. In order to account for the possibility of technological problems, the participants' individual surveys will be kept until three years after collection, which will be May 2023. These surveys will be kept in a locked filing cabinet to which only the researcher and the research team have access. Raw data will not be shared with anyone outside of the researcher and the research team. Three years after completing the research in May 2020, the principal investigator will destroy the data in the hard copies of the surveys and consent forms and in the software used for statistical analysis.

Data Collection

Data were collected from March 2, 2020, to March 5, 2020. In order to collect data, the researcher obtained informed consent from and then administered surveys to each participant. While receiving informed consent from the residents, the researcher inquired whether the resident needed or preferred face-to-face administration of the survey as a result of poor vision, personal preference, or other factors. After obtaining informed consent, the researcher administered the survey immediately rather than delaying survey administration in order to ensure that residents still fully consented to participate in the study.

If the participant needed or preferred a hard copy of the survey, the researcher remained in the room to help answer any questions that the participant may have had along the way. If the participant needed or preferred a face-to-face interview, the researcher began a face-to-face interview with the participant, working through the survey with them one question at a time. When each participant concluded the survey, the researcher ensured that the resident had an events calendar of the activities that their facility has going on that month. This action was taken to combat feelings of isolation by reminding the participant of ways to get involved and socialize with those around them.

Instruments

Items for this survey were pulled from the Patient Health Questionnaire nine-item scale (PHQ-9), the Generalized Anxiety Disorder seven-item scale (GAD-7), the UCLA Loneliness Scale (version 3), and the Multidimensional Scale of Perceived Social Support (MSPSS). The survey also included the following control variables: age, gender, race, ethnicity, marital status, religious affiliation, perceived physical health, length of stay in the nursing home, and frequency of visits from friends and/or family.

Depression: An Outcome Variable

There are several surveys that have been designed to measure depression. One of the most commonly used surveys to measure levels of depression for all populations is the nine-item Patient Health Questionnaire (PHQ-9). The PHQ-9's items correlate with the diagnostic criteria for *major depression* in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV*) (Kroenke & Spitzer, 2002). Although the *DSM-IV* is not the current edition of the *Diagnostic and Statistical Manual of Mental Disorders*, it still well addresses the various symptoms that are clinically significant and point towards a diagnosis of depression. Based on their review of literature, Kroenke, Spitzer, & Williams found that the PHQ-9 has shown to be a reliable and valid measure of one's level of depression (2001). Several studies have also commended the PHQ-9 due to its ability to successfully measure depression with brevity (Kroenke et al., 2001; Kroenke & Spitzer, 2002; Phelan et al., 2010).

While the PHQ-9 was created to assess all adults, other scales have been developed with a specific focus on particular age demographics, such as the Geriatric Depression Scale (GDS). The GDS was designed in order to assess levels of depression in elderly individuals. Although the GDS is a commonly used and widely trusted scale that was designed specifically for the population being studied in this research, the PHQ-9 has shown to perform comparably to the GDS when measuring depression levels in elderly individuals (Phelan et al., 2010). Although the study conducted by Phelan et al. (2010) sought to measure depression in primary care elderly individuals, it is possible that their findings could generalize to elderly individuals in other settings. When compared with the GDS, the PHQ-9 was not associated with a significantly larger need

for assistance when self-administered (Phelan et al., 2010). This is relevant to the present study due to the fact that the participants who do not experience visual impairments will self-administer the survey. Further, Phelan et al. suggested that the PHQ-9 could be a sensible alternative scale to use in place of the GDS (2010). Thus, the PHQ-9 was utilized in order to assess the levels of depression in participants due to its brevity, the comparable performance of the PHQ-9 to other scales, and the ability to self-administer the survey with relative ease.

Anxiety: An Outcome Variable

The second outcome variable being measured in this study is anxiety levels in long-term care nursing home residents. The most widely known scale that is used to assess anxiety is the seven-item General Anxiety Disorder scale (GAD-7). This scale has been shown to have strong, clinically significant internal consistency as well as good test-retest reliability and procedural validity (Spitzer, Kroenke, Williams, & Löwe, 2006). This study also found that the GAD-7 also had good convergent validity due to its correlation with other anxiety scales (Spitzer et al., 2006). Due to its widespread use and strong reliability and validity, the researcher found the GAD-7 to be the best scale for anxiety in this study.

Perceived Loneliness: The Independent Variable

The factor that is being measured as the independent variable in this study is perceived loneliness. There are several existing surveys that seek to measure perceived loneliness. The 20-item UCLA Loneliness Scale (version 3) was developed to assess levels of loneliness that individuals feel they are experiencing. The third version of the UCLA Loneliness Scale has been shown in research to have good reliability and validity

with several populations, including the elderly (Russell, 1996). One possible weakness of the loneliness scale when compared to other scales in this study is that it is relatively long. With 20 items, the UCLA Loneliness Scale is the longest scale that will be used in this study. However, due to the reliability and validity of the assessment and the utility for the elderly population, the UCLA Loneliness scale was used to measure the levels of loneliness in participants of this study.

Social Support: The Moderating Factor

The moderating factor being studied in this research is social support, including familial support, peer support, and support from nursing home staff. The goal of the social support scale is to determine how much support the participants feel they receive from the people in their lives. There are several scales that have been utilized in research to assess the participant's level of social support. One of the scales used to assess levels of social support is the Multidimensional Scale of Perceived Social Support (MSPSS). This scale mixes in items to assess social support in three categories: support from family, support from friends, and support from a significant other. The MSPSS has been shown to be easy to administer and to have good reliability, concurrent validity, and construct validity (Kazarian & McCabe, 1991). Due to its brevity, reliability, validity, and ease of administration, the MSPSS was utilized in this study to measure perceived social support.

When considering which of this scale's categories to use in the survey, the researcher considered the removal of the significant other category due to the fact that a large majority of nursing home residents are not married. However, the ambiguous wording used in the scale indicates that the significant person being referred to in the

questions could be any significant person in the individual's life and does not necessarily have to be a spouse. Due to the wording of these items, the researcher chose to include the items related to support from a significant other.

Demographic Information: Control Variables

The researcher chose to collect the following demographic details from the participants: age, gender, race, ethnicity, marital status, number of children, religious affiliation, perceived physical health, and length of stay in the nursing home. These specific details were chosen based on the literature's suggestions about factors impacting depression and anxiety levels in elderly individuals. The demographic information collected in this study was utilized in order to determine whether loneliness disproportionately impacts depression and anxiety levels in any specific population.

Although research suggests that it is possible that one's financial situation could impact his or her levels of depression and anxiety, socioeconomic status will not be measured in this study. Many individuals living in nursing homes sell their homes, cars, and other assets upon moving into a nursing home. This happens for various reasons, including no longer having a need for or ability to use those things, not having room for those things in the nursing home facility, or needing the money to cover their stay in a facility. The average cost of living in a nursing home in Texas is $54,750 per year for a semi-private room and $72,635 per year for a private room (Elder Options of Texas, n.d.). Many long-term care nursing home residents pay for their stay with Medicare or Medicaid benefits. There are several criteria that individuals must meet in order to receive Medicare and/or Medicaid services, often including stipulations that the client cannot have or make more than a certain amount of money (Elder Options of Texas,

n.d.). The residents who privately pay for their stay in the nursing home often experience having all of their savings, investments, and assets being drained in order to cover the costs of living in the facility. Thus, it can be difficult to measure the financial status of those living in nursing homes, and it is very common for these individuals to have little to no money or assets. For these reasons, socioeconomic status was not measured in this study.

Statistical Analysis

After receiving permission from the Institutional Review Board of Abilene Christian University on February 19, 2020 (see Appendix A), data were collected from March 2, 2020, to March 5, 2020. After collecting the data from each of the surveys, the data were compiled into SPSS (version 23.0) and analyzed. The researcher conducted descriptive analyses in order to summarize the characteristics of the sample. Descriptive analyses were also used to examine the distribution of the major variables being tested in this study. Reliability analyses were utilized to assess the reliability (i.e., internal consistency) of each scale used in the survey. A hierarchical regression analysis was utilized in order to investigate the moderating effect of social support on the impact of perceived loneliness on depression and anxiety. If the moderating factor was found to be statistically significant in this study, the effect would have been examined in a graph utilizing Hayes' PROCESS macro model (2013). However, the moderating effect of social support was not found to be statistically significant in this study. Therefore, the researcher conducted several multiple linear regressions and a binary logistic regression to examine the effects of the independent variable on the outcome variables.

CHAPTER IV

FINDINGS

Description of the Sample

Of the 26 total eligible participants identified in the facility, 14 declined to participate in the study and 12 agreed to participate ($N = 12$), yielding a response rate of 46.15%. The demographic information of the participants in the sample can be seen in Table 1. The age of the participants ranged from 66 to 94 ($M = 80.08$ years, $SD = 9.53$). The majority of participants identified as female (83.3%). A small portion of participants identified their gender as other (8.3%) or preferred not to answer (8.3%). The sample is comprised of individuals identifying as Caucasian (100.0%). The majority of the respondents reported being non-Hispanic (91.7%) and a minority reported being Hispanic (8.3%). All of the respondents identified as Christian (100.0%) with the majority identifying as Protestant (91.7%) and the minority identifying as Catholic (8.3%). The majority of the participants had been widowed (66.7%) while the others reported being divorced (16.7%) or having never married (16.7%). The majority of participants had positive views of their physical health ($M = 3.50$, $SD = 1.17$), with the majority reporting that they believed their health was “good” (41.7%) or “very good” (16.7%). Fewer participants reported feeling that their health was “very poor” (8.3%), “poor” (8.3%), or “average” (25.0%). The length of stay in a nursing home ranged from 2 months to 312 months amongst the participants with an average length of stay of 49.83 months ($SD = 86.06$).

Table 1

*Characteristics of the Sample (*N *=12)*

Variable	Category or Range	N or M	% or SD
Age (years)	66~94	80.08	9.53
Gender	Female	10	83.3
	Other	1	8.3
	Prefer not to say	1	8.3
Race	White (Hispanic)	1	8.3
	White (Non-Hispanic)	11	91.7
Religion	Christian (Catholic)	1	8.3
	Christian (Protestant)	11	91.7
Marital Status	Single (Never Married)	2	16.7
	Widowed	8	66.7
	Divorced	2	16.7
Physical Health	1 (Very Poor)	1	8.3
	2 (Poor)	1	8.3
	3 (Average)	3	25.0
	4 (Good)	5	41.7
	5 (Very Good)	2	16.7
Physical Health (Mean)	1~5	3.50	1.17
Time in NH (Months)	2~312	49.83	86.06

Descriptive Statistics of Major Variables

The present study includes several measurement scales: the Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), UCLA Loneliness Scale, and Multidimensional Scale of Perceived Social Support (MSPSS). According to the literature review, these scales have been widely researched and have shown to be valid and reliable for measuring depression, anxiety, loneliness, and social support, respectively.

Depression

As noted in Table 2, the internal consistency for depression was acceptable (Crochbach's $\alpha = .792$). According to Kroenke and Spitzer (2002), the total sum of scores

of each participant should be generated in order to assess levels of depression. Therefore, the mean score of the participants was generated by averaging together the sum of the subscores from each participant. A score of less than 5 on the PHQ-9 indicates no depression, while values greater than or equal to 5 indicate at least mild depression (Kroenke & Spitzer, 2002). Table 2 demonstrates that the overall mean score for the population was 5.25 with a standard deviation of 5.40, indicating an average of "mild depression" amongst the participants with wide variety in their responses.

Table 2

*Depression: Descriptive and Internal Consistency (*N=*12)*

	N	*Min*	*Max*	*M*	*SD*
DepressionTotal (Cronbach's α=.792)	12	0	19	5.25	5.40
1. Little interest or pleasure in doing things	12	0	2	0.58	0.79
2. Feeling down, depressed, or hopeless	12	0	2	0.33	0.65
3. Trouble falling or staying asleep, or sleeping too much	12	0	3	0.75	1.14
4. Feeling tired or having little energy	12	0	3	1.00	1.35
5. Poor appetite or overeating	12	0	3	0.50	0.90
6. Feeling bad about yourself or that you are a failure or have let yourself or your family down	12	0	3	0.42	1.00
7. Trouble concentrating on things, such as reading the newspaper or watching television	12	0	3	0.67	1.15
8. Moving or speaking so slowly that other people could have noticed. Or the opposite -- being so fidgety or restless that you have been moving around a lot more than usual	12	0	3	1.00	1.28
9. Thoughts that you would be better off dead, or of hurting yourself*	12	0	0	0.00	0.00

Note. * = Answers of 1-3 on this item must be reported for resident's safety

Anxiety

As is shown in Table 3, the internal consistency for Anxiety was acceptable (Crochbach's α = .874). The mean score of the participants was generated by averaging the scores on the 7 items in the GAD-7. Similar to the scoring of the PHQ-9, the GAD-7

requires that one add up the total of the subscores for each participant to come up with a total value that will indicate is minimal, mild, moderate, or severe anxiety (Spitzer et al., 2006). Therefore, the mean score in this study was generated by finding the average from the sum of subscores from each participant. The mean of the population (M = 3.67) indicated "minimal anxiety" though there was substantial variation amongst the scores (SD = 5.66).

Table 3

*Anxiety: Descriptive and Internal Consistency (*N*=12)*

	N	*Min*	*Max*	*M*	*SD*
AnxietyTotal (Cronbach's α=.874)	12	0	19	3.67	5.66
1. Feeling nervous, anxious, or on edge.	12	0	3	0.58	1.16
2. Not being able to stop or control worrying.	12	0	3	0.58	1.16
3. Worrying too much about different things.	12	0	2	0.42	0.67
4. Trouble relaxing.	12	0	3	0.58	1.16
5. Being so restless that it's hard to sit still.	12	0	3	0.75	1.36
6. Becoming easily annoyed or irritable.	12	0	3	0.58	1.16
7. Feeling afraid as if something might happen.	12	0	2	0.17	0.58
8. Feeling nervous, anxious, or on edge.	12	0	3	0.58	1.16
9. Not being able to stop or control worrying.	12	0	3	0.58	1.16

Loneliness

Table 4 demonstrates the descriptive and internal consistency for loneliness. The internal consistency for loneliness was acceptable (Crochbach's α = .887). Several items in this scale were reverse coded. Items with an asterisk are to be identified as items that were reverse coded. The researcher made an error when typing item 12 of the survey that was distributed to the participants. The researcher typed "How often do you feel that your relationships with others are meaningful?" instead of the correct version of the question, "How often do you feel that your relationships with others are not meaningful?" Although that item is supposed to be coded normally, item 12 was reverse coded in order

to compensate for this error. When accounting for the reverse coding, the mean score in the population was 44.92 on a scale of 20-80 points with some variation among the sample (*SD* = 12.64). Thus, the average level of loneliness in the population is modest.

Table 4

*Loneliness: Descriptive and Internal Consistency (*N=*12)*

	N	*Min*	*Max*	*M*	*SD*
LonelinessTotal (Cronbach's α=.887)	12	28	68	44.92	12.64
1. How often do you feel that you are "in tune" with the people around you?*	12	1	4	2.00	1.04
2. How often do you feel that you lack companionship?	12	1	4	2.25	0.97
3. How often do you feel that there is no one you can turn to?	12	1	4	1.33	0.89
4. How often do you feel alone?	12	1	4	2.00	1.28
5. How often do you feel part of a group of friends?*	12	1	4	2.67	1.23
6. How often do you feel that you have a lot in common with the people around you?*	12	1	4	2.92	1.08
7. How often do you feel that you are no longer close to anyone?	12	1	4	1.75	1.22
8. How often do you feel that your interests and ideas are not shared by those around you?	12	1	4	2.50	1.09
9. How often do you feel outgoing and friendly?*	12	1	4	1.83	1.03
10. How often do you feel close to people?*	12	1	4	2.25	1.06
11. How often do you feel left out?	12	1	4	2.25	1.42
12. How often do you feel that your relationships with others are meaningful?*	12	1	4	2.25	0.97
13. How often do you feel that no one really knows you well?	12	1	4	2.92	1.24
14. How often do you feel isolated from others?	12	1	3	2.08	0.90
15. How often do you feel you can find companionship when you want it?*	12	1	4	2.67	1.15
16. How often do you feel that there are people who really understand you?*	12	1	4	2.67	1.07
17. How often do you feel shy?	12	1	4	2.00	1.21
18. How often do you feel that people are around you but not with you?	12	1	4	2.75	1.29
19. How often do you feel that there are people you can talk to?*	12	1	4	2.08	1.16
20. How often do you feel that there are people you can turn to?*	12	1	4	1.75	0.97

Note. * = Reverse coded items.

Social Support

Table 5 demonstrates the descriptive and internal consistency for social support. The internal consistency for social support was acceptable (Crochbach's α = .950). The Multidimensional Scale of Perceived Social Support (MSPSS) has shown in the literature to be a valid and reliable measure of social support (Kazarian & McCabe, 1991). The results of the social support scale indicate an average response that is affirmative of the positive statements in the MSPSS items (*M* = 5.22). Although there was variation in the responses (*SD* = 1.56), the mean suggests that the average response in the population was positive in terms of the participants' perception of the social support they receive.

Table 5

*Social Support: Descriptive and Internal Consistency (*N*=12)*

	N	*Min*	*Max*	*M*	*SD*
SocialSupportMean (Cronbach's α=.950)	12	1.25	6.83	5.22	1.56
1. There is a special person who is around when I am in need.	12	2	7	5.00	1.81
2. There is a special person with whom I can share my joys and sorrows.	12	1	7	4.92	1.98
3. My family really tries to help me.	12	1	7	5.92	1.78
4. I get the emotional help and support I need from my family.	12	1	7	5.25	1.91
5. I have a special person who is a real source of comfort to me.	12	1	7	5.50	1.83
6. My friends really try to help me.	12	1	7	5.00	1.65
7. I can count on my friends when things go wrong.	12	1	7	4.50	2.11
8. I can talk about my problems with my family.	12	1	7	5.33	2.10
9. I have friends with whom I can share my joys and sorrows.	12	1	7	5.25	2.09
10. There is a special person in my life who cares about my feelings.	12	1	7	5.75	1.82
11. My family is willing to help me make decisions.	12	1	7	5.83	1.80
12. I can talk about my problems with my friends.	12	1	7	4.42	2.27

Table 6 provides the descriptive information for the additional social support measures. Due to the fact that these items are independent of one another and did not come from a scale, the internal consistency of the other social support measures was not tested. In these items, lower numbers indicate affirmative responses and/or higher frequency. An answer of "1" to the question "How often do you receive visits from family members?" would indicate receiving visits from family members daily. An answer of "1" to the question "Other than children, do you have other local family members, such as grandchildren, nieces and nephews, or other relatives?" would indicate that the participant's response is "yes." The majority of participants reported having children (*M* = 1.17), and the number of living children ranged from 0 to 4 sons and 0 to 4 daughters. The mean response to the question about the proximity of the participant's nearest child is that their child lives in the West Texas region (*M* = 2.00). Many residents also reported having other extended family living nearby (M = 1.25). On average, participants reported seeing family (*M* = 7.83, approximately "once a week") more often than friends (*M* = 5.17, approximately "once every few months").

Table 6

*Social Support, Other: Descriptive (*N*=12)*

	N	*Min*	*Max*	*M*	*SD*
Do you have children?	12	1	2	1.17	0.39
How many living sons?	12	0	4	1.17	1.27
How many living daughters?	12	0	4	1.17	1.27
How close does your closest child/children live to you?	12	1	5	2.00	1.48
Other than children, do you have other local family members, such as grandchildren, nieces and nephews, or other relatives?	12	1	2	1.25	0.45
How often do you receive visits from family members?	12	4	10	7.83	1.59
How often do you receive visits from friends?	12	1	9	5.17	3.21

Note. One should also note that lower scores for "How close does your closes child live to you?" indicate that the child/children live in close proximity to the participant, while higher scores indicate that children are living further away.

Hypothesis Testing

Four main hypotheses were laid out in the present study. Two were largely concerned with the impact of other factors on depression, and two were largely concerned with the impact of other factors on anxiety.

1. Hypothesis 1: Perceived loneliness will be positively correlated with the level of depression among long-term care nursing home residents.
2. Hypothesis 2: Perceived loneliness will have a positive correlation with level of anxiety among long-term care nursing home residents.
3. Hypothesis 3: Social support will buffer the negative effect of loneliness on levels of depression in long-term care nursing home residents.
4. Hypothesis 4: Social support will buffer the negative effect of loneliness on levels of anxiety in long-term care nursing home residents.

In order to assess depression severity in participants, a Multiple Linear Regression (MLR) was conducted. The results of this MLR are presented in Table 7. Physical health and total time spent living in a nursing home were not found to be statistically significant in Model 1, so they were removed from further models due to the small sample size in this study. Model 2 demonstrates that loneliness and social support were not found to be significant factors on depression. Both of these factors were measured based on the participants' subjective perception, so alterative indicators of social support were included in further models. This is due to the fact that the other indicators, frequency of family visits, frequency of visits from friends, proximity to children, and having other local family members, are more objective measurements of social support. None of the alternative factors were found to be statistically significant in Models 3 through 6. However, when accounting for having local family nearby, the impact of loneliness on depression was statistically significant.

Table 7

*Multiple Linear Regression (MLR) Model of Depression Severity (*N=*12)*

	Model1		Model2		Model3		Model4		Model5		Model6	
	t	*p*	*t*	*p*	*t*	*p*	*t*	*p*	*t*	*p*	*t*	*p*
Physical Health	0.596	0.570										
Time in NH	-0.564	0.591										
LonelinessTotal	1.708	0.131	2.130	0.062	1.937	0.085	2.064	0.069	2.016	0.075	2.285	0.048*
SocialSupport	0.723	0.493	1.034	0.328								
Mean FamilyVisit (Freq.)					0.058	0.955						
FriendVisit (Freq.)							-0.485	0.639				
CloseToChild									-0.484	0.640		
OtherLocalFamilyYes											-1.033	0.329

Note. The interaction effects in all of the models were omitted because they were not statistically significant.

Table 8 presents a Binary Logistic Regression (BLR) for the categorical measure of having depressive symptoms. In the BLR, OR values suggest the likelihood of having depressive symptoms. When the OR value is greater than 1, the likelihood of having depressive symptoms increases for every 1 unit the factor increases. The control variables tested in Model 1 were not found to be statistically significant, so they were removed from further models due to the small sample size in this study. Model 2 demonstrates that loneliness and social support were not found to be significant factors on having depressive symptoms. Alterative indicators of social support were included in further models to account for the subjective nature of the loneliness and social support measures. None of the factors tested were significant on having depressive symptoms.

Table 8

*Binary Logistic Regression (BLR) Model of Having Depression Symptoms (*N=*12)*

	Model1		Model2		Model3		Model4		Model5		Model6	
	OR	*p*	*OR*	*p*	*OR*	*p*	*OR*	*p*	*OR*	*p*	*OR*	*p*
Physical health	0.271	0.367										
Time in NH	0.879	0.150										
LonelinessTotal	1.376	0.255	1.074	0.201	1.511	0.227	1.071	0.230	1.172	0.221	1.088	0.183
SocialSupportMean	4.901	0.427	1.302	0.595								
FamilyVisit (Freq.)					-0.091	0.188						
FriendVisit (Freq.)							-0.966	0.867				
CloseToChild									0.264	0.190		
OtherLocal FamilyYes											0.300	0.477

Note. The interaction effects in all of the models were omitted because they were not statistically significant.

In order to assess the severity of anxiety in participants, a Multiple Linear Regression (MLR) was conducted. The results of this MLR for anxiety are presented in Table 9. Physical health and total time spent living in a nursing home were found to be statistically insignificant in Model 1. For this reason, they were removed from further models. Model 1 demonstrated that loneliness was found to have a statistically significant impact on levels of anxiety. This positive correlation between loneliness and anxiety was found to be statistically significant across all models in Table 9. The subjective measure of social support was not found to be statistically significant in Model 1 or Model 2, so alternative, more objective indicators of social support were tested in further models. These factors in Models 3 through 6 were not statistically significant.

Table 9

*Multiple Linear Regression (MLR) Model of Anxiety Level (*N = *12)*

	Model1		Model2		Model3		Model4		Model5		Model6	
	t	*p*	*t*	*p*	*t*	*p*	*t*	*p*	*t*	*p*	*t*	*p*
Physical health	1.710	0.131										
Time in NH	-0.520	0.619										
LonelinessTotal	2.812	0.026*	2.908	0.017*	2.385	0.041*	2.929	0.017*	2.562	0.031*	2.670	0.026*
SocialSupportMean	0.960	0.369	1.572	0.151								
FamilyVisit (Freq.)					-1.575	0.150						
FriendVisit (Freq.)							-1.256	0.241				
CloseToChild									0.526	0.612		
OtherLocalFamilyYes											-0.648	0.533

Note. The interaction effects in all of the models were omitted because they were not statistically significant.

Based on the findings of the Multiple Linear Regression model of depression severity in Table 7 and the Binary Logistic Regression of having depressive symptoms in Table 8, perceived loneliness did not have a statistically significant correlation with the existence of depressive symptoms or severity of depression in long-term care nursing home residents. Therefore, the data from the present study did not support hypothesis 1. According to Table 9, the Multiple Linear Regression (MLR) model of anxiety revealed that loneliness had a statistically significant positive correlation with levels of anxiety. Thus, the findings from this study are in support of hypothesis 2. According to the regression analyses that were run in this study, the buffering effect of social support was not statistically significant on the impact of loneliness on depression or anxiety. Thus, the data were not sufficient to support hypothesis 3 or hypothesis 4.

CHAPTER V

DISCUSSION

In order to address the social problem of poor mental health among nursing home residents, the researcher asked the question of whether loneliness may play a role and, if so, whether social support may mitigate its impact on depression and anxiety. Therefore, the purpose of this study was to examine the moderating effect of social support on the impact of loneliness on anxiety and depression in long-term care residents in nursing homes. Although there have been several studies that have assessed depression, anxiety, and/or loneliness in long-term care nursing home residents, there has been a lack of studies that have included social support as a moderator for the impact of loneliness on depression and anxiety.

Discussion of Major Findings

Although many of the results were not statistically significant in this study, there were several patterns within the data that should be noted. For example, the regression analyses indicated some interesting directionality that should be noted. The MLRs conducted for depression (Table 7) and anxiety (Table 9) provided interesting findings in terms of the directionality of the variable "OtherLocalFamilyYes." Although the findings were not statistically significant, the pattern suggested that the presence of other family in close proximity could have a negative association with both depression and anxiety. This would suggest that having nearby family in addition to a child or children could be

associated with lower severity of depression and anxiety. Having other local family members was one of only two variables that was negative in the MLR for both depression and anxiety, in addition to the variable of length of stay in a nursing home. These findings were not statistically significant, so once cannot assume that this negative correlation exists. However, they do suggest that it is plausible that a relationship could exist between having local family members and the severity of depression and anxiety in long-term care nursing home residents.

Some of the findings in this study did not align with the expectations of the researcher based on the literature review. For example, loneliness and depression have been shown in several studies to be correlated. However, the two variables were not found to have a statistically significant correlation in this study. In the MLR model of depression severity (Table 7), several of the p-values for loneliness are low and are close to the necessary value for statistical significance ($p < 0.05$). However, these values were not low enough to demonstrate statistical significance. It is plausible that this could be due to the small sample size in the present study. For this reason, it could be possible that loneliness and depression would have a statistically significant relationship in a study with more participants.

Implications of Findings

Although three of the four hypotheses tested in this study were not accepted, there are still important findings from this research. There are notable implications to the significant relationship between loneliness and anxiety as well as the statistically insignificant patterns noticed in the regression analyses. Despite the limitations identified in this study, these findings have several implications for practice, policy, and research.

Implications for Practice

One of the primary implications from this study for practice is based on the finding that loneliness and anxiety were found to have a statistically significant relationship. As is shown in Table 9, all of the *t*-values in the MLR are positive, which indicates a positive association between loneliness and anxiety. This finding suggests that a relationship exists between these two factors where higher loneliness is likely associated with higher anxiety levels and lower loneliness is likely associated with lower anxiety levels. Therefore, nursing home staff members should prioritize activities and services that decrease resident loneliness. The findings of this research suggest that lower levels of resident loneliness could be correlated with lower levels of anxiety. Thus, nursing homes should emphasize taking action to decrease resident loneliness for the sake of the resident's mental health.

Although social support was not found to be statistically significant as a moderator, it is possible there could be a relationship between social support and mental health. Therefore, nursing homes should be proactive about educating families about the existing knowledge on the impact of loneliness on nursing home residents. Research in the literature review revealed that several studies have seen a significant relationship between loneliness and mental health in long-term care nursing home residents. For this reason, nursing homes should standardize the practice of providing residents and their loved ones this information upon their intake at the facility. During care plan meetings, nursing home staff should continue to educate the resident's loved ones on how they may play a role in impacting the amount of loneliness that the resident experiences. This enables the resident's loved ones to be aware of the ways in which they can help decrease

the resident's loneliness and to be aware of what could happen if the resident's loneliness increases or persists.

Implications for Policy

The findings of the present study have several implications for policy at federal and agency levels. Due to the statistically significant relationship between loneliness and anxiety in the present study, federal and agency policies should be in place that prioritize the identification and treatment of anxiety in long-term care nursing home residents. One way that this could be implemented is through the inclusion of regular anxiety screenings in the required assessments for long-term care facilities.

Federal policy. The Centers for Medicare and Medicaid Services (CMS) federally mandate that the Patient Health Questionnaire-9 (PHQ-9) and the Brief Interview for Mental Status (BIMS) assessment must be conducted periodically throughout a resident's stay in the facility as part of their Minimum Data Set (MDS) assessments. These assessments address depression and cognition but do not account for anxiety. This may be due to the fact that depression has shown to be associated with suicidal behaviors, thus causing depression to be recognized as a more immediate threat to the physical health and wellbeing of an individual. Although anxiety may not have as dire and immediate consequences as depression, it can still have implications on an individual's health and wellbeing and should still be assessed for that reason. Assessing levels of anxiety in nursing home settings could encourage the prevention of the negative consequences of anxiety in long-term care residents.

Due to the issue of social isolation in nursing home settings, CMS should consider the impact that the loneliness of residents may have on their mental health. Based on the

present study's finding that loneliness has a statistically significant impact on anxiety, it could be beneficial for the existing policy to change in order to include the mandate of regular screenings for anxiety. Research in the literature review revealed that there is an association between anxiety and neurocognitive disorders such as dementia (Calleo et al., 2011), which impact a high number of long-term care nursing home residents. Based on the literature and the findings of the present study, it is imperative that the policy for assessments is updated to account for the high incidence of anxiety in nursing home settings.

Agency policy. Currently, the agency in which the data for the present study was collected solely utilizes the assessments required according to CMS guidelines. Thus, it does not have regular screenings for anxiety levels among long-term care nursing home residents. Although not required by CMS, it could be beneficial for the agency, as well as other nursing homes, to consider the inclusion of the GAD-7 as a regular assessment for their residents. This would enable staff in the facility to gain a deeper understanding of the mental health status of their residents and to be able to care for their residents in a more comprehensive, holistic manner in return. Thus, agencies should advocate for the inclusion of this assessment in their facilities in order to expand their measures for mental health despite the fact that it is not federally mandated.

Implications for Research

There are several implications from the present study for further research that come from the study's findings and its limitations. This study found that there was a statistically significant relationship between loneliness and anxiety within the population. This could have implications for future research. Researchers should be sure to include

both loneliness and anxiety when examining the mental health of long-term care nursing home residents and the factors that impact it. Depression is often the main focus of these types of research, but it could be beneficial to include anxiety in future studies. Further research is also needed in order to examine whether social support has a buffering effect on the impact of loneliness on depression and anxiety. The buffering effect of social support was not found to be statistically significant in this study, but it is possible that this was impacted by limitations of the study.

Due to the time and resource restraints, the small sample size was much smaller than the researcher preferred ($N = 12$). This was largely due to the fact that there was only one researcher available to obtain informed consent and distribute surveys to the participants. The majority of participants needed or preferred a face-to-face interview rather than filling out their responses on paper, so a significant amount of time was spent collecting data from each participant. Although the plan was initially to collect data for this study at several nursing homes in West and North Central Texas, the researcher had a restricted window of time for data collection due to master's thesis deadlines and was only able to obtain data from one nursing home. It could be beneficial in further studies to expand the pool of possible participants to increase the number of participants in the study. Increasing the pool of possible participants in future studies would also help to address another limitation in this study: the use of convenience sampling rather than random sampling. The reason for convenience sampling was due to the already small pool of eligible participants at the facility at which the research was conducted. However, it would be beneficial to increase the number of eligible participants by increasing the number of nursing homes in the study and utilize random sampling in future studies.

Due to the small sample size, the sample was not a representative sample. Every participant expressed having a Christian faith, and all participants identified as Caucasian. Although one participant identified as being Hispanic, the rest of the participants classified their ethnicity as non-Hispanic. The large majority of participants identified as female, and no residents identified as male, although two chose options that were neither male nor female. Based on this lack of diversity within the sample, it is possible that the findings of this research would not generalize well to other populations. It is possible that members of other religious, cultural, racial, or ethnic groups may have different levels of acceptability and perceptions of mental health. These perceptions could have an impact on survey responses. Thus, the lack of a representative sample may result in a bias towards non-Hispanic, Caucasian, Christian women in this study. Although it is possible that the study population simply was not representative, it is also possible that the facility as a whole may not be representative since residents from only one facility were surveyed in this research. Therefore, future researchers should be intentional to collect data from many residents from several facilities in order to gain a more representative sample.

A notable limitation of this study was the length of the survey. Including demographic questions, the entire survey was comprised of 63 items. When explaining the survey and attempting to obtain informed consent, the length of the survey was a deterrent for several potential participants. The researcher was aware of the long survey length but chose to move forward with them. This was largely to the support in the literature of the validity and reliability of the measurement scales used. However, it could

be beneficial in future studies to utilize shorter instruments in order to increase the participant response rate.

An additional limitation of this study is that it is comprised of cross-sectional data. This is due to the time restraints placed on this research, as the present study was conducted as a master's thesis and had a restricted timeline. It could be beneficial to utilize longitudinal data to examine the impact of social support and loneliness over time in future studies. This would enable researchers to see the ways in which the impact of loneliness on mental health may change over time and may be moderated by social support. Furthermore, it may be possible to conduct research that observes the moderating effect of social support on the impact of loneliness on mental health while having a control group and a group that receives treatment, such as a regular group activity at the nursing home. Social support from nursing home staff was not measured in this research, so this may enable future researchers to examine the issue of social support from an angle that was not able to be addressed in the present study.

Due to the fact that the majority of participants chose or needed a face-to-face interview in order to complete the survey, the issue of social desirability is another possible limitation in this study. The topics of loneliness, social support, and mental health are considered taboo by some, so it is possible that the participants responded in ways that are "socially acceptable." Further, one item in the depression scale asks how often the participant has experienced thoughts of self-harm or suicide. In order to prioritize the safety of the participants, the researcher informed the participants during the process of obtaining informed consent that a positive response to that question would

result in a mandatory report to the facility's social worker. Thus, it is plausible that social desirability may have influenced participants' answers to certain items in the survey.

The moderating effect of social support was not found to be statistically significant in this research. It is plausible that this is due to the small, unrepresentative sample size utilized in this study. However, this could also indicate that, rather than having a moderating effect, social support has a more direct effect on depression and anxiety in long-term care nursing home residents. Further research is needed to determine the existence, strength, and directionality of the relationships between these variables.

Conclusions

The present study sought to examine the buffering effect of social support on the impact of loneliness on depression and anxiety in long-term care nursing home residents. Data was collected at a nursing home in West Texas in March 2020. In order to collect data, the researcher distributed a survey comprised of depression, anxiety, loneliness, and social support scales, additional social support measures added by the researcher, and some demographic questions. In order to analyze the data, Multiple Linear Regressions (MLR) and Binary Logistic Regressions (BLR) were conducted. When the data was analyzed, the findings indicated that the only variable that had a consistent, statistically significant impact on other factors was loneliness in its impact on anxiety. The moderating effect of social support was not found to be statistically significant in this study. Several other patterns were noted between more objective measures of social support, but they were not found to have a statistically significant impact. Due to the limitations of this study, further research is needed to evaluate whether social support has a moderating effect. Based on the findings of this study, nursing home facilities should

remember that the impact of loneliness on anxiety could have important implications for both policy and practice with long-term care nursing home residents.

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APPENDIX A

IRB Approval Letter

ABILENE CHRISTIAN UNIVERSITY
Educating Students for Christian Service and Leadership Throughout the World

Office of Research and Sponsored Programs
320 Hardin Administration Building, ACU Box 29103, Abilene, Texas 79699-9103
325-674-2885

February 19, 2020

Lindsay Stivers
Department of Social Work
Abilene Christian University

Dear Lindsay,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled
"The Moderating Effect of Social Support on the Impact of Perceived Loneliness on the Mental Health of Long-Term Care Nursing Home Residents",

(IRB# 19-160)is exempt from review under Federal Policy for the Protection of Human Subjects.

If at any time the details of this project change, please resubmit to the IRB so the committee can determine whether or not the exempt status is still applicable.

I wish you well with your work.

Sincerely,

Megan Roth

Megan Roth, Ph.D.
Director of Research and Sponsored Programs

APPENDIX B

Survey

Assessment of Mood, Feelings of Isolation, and Social Relationships

The purpose of this study is to explore factors impacting long-term care nursing home residents. In this survey, we are interested in learning how your emotional and mental wellbeing is being impacted by other factors. The findings of this study will be used to make recommendations for future practice and policy that will positively impact long-term care nursing home residents. This survey will include questions about your mood, feelings of isolation, and social relationships.

Mood Assessment

Over the last two weeks, how often have you been bothered by the following problems? (0 = Not at all, 1 = Several days, 2 = More than half of the days, 3 = Nearly every day)

1. Little interest or pleasure in doing things	0 1 2 3
2. Feeling down, depressed, or hopeless	0 1 2 3
3. Trouble falling or staying asleep, or sleeping too much	0 1 2 3
4. Feeling tired or having little energy	0 1 2 3
5. Poor appetite or overeating	0 1 2 3
6. Feeling bad about yourself or that you are a failure or have let yourself or your family down	0 1 2 3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0 1 2 3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite -- being so fidgety or restless that you have been moving around a lot more than usual.	0 1 2 3
9. Thoughts that you would be better off dead, or of hurting yourself	0 1 2 3
10. Feeling nervous, anxious, or on edge	0 1 2 3
11. Not being able to stop or control worrying	0 1 2 3
12. Worrying too much about different things	0 1 2 3

13.	Trouble relaxing	0 1 2 3
14.	Being so restless that it's hard to sit still	0 1 2 3
15.	Becoming easily annoyed or irritable	0 1 2 3
16.	Feeling afraid as if something might happen	0 1 2 3

Assessment of Feelings of Isolation

Please indicate how often each of the statements below is descriptive of you. (0 = I never feel this way, 1 = I rarely feel this way, 2 = I sometimes feel this way, 3 = I often feel this way)

1.	How often do you feel that you are "in tune" with the people around you?	3 2 1 0
2.	How often do you feel that you lack companionship?	3 2 1 0
3.	How often do you feel that there is no one you can turn to?	3 2 1 0
4.	How often do you feel alone?	3 2 1 0
5.	How often do you feel part of a group of friends?	3 2 1 0
6.	How often do you feel that you have a lot in common with the people around you?	3 2 1 0
7.	How often do you feel that you are no longer close to anyone?	3 2 1 0
8.	How often do you feel that your interests and ideas are not shared by those around you?	3 2 1 0
9.	How often do you feel outgoing and friendly?	3 2 1 0
10.	How often do you feel close to people?	3 2 1 0
11.	How often do you feel left out?	3 2 1 0
12.	How often do you feel that your relationships with others are meaningful?	3 2 1 0
13.	How often do you feel that no one really knows you well?	3 2 1 0
14.	How often do you feel isolated from others?	3 2 1 0

15.	How often do you feel you can find companionship when you want it?	3 2 1 0
16.	How often do you feel that there are people who really understand you?	3 2 1 0
17.	How often do you feel shy?	3 2 1 0
18.	How often do you feel that people are around you but not with you?	3 2 1 0
19.	How often do you feel that there are people you can talk to?	3 2 1 0
20.	How often do you feel that there are people you can turn to?	3 2 1 0

Assessment of Social Relationships

We are interested in how you feel about the following statements. Listen to each statement carefully. Indicate how you feel about each statement. Select "1" if you very strongly disagree, "2" if you strongly disagree, "3" if you mildly disagree, "4" if you are neutral, "5" if you mildly agree, "6" if you strongly agree, and "7" if you very strongly agree.

1.	There is a special person who is around when I am in need.	1 2 3 4 5 6 7
2.	There is a special person with whom I can share my joys and sorrows.	1 2 3 4 5 6 7
3.	My family really tries to help me.	1 2 3 4 5 6 7
4.	I get the emotional help and support I need from my family.	1 2 3 4 5 6 7
5.	I have a special person who is a real source of comfort to me.	1 2 3 4 5 6 7
6.	My friends really try to help me.	1 2 3 4 5 6 7
7.	I can count on my friends when things go wrong.	1 2 3 4 5 6 7
8.	I can talk about my problems with my family.	1 2 3 4 5 6 7
9.	I have friends with whom I can share my joys and sorrows.	1 2 3 4 5 6 7
10.	There is a special person in my life who cares about my feelings.	1 2 3 4 5 6 7
11.	My family is willing to help me make decisions.	1 2 3 4 5 6 7

12. I can talk about my problems with my friends. 1 2 3 4 5 6 7

13. How often do you receive visits from family members?
    a. Every day
    b. Several times a week
    c. Once a week
    d. Once every 2 weeks
    e. Once every month
    f. Once every few months
    g. About twice a year
    h. Once a year
    i. Once every few years
    j. Never
    k. Prefer not to answer

14. How often do you receive visits from friends?
    a. Every day
    b. Several times a week
    c. Once a week
    d. Once every 2 weeks
    e. Once every month
    f. Once every few months
    g. About twice a year
    h. Once a year
    i. Once every few years
    j. Never
    k. Prefer not to answer

Demographic Information

Please provide an answer for each of the following questions. If you do not wish to answer a question, please leave it blank and move on to the next question.

1. Age: _____
2. Gender
    a. Male
    b. Female
    c. Other: _____
    d. Prefer not to answer

3. Race
    a. African American/Black
    b. American Indian/Alaska Native
    c. Asian
    d. Caucasian
    e. Mixed Race
    f. Native Hawaiian or Other Pacific Islander
    g. Other: _____
    h. Prefer not to answer

4. Ethnicity
    i. Hispanic
    j. Non-Hispanic
    k. Prefer not to answer

5. What is your marital status?
    a. Single (Never Married)
    b. Married
    c. Widowed
    d. Divorced
    e. Separated
    f. Prefer not to answer

6. Do you have children? Yes / No / Prefer not to Answer
    a. How many living sons? _____
    b. How many living daughters? _____
    c. How close does your closest child/children live to you?
        i. In Abilene
        ii. In the West Texas Region
        iii. In Texas (Outside of West Texas)
        iv. Out of State
        v. I do not have children.
        vi. Prefer not to answer
    d. Other than children, do you have other local family members, such as grandchildren, nieces and nephews, or other relatives?
        i. Yes
        ii. No
        iii. Prefer not to answer

6. What is your religious affiliation?
    a. Agnostic
    b. Atheist
    c. Buddhist
    d. Christian (Catholic)
    e. Christian (Protestant)
    f. Hindu
    g. Jehovah's Witness
    h. Jewish
    i. Mormon
    j. Muslim
    k. No religion
    l. Other: _____
    m. Prefer not to answer

7. How would you rate your physical health?
    a. Very Poor
    b. Poor
    c. Average
    d. Good
    e. Very Good

8. How long have you lived in a nursing home facility? _____