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Implementation of a Loneliness Assessment Tool and Education Program in Assisted Living

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**Implementation of a Loneliness Assessment Tool and Education Program
in Assisted Living**

DNP Project
Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

St. Catherine University
St. Paul, Minnesota

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May, 2022

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ST. PAUL, MINNESOTA

This is to certify that I have examined this
Doctor of Nursing Practice DNP project manuscript
written by

ANDREA BREANNE BELLE ISLE

and have found that it is complete and satisfactory in all respects,
and that any and all revisions required by
the final examining committee have been made.

Graduate Programs Faculty

A handwritten signature in black ink that reads "Gwen Short". The signature is written in a cursive style with a large initial 'G' and 'S'.

Name of Faculty Project Mentor

May 11, 2022

Date

DEPARTMENT OF NURSING

Abstract

Purpose: To combat loneliness in assisted living (AL) settings, particularly after the COVID-19 pandemic, providers need to be aware of the definition of loneliness, its consequences, and appropriate interventions.

Method: Educational content on loneliness's definition, consequences and interventions was delivered via PowerPoint to five nurse practitioners. Five nurse practitioners evaluated the education session's effectiveness via questionnaire and the Three-Item Loneliness Scale was administered to fifteen cognitively intact patients in AL settings. Four nurse practitioners then evaluated the Three-Item Loneliness Scale's implementation. The Plan-Do-Study-Act cycle was used for this quality improvement project.

Findings: Based on the post-education survey results, the Three-Item Loneliness Scale education session is useful and increases knowledge of loneliness for providers caring for patients in AL settings. The Three-Item loneliness scale was found to be effective in identifying patients experiencing loneliness and assists providers in applying appropriate interventions to decrease the negative consequences of loneliness.

Conclusion: An education session on loneliness has been found to be helpful for providers. The Three-Item Loneliness Scale is an adequate tool that can be used to identify patients experiencing loneliness. The Three-Item Loneliness Scale has been implemented on a small scale with a positive response by providers on its appropriateness for the current environment, ease of use, and effectiveness in identifying loneliness. Provider response during this project highlights the need for effective and accessible interventions in the AL community.

Implementation of a Loneliness Assessment Tool and Education Program in Assisted Living

As the prevalence of loneliness rises, increasing evidence shows that loneliness is a substantial risk factor for poor physical and mental health outcomes (Cacioppo et al., 2015). Loneliness can be defined as an inconsistency between an individual's preferred and actual social relationships leading to negative feelings of feeling alone, distress, or dysphoria of feeling socially isolated even when around family and friends (Cacioppo et al., 2015). The COVID-19 pandemic has negatively impacted older adults' well-being and increased loneliness (Gorenko et al., 2020).

Physical distancing recommendations to lessen the transmission of the Covid-19 virus increases the risk of social isolation and loneliness, which are associated with adverse outcomes, including anxiety, depression, cognitive decline, and mortality (Gorenko et al., 2020). Before the COVID-19 pandemic, loneliness and social isolation were so prevalent that it was described as a behavioral epidemic, and the situation has only worsened with the restrictions imposed to contain viral spread (Hwang et al., 2020). Additionally, voluntary self-isolation among older adults susceptible to the virus and increased worry about the pandemic also contribute to the risk of isolation, loneliness, and related adverse effects (Gorenko et al., 2020). After the COVID-19 outbreak, the psychosocial health of older patients with multi-morbidities markedly deteriorated, and missed medical appointments substantially increased (Wong et al., 2020). The primary challenge for providers is to become sufficiently informed about the scientific definition of loneliness so that other mental disorders are not mistakenly diagnosed and treated when loneliness is the primary presenting problem (Cacioppo et al., 2015).

Increased recognition of loneliness as a risk factor for adverse psychological and physical health outcomes has elevated interest in reducing chronic loneliness (Cacioppo et al., 2015). The first step to address the chronic illness of loneliness is to increase awareness among healthcare providers (Cacioppo et al., 2015). Next, a tool administered to at-risk individuals would identify patients experiencing loneliness and allow providers to incorporate appropriate interventions. The COVID-19 pandemic increased the number of socially isolated older adults, including community-dwelling older adults and nursing home residents (Wu, 2020). These older adults would benefit from early provider intervention to address loneliness.

Background to the Problem

Social isolation, (or the objective state of having few social relationships or infrequent social relationships with others), and loneliness are severe yet underappreciated public health risks that affect many adults (Simard & Volicer, 2020). Loneliness is a subjective feeling of being isolated (Simard & Volicer, 2020). Loneliness consists of three related dimensions: (a) intimate loneliness; (b) relational loneliness; and (c) collective loneliness (Cacioppo et al., 2015). Intimate loneliness refers to the perceived absence of a significant someone or someone to rely on for emotional support (Cacioppo et al., 2015). Relational loneliness refers to the perceived absence of quality friendships or family connections (Cacioppo et al., 2015). Collective loneliness refers to a person's valued social identities or their activity network where someone can connect with similar others at a distance in a collective space (Cacioppo et al., 2015).

Approximately one-quarter of Americans in the community aged 65 and older are considered socially isolated; over 40% of adults 60 and older report feeling lonely (Simard & Volicer, 2020). Loneliness is even more common in long-term care (LTC) and assisted living (AL) settings (Simard & Volicer, 2020). The prevalence of severe loneliness among older people

in care institutions is twice than that of community-dwelling older people (Simard & Volicer, 2020).

Consequences of Loneliness

Loneliness has serious consequences, including an increased risk of depression, alcoholism, suicidal thoughts, aggressive behaviors, anxiety, and impulsivity (Simard & Volicer, 2020). Loneliness has also been found to be a risk factor for cognitive decline and progression of Alzheimer's disease, recurrent stroke, obesity, elevated blood pressure, and mortality (Simard & Volicer, 2020). Loneliness can also increase hypothalamic-pituitary-adrenocortical activity, decrease sleep quality, and diminish immunity (Cacioppo et al., 2015). The risk associated with social isolation and loneliness relating to premature mortality is comparable to other well-established risk factors, including obesity, substance abuse, and lack of physical activity (Holt-Lunstad et al., 2015). Lonely people may also be burdened by more symptoms and be exposed to more intense end-of-life care compared to non-lonely people, highlighting the need to screen for, prevent and mitigate loneliness during the vulnerable end of life period (Abedini et al., 2020).

Interventions for Loneliness

Researchers have highlighted significant gaps in knowledge about effective interventions to reduce loneliness (Smith & Lim, 2020). Helpful interventions include befriending schemes delivered by volunteers, one-to-one group therapies to address relationship difficulties, shared activity programs to foster social connection, and communication technology (Smith & Lim, 2020). For interventions to be effective, an individual must feel that engagement has been facilitated and that it is meaningful and satisfying (Smith & Lim, 2020). Further interventions to decrease loneliness are laughter therapy, horticulture therapy, and reminiscence therapy (Simard & Volicer, 2020). Approaches to reduce social isolation involve maintaining a social connection,

including mobilizing family member resources, community-based networks, and resources that address social isolation in older adults (Wu, 2020). Zhao and colleagues (2019) found that frailty can be prevented by encouraging interventions that promote older adults' activity engagement increasing a nursing home resident's quality of life (QOL) and decreasing loneliness. There is also a role for technology when addressing social isolation, including instant messaging applications, videos, and channels for peer support (Wu, 2020). Tablets or computers can be used to connect with family members and friends to increase social engagement (Gorenko et al., 2020).

Twelve strategies can be used and adapted to help build and maintain social connections in assisted living (AL) residents (Bethell et al., 2020). These include managing pain, addressing vision and hearing loss, sleeping at night, finding opportunities for creative expression, exercise, maintaining religious and cultural practices, gardening inside or outside, visiting with pets, laughing together, using technology to communicate, reminiscing, and addressing communication impairments (Bethell et al., 2020). Kelly and colleagues (2017) found that social activity, social networks, and social support improved global cognition and increased brain volume indicating that social relationships overall benefit older adults' brain function. Drageset and colleagues (2011) found that for health professionals to help residents decrease loneliness, interventions must be based on the older person's needs and not on provider opinion of suitable interventions. Interventions that increase residents' responsibility and choice will also decrease loneliness (Drageset et al., 2011). Freedman & Nicolle (2020) found that more research is needed to provide firm guidance on which interventions targeting loneliness and social isolation are effective for which populations.

Loneliness Measurement Scale

The revised UCLA Loneliness Scale (Version 3) has been identified as reliable and valid in the elderly and in other populations (Russell, 1996). The UCLA Loneliness Scale (Version 3) includes eleven negatively and nine positively worded items with the highest correlations to a set of questions that explicitly asked about loneliness (Russell, 1996). The Three-Item Loneliness Scale was developed from the UCLA Loneliness Scale (Version 3). Hughes and colleagues (2008) first conducted exploratory and confirmatory factor analyses of the UCLA Loneliness Scale and found that statistical evidence supported the superiority of a three-factor solution in the experimental sample. They found a three-item scale to be an excellent fit for the confirmatory sample data and selected the three items from the dominant first factor to represent the loneliness construct (Hughes et al., 2008). The three items with the highest loadings on the first factor were “I feel left out,” “I feel isolated,” and “I lack companionship” and were modified to be included in the three-item questionnaire (Hughes et al., 2008, p.660).

The three-item questionnaire includes these three questions:

1. How often do you feel that you lack companionship?
2. How often do you feel left out?
3. How often do you feel isolated from others?

Patients can respond with: (a) hardly ever; (b) some of the time; or (c) often, scoring either a one, two, or three points (Hughes et al., 2008). A score of seven or greater indicates that the patient at least some of the time lacks companionship, feels left out, and feels isolated. Hughes et al. (2008) found that the Three-Item Loneliness Scale displayed satisfactory reliability and validity. Liu and colleagues found that the Three-Item Loneliness Scale reasonably identifies older adults experiencing depressive symptoms (2020).

Problem Formation

Problem Statement

Many older adults experience loneliness, making it a severe public health problem (Simard & Volicer, 2020). Loneliness has many physical and psychological results (Simard & Volicer, 2020). To combat loneliness in AL settings, particularly after the COVID-19 pandemic, providers need to be aware of the definition of loneliness, its consequences, and appropriate interventions. The author is aware of this by currently working in this setting with geriatric patients. The patients served by a metropolitan community senior care provider team experience loneliness and would benefit from provider knowledge and a tool to assess for loneliness. Providers need to be aware of the definition of loneliness so that patients suffering from loneliness are not misdiagnosed, and they need to be mindful of its consequences. They also need to be aware of effective interventions and implement them in a patient-centered care plan. Patients would benefit from a loneliness tool used to assess loneliness promptly. Increasing provider knowledge about loneliness's definition, consequences, and interventions was the first step to decreasing loneliness in the patient population. The next step to address loneliness in AL settings was to implement a tool identifying patients experiencing loneliness. The use of short measures that are easy to interpret helped primary care professionals identify loneliness and its concomitant problems in older individuals earlier (Ausín et al., 2019).

Purpose Statement

The first purpose of this project was to increase provider's knowledge about loneliness, its consequences and appropriate interventions to combat loneliness through an education session. The second purpose was to develop a process for providers to implement the Three-Item Loneliness Scale and evaluate its effectiveness.

Organizational Needs Assessment

This project population includes assisted living residents served by a metropolitan community senior care team. Patients living in these facilities would benefit from providers having increased knowledge about loneliness, its consequences, and interventions to combat it. Currently, there are no specific tools or interventions being used by providers to identify or combat loneliness with AL residents. The author currently is employed by this care team and has not found an available tool that could be used in our company resources. Multiple providers have voiced residents have become lonelier since the COVID-19 pandemic, and they have noticed an overall decline in these residents' health. For example, one patient enjoyed playing cribbage and the other three members of her cribbage group passed away during the early months of the COVID-19 pandemic and this patient has not found other residents to play cribbage with and she is not interested in other activities. This author has found that multiple providers are interested in decreasing loneliness within their patient population through informal interviews.

Project Goals and Objectives

This project will include three project goals with related measurable objectives. The first project goal is for providers to have increased knowledge of the definition of loneliness, the impact, and interventions for loneliness measured after an education session. Educational information will be delivered via PowerPoint. Immediately after the education session, providers will fill out a post-education session questionnaire about the effectiveness of the education session.

The second project goal is to implement the Three-Item Loneliness Scale in the population the metropolitan community senior care provider team serves to identify patients experiencing loneliness. Determining rates of loneliness in this AL population, treatment of

loneliness, and patient outcomes related to loneliness will be outside this project's scope, due to time constraints of providers. Key stakeholders are patients, families, providers, leadership, healthcare staff within the facilities, payers, and possibly individuals in the community. To ensure the sustainability of this project, the Three-Item Loneliness Scale will be presented at a provider meeting. The education session PowerPoint and recording will be saved on the company website for future access by providers. The author will continue to work at the company and will annually present loneliness materials at a provider meeting which will ensure sustainability.

The third project goal is to evaluate if providers feel that the Three-Item Loneliness Scale is effective and appropriate for the AL setting. This goal will be measured by a three-question survey sent out via email after providers have implemented the Three-Item Loneliness Scale.

Theoretical Frameworks

CIVIC Framework

The CIVIC (closeness, identity, valued relationships, involvement and cared for) framework is a five-dimension conceptual framework of social connectedness that can help explore the concept of loneliness, its consequences, and interventions to decrease loneliness. This framework specifies that social connectedness consists of overlapping dimensions (Hare-Duke et al., 2019). The CIVIC framework indicates successful interventions needed to address these different dimensions (Hare-Duke et al., 2019). Five dimensions are included in the CIVIC framework: (a) closeness: the degree of mutual dependence between two people, (b) identity and common bond: believing that one shares essential characteristics with other people or members of a group, (c) valued relationships: valuing and positively appraising an existing dyadic or group relationship, (d) involvement: one's perceived level of involvement, and social

engagement with others, and (e) cared for and accepted: feeling that one is cared for (Hare-Duke et al., 2019).

The CIVIC framework was used when planning provider education regarding loneliness's definition, its consequences and appropriate interventions. When defining loneliness during provider education, the definition needs to be multi-dimensional. Providers need to be aware that social isolation is more than physical isolation, it encompasses commonality between self and others, feeling valued and feeling involved.

Applying interventions focused on multiple dimensions of social connectedness may be most effective (Hare-Duke et al., 2019). The CIVIC framework can identify possible components in such an intervention and social connectedness may be an appropriate target for interventions to reduce loneliness (Hare-Duke et al., 2019). When providers identify someone experiencing loneliness, the CIVIC framework can be used to help identify social dimensions in which the patient is interested in expanding.

Cognitive Learning Theory

Cognition is knowing, perceiving, and processing information, specifically concerning brain functioning and mental processes (McSparron et al., 2019). Cognitive learning is about using thinking to learn, where such thinking may be affected by internal and external factors (McSparron et al., 2019). Cognitive learning theory may be applied to facilitate retention and translation of clinical knowledge (McSparron et al., 2019).

Working memory capacity is limited to holding approximately seven elements or chunks when processing information (Qiao et al., 2014). Cognitive learning theory supports the idea that working memory limits the amount of information an individual can process (Qiao et al., 2014). The high intrinsic cognitive load and large quantity of medical material can explain why medical

learning is challenging (Qiao et al., 2014). For providers to retain and apply knowledge about loneliness, information was presented using cognitive learning theory principles.

Search Strategy and Evidence Appraisal

The author searched Cinahl, Pubmed, and Medline for articles published from 2015-present. One report (Drageset et al., 2011) was included from 2011 as it had relevant research relating to loneliness and social support. Each abstract and title were screened for relevance, and papers not in English, without full text, and not relating to loneliness were excluded. Only relevant articles were included.

Two main evidence topics were searched *loneliness* and *tools or (scales) to assess loneliness*. Searching for *loneliness* or *isolation* or *social isolation* and *long-term care* or *geriatrics* yielded twenty-eight results. Six of these articles relating to the definition of loneliness, the impact of loneliness, and interventions for loneliness were included. Other papers were excluded due to minimal relevance to the practice problem. Searching for *loneliness* or *social isolation* and *COVID* yielded two relevant results. Searching for *loneliness scale* or *loneliness tool* yielded two relevant results. One limitation was the lack of loneliness evidence regarding the COVID-19 pandemic specifically; given that the pandemic was recent, little high-quality evidence specific to loneliness in AL during the pandemic was found. The evidence that was found related to loneliness and COVID-19 was relevant and included.

Evidence was appraised using the Melnyk & Finehout-Overholt method (2019). Evidence was first searched, then appraised by asking if the results were valid, reliable, and applicable (Melnyk & Finehout-Overholt, 2019). Appendix A contains the full appraisal of the evidence. The included evidence was Level I, IV, V, or VI. Nine articles regarding loneliness, the impact of loneliness, and interventions for loneliness were included. One meta-analysis was Level I

(Holt-Lunstad et al., 2015). Important takeaways from the evidence regarding loneliness include the positive association between social relationships and cognition (Kelly et al., 2017) and an inverse relationship between actively engaging in activities and frailty (Zhao et al., 2019). Findings reinforced that social relationship deficiencies are associated with an increased risk of coronary heart disease and stroke (Valtorta et al., 2016), and lonely people may be burdened with more symptoms and more extreme end-of-life care (Abedini et al., 2020). Social isolation results in a higher likelihood of mortality (Holt-Lunstad et al., 2015). Wong and colleagues (2020) found significant increases in loneliness, anxiety, and insomnia since the COVID-19 outbreak. Drageset et al. (2011) reported that loneliness interventions need to be patient-centered, and interventions should increase residents' responsibility and choice. Twelve strategies are identified to build and maintain connections in care settings (Bethell et al., 2020). Evidence shows the importance of this practice project, information that needs to be included in the education session, and the effect loneliness has on patients' lives.

One article was included that focused on assessing the validity of the UCLA-LS R tool, a revised version of the original 20 question UCLA scale. Ausín et al. (2019) found that loneliness has emotional and social dimensions. These researchers also found that using short measures that are easy to apply and interpret should help primary care professionals identify loneliness problems in older individuals sooner and more accurately (UCLA Loneliness Scale; Ausín et al., 2019). Yu and colleagues (2021) used the Three-Item Loneliness tool to assess the relationship between falls and loneliness. It was identified that alleviating loneliness might prevent falls and these authors highlighted the importance of integrating fall management strategies with social services to address loneliness in care settings (Yu et al., 2021). Zhao and colleagues (2019) used

the single question, do you feel lonely? to conduct their research taken from the UCLA Loneliness Scale which showed a high correlation with the scale.

All included articles on loneliness were good- or high-quality evidence. Nine articles were Level IV, V, or VI evidence, either systematic reviews, cohort studies, longitudinal studies, or cross-sectional analysis. One article was Level I evidence, a systematic review. The quality of loneliness evidence is of good quality. Each article supports increased provider knowledge of loneliness and highlights reasons why it is essential, either by highlighting the negative consequences of loneliness or the positive outcomes seen with appropriate interventions. The evidence is promising, strong, and consistent and can be used to support loneliness education for providers.

Literature Review and Evidence Synthesis

The evidence can be divided into two main research areas, the definition, impact, and interventions for loneliness, and the second area targeting the loneliness scale. All ten articles in the literature review addressed loneliness, with two articles specific to the COVID-19 pandemic and one article assessing the UCLA-LS R Scale.

Overall, the articles on loneliness reiterated the need for increased provider knowledge of loneliness's definition and consequences. All ten articles reported that there is a need for further research on loneliness, that loneliness has a significant impact on quality of life, and that health professionals are optimally placed to implement interventions to assist in residents' isolation and loneliness (Abedini et al., 2020; Ausín et al., 2019; Bethell et al., 2020; Drageset et al., 2011; Holt-Lunstad et al., 2015; Kelly et al., 2017; Valtorta et al., 2016; Wong et al., 2020; Yu et al., 2021; Zhao et al., 2019).

Findings from the evidence can be divided into three main themes. The first theme is that loneliness has negative consequences (Abedini et al., 2020, Bethell et al., 2020; Drageset et al., 2011; Holt-Lunstad et al., 2015; Kelly et al., 2017; Valtorta et al., 2016). Loneliness negatively affects cognition and accelerates disease progression (Kelly et al., 2017; Valtorta et al., 2016; Wong et al., 2020). Multiple studies reported that increased loneliness is associated with negative end-of-life consequences and higher mortality (Abedini et al., 2020; Holt-Lunstad et al., 2015).

The second theme found in the research is the identification and importance of interventions to decrease loneliness (Bethell et al., 2020; Drageset et al., 2011; Kelly et al., 2017; Zhao et al., 2019; Wong et al., 2020). Multiple appropriate interventions can be used to decrease loneliness once it is identified. Multiple studies reported that technology can be used to facilitate connection with others (Gorenko et al., 2020; Wu, 2020). Interventions to combat loneliness need to be patient-centered (Drageset et al., 2011; Smith & Lim, 2020)

The third theme focuses on assessing the UCLA Loneliness Scale. Ausín et al. (2019) found that the UCLA-LS R scale is valid and reliable to measure and assess loneliness. Yu et al. (2021) effectively used the Three-Item Loneliness Scale in their research to evaluate the relationship between loneliness and geriatric syndromes.

Project Implementation

Project Design

Since this DNP project aimed to implement a change with a practice improvement of applying the Three-Item Loneliness Scale to assess loneliness, the design choice was a quality improvement approach. This project was a systematic data-guided activity that monitored, evaluated, and improved the quality of health services and health outcomes. This project design aimed to improve healthcare outcomes for patients experiencing loneliness in AL facilities.

To collect data on the effectiveness of the education session, five providers filled out a post-education session questionnaire that included three questions about loneliness: (a) how likely are you to use the Three-Item Loneliness Scale with your patients? (b) do you think your patients will benefit from using the Three-Item Loneliness Scale? and (c) do you have a better understanding of the consequences and appropriate interventions to address loneliness? The method used for this project was the Plan-Do-Study-Act (PDSA) cycle. Colleagues of the author who worked solely with patients in AL settings were included in the project. Data collection was done by clinical record reviews of the Three-Item Loneliness Scale completed by patients, interviews, and observations with providers, key informants, and stakeholders. Providers were asked if they believed the tool helped identify patients experiencing loneliness, if the tool aided in applying interventions to address loneliness, and if they had any other thoughts about using the Three-Item Loneliness Scale. Data was compiled indicating how many providers felt that the tool was useful in identifying loneliness and if they thought using the tool assisted them in choosing appropriate interventions.

Methods of Evaluation

This project used the PDSA cycle as a model for improvement. This model includes asking the following questions identified by the Institute for Healthcare Improvement [IHI] (2021):

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What change can we make that will result in improvement?

The PDSA cycle tests a change by planning it, trying it, observing the results, and acting on what is learned (IHI, 2021). First, this author prepared the test and collected data by having providers administer the Three-Item Loneliness Scale to patients, made predictions about what would

happen and why. The plan to test the scale was to educate providers, administer the scale to residents at risk for loneliness and then assess with providers if the tool was effective and valuable in identifying lonely patients who could benefit from effective treatment interventions. The tool used to collect data was the Three-Item Loneliness Scale and questionnaires. Step two was to try out the test on a small scale, the test was carried out, and problems or unexpected observations were documented. The data was analyzed in step three, and results were studied. The data was then compared to the author's predictions, summarized, and reflected on. The Three-Item Loneliness Scale will be a valuable tool for primary care providers seeing patients in the AL setting to identify loneliness, enabling providers to incorporate appropriate interventions into the care plan and increase awareness of loneliness' consequences.

Education Format

To increase provider knowledge of loneliness and its consequences, cognitive learning theory was used to format education via PowerPoint presentation. Cognitive learning theory implies that learning primarily takes place in formal education settings with verbal or written instructions or demonstrations, including the accumulation of explicit and identifiable knowledge (Mukhalalati & Taylor, 2019).

Theory Guided Interventions

Cognitive learning theory guided curriculum formulation to facilitate retention and translation of knowledge. Education presented on each PowerPoint slide was not greater than seven elements or chunks. The curriculum was designed with an awareness that there is a limited amount of information someone can process with their working memory (Qiao et al., 2014). The PowerPoint was less than ten slides of informational content and concepts were organized with bullet points on each slide. Throughout the presentation, providers were encouraged to link new

concepts with old concepts (McSparron et al., 2019). The principles of cognitive learning theory were applied to enhance knowledge retention of loneliness and its consequences (McSparron et al., 2019).

Outcome Measures

Two outcome measures evaluated provider satisfaction of the loneliness education session and the Three-Item Loneliness Scale implementation. First, provider satisfaction regarding education on the definition of loneliness, the impact, and interventions for loneliness were measured after an education session. The second measure was to evaluate provider satisfaction of the Three-Item Loneliness Scale after implementation.

Data Collection

An education session on the definition of loneliness, its impact, and interventions for loneliness was presented virtually on February 16, 2022, via PowerPoint. The educational information is described in Appendix B. Immediately after the education session, providers were sent via email a post-education session questionnaire about the effectiveness of the education session. This questionnaire is listed in Appendix C. Each provider then identified three patients each to administer the Three-Item Loneliness Scale to. Five nurse practitioners implemented the Three-Item Loneliness Scale with three cognitively intact patients each between February 16, 2022, and March 11, 2022. A total of fifteen patients piloted the Three-Item Loneliness Scale. Following implementation, four providers completed the post-implementation questionnaire described in Appendix D.

Social Justice Considerations

Social isolation is associated with an approximately 50% increased risk of developing dementia, a 29% increased risk of coronary heart disease, and a 32% increased risk of stroke

(Wu, 2020; Valtorta et al., 2016). Decreased meaningful relationships are leading to increasing feelings of loneliness (Simard & Volicer, 2020). Severe loneliness is twice as high among older people in care institutions than community-dwelling older people (Simard & Volicer, 2020). Additionally, the risk of COVID-19 infection is greater for adults over the age of 60, making social distancing and limiting the spread of the virus in care settings a high priority (Hwang et al., 2020). However, there is a high cost associated with quarantine and social isolation in these populations (Hwang et al., 2020). While social restrictions are necessary, understanding that social distancing should not equate to social disconnection is critical (Hwang et al., 2020).

People are generally social by nature, and high-quality social relationships can help them live longer and healthier lives (CDC, 2021). Loneliness and social isolation in older adults are serious public health risks affecting many people in the United States (Centers for Disease Control and Prevention [CDC], 2021). Loneliness is higher among vulnerable older adults, including immigrants, LGBT populations, minorities, and victims of elder abuse (CDC, 2021). Healthcare systems are an important yet underused partner in identifying loneliness and preventing medical conditions associated with loneliness (CDC, 2021). Providers in the AL setting are uniquely positioned to assist elderly patients experiencing loneliness. Loneliness is more prevalent than ever in care settings, and providers can optimize patients' health by identifying loneliness and intervening appropriately.

Evaluation

Education Session

Data was collected from the five providers after the education session regarding the effectiveness and impact of the education session. When asked how likely providers were to use the Three-Item Loneliness Scale with their patients, three providers responded that they were

very likely. One provider responded somewhat likely, explaining that although the simplicity of the test is a positive attribute, making it a requirement may increase regular use. One provider responded that although this was a valuable tool, they were not likely to use it regularly. This provider explained that they already have multiple assessments to complete each visit, including fall risk and a mental health assessment. Using the tool would be an added effort on the provider's part. The provider already looks to find other avenues to assist their patients experiencing social isolation (chaplain, therapy dog). This provider felt that they already incorporate interventions to combat loneliness with their patients.

When asked if they thought their patients would benefit from using the Three-Item Loneliness Scale, three providers responded in the affirmative. One of these providers elaborated it could help to identify individuals that don't appear lonely at first glance. Another provider who answered yes further answered that they felt patients would significantly benefit from this tool, and it could also positively impact families and caregivers. The fourth provider replied that the tool could benefit some patients. Their patient population includes some patients who are not cognitively intact and would not likely benefit from this tool. This provider also responded that there would need to be follow-up and teaching about resources. The fifth provider replied that they believed the Three-Item Loneliness Scale would benefit their patients if interventions were applied.

Lastly, when providers were asked if they better understand loneliness's consequences and appropriate interventions to address loneliness, four replied yes. The fifth provider responded that they believe many providers have become more aware of social isolation and loneliness during the COVID-19 pandemic.

Three-Item Loneliness Scale

Of the fifteen patients surveyed, five responded with a score of three, indicating that they hardly ever experience loneliness. Six patients responded with a score of four, indicating that they hardly ever feel two of the loneliness items and some of the time feel one of the items. Three patients scored a five meaning that at least some of the time they experience two out of the three loneliness items. One patient responded with a score of six, which showed they experienced all three loneliness items.

Post-Implementation

Following implementation of the Three-Item Loneliness Scale, four providers completed the post-implementation questionnaire. The survey was composed of three open-ended questions: (a) do you believe the Three-Item Loneliness Scale was helpful in identifying patients experiencing loneliness? (b) did the Three-Item Loneliness Scale aid you in applying interventions to address loneliness? And (c) do you have any other thoughts about using the Three-Item Loneliness Scale? One provider responded that they did think the scale was helpful to identify patients experiencing loneliness, and felt the scale helped them apply interventions to address loneliness. This provider thought it would be beneficial for AL facilities to incorporate interventions as part of their activity or exercise curriculum. A second provider reported that reviewing the scale with patients allowed them to discuss the impact COVID-19 has had on their connection with others. It also allowed patients to verbalize how important their families and people in the facility were during the pandemic. This provider felt that identifying appropriate interventions would be very important when identifying lonely patients in their patient population. They felt that patients were pleased to discuss interventions to address loneliness. This provider also reported that patients were empowered to find creative strategies to address loneliness when discussing interventions with the provider. They also reported that the tool was a

powerful way to recognize loneliness with patients and begin a discussion about mental and emotional health. They felt the Three-Item Loneliness Scale was a great way to start the conversation about the impact COVID-19 has had on their patients.

A third provider reported that yes, they believed the Three-Item Loneliness Scale helped identify lonely patients. This provider also reported that they felt the Three-Item Loneliness Scale, in some cases, helped to apply interventions to address loneliness. They highlighted many barriers to social interaction in their AL settings as precautions for COVID-19 still exist. Implementing the Three-Item Loneliness scale helped to begin insightful conversations with patients about loneliness. The fourth provider reported that the Three-Item Loneliness Scale was a quick questionnaire that described how loneliness can feel. They noted that the Three-Item Loneliness Scale did not necessarily help to apply interventions for their patients due to limited resources. This provider responded that they were surprised that patients did not score higher on the Three-Item Loneliness Scale.

Results Interpretation

Project Goal

After a provider education session, the Three-Item Loneliness Scale has been found effective in identifying patients experiencing loneliness in assisted living settings and assists providers in applying appropriate interventions to decrease the negative consequences of loneliness.

Education Session Satisfaction

After the loneliness education session, provider satisfaction was measured by survey regarding education on the definition of loneliness, its impact, and interventions for loneliness. Three of the five providers responded they were very likely to use the Three-Item Loneliness

Scale with their patients, one responded somewhat likely, and one responded due to her current workload unlikely. Overall, this indicates that the scale would be used by over half of the providers if available for broader use. Four providers responded that they believed their patients would benefit from using the Three-Item Loneliness Scale. The fifth provider answered that they thought it would be helpful if interventions were then applied. These responses indicate that providers believe the Three-Item scale is valuable for patients in the surveyed population. Four of the five providers surveyed responded that they have a better understanding of the consequences of loneliness and appropriate interventions to address it. The fifth provider responded they believe many providers are more aware of loneliness due to the COVID-19 pandemic. These results suggest that the education session would be helpful for providers who care for patients in AL settings.

Based on the post-education survey results, the Three-Item Loneliness Scale education session is useful and increases knowledge of loneliness for providers caring for patients in AL settings. Providers elaborated appropriate interventions would need to be applied for their patients to benefit from the provider education session.

Post-Implementation Satisfaction

After the Three-Item Loneliness Scale was administered to patients, provider satisfaction with the scale was measured via a questionnaire. All four of the providers surveyed felt that the Three-Item Loneliness Scale was helpful in identifying patients experiencing loneliness. It was highlighted that providers thought that loneliness is more prevalent due to the COVID-19 pandemic. The results suggest that the Three-Item Loneliness Scale is a valuable tool for providers to identify loneliness in AL populations.

Half of the providers felt that the Three-Item Loneliness Scale assisted them in applying interventions to address loneliness in AL patients. These two same providers also responded that additional resources for themselves or patients with interventions would be helpful. The other two providers felt that the Three-Item Loneliness Scale was only somewhat helpful in applying interventions for loneliness in their population. They elaborated it was only slightly beneficial due to limited resources and limited social interaction due to continued precautions. These findings suggest that although the tool is reportedly valuable in identifying lonely patients, there are barriers to applying interventions in AL settings.

In response to the third survey question: *Do you have any other thoughts about using the Three-Item Loneliness Scale*, two providers responded that it was an effective way to begin the conversation with their patients regarding their experience with loneliness during the pandemic, in addition to their mental health, and their emotional health. These responses suggest that the tool could be helpful to begin the conversation with patients about their mental health and connections with others. One provider thought it helpful if AL facilities could incorporate loneliness interventions into their activity curriculum. Effectively decreasing loneliness in the AL population would likely be most effective if the facility staff and families were also involved.

Based on provider responses, the Three-Item Loneliness Scale is helpful for providers to identify patients experiencing loneliness in AL settings. The Three-Item Loneliness Scale is a tool to begin conversations with patients about their mental and emotional health. The tool is limited, as circumstances such as social distancing practices and limited facility resources may limit the application of appropriate loneliness interventions. For the Three-Item Loneliness Scale to assist providers in applying appropriate interventions, families and facility staff should also be involved in implementing interventions.

Scale Comments

Studies show that at least 40% of older adults report feeling lonely (Simard & Volicer, 2020). The average Three-Item Loneliness Scale score was four during this project, with a sample size of fifteen patients. These responses indicate a low level of loneliness in this population as the lowest possible score is three. A score of seven means the patient is experiencing the three loneliness items at least some of the time. The three loneliness items are lacking companionship, feeling left out, and feeling isolated. The scale is reliable and valid in this population (Hughes et al., 2008). This small sample size may not represent accurate levels of loneliness for the larger AL population served by this community care team. It is also possible that the amount of loneliness patients recently experience has decreased with increased activities in the AL setting and decreased social distancing recommendations. One provider responded that they were surprised their patients scored low on the Three-Item Loneliness Scale. It may be more effective if the Three-Item Loneliness Scale were more routinely used with patients. As patients become more familiar with their provider and the Three-Item Loneliness Scale, patients may be more open to conversations about their mental health.

Project Limitations

Small Sample Size

Four providers were included in the implementation evaluation of this project. The Three-Item Loneliness Scale was administered by the project participants to fifteen patients. Small scale application is the first step in the implementing the Three-Item Loneliness Scale, starting with a small pilot group. Although these providers' insights were valuable, the Three-Item Loneliness Scale will need to be distributed to a larger patient population to verify the tool's

effectiveness. More providers will need to evaluate the Three-Item Loneliness Scale's effectiveness related to loneliness identification and intervention application.

Limited Sample Demographics

Another project limitation was the limited sample demographics. Providers included in the project were from one community care company. They practiced at a small number of AL facilities in the metropolitan area. Provider demographics were not collected, therefore may have not been diverse which may impact results. If these providers already holistically cared for their patients, they may have already been effectively treating loneliness. More providers across different care areas and facilities will need to evaluate and assess the Three-Item Loneliness Scale.

Cognition

The Three-Item Loneliness Scale was administered to cognitively intact patients. To effectively complete the scale, patients needed to have the cognitive awareness to recall their recent feelings, process the questions, and respond appropriately. This tool would not be as effective with elderly patients experiencing dementia. As many geriatric patients experience dementia, a modified tool would need to be administered to identify patients experiencing loneliness with cognitive impairments correctly. The author was unable to find an adjusted or appropriate tool to identify loneliness in patients that are not cognitively intact.

Themes

Although this quality improvement project had a small sample size of providers, common themes emerged. This project aims to test a change. For this project, the Three-Item Loneliness Scale was planned, tested, and the following themes were observed.

Need for Loneliness Identification

After the education session on loneliness, every provider replied that the Three-Item Loneliness Scale would benefit at least some of their patients. One provider responded it might help to identify patients who don't appear lonely at first glance. These results further support literature findings that loneliness is prevalent in older adult populations in AL settings (Simard & Volicer, 2020). These results also support a need for increased awareness of loneliness and its consequences among healthcare providers (Cacioppo et al., 2015).

Need to Apply Appropriate Interventions

After the loneliness education session, one provider responded that their patients would benefit from the Three-Item Loneliness Scale, but only if appropriate resources and interventions were applied. After implementing the Three-item Loneliness Scale with patients, all the providers surveyed reported that the scale was helpful, but further assistance would be needed to apply interventions appropriately. Two providers responded that since the scale did not have interventions, there would be a need for patient education regarding appropriate interventions. These results remain consistent with literature findings that to treat loneliness effectively, appropriate interventions need to be applied (Smith & Lim, 2020). There are significant knowledge gaps regarding effective loneliness interventions (Smith & Lim, 2020). Appropriate interventions need to be applied to combat loneliness effectively.

Loneliness Education

All providers surveyed after the education session reported that they have a better understanding of consequences and appropriate interventions to address loneliness. One of them reported they believe many providers have become more aware of the impact of social isolation during the pandemic. These results are consistent with literature findings that education

formatted with applied principles of cognitive learning theory enhances knowledge retention of material (McSparron et al., 2019). These results also support the evidence that provider education regarding loneliness and its consequences increases awareness among healthcare providers (Cacioppo et al., 2015).

Three-Item Loneliness Scale Evaluation

All four of the providers surveyed reported that they believed the Three-item Loneliness Scale helped identify patients experiencing loneliness. These responses support literature findings that the Three-item Loneliness Scale appropriately measures loneliness (Hughes et al., 2008). After implementation, two providers reported that the Three-item Loneliness Scale helped begin conversations with patients regarding social isolation and mental health.

Ease of Three-Item Loneliness Scale Use

There were mixed responses when providers were asked how likely they were to use the Three-item Loneliness Scale with their patients. Three providers responded very likely, one responded somewhat likely, and another reported not likely. The provider that reported somewhat likely reported that regular use may increase if it was a requirement. The provider that responded not likely reported she has multiple other required assessments she needs to complete during visits. It would be an added effort to use the Three-item Loneliness Scale. The literature demonstrates that the Three-Item Loneliness Scale is a quick and effective tool that reasonably identifies older adults experiencing loneliness (Hughes et al., 2020; Liu et al., 2020).

Discussion

This quality improvement project aims to test a change by planning it, trying it, observing the results, and acting on what is learned. The Three-Item Loneliness Scale was implemented on a small scale, and provider response to loneliness education and implementation of the Three-

Item Loneliness Scale was observed. Application on a small scale is the first step in effectively integrating the Three-Item Loneliness Scale into practice with this metropolitan community senior care team. Provider responses indicated that the education session is helpful regarding improving knowledge of loneliness. Responses also highlighted the need for further resources and patient education regarding appropriate interventions to combat loneliness.

Theoretical Framework

Throughout this project, the CIVIC framework was used to explore the concept of loneliness, its consequences, and interventions that can be applied to combat loneliness. It can be used to further develop and apply appropriate interventions to patients experiencing loneliness in AL settings. In this project, the principles of the CIVIC framework were applied, and the five dimensions of social connectedness were included in the educational material (Hare-Duke et al., 2019).

When applying interventions for patients identified as experiencing loneliness, the CIVIC framework can be used to increase feelings of social connectedness. The CIVIC framework identifies increasing feelings of social connectedness as the best intervention to combat loneliness (Hare-Duke et al., 2019). The CIVIC framework can help guide intervention application for lonely patients and help identify precise mechanisms to be incorporated into an effective intervention. Interventions to combat loneliness are most successful if they target multiple dimensions in the CIVIC framework (Hare-Duke et al., 2019).

Recommendations

To combat loneliness in AL settings, particularly since the start of the COVID-19 pandemic, providers need to be aware of loneliness, its consequences, and appropriate interventions to apply (Cacioppo et al., 2015). The well-being of older adults has been negatively

impacted since the COVID-19 pandemic (Gorenko et al., 2020). The Three-Item Loneliness Scale is an adequate tool that can be used to identify patients experiencing loneliness (Liu et al., 2020). Loneliness can lead to multiple physical and psychosocial dysfunctions (Cacioppo et al., 2015). Loneliness is a risk factor for many diseases, including depression, anxiety, hypertension, dementia, stroke, and earlier mortality (Simard and Volicer, 2020). Early recognition and treatment of loneliness will benefit patients.

The Three-Item Loneliness Scale has been implemented on a small scale with a positive response by providers on its appropriateness for the current environment, ease of use, and effectiveness in identifying loneliness. The PDSA cycle was used as a model for improvement for this project. In the final step of the PDSA cycle, the intervention is to be refined, modified, and a plan is made for the next test (IHI, 2021). The Three-Item Loneliness Scale was implemented in this project, and findings were summarized. The Three-Item Loneliness Scale was an effective and valuable tool for this small sample of primary care providers seeing patients in the AL setting.

To ensure that the Three-Item Loneliness Scale is an effective and appropriate tool for the more significant AL population served, it needs to be implemented on a larger scale. The educational PowerPoint will need to be administered to more providers, and their evaluation of the educational effectiveness will need to be collected and analyzed. More providers will need to implement the Three-Item Loneliness Scale, and their assessment of the tool will need to be collected and analyzed. If providers find the Three-Item Loneliness Scale to be a valuable and effective tool, then the Three-Item Loneliness Scale can be incorporated into regular practice by providers.

If the Three-Item Loneliness Scale is implemented into consistent practice, the tool will need to be continually evaluated. An annual review is recommended to assess if the tool continues to evaluate loneliness effectively.

Appropriate interventions need to be applied to effectively combat loneliness (Smith & Lim, 2020). Provider response during this project highlights the need for effective and accessible interventions in the AL community. A handout for patients experiencing loneliness listing effective interventions could be dispensed after administering the Three-Item Loneliness Scale. Interventions listed would target multiple dimensions of social connectedness. The patient handout would then be reviewed annually and updated as more evidence accrues in the literature regarding effective interventions to combat loneliness.

Implications for Nurse Practitioner Practice

Loneliness is prevalent in AL settings (Simard & Volicer). With social distancing practices instituted during the COVID-19 pandemic, the psychosocial health of older patients with multi-morbidities has further declined (Wong et al., 2020). In caring for the health of elderly patients, providers need to care for the patient holistically by applying treatments and interventions for improved physical and mental health outcomes (Cacioppo et al., 2015). The Three-Item Loneliness Scale is a valuable tool to aid providers in identifying patients experiencing loneliness and treating them appropriately.

Conclusion

The prevalence of loneliness is rising, and it harms physical and psychosocial health (Cacioppo et al., 2015). Physical distancing during the COVID-19 pandemic has had significant adverse health effects on older adults (Smith & Lim, 2020). To effectively recognize and treat

loneliness, providers need to be aware of the definition of loneliness, its consequences, and appropriate interventions to apply to lonely patients residing in AL settings.

A provider education session on loneliness, its impact, and appropriate interventions has been found helpful for providers. The Three-Item Loneliness Scale is an effective tool in identifying patients experiencing loneliness in AL settings. The Three-Item Loneliness Scale is a quick and easy-to-use tool. It was reported to be an appropriate tool for the AL patient population. Trialing this on a larger scale will help more providers identify lonely patients and effectively provide proper interventions. Further implementation of the Three-Item Loneliness Scale and applying appropriate interventions will meet the needs of the patient population served and decrease the negative consequences of social isolation and loneliness.

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Appendix A

Evidence Table

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
(Ausín et al., 2019) Confirmatory factor analysis of the Revised UCLA Loneliness Scale (UCLA LS-R) in individuals over 65	To analyze the suitability of the scale's structure for assessing older individuals	N/A	Cohort, longitudinal study	Random sample of 409 community-dwelling residents of Madrid aged 65–84 years	20 items included in the UCLA LS-R scale	Each item is scored on a scale of 1-4	Results: -The internal consistency of the scale obtained a Cronbach's alpha of .85. -All the analyzed models of factor structure of the UCLA LS-R achieved a fairly good fit and RMSEA values over .80	-Primary care professionals use of short measures that are easy to apply and interpret to identify loneliness problems in older individuals sooner and more accurately	-Evidence level IV, high quality. - UCLA LS-R is effective in adults under 65 and over 65 - Consistent with past results that loneliness has two dimensions: emotional loneliness and social loneliness.

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
(Abedini et al., 2020) The relationship of loneliness to end-of-life experience in older Americans: A cohort study.	To examine the impact of subjective loneliness on end of life (EOL) experience	N/A	Cohort study Secondary analysis of the HRS: a nationally representative, longitudinal survey of adults 51 years of age and older that is conducted every 2 years and has a similar sample mortality rate as the age-	Decedents over age 50 who died between 2004 and 2014 (n=8700)	Predictor variable was loneliness. Outcomes included proxy-reports of total EOL symptom burden, intensity of EOL care and advance care planning	Individuals were characterized as lonely based on responses to the 3-item Revised University of California Los Angeles Loneliness Scale in the most recent HRS survey prior to death	-First summarized characteristics for participants who were “lonely” and “non-lonely,” estimating difference using chi-square tests for categorical variables and t-tests for continuous variables	-One-third of 2896 decedents (n=942) were lonely. - After adjusting for demographics, socioeconomic status, multimorbidity, depressive symptoms, family and friends, and social support, loneliness was independently associated with	-Evidence level IV, high quality. -Lonely older people may be burdened by more symptoms and be exposed to more intense end of life care compared to non-lonely people. -Interventions aiming to screen for, prevent, and mitigate loneliness during the vulnerable end of life period are necessary.

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
			matched US population					increased total symptom burden at end of life	
(Bethell et al. 2020) Social connection in long-term care homes: A scoping review of published research on the mental health impacts and potential strategies during	The objective of this scoping review was to summarize research linking social connection to mental health outcomes, specifically among LTC residents	N/A	Scoping review. Research was included that quantified an aspect of social connection among LTC residents	Residents of LTC homes, care homes, and nursing homes	Studies were included that reported (1) the association between social connection and a mental health outcome, (2) the association between a modifiable risk factor and social connectio	The 6-stage approach was followed, and results were reported in accordance with the PRISMA Extension for Scoping Reviews	A comprehensive search strategy was used to identify published literature that quantified aspects of social connection in LTC residents	-133 studies were included in the review -61 studies were found that tested the association between social connection and a mental health outcome	-Evidence Level V, high quality. -Published research conducted among LTC residents has linked good social connection to better mental health outcomes. -Observational and intervention studies provide some evidence on approaches to address social connection in this population.

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
COVID-19					n, or (3) intervention studies with social connection as an outcome				
(Drageset et al., 2011) Loneliness and social support among nursing home residents without cognitive impairment: A questionnaire survey	To examine the frequency of contact and loneliness and the association between loneliness and the social support dimensions: attachment, social integration,	N/A	A cross-sectional, descriptive, correlational design	30 nursing homes in the city of Bergen in western Norway. 227 long-term nursing home residents 65 years and older without cognitiv	Data was obtained through face-to-face interviews using the global question "Do you sometimes feel lonely?"	The Social Provisions Scale and one multiple-item question of the Family and Friendship Contacts Scale	Possible relationships between the Family and Friendship Contacts Scale, Social Provisions Scale and loneliness were analyzed using logistic regression	In total, 56% experienced loneliness. No social support variable was significantly correlated with loneliness before adjusting for sociodemographic variables.	-Evidence level VI, good quality. -Emotional closeness to significant others from which one derives a sense of security appears to be important for loneliness, and the frequency of contact with family and friends did not explain the experience of loneliness. -Clinical nurses should recognize that social support is associated with

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
	reassurance of worth and opportunities for nurturance			impairment					loneliness and pay attention to the importance of social support for the residents in daily practice
(Holt-Lunstad et al., 2015) Loneliness and social isolation as risk factors for mortality: A meta-analytic review.	To establish the overall and relative magnitude of social isolation and loneliness and to examine possible moderators	N/A	Meta-analysis	70 reports were included in the meta-analysis	The meta-analysis included studies written in English that provided quantitative data regarding individuals' mortality as a function of objective and subjective social isolation	To determine the effect of social isolation and loneliness independent of correlated lifestyle (e.g., smoking, physical activity) and psychological factors (e.g.,	For each study, the reported effect size was extracted, making sure that odds ratio (OR) values greater than one represented an increase in mortality as a function of social isolation, loneliness,	-Social isolation results in higher likelihood of mortality, whether measured objectively or subjectively. Cumulative data from 70 independent prospective studies, with 3,407,134 participant	-Evidence level I, high quality. -Overall, the influence of both objective and subjective social isolation on risk for mortality is comparable with well-established risk factors for mortality

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
						depression, anxiety), the inclusion of covariates was also examined	or living alone—and a decrease in mortality when individuals were not isolated, lonely, or living alone. Effect sizes less than one indicated the opposite	s followed for an average of 7 years, revealed a significant effect of social isolation	
(Kelly et al., 2017) The impact of social activities, social networks,	A comprehensive overview of the impact of social activities, social	N/A	Systematic Review	Thirty-nine studies were included in the review; three RCTs,	Independent variables of interest included subjective measures of social activities,	The primary outcome of interest was cognitive function divided	PRISMA guidelines were followed, and collated data from randomized	Evidence suggests a relationship between 1) social activity, global cognition, overall	-Evidence Level V, good quality. -The results support prior conclusions that there is an association between social relationships and

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
social support, and social relationships on the cognitive functioning of healthy older adults: A systematic review	networks, and social support on the cognitive functioning of healthy older adults (50+)			34 observational studies, and two genetic studies	social networks, and social support, and composite measures of social relationships	into domains of episodic memory, semantic memory, overall memory ability, working memory, verbal fluency, reasoning, attention, processing speed, visuospatial abilities, overall executive functioning and global cognition	controlled trials (RCTs), genetic and observational studies	executive functioning, working memory, visuospatial abilities and processing speed 2) social networks and global cognition 3) social support and global cognition and episodic memory 4) episodic memory and verbal fluency	cognitive function, but the exact nature of this association remains unclear. -Social activity improved global cognition and increased brain volume

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
(Valtorta et al., 2016) Loneliness and social isolation as risk factors for coronary heart disease and stroke: Systematic review and meta-analysis of longitudinal observational studies	To investigate the association between loneliness or social isolation and incident coronary heart disease (CHD) and stroke	This study followed the Centre for Reviews and Dissemination's Guidance for undertaking reviews in healthcare	Systematic Review and Meta-Analysis	23 papers met inclusion criteria for the narrative review	To meet inclusion criteria, studies had to investigate new CHD and/or stroke diagnosis at the individual level as a function of loneliness and/or social isolation.	Measures of social relationships met inclusion criteria for loneliness if they were consistent with its definition as a subjective negative feeling associated with someone's perception that their relationships with others are deficient.	A preliminary synthesis was developed by grouping study characteristics and results according to their measure of relationships and sensitivity analyses were performed	Poor social relationships were associated with a 29% increase in risk of incident CHD and a 32% increase in risk of stroke	-Evidence level V, high quality. -Findings suggest that deficiencies in social relationships are associated with an increased risk of developing CHD and stroke. -Future studies are needed to investigate whether interventions targeting loneliness and social isolation can help to prevent two of the leading causes of death and disability in high-income countries.

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
(Wong et al., 2020) Impact of COVID-19 on loneliness, mental health, and health service utilization: A prospective cohort study of older adults with multimorbidity in primary care	To describe changes in loneliness, mental health problems, and attendance to scheduled medical care before and after the onset of the COVID-19 pandemic	N/A	Cohort study: Telephone survey on a pre-existing cohort of older adults with multimorbidity's in primary care	Data were collected from 583 older (≥60 years) adults	Loneliness, anxiety, depression, and insomnia	The secondary outcomes were measured by the 9-item Patient Health Questionnaire, the 7-item Generalized Anxiety Disorder tool, and the Insomnia Severity Index. Loneliness was measured by the De Jong Gierveld	Mental health and health service utilization outcomes were compared with the outcomes before the onset of the COVID-19 outbreak in Hong Kong using paired <i>t</i> -tests, Wilcoxon's signed-rank test, and McNemar's test.	-There were significant increases in loneliness, anxiety, and insomnia, after the onset of the COVID-19 outbreak -Missed medical appointments over a 3-month period increased from 16.5% 1 year ago to 22.0% after the onset of	-Evidence level IV, high quality. -In adjusted analysis, being female, living alone, and having >4 chronic conditions were independently associated with increased loneliness. Females were more likely to have increased anxiety and insomnia. Psychosocial health of older patients with multimorbidity markedly deteriorated and missed medical appointments substantially increased after the COVID-19 outbreak

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
						Loneliness Scale.		the outbreak	
(Yu et al., 2021) Longitudinal Assessment of the relationships between geriatric conditions and loneliness	The study aims to disentangle the time sequence and directionality between the severity of geriatric conditions (GCs) and loneliness	N/A	Longitudinal panel study	The working sample had 4680 participants of 2006, 2010, and 2014 waves of the Health and Retirement Study (HRS). All participants were at least 65 years old at baseline	Loneliness was measured with the 3-item UCLA loneliness scale. Five GCs were included: falls, incontinence, vision impairment, hearing impairment, and pain. Loneliness was measured with the 3-item UCLA loneliness scale.	Severity indicators were the number of times fallen in the past 2 years, number of days experiencing loss of bladder control in the past month, self-rated eyesight, self-rated hearing, and participants' perceived	Random intercept cross-lagged panel models were run to analyze the relationship between the severity of each individual GC and loneliness.	-The longitudinal association between loneliness and fall was bidirectional: a higher loneliness score predicted an increased number of falls and vice versa. - Incontinence, vision impairment, hearing impairment, and pain	-Evidence level IV, high quality. -Findings of the longitudinal analysis suggest a reciprocal relationship between fall and loneliness. -Fall prevention programs could be integrated with social service for addressing loneliness, and alleviating loneliness might be beneficial for preventing falls. - Results of this study highlight the importance of integrating clinical management of falls with social

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
						level of pain		were not significantly associated with loneliness longitudinally.	services addressing loneliness in long term care
(Zhao et al., 2019) Relationship between loneliness and frailty among older adults in nursing homes: The mediating role of activity engagement.	It was evaluated whether activity engagement mediates the relationship between loneliness and frailty among older adults living in nursing homes	N/A	Cross-sectional descriptive survey	370 residents were included from 33 nursing homes in China	Information was collected regarding loneliness, activity engagement, frailty, sociodemographic characteristics, nursing home characteristics, self-rated health, insomnia,	Loneliness was assessed by a commonly used single item: "Do you feel lonely?" Five response options were provided: never, seldom, sometimes, often,	The mediation analyses, comprising regression and bootstrap analyses, were performed to test both direct and indirect effects of loneliness on frailty	-The prevalence of frailty was 29.2% among Chinese older adults living in nursing homes. -Activity engagement mediated the association between loneliness	-Evidence level VI, good quality. -Results suggest that it is not loneliness in general that affects frailty but actively engaging in activities. -Important to prevent frailty by employing interventions that promote older adults' activity engagement may improve nursing home residents' quality of life.

Citation	Purpose of study	Conceptual framework	Design/ Method	Sample/ Setting	Major variables and definition	Variable Measurement	Data Analysis	Study Findings	Worth to Practice
					and depression	and always.		and frailty; however, loneliness was not significantly related to frailty when covarying for activity engagement	

Appendix B

Loneliness Education Content

Slide 1

Physical distancing recommendations to reduce the transmission of Covid-19 increases the risk of social isolation and loneliness, which are associated with adverse outcomes, including anxiety, depression, cognitive decline, and mortality (Gorenko et al., 2020). Before the COVID-19 pandemic, loneliness and social isolation were so prevalent that it was described as a behavioral epidemic, and social isolation has only increased since the pandemic began (Hwang et al., 2020). The psychosocial health of older patients with multi-morbidities has markedly deteriorated. The primary challenge for providers is to become informed about the definition of loneliness so that other mental disorders are not mistakenly diagnosed and treated when loneliness is the root problem (Cacioppo et al., 2015)

Slide 2

Loneliness is defined as a subjective feeling of being isolated (Simard & Volicer, 2020). Loneliness consists of three related dimensions: (a) intimate loneliness, (b) relational loneliness, and (c) collective loneliness (Cacioppo et al., 2015). Approximately one-quarter of Americans in the community aged 65 and older are considered socially isolated; over 40% of adults 60 and older report feeling lonely (Simard & Volicer, 2020). Loneliness is even more common in care institutions (Simard & Volicer, 2020).

Slide 3

Loneliness has serious consequences, including increased risk of depression, alcoholism, suicidal thoughts, aggressive behaviors, anxiety, and impulsivity (Simard & Volicer, 2020). Loneliness has also been found to be a risk factor for cognitive decline and progression of Alzheimer's disease, recurrent stroke, obesity, elevated blood pressure, and mortality (Simard & Volicer, 2020). Loneliness can also decrease sleep quality, and diminish immunity (Cacioppo et al., 2015). The risk associated with social

isolation and loneliness relating to premature mortality is comparable to other well-established risk factors, including obesity, substance abuse, and lack of physical activity (Holt-Lunstad et al., 2015)

Slide 4

There are significant knowledge gaps regarding how to apply appropriate interventions (Smith & Lim, 2020). To be effective interventions, someone must feel that engagement has been facilitated and that it is meaningful and satisfying (Smith & Lim, 2020). Interventions reported to be helpful include befriending schemes delivered by volunteers, one-to-one group therapies to address relationship difficulties, shared activity programs to foster social connection, a social prescription from health care providers, and communication technology (Smith & Lim, 2020). Further interventions to decrease loneliness are laughter therapy, horticulture therapy, and reminiscence therapy (Smith & Lim, 2020). Residents in LTC and AL can use tablets or computers to connect with family members and friends to increase social engagement and reduce loneliness (Gorenko et al., 2020).

Slide 5

The revised UCLA Loneliness Scale (Version 3) has been identified as reliable and valid in the elderly and other populations (Russell, 1996).

The three-item questionnaire includes:

4. How often do you feel that you lack companionship?
5. How often do you feel left out?
6. How often do you feel isolated from others?

Patients can respond with: (a) hardly ever, (b) some of the time, or (c) often, scoring either a 1, 2, or 3 points (Hughes et al., 2008). Hughes et al. (2008) found that the Three-Item Loneliness Scale displayed satisfactory reliability and validity.

Slide 6

To implement the Three-Item Loneliness Scale in the population the metropolitan community senior care provider team serves to identify patients experiencing loneliness to evaluate if it is a useful tool to use organization wide. The Three-Item Loneliness Scale will be distributed to patients and data

will be collected regarding how providers felt the tool was useful in identifying loneliness and if they thought using the tool assisted them in choosing appropriate interventions.

Slide 7

After this PowerPoint there will be a survey asking three questions:

1. How likely are you to use the 3-Item Loneliness Scale with your patients?
2. Do you think your patients will benefit from using the 3-Item Loneliness Scale?
3. Do you have a better understanding of the consequences and appropriate interventions to address loneliness?

Slide 8

After implementing the tool an email will be sent out asking:

Post-Implementation Questionnaire

1. Do you believe the Three-Item Loneliness Scale was helpful in identifying patients experiencing loneliness?
2. Did the Three-Item Loneliness Scale aid you in applying interventions to address loneliness?
3. Do you have any other thoughts about using the Three-Item Loneliness Scale?

Slide 9

A significant number of older adult's experience loneliness, and loneliness is a severe public health problem (Simard & Volicer, 2020). Loneliness has many physical and psychological results (Simard & Volicer, 2020). To combat loneliness in geriatric settings, especially after the COVID-19 pandemic, we will evaluate the Three-Item Loneliness Scale for wider organizational implementation.

Appendix C

Post-Education Questionnaire

1. How likely are you to use the 3-Item Loneliness Scale with your patients?
2. Do you think your patients will benefit from using the 3-Item Loneliness Scale?
3. Do you have a better understanding of the consequences and appropriate interventions to address loneliness?

Appendix D

Post-Implementation Questionnaire

1. Do you believe the Three-Item Loneliness Scale was helpful in identifying patients experiencing loneliness?
2. Did the Three-Item Loneliness Scale aid you in applying interventions to address loneliness?
3. Do you have any other thoughts about using the Three-Item Loneliness Scale?