Doctor of Nursing Practice (DNP) Manuscripts   School of Nursing

Summer 8-8-2020

Implementing a Loneliness Assessment Tool in an Older Adult Population

Marquette Leach

Follow this and additional works at: https://dsc.duq.edu/dnp

Part of the Nursing Commons

Recommended Citation

Leach, Marquette, "Implementing a Loneliness Assessment Tool in an Older Adult Population" (2020).
Doctor of Nursing Practice (DNP) Manuscripts. 2.
https://dsc.duq.edu/dnp/2

A Quality Improvement Plan: Implementing a Loneliness Assessment Tool in an Older Adult Population

Marquette D. Leach

School of Nursing, Duquesne University

Dr. Catherine Johnson, PhD, CRNP, FNP-BC, PNP-BC, CPHQ

May 3, 2020

Acknowledgements

I would like to thank my faculty mentor Dr. Catherine Johnson, PhD, CRNP, FNP-BC, PNP-BC, CPHQ for her untiring support through my academic journey. She will never know how significant a role model she has been to me and undoubtedly to others. She provided me with the right balance of encouragement, confidence, and pressure to get this accomplished. I would also like to thank the DNP faculty who all played such a critical role in the culmination of this project: Dr. Manjulata Evatt DNP, MSN, RN, CMSRN, Dr. Melanie Turk PhD, RN , Sr. Rosemary Donley PhD, APRN, BC, ANP, FAAN, Dr. Mary Kay Loughran MHA, RN, and Dr. Weideman DNP, MBA, RN, CFCN, CWOCN, CNE.

A special thanks goes to the home care agency where the program was implemented. Its leaders have provided me with unfettered access to resources to meet the program's goals. They worked hard to meet the project's aims, but most importantly they were involved in the testing of change to drive process improvements for their patients.

I would like to extend a special thanks to my deceased grandmother Geraldine Liscomb who had the audacity to tell me that I could do anything. My mother Joy Leach-Huntley who has believed in me and supported me in all that I do. My husband Marinus Leach, and my little one's Isaac and Jacqueline who all have given me a purpose for embarking upon this journey.

Abstract

Loneliness is a subjective experience characterized by a profound decrease in the amount and the quality of desired social connectedness. Community-dwelling older adults are particularly vulnerable to loneliness because of age-related changes such as the loss of driving privileges, loss of a spouse, living alone, socioeconomic changes caused by retirement, and a lack of access to meaningful social activities. These factors diminish an older adult's sense of belonging, the quality of their social relationships, and the degree to which they are socially engaged. Loneliness presents a significant threat not only to the psychosocial wellbeing of older adults, but also to their physical health. Loneliness potentiates and worsens morbidities such as hypertension, pain, anxiety, and depression (Smith, 2012). This quality improvement project seeks to educate a registered nurse at a home care agency in the use of the Revised-University of California Los Angeles (R-UCLA) loneliness scale, and the 3-item UCLA loneliness scale to reliably detect loneliness in patients. Home care clients identified as lonely chose a loneliness reducing strategy from a menu of options including therapies such as humor, music, reminiscence, scripture reading, and use of a loneliness telephone support line. Each loneliness strategy was facilitated by the patient's in-home caregiver. Using a plan-do-study-act (PDSA) cycle, the program was able to affect a decreased experience of loneliness as measured by a decrease in the R-UCLA score after receiving a loneliness strategy. Participants in the quality improvement project included only clients of the home care agency and those at least 65 years and older. Additional consent was not required for the change activity as the quality improvement approach builds on the agency's current quality improvement activities. There was also no significant risk to patients. The project was exclusively funded by the home care agency.

The report's findings are not generalizable, and they are limited to use at the specific implementation site.

A Quality Improvement Plan:

Implementing a Loneliness Assessment Tool in an Older Adult Population

Introduction

Older adults are the fastest-growing segment of the American population (U.S Census Bureau, 2019). An estimated one-third of older Americans is lonely, and these rates are projected to increase along with population growth (Finlay & Kobayashi, 2017). This does not necessarily mean that most older adults are socially isolated. In fact, loneliness is quite different than social isolation (De Koning et al., 2017). Social isolation is the lack of sufficient social interactions with family, friends, neighbors, and society more generally (IOM, 1992). Isolation can occur when older adults are separated by physical distance from social networks, such as when living alone, living in a rural area, or in an area with inadequate transportation services. Loneliness is a subjective experience that describes the distance between an individual's actual and desired level of social interaction Cacioppo, J. T. & Cacioppo, S. (2018). Such as when an older adult wants social interaction, but they are unable to meet this need because of physical or socioenvironmental factors.

As the older adult ages, a cascade of changes ensue and these changes can also play a role in promoting loneliness in older adults. Declining health, loss of driving privileges, or the feeling that a neighborhood is unsafe can hinder an older adult from engaging in activities that help to maintain strong social networks (American Association of Retired Persons [AARP] Foundation, 2012; Greenfield & Russell, 2010). The effects of loneliness and social isolation are not limited to their apparent social nature as their effects have far-reaching health consequences. Older

adults who are lonely face an increased risk for creating or worsening morbidities like hypertension, pain, anxiety, depression, Alzheimer's disease, and others (Smith, 2012). Despite the adverse health risks, health professionals infrequently prescribe social interventions. According to Cacioppo and Cacioppo (2008), health professionals under-prescribe social therapies because they are unaware of the risk factors, valid assessment tools and techniques, and which strategies are the most effective for treating loneliness. Health professionals must understand how to recognize loneliness to mount an early response to the problem, and know that many older adults are reticent to disclose feelings of loneliness fearing stigma.

Identification of the Clinical Problem

This quality improvement (QI) project focuses on loneliness for two reasons. First, loneliness is a significant problem that affects an estimated one-third of all older adults (Grenade & Boldy, 2008). It has been linked with poor health outcomes in this rapidly growing segment of our population (Smith, 2012). At the same time, the costs of caring for preventable problems like loneliness are expensive and total healthcare costs for older adults' care are expected to rise to 7.9% of GDP (Chee et al., 2017). To more effectively manage growing costs, many insurance payors have begun transitioning from a quantity- to a value-based purchasing model. Encouraged by changes in the Affordable Care Act's call for states to test new healthcare delivery approaches, some state Medicaid programs have made problems like loneliness a healthcare quality measure tied to value-based payments.

In 2018, New York State's (NYS's) Managed Long-Term Care (MLTC) program underwent major changes. MLTC established a payment-for-performance healthcare quality

measure that included loneliness (New York State Department of Health, 2017a). This change created much chaos for NY providers, as many had no strategy to address loneliness and did not know where to begin addressing the problem. While the new payment model was intended to encourage NYS home care and nursing home providers to pursue higher standards of patient-centered care, the program did not prescribe specific actions for organizations to take knowing that solving this and other organizational problems requires a local assessment of the problem and response that matches the factors identified.

Second, this QI project focuses on the clinical problem of loneliness due to troubling staff reports of loneliness. Not only do home-care staff members frequently report that they are concerned an older adult client might be lonely, they also frequently report that they (1) do not know how to effectively engage him/her, (2) worry that using certain strategies may cross professional boundaries, or (3) engaged in other strategies that — although well-intentioned — were ineffective.

The agency at which the QI program will be implemented serves a majority-older-adult population in their private homes and does not currently assess for loneliness. However, given the prevalence of loneliness nationally, one can assume loneliness is an issue in the agency's population.

In fact, community-dwelling home care clients are at the highest risk for loneliness when compared with their communal living counterparts (Grenade & Boldy, 2008). Communal living, such as in assisted living facilities or nursing homes, is believed to be more protective than living at home against feelings of loneliness because of the availability of onsite services such as direct care assistance, transportation, and social programs that foster the older adult's ability to engage socially. Conversely, older adults who live at home have fewer opportunities for affiliation,
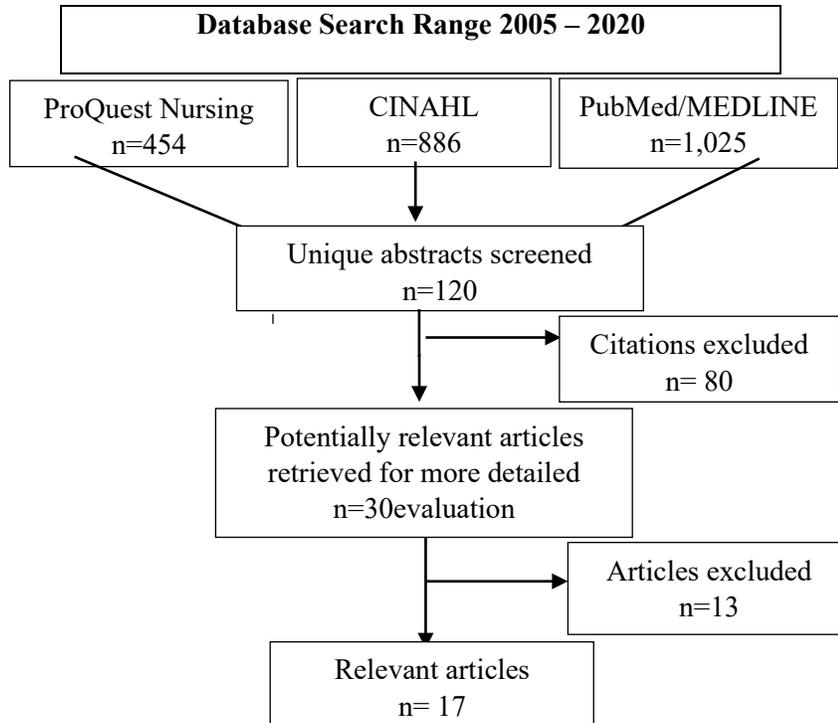
which places them at significant risk for loneliness, and decreased health outcomes. Home health nurses are well-positioned to address this community health issue through assessment and intervention; however, nurses fail to recognize loneliness as a health problem. The lack of nurse's recognition of loneliness is in large part because traditional nursing curricula have focused on the management of medical issues and not their antecedent causes (Thornton & Persaud, 2018).

Literature Synthesis

Exploring the loneliness phenomenon required a thorough literature search, as illustrated in Figure 1. To conduct the search, computerized databases were used, including CINAHL, ProQuest Nursing, and MEDLINE. Articles vetted for review were limited to those published between the years 2005 to 2020. Terms used to search articles within that date range included "loneliness", "loneliness scale", "community-dwelling older adults", and "social isolation". Of the search results, articles that met inclusion criteria (1) were published in the English language, (2) described studies of human subjects over 60, and (3) demonstrated a "Good" and a "Minimum Quality" evidence rating. Evidence quality was evaluated by examining the quality of each study using the John Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal Tool. Ultimately seventeen articles were determined relevant. These articles included research and nonresearch types, quantitative and qualitative studies, mixed-methods studies, expert opinion articles, case studies, and systematic reviews, as shown in Figure 1.

Figure 1

Literature Search

Database Search Range 2005 – 2020

ProQuest Nursing n=454	CINAHL n=886	PubMed/MEDLINE n=1,025

Unique abstracts screened
n=120

→ Citations excluded
n= 80

Potentially relevant articles
retrieved for more detailed
n=30evaluation

→ Articles excluded
n=13

Relevant articles
n= 17

Note. The figure illustrates the literature search process and the process for excluding articles not relevant to the clinical problem

Risk Factors for Loneliness

Throughout the literature, social interaction is described as an essential human need. What is perhaps less understood are the consequences of disruptions to meeting one's social requirements. Weiss (1973) described loneliness as a biological signal similar to pain, hunger, or thirst that is intended to warn an individual of an impending problem; a way to course correct before damage occurs. While the literature abounds with disagreements about which variables

most promote loneliness, Cacioppo (2002) and the AARP Foundation (2012) identify the role of myriad social and environmental risk factors for loneliness. Such risk factors include older adults (1) living in communities with poor transportation networks, (2) losing of a spouse, (2) living alone, (3) experiencing low socioeconomic status, (4) increased functional dependency, and (5) lacking adequate accessibility to meaningful social activities (Aung et al., 2016; Cacioppo et al., 2011). Grenade and Boldy (2008) also identify living alone as a risk factor, but concede its precise relationship to loneliness is unclear. According to Roberts and colleagues 1 out of 5 adults aged 65-74 lives alone, and these numbers nearly double among those 85 years and older (Roberts, Ogunwole, Blakeslee, & Rabe, 2018). The older-adult population's projected growth trends suggest that more people will be living alone and potentially at higher risk for loneliness.

Socioeconomics

Socioeconomic status (SES) is traditionally used to measure three broad categories of occupation, education, and income. Disparities in SES among different occupations, education levels, or income levels often indicates larger structural inequalities within a society and is a powerful predictor of health outcomes. It has been well documented that individuals with higher incomes tend to enjoy better nutrition, housing, schooling, and recreation, and that the opposite is true for their lower-income counterparts. As older adults retire from work, they may have less disposable income, which may strain their ability to engage in social activities that satisfy their need for affiliation (Theeke, 2009). To avoid loneliness older adults need ample opportunities for social engagement that are low cost, easy to engage, and accessible.

Environmental factors

In a longitudinal study of older adults' physical health and functioning, Dyskstra, Van Tillburg, De Jong, and Gierveld (2005) concluded that higher levels physical activity is associated with lower levels of loneliness. Still, 60% of older adults do not engage in regular physical activity and strength training, which places them at greater risk for loneliness (Healthy People 2020, 2014). Elders living in rural and urban areas may be at increased risk of living in communities that are (1) less walkable, (2) located near highways, (3) more crime-ridden, and (4) perceive as less safe, causing them to physically isolate within their homes (Greenfield & Russell, 2010; Grenade & Boldy, 2008).

Age-related Changes

During old age, adults experience myriad age-related events. One such event is the loss of driving privileges. Older adults may lose permission to drive or refrain from driving because of a physical, visual, or cognitive decline that poses a safety concern. The inability to drive is a significant loss of autonomy that can leave older adults isolated and disconnected from important social networks (Rourke, 2019). When an older adult loses the ability to drive, the presence of adequate public transportation is crucial for older adults to maintain social networks. Because efficient public transportation services are almost exclusively found in metropolitan areas, older adults living outside of metropolitan areas may be at higher risk of social isolation and therefore loneliness (AARP Foundation, 2012). This underscores the consequential role that transportation plays in connecting older adults with social opportunities. At the same time, it suggests a need for more community-based social programs that older adults can access locally.

Widowhood

The relationship between intimate partners who are confidantes is cited throughout the literature as a protective mechanism against loneliness (Greenfield & Russell, 2011). Consequently, the loss of a spouse is viewed as a predictor of loneliness (Greenfield & Russell, 2011). During the acute phase of widowhood, described as the first two years after death, an older adult begins an incredibly challenging transition period in which the newly widowed person struggles to forge a new and individual identity, separate from their couple identity (Davies, Crowe, & Whitehead, 2016; Grenade & Boldy, 2008). Women have traditionally been viewed as particularly vulnerable to this cause of loneliness because they frequently outlive their male spouses, but a study of United Kingdom older adults showed no gender difference in rates of loneliness during widowhood (De Koning, Louise, & Richards, 2017). Cacioppo (2010) also points to the intimate partner relationship as a critical one. He asserts that newly-widowed older adults' loneliness can be mitigated by improvements in the quality of their other relationships, including their involvement in meaningful groups and friendships (Cacioppo, 2010).

Home care nurses and in-home aides have frequent touchpoints with older adult clients. Caregivers that create personal relationship with their clients are essential to enhancing the elder's satisfaction with the client-caregiver relationship to affect loneliness (Kornhaber et al., 2016).

Effects on Health

The lack of meaningful social connectedness is no mere social problem. It has been linked with increases in all-cause mortality (Stall, Savage, & Rochon, 2019). It has been shown

to create or aggravate conditions such as (1) peripheral vascular disease, (2) cognitive decline, (3) hypertension, (4) pain, (5) anxiety, and (6) depression, which is particularly troubling because older adults typically have multiple comorbid conditions (De Koning, 2017; Smith, 2012). Throughout the literature, physical health is regarded as a predictor of loneliness, but Grenade and Boldy (2008), expressed skepticism on the causal direction, meaning does loneliness occur as a result of poor health or because poor health prevents social engagement. In their study of frail older adults attending adult day centers, Ievoich and Biderman (2011) similarly concluded that rates of loneliness were 75% higher among the frailest elders. This suggests that simply being in a social environment does not by itself produce improved feelings of social connectedness (Ievoich & Biderman, 2011).

Cognition

Finally, a systematic review of loneliness revealed that loneliness was significantly higher among people living with dementia, and those with higher rates for loneliness at baseline, tended to have higher rates of cognitive decline upon a ten-year follow-up (Boss, Duck-Hee & Branson, 2014). While cognition has been seen to affect rates of loneliness across the literature, the causal direction remains a gap in our understanding. Does cognitive decline occur because of inadequate intellectual engagement and social stimulus, or does cognitive decline cause alienation from social networks, and resultant loneliness (Boss, Duck-Hee & Branson, 2014)? More study is needed on this point.

Rationale

The home care agency that is the site of the QI project's implementation, is located in the Southeast U.S. The agency was acquired five years ago from an individual proprietor. The

acquisition made it the subsidiary of an old, family-owned nursing home company with a storied reputation (hereinafter, "the company"). The company's mission of "elegant care" is a cultural artifact that shapes and permeates the organizational culture and mission. The nursing home company's elegant care philosophy can be seen not only through its care delivery services, but also through its many physical artifacts of stone hearths, marble accents, contemporary furnishings, and more, all meant to fortify this philosophy. The company's founding business is its nursing home, which opened in response to a crucial need for old aged care at the time. The home care business adds to the company's care continuum. The agency serves a predominantly older adult population who pay for services using one of three sources (1) private sources, (2) long-term care insurance, and (3) Medicaid (the least-used source among the agency's clients).

Organizing Framework

Change is an inherent part of any organization that can be precipitated by any number of internal or external forces, including shifts in the political, economic, social, technological, or even environmental landscapes. Changing an organization's strategic direction can present significant challenges and opportunities. Part of the challenge is any organization's inherent desire to maintain the status quo. A resistance to change is a major force to overcome with any change in direction. Organizational culture accumulates over time, creating shared assumptions that direct the group's behavior and beliefs (Schaubroeck et al., 2012).

The subject home care agency's short history has been marked by rapid change activities such as when it migrated from paper patient records to electronic health records, and when its primary revenue source changed from Medicaid when it was acquired to private pay sources

today. Despite the agency's short operational history, it has demonstrated agility in responding to necessary change. This agility has undoubtedly influenced the organization's culture.

Since the literature lacked any formal frameworks for creating a whole program that can ameliorate loneliness, the QI project used the Model for Improvement as a measured approach for testing the change idea. As shown in Figure 2, the Model has two fundamental parts. The top portion asks 3 essential questions: (1) "what are we trying to accomplish," which gets to the program's aims; (2) "how will we know that a change is an improvement," or how will change be measured; and "what change can we make that will result in improvement" or the changes. Below the model's three questions is the Plan, Do, Study, and Act (PDSA) cycle, which is the iterative process for testing a change idea quickly.

Using PDSA cycles allowed the QI team to (1) identity this local problem of loneliness, (2) test loneliness-reducing strategies on a small scale, and (3) take knowledge from cycles to inform later cycles before broad implementation. Use of the Model can also lead to early success, increased enthusiasm, higher rates of adoption, and bolster stakeholder support (Institute for Healthcare Improvement [IHI], 2020).

Figure 2.
Model for Improvement (IHI, 2020)
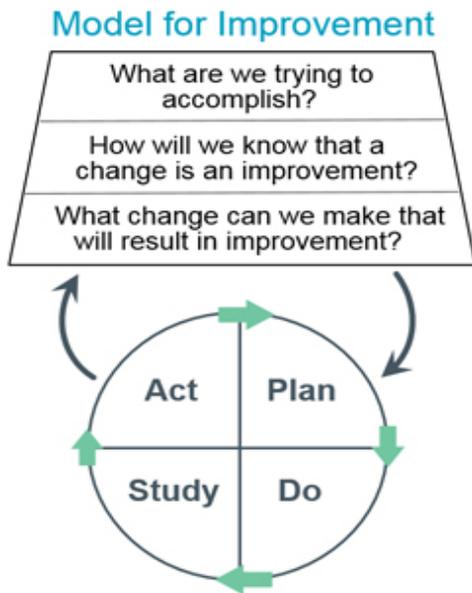
Note. The Model for Improvement was used to test the program's change idea

The Model for Improvement encourages the use of Idea Generation Tools for brainstorming potential solutions to an organizational problem. The QI team during one of its meetings used the 5 Why's, a root cause analysis tool to explore potential organizational causes and effects of loneliness (Ponsford, 1970). Through this process we identified the agency's lack of any loneliness assessment and response as potentially significant contributing factors for client loneliness.

Figure 3

The 5 Why's (Ponsford, 1970)
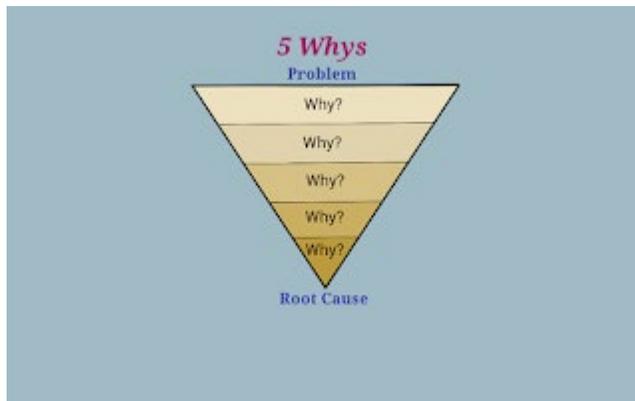
Note. The model depicts the 5 Why's root cause analysis tool used in identifying a problem's potential causes and effects

Cost-Benefit Analysis

A cost-benefit analysis (CBA) was also completed to measure the QI program's feasibility. CBAs are crucial projections for stakeholders when determining whether a course of action (1) is feasible, (2) should be adopted, and (3) if so, wholesale or only in certain parts (Quah, 2007). To make an accurate projection of value, the total program cost was estimated. As shown in Table 2, the QI program's total costs included technology equipment, education and intervention materials, training instructor expense, and staff salaries for time spent executing the program.

In addition to predicting the direct costs of a change activity, a CBA leverages these costs with a listing of the potential returns on investment through both tangible and intangible benefits. The program's tangible benefits are calculated as a value-added service through demonstrated outcomes on loneliness in the agency's older adult population, which can then be marketed by the agency to attract new clients — particularly those who need more social support. The

program's intangible benefits, while difficult to monetize, have no less effect on the organization' and they include an improvement on patient health outcomes, satisfaction, and increased feelings of employee empowerment through program participation.

Aims

In designing the QI plan, two basic assumptions were made. The first assumption believes that the health of older adults is negatively affected by loneliness, a preventable psychosocial problem. The next was that community health nurses and in-home caregivers must play an active role in reducing the burden of loneliness by (1) better assessing older adults for loneliness, (2) better recognizing the risk factors for loneliness to better identify it, and (3) using evidence-based approaches that reduce loneliness. These assumptions led to the problem statement expressed in a PICOT format (Population, Intervention, Comparison, Outcome, and Time): Can a loneliness assessment and social supports program (I) decrease rates of loneliness (O) in older adults (P) as compared to agencies with no program (C)?

Aim and Objectives 1

The program's first aim is to implement a campaign to increase staff awareness of loneliness, through a "Stay Connected" campaign. Our objectives for this aim are to increase agency staff knowledge on the clinical problem of loneliness and how to assess it through an education module. To measure this aim, participants will meet a minimum 80% score on the post test, and a group 10% improvement rate over pre-test scores.

Aim and Objectives 2

The program's second aim is to implement the 3-item UCLA for use as a loneliness screening tool in 10% of the agency's clients followed by implementation of the Revised University of California Los Angeles loneliness scale (R-UCLA), a 20-item tool to confirm the presence of loneliness in an individual. The aim will be measured by screening 10% of clients and using the R-UCLA in all clients screened as lonely.

Aim and Objectives 3

The program's third aim is to create the QI program's loneliness reducing strategies in what will be called the "Stay Connected" campaign. The objectives include (1) identifying resources that can be used as strategies to impact loneliness, (2) developing a planning process for older adult clients and their RNs to explore factors affecting loneliness, (3) developing the program's loneliness strategies, and (4) gathering additional qualitative data on factors affecting clients' loneliness and the effectiveness of the QI project's loneliness strategies. Our measures include development of the Stay Connected Strategies Menu, the Stay Connected Strategies Plan, and a structured interview guide.

Aim and Objectives 4

The program's fourth aim is to evaluate the effectiveness of the "Stay Connected" program in reducing loneliness. Our objectives include utilizing data from repeat R-UCLA

assessment scores gathered from the same clients at months 3 and 6 months. Also, to use the agency's internal patient satisfaction survey to evaluate the program. To meet this aim, we will evaluate the satisfaction of 100% of clients receiving a loneliness reducing strategy

Methods

Setting

The small home care agency serves a mostly older adult client base that lives in their own home and receives in-home care services to support activity of daily living or instrumental activity of daily living needs. Client payor sources are mixed and include private insurance, state Medicaid, and private pay sources. The agency's nursing team consists of one registered nurse (RN) and more than 100 direct care workers. The agency holds triannual staff meetings where staff visit the field office for required in-person education and staff recognition. Because the intervention occurred outside of any of these planned meeting times, the QI design needed to adopt strategies that would be amenable for remote workers.

Planning the Intervention

To bring the "Stay Connected" campaign from idea to implementation, it was crucial to fill the QI team's roles to ensure we had the right balance of leadership, management, expertise, and power to drive the idea of change. These roles included the program's sponsor, day-to-day leader, clinical leader, and technical expert. Although the CEO had no day-to-day role in the

program's implementation, the CEO's support of the program was pivotal for allocating resources and removing barriers, thereby helping the program meet its strategic aims (IHI, 2015). Although not an employee of the organization, the doctor of nursing practice (DNP) student acted as the program manager and technical expert. The agency's Director of Operations drove the program's implementation on the ground as its day-to-day leader. The agency's Director of Nursing completed patient loneliness screens and assessments as the program's clinical leader. The engagement and support of each of these stakeholders was central to the overall success of the program. Their buy-in was vital to establishing trust with direct caregivers and clients.

While planning the program's response, the QI team identified potential barriers and facilitators to implementation. A projected barrier the QI team identified in the planning process included how to train a remote workforce on loneliness and the program's loneliness reducing strategies. We concluded that a robust use of technology would be critical to reaching team members. Instead of having staff visit the agency's office for training, which would be disruptive and costly in terms of scheduling and labor costs, the use of technology allowed staff to access and complete the program's requirements while working in the client's home. Even though technology emerged as a viable strategy to meet the program's first aim, the agency's leadership expressed concerns that a small contingency of employees had known computer literacy issues, lacked internet-capable device access, or experienced other connectivity problems. Therefore, we needed to adapt the strategy to serve the needs of all agency employees.

The agency's staff was already aware of the problem of client loneliness, and the QI team saw this as a platform from which to build additional knowledge. Also, the QI team saw the organization's strong leadership and the direct care team's commitment to realizing the organization's mission of providing "elegant care" as adjuvants for implementation.

Educational Intervention

To introduce the program, text teasers about the "Stay Connected" campaign and loneliness facts were sent to staff using the agency's telephony system. To generate awareness and to create relevant discussion, agency staff received wrist bands in the agency's colors bearing the "Stay Connected" campaign logo. Expanding the team's knowledge of the clinical problem required an education module. The DNP student designed an audio-visual presentation on loneliness using Prezi Video, which allowed participants to receive the education module electronically. To measure participants baseline knowledge, a pre-test/post-test design was used. Before the educational module's initiation, the DNP student emailed staff pre-test surveys, which were disseminated using Survey Monkey. For employees identified by the agency as needing a hard copy test, one was mailed. After completing the pre-test, the electronic education materials were sent to employees via Prezi video, and, alternatively, Power Point copies were mailed to others. After completing the education module, a post-test was sent using the same format. Employees who met a minimum score of 80% on the post-tests were considered for program inclusion. The agency's RN received an additional one-hour of training on the loneliness scales during a one-hour Zoom training.

Loneliness Assessment Intervention

To detect loneliness, the agency's RN screened older adults using the 3-item UCLA loneliness scale as a screening tool for loneliness. As indicated by its name, the tool consists of only three items, which makes it is easy to administer. Despite its simplicity, it is a reliable and

valid loneliness measure and it uses a 3-point Likert scale (Hughes, 2004). The tool's items ask: (1) "how often do you feel that you lack companionship?", (2) "How often do you feel left out?", and (3) "How often do you feel isolated from others?" (Hughes, 2004). Clients who answered one question on the tool positively were considered lonely. This triggered an immediate assessment using the more in-depth 20-item R-UCLA loneliness scale. The R-UCLA uses a 4-point Likert scale with questions requesting a response ranging from "never" to "often." Half of the tool's items measure social satisfaction and the other half, measure social dissatisfaction. Clients with a minimum R-UCLA score of 20 were considered lonely and therefore invited to participate in the campaign.

Loneliness Reducing Interventions

Reminiscence Therapy

Reminiscence therapy, one of the program's five interventions, when used in groups, has been shown to have a positive effect not only on loneliness, but at enhancing feelings of social support, and quality of life ratings (Liu et al. 2007; Tse et al., 2010). Reminiscence is a method of recalling past experiences that allows the reporter to narrate their version of the remembrance and to relive bygone moments in gratifying ways. The retelling of such stories increases communication, social interaction, and creates a sense of belonging (Benevolent Society, 2005). Caregivers acting as loneliness strategies facilitators were given conversation ideas to engage clients, that included teachers, the 1960s, nutrition, technology, school days, old-time radio, road trips, weddings, and others. Caregivers were instructed to avoid topics that might be considered

provocative or racy. Reminiscence can create an ease in sharing one's story, which can trigger an emotional response like crying. Since crying can be an entirely appropriate response when reliving the past, caregivers were directed to be observant, and to steer a conversation to a happier topic if the encounter ebbed too close to sadness.

Humor Therapy

Humor therapy encourages laughter and light-heartedness, which is linked with improvements in health through improved social connectedness. It also decreases levels of stress and pain, while improving life satisfaction and happiness (Ghodsbin et al., 2015; Tse et al., 2010). Copies of the book "Humor for Seniors," by James Rennell, were purchased for staff use to prepare for the occasion that their assigned client chose humor therapy as a strategy. The book provides generational humor, stories, and jokes designed for older adults. Still, caregivers and clients were not limited to using the book out of respect for the range and diversity of humor. In these instances, caregivers were encouraged to have clients share a funny story, situation, movie, or a joke. Caregivers were advised to avoid potential minefields like insults, politics, race, gender, or ethnicity.

Scripture Reading

Spirituality is an indelible part of the human experience and all people have a spiritual need. But a person's requirements may vary in form and quality. Spirituality is considered an important dimension of health, but it is one that is poorly explored and rarely attended to by healthcare providers. The lack of spiritual assessment on the part of health care professionals is

in large part due to a (1) discomfort with using religious language, (2) fear that patients may react negatively to the inquiry, and (3) concern that spiritual assessment lays outside healthcare boundaries (Straßner et al., 2019). Spirituality and belief in a higher power have been linked to an improved ability to cope with stressful life events, and religious service attendance provides ample opportunity for social interaction, but for many older adults' religious service attendance progressively declines with age (Pargament, 1997). Therefore, finding in-home alternatives that can meet the older adults' need for spiritual engagement are necessary.

The QI program used scripture reading as a targeted method for religious devotion. Caregivers were instructed to assist clients in reading spiritual text for or along with them for at least 15-minute, three times per week. Where an older adult possessed a holy book written in languages other than English, an English language version would be provided.

Loneliness Telephone Line

Dean and Goddard (1998) define befriending as a relationship overseen by an organizational entity that involves at least two people where both parties benefit. The befriending strategy may be used in groups or as a person-to-person approach (Dean & Goddard 1998). The use of a telephone support line is a type of befriending strategy that is widely used to connect with hard-to-reach older adults. Some of the evidence for how meaningful social connections are developed stresses the role of reciprocity where members of the dyad share common interests and similar generational and cultural backgrounds. Telephone befriending bypasses this type of deliberate social matching. In a 2012 qualitative study by Lester and colleagues, the researchers noted that similarities between befrienders and older adults were unimportant if interviewees felt

the befriender was a good listener. The relationship between older adults and telephone befrienders can be seen more as "checking-up" to see how they are doing (Lester et al., 2012, p. 317). The ability to receive a call from, or to call, a befriender at any time can powerfully facilitate social interactions.

Older adults who chose to use a telephone support line were provided a 4x4 card with the Institute on Aging's (IOA's) telephone Friendship Line. The Friendship Line accepts inbound calls, and its agents make outreach calls for services such as well-being checks, emotional, and grief support. The QI program's protocols instruct clients to have at least three calls with the IOA's befrienders for at least fifteen minutes each week. Clients needing assistance in making calls will have the support of in-home care providers.

Music Therapy

Engagement in the arts — through cinema attendance, theatre and concert events, and trips to museums and galleries — has been increasingly viewed as an effective strategy for reducing loneliness (Tymoszuk et al., 2019). Music and the act of singing have specifically been linked with health benefits for older adults through the release of stress-reducing hormones, as well as increased feelings of togetherness and social connectedness (Clements-Cortes, 2015). The "Stay Connected" campaign sought to harness the therapeutic benefits of music for older adults living at home. Caregivers have long used music, formally and informally, as a strategy in client care, and perhaps particularly in patients with cognitive impairments. The literature also supports the role of music as a strategy to reduce potentially disruptive behaviors like wandering and yelling. The agency's in-home caregivers were trained to use music during routine care

activities such as bathing, dressing, and even meal preparation, and to sing out loud with clients in their choice of music for at least fifteen minutes three times per week.

Structured Interview Guide

For this pilot project, it was critically important to gain qualitative feedback from program participants. To accomplish this, an 11-question structured interview tool was created by the DNP student along with the DNP student's faculty mentor. Structured interview tools are a type of data gathering method frequently used when investigating unique problems, and when completed by telephone the tool is generally convenient to execute, yields a higher response rate, and is more cost efficient than in-person interviews (McLeod, 2014). The tool's questions used an open-ended format to avoid yes or no responses and were structured to explore issues such as (1) how client's engage socially, (2) topics of discussion when socializing, and (3) the levels of contact with important relationships.

Ethical Considerations

The QI project received the Duquesne University Institutional Review Board's approval. No significant ethical issues were foreseen in the program's design. Still, to minimize the potential for ethical problems, de-identified data for participants involved in the program were used. Also, agency staff participation was voluntary, and all participants were made aware through the education module of the program's aims. This program had no external funding sources, and no additional compensation was given for participation.

PDSA Cycle 1

During the program's first PDSA cycle, the QI team implemented the loneliness education module. Repeat messages were sent to staff by the day-to-day leader encouraging pre and post-test completion. It took approximately 30 days to receive 20 completed tests. The first PDSA test cycle's 20 staff participants comprised the agency's RN and the in-home aide staff. All participants met the minimum 80% post-test requirement for participation as shown in Figure 4. Our data analysis revealed an aggregate correct response rate of 159 questions on the pre-test, as compared with 178 on the post-test, for a group net correct response gain of 19 points, and a nearly 12% group increase. These results allowed us to meet our first aim of increasing agency staff knowledge on the clinical problem of loneliness.

Figure 4.

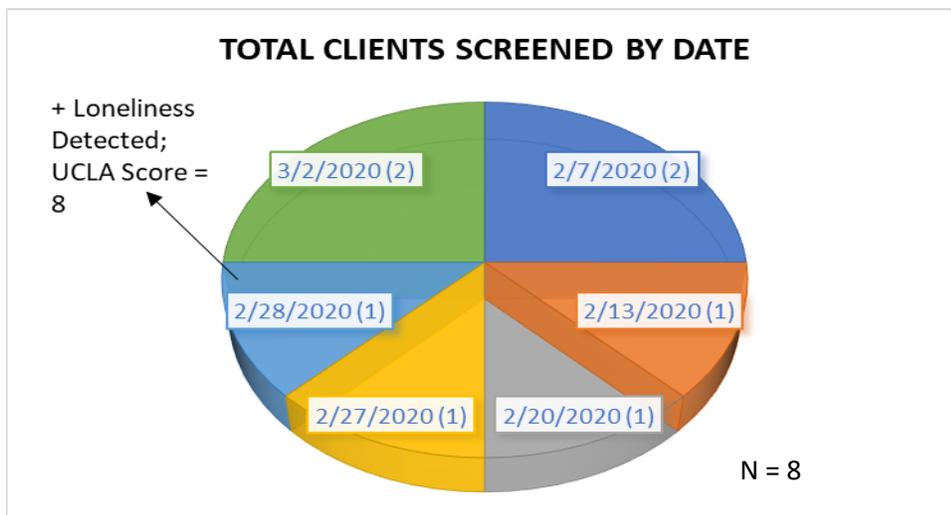Education Module Pre-Post Test Results
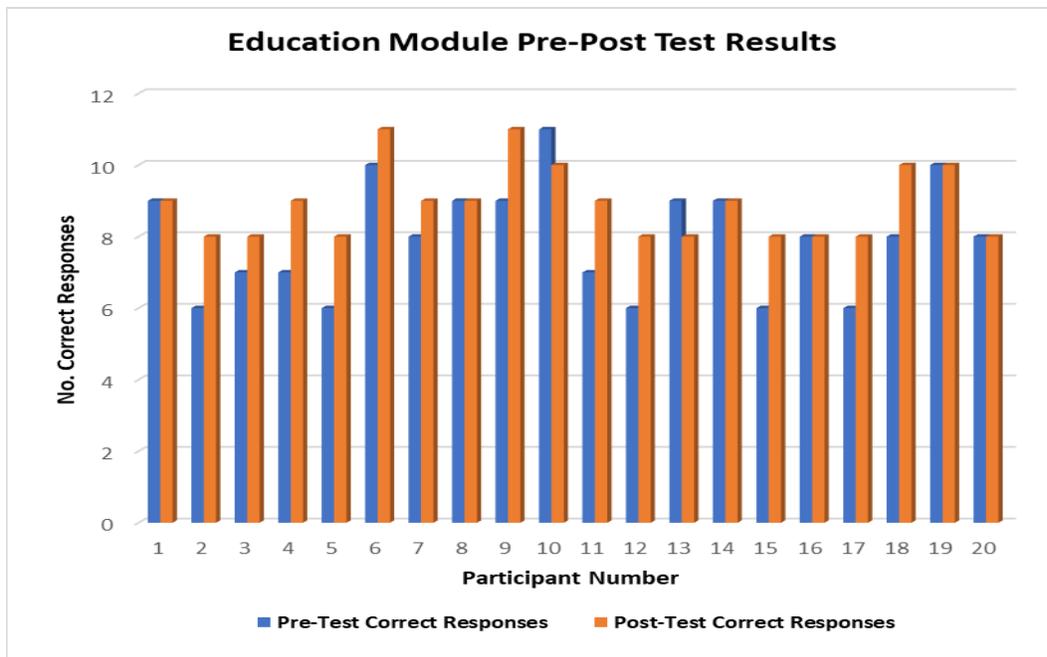
Note. The graph shows staff participants pre and post test scores. Blue bars represent pre-test scores and orange bars represent post-test scores.

PDSA Cycle 2

In the program's second cycle, the 3-item UCLA and the R-UCLA loneliness scales were implemented. The nurse followed the agency's routine patient visit schedule to screen and assess clients for loneliness. The pie graph in Figure 5 shows the dates of assessment for the clients screened for loneliness. Of the clients screened, one client screened as lonely with a 3-item UCLA score of 8. This participant chose the scripture reading strategy. Although this met the combined 10% screening and assessment goal, it was the team's aim to continue screening clients to detect more loneliness in the population. However, we were prevented from doing this due to COVID-19-related restrictions that discouraged nonessential nursing visits. Still, the program's second aim of implementing the loneliness scales at the agency was met.

Figure 5.

Client Screening and Assessment Graph

TOTAL CLIENTS SCREENED BY DATE

+ Loneliness Detected; UCLA Score = 8

3/2/2020 (2)   2/7/2020 (2)

2/28/2020 (1)   2/13/2020 (1)

2/27/2020 (1)   2/20/2020 (1)

N = 8

Note. The graph shows the number of client assessments by date and the point at which loneliness was detected in the PDSA test cycle

After 30 days of the lonely client receiving the scripture reading intervention, the DNP student reevaluated the client's loneliness level using the R-UCLA scale by telephone. The reassessment occurring by telephone was a change in the process from having the nurse perform a face-to-face follow-up, but the COVID-19 pandemic necessitated limitation of nonessential patient encounters. As shown in Figure 6., the participant's pre-program R-UCLA score was 47 and this score reduced by 5 points over the 30-day implementation period using the scripture reading strategy. The decreased loneliness score demonstrates a positive outcome on the client's loneliness, which satisfies the program's third aim.

Figure 6.

Pre and Post "Stay Connected" Campaign Loneliness Score
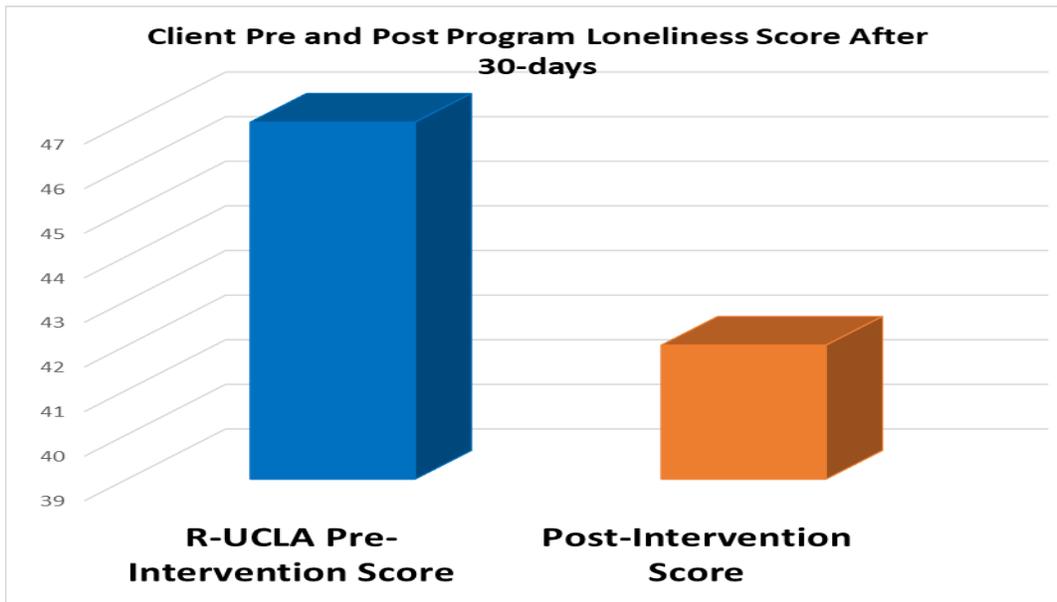
Note. The graph shows the efficacy of the scripture reading strategy on the R-UCLA score post program participation

PDSA Cycle 4

To gain qualitative feedback, the DNP student contacted the 8 clients who were either screened or assessed for loneliness. Of these, two clients screened for loneliness were reached, as was the client receiving the scripture reading strategy. The clients who were screened for loneliness, but not determined lonely, reported having adequate social supports such as from (1) a spouse, (2) adult children that routinely visit, or (3) regular opportunities for social encounters through church or club membership. Conversely, the participant receiving the scripture reading loneliness strategy (1) lives alone in a small 2-room apartment, (2) in a residential community for seniors, and (3) expressed having few or no desirable social opportunities in the community. Interestingly, the participant never used the word lonely during the interview despite describing a deficit between an actual and a desired level of social connectedness.

The structured interview data also revealed the client's socioeconomic intersections with loneliness as the client pays for home care services through Medicaid funding. Age-related changes were also a factor, as the client reported limited mobility and pain that prevents engagement in social opportunities. The client stated, "we [client and the aide] stay in here looking at these walls all day. I go back and forth from my bedroom to the living room". When asked about the role of spirituality in the client's life, the client stated, "I used to stay in church and when I got sick the harder it is to go back. When I wanna go something always happens. My legs or my back hurts." As a proxy for church attendance the client chose the scripture reading strategy. The client described the efficacy of the strategy as uplifting "when she's [client's aide] reading and talking about the Bible." In terms of whether the strategy facilitated social

connectedness, the client described the approach as facilitating a bi-directional and intimate sharing between the client and caregiver.

The program's fourth and final aim was partially met and requires ongoing follow-up of loneliness levels at months 3 and 6, which are a part of the recommendations for further development of the program.

Summary

Older adults are profoundly affected by loneliness. As they age, they experience progressively less social contact, but the fundamental human need for affiliation endures. Clients may experience loneliness for a range of reasons and organizations must be prepared to identify and respond to the health needs of their patients. To accomplish this healthcare organizations will need to find innovative solutions to address the effects of social problems like loneliness.

Insurance payors, states, and the federal government are all challenged by soaring healthcare costs, and they demand more value for each healthcare dollar spent. These growing costs are forcing the restructuring of healthcare reimbursement, and increasingly in the future, payments will be tied to performance.

The "Stay Connected" program shows early organizational signs as an effective low-cost and convenient strategy for mediating the effects of loneliness. At the same time, the program's use of the Model for Improvement marks a period of testing change ideas using evidence-based strategies to solve an organizational problem. What is clear is that nurses can play a pivotal role in improving patients' health when they understand the potential health risks and feel empowered with evidence-based strategies. The program also extends the range of roles that in-home aides

can play far beyond mere purveyors of basic household or personal care tasks to the more meaningful and satisfying functions of soothing their client's psychological need for social interaction and companionship.

Recommendations

The QI program's findings were limited due to the COVID-19 pandemic and the restrictions it necessitated. As a result, further program exploration is warranted through more test cycles. A recommendation for more test cycles includes having the RN and in-home aide staff identify which clients they believe to be the loneliest. Focusing the agency's resources on this target group can increase the likelihood of detecting more clients as lonely, thereby conserving the program's resources. Identification through assessment of more clients as lonely will permit broader utilization of the QI program's loneliness reduction strategies and to determine both which strategies are the most popular among clients and which are the most effective on loneliness. It is also recommended that the organization amend its internal client satisfaction tool to include a question assessing clients' degree of satisfaction with the "Stay Connected" program. Measuring client satisfaction is an essential patient-centered activity and acknowledges the patient's claim in healthcare program design. The final recommendation is to include the loneliness education module in the agency's employee onboarding process and in its in-servicing curriculum.

References

AARP Foundation. (2012, May 30). Framework for isolation in adults over 50.

https://www.aarp.org/content/dam/aarp/aarp_foundation/2012_PDFs/AARP-Foundation-

Isolation-Framework-Report.pdf

Cacioppo J.T. & Cacioppo S. (2014). Social relationships and health: The toxic effects of
perceived social isolation. *Social and Personality Psychology Compass, 8*(2), 58–72. doi:
10.1111/spc3.12087. PMID: 24839458.

Cacioppo, J. T. & Cacioppo, S. (2018). The growing problem of loneliness. *The
Lancet, 391*(10119), 426.doi:http://dx.doi.org.authenticate.library.duq.edu/10.1016/S0140-
6736(18)30142-9

Cacioppo, J., Hawkley, L., Crawford, L., Ernst, J, Burleson, M., Kowalewski, R., Malakkey, W.,
Van Cauter, E., & Bernston, G., (2011). Loneliness and health: potential mechanisms.
Psychosomatic Medicine, 64, 407-417.

Chee, T., Ryan, A., Wasfy, J., & Borden, W. (2017). Current state of value-based purchasing
programs.

De Koning, J., Louise Stathi, A., & Richards, S. (2017). Predictors of loneliness and different
types of social isolation of rural-living older adults in the United Kingdom. *Ageing and
Society, 37*(10), 2012-2043.
doi:http://dx.doi.org.authenticate.library.duq.edu/10.1017/S0144686X16000696

Dykstra, P. A., van Tilburg, T.,G., & Jenny de, J. G. (2005). Changes in older adult loneliness:
Results from a seven-year longitudinal study. *Research on Aging, 27*(6), 725-747.
doi:http://dx.doi.org.authenticate.library.duq.edu/10.1177/0164027505279712

Finlay, J. M., & Kobayashi, L. C. (2018). Social isolation and loneliness in later life: A parallel
convergent mixed-methods case study of older adults and their residential contexts in the

Minneapolis metropolitan area, USA. *Social Science & Medicine, 208*, 25.

https://search-proquest.com.authenticate.library.duq.edu/docview/2100880517?

accountid=10610

Ghodsbin, F., Sharif Ahmadi, Z., Jahanbin, I., & Sharif, F. (2015). The effects of

laughter therapy on general health of elderly people referring to Jahandidegan community

center in Shiraz, Iran, 2014: a randomized controlled trial. *International Journal of*

Community Based Nursing and Midwifery, *3*(1), 31–38. Retrieved from:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4280555/

Greenfield, E. A. & Russell, D. (2011). Identifying living arrangements that heighten risk for

loneliness in later life: Evidence from the U.S. national social life, health, and aging

project. *Journal of Applied Gerontology, 30*(4), 524. https://search-proquest-

com.authenticate.library.duq.edu/docview/884892454?accountid=10610

Grenade, L. & Boldy, D. (2008). Social isolation and loneliness among older people: Issues and

future challenges in community and residential settings. *Australian Health Review, 32*(3),

468-78. Retrieved from https://search-proquest-

com.authenticate.library.duq.edu/docview/231778263?accountid=10610

Hawkley, L. & Cacioppo, J. (2010). Loneliness and blood pressure in older adults: defining

connections. *Aging Health; London, 6*(4), 415-418. doi:10.2217/ahe.10.41

Hawkley, L., Hughes, M., Waite, L., Masi, C., Thisted, R., & Cacioppo, J. (2008). From social

structural factors to perceptions of relationship quality and loneliness: The Chicago health,

aging, and social relations study. *The Journals of Gerontology: Series B, 63*(6), S375-S384.

https://doi-org.authenticate.library.duq.edu/10.1093/geronb/63.6.S375

Healthy People 2020. (n.d.). Retrieved July 26, 2020, from

https://www.healthypeople.gov/2020/tools-resources/evidence-based-resource/campaigns-

and-informational-approaches-increase-0

Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A short scale for

measuring loneliness in large surveys: Results from two population-based studies.

Research on Aging, 26(6), 655–672. doi.org/10.1177/0164027504268574

Iecovich, E. & Biderman, A. (2012). Attendance in adult day care centers and its relation to

loneliness among frail older adults. *International Psychogeriatrics, 24*(3), 439-48.

doi.org.authenticate.library.duq.edu/10.1017/S1041610211001840

Institute for Healthcare Improvement. (2020). How to Improve.

http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementFormingthe

Team.aspx

Institute of Medicine. (2011). *The future of nursing: Leading change, advancing health*. The

National Academies Press.

Kornhaber, R., Walsh, K., Duff, J., & Walker, K. (2016). Enhancing adult therapeutic

interpersonal relationships in the acute health care setting: An integrative review. *Journal

of Multidisciplinary Healthcare*, *9*, 537–546. https://doi.org/10.2147/JMDH.S116957

Lester, H., Mead, N., Chew Graham, C., Gask, L., & Reilly, S. (2012). An exploration of the

value and mechanisms of befriending for older adults in England. *Aging & Society (32)* 302-

328. doi:10.1017/S0144686X11000353

McLeod, S. (2014). The interview research method. Retrieved July 22, 2020, from

https://www.simplypsychology.org/interviews.html

New York State Department of Health. (2015). Value based payment reform in New York state: A proposal to align Medicare's and NYS Medicaid's reforms. https://www.health.ny.gov/health_care/medicaid/redesign/dsrip/vbp_alignment_paper _final.htm

New York State Department of Health. (2017a). Managed long-term care subpopulation. https://www.health.ny.gov/health_care/medicaid/redesign/dsrip/vbp_ library/quality_measures/docs/2018_mltc_qms.pdf

New York State Department of Health. (2017b). Value based payment for managed long term care plans. https://www.health.ny.gov/health_care/medicaid/redesign/dsrip/vbp_ library/docs/2017-07- 12_mltc_lev1_contracting.pdf

Ponsford, E. E. (1970, January 1). Root Cause Problem Solving and The 5 Whys. www.leanvets.com/2016/02/root-cause-problem-solving-and-5-whys.html.

Roberts, A., Ogunwole, S., Blakeslee, L., & Rabe, M. (2018). *American community survey reports: The population 65 years and older in the United States: 2016.* https://www.census.gov/content/dam/Census/library/publications/2018/acs/ACS-38.pdf

Rourke, E. J. (2019). Driving under the influence of age. *Health Affairs*, https://www.healthaffairs.org/do/10.1377/hblog20190530.129925/full/

"Driving Under The Influence Of Age, " Health Affairs Blog, June 4, 2019.DOI: 10.1377/hblog20190530.129925

Smith, J.M. (2012). Portraits of loneliness: Emerging themes among community-dwelling older adults. *Journal of Psychosocial Nursing & Mental Health Services, 50*(4), 34-39. doi:http://dx.doi.org.authenticate.library.duq.edu/10.3928/02793695-20120306-04

Stall, N. M., Savage, R. D., & Rochon, P. A. (2019). Loneliness in older adults. *Canadian*

Medical Association Journal, 191(17)

doi:http://dx.doi.org.authenticate.library.duq.edu/10.1503/cmaj.181655

Straßner, C., Frick, E., Stotz-Ingenlath, G., Buhlinger-Göpfarth, N., Szecsenyi, J., Krisam, J.,

Schalhorn, F., Valentini, J., Stolz, R., & Joos, S. (2019). Holistic care program for elderly

patients to integrate spiritual needs, social activity, and self-care into disease management in

primary care (HoPES3): study protocol for a cluster-randomized trial. *Trials*, *20*(1), 364.

https://doi.org/10.1186/s13063-019-3435-z

The Benevolent Society. (2005). Reminiscing manual version 1. Retrieved from:

https://singsandthings.weebly.com/uploads/1/5/1/8/15189526/reminiscing-handbook-

jan2006.pdf

Theeke, L. (2009). Predictors of loneliness in U.S. adults over sixty-five. *Archives of*

Pyschiartric Nursing, 23, 387-396. doi:10.1016/j.apnu.2008.11.002

Chee, T. T., Ryan, A. M., Wasfy, J. H., & Borden, W. B. (2016). Current State of Value-Based

Purchasing Programs. *Circulation*, *133*(22), 2197–2205.

https://doi.org/10.1161/CIRCULATIONAHA.115.010268

Thornton, M., & Persaud, S. (2018). Preparing today's nurses: Social determinants of health and

nursing education. *The Online Journal of Issues in Nursing*, 23(3). Retrieved from:

https://ojin.nursingworld.org/MainMenuCategories/ANAMarketplace/ANAPeriodicals/O

JIN/TableofContents/Vol-23-2018/No3-Sept-2018/Social-Determinants-of-Health-

Nursing-Education.html

United States Census Bureau. (2018, March 13). Older people projected to outnumber children

for the first time in U.S. history. https://www.census.gov/newsroom/press-

releases/2018/cb18-41-population-projections.html

United States Census Bureau. (2019, October 10). Older People Projected to Outnumber

Children. Retrieved July 26, 2020, from https://www.census.gov/newsroom/press-

releases/2018/cb18-41-population-projections.html

.

Appendix A

```
┌─────────────────────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────────────────────┐  │
│  │         Database Search Range 2005 – 2020                  │  │
│  └───────────────────────────────────────────────────────────┘  │
│                                                                  │
│  ┌──────────────┐  ┌──────────────┐  ┌──────────────────┐       │
│  │ ProQuest     │  │  CINAHL      │  │ PubMed/MEDLINE   │       │
│  │ Nursing      │  │  n=886       │  │ n=1,025          │       │
│  │ n=454        │  │              │  │                  │       │
│  └──────────────┘  └──────────────┘  └──────────────────┘       │
│                                                                  │
│           ┌───────────────────────────────┐                      │
│           │  Unique abstracts screened     │                     │
│           │  n=120                         │                     │
│           └───────────────────────────────┘                      │
│                              ┌──────────────────┐                │
│                              │ Citations excluded│               │
│           ┌──────────────────┤ n= 80            │               │
│           │ Potentially relevant articles │                      │
│           │ retrieved for more detailed   │                      │
│           │ n=30evaluation                │  ┌─────────────────┐ │
│           └───────────────────────────────┘  │ Articles excluded│ │
│                  ┌─────────────────┐          │ n=13            │ │
│                  │ Relevant articles│          └─────────────────┘ │
│                  │ n= 17           │                              │
│                  └─────────────────┘                              │
│                                                                  │
│  Note.  The figure illustrates the literature search process     │
│  and the process for excluding articles not relevant to the      │
│  clinical problem                                                │
│                                                                  │
└──────────────────────────────────────────────────────────────────┘
```

Note. The figure illustrates the literature search process and the process for excluding articles not relevant to the clinical problem

Appendix B

Individual Evidence Summary Tool (John Hopkins Nursing Evidence-Based Practice

Article Number	Author and Date	Evidence Type	Sample, Sample Size, Setting	Findings That Help Answer the EBP Question	Observable Measures	Limitations	Evidence Level, Quality
1	Davies, N., Crowe, M., & Whitehead, L., (2016).	Research; Qualitative Narrative Inquiry	Purposive sampling, 40 older widow/widowers aged between 70-97, rural and urban areas of New Zealand, ❏N/A	A predominant theme emerged from the individual accounts of widows/widowers within the cohort of an onset of loneliness associated with widowhood, which seemed to upset usual routines. A theme that emerged from the article was that recent widowhood may present a considerable risk factor for loneliness requiring prompt assessment and intervention.	The analysis involved 5 stages: data immersion, identification of narratives and small stories, identification of themes, emotional sequencing, and identification of the collective story to comprise the narrative and thematic analyses. Descriptions of the event supports the phenomenon by describing time, place, person, and context.	While the narrative provides rich personal accounts, qualitative findings are not generalizable	Level 3; Good
2	Iecovich, E., & Biderman, A. (2012).	Research; Case-control study	417 users of day care centers for frail older adults and 400 matched non-users, 13 day care centers in the Southern Region of Israel. Participants were older adults over 60 years old ❏N/A	The article concluded no significant differences between users and non-users of day care centers. Both groups reported moderate to severe levels of loneliness; however, users reported slightly more loneliness, but the differences between the two groups lacked statistical significance on this issue. Significant differences were found to be relevant between the two groups: ethnicity, marital status, level of education, number of children, living arrangements, household size, length of stay in the country, monthly income, and self-reported health status	Outcome variable: loneliness as measured by the de Jong Gierveld Loneliness Scale, which has been shown to be valid and reliable for overall emotional and social loneliness. Independent variables measured: ADL's, Self-Rated Health, Comorbidity, Day care usage, and economic status. T-test and chi2 tests were used to examine the associations between the two sets of variables.	Use of a cross-sectional design which prevents establishing a causal linkage between loneliness and day care use. Because sampling was not representative generalizability is impeded	Level 3; Good
3	Greenfield, E. A., & Russell, D. (2011).	Research; nonexperimental cross-sectional design	Probability sample of US community-residing adults born between 1920-1947, with an oversampling of Latino and Black Americans.	This study concluded that living alone is not the only living arrangement that poses risk for loneliness later in life. Single older adults who live with others demonstrated greater levels of loneliness than older adults who lived with a spouse or partner. This suggests a difference in the	The NSHAP study conducted research between 2005 − 2006. A total of 4400 potential respondents were selected from a sampling frame the 2004 study. Following the original face-to-face interviews participants of	Although the survey's sample is relatively large, it included a small number of respondents who reported living in certain nonspousal living arrangements. The study differentiated between single and married statuses, but did not pay	Level 3; Good

	Author and Date	Evidence Type	Sample, Sample Size, Setting	Findings That Help Answer the EBP Question	Observable Measures	Limitations	Evidence Level, Quality
				quality of who one lives with and suggests the importance of intimate relationships as potentially more protective against feelings of loneliness. The article further described gender differences in the lived-experiences of loneliness. Men tended to be more vulnerable to loneliness when living with relatives or friends whereas single women tended to be more susceptible when living with children than men.	this phase were give a leave-behind questionnaire (LBQ), 4-item measure of loneliness. Three of the items were based on the Revised UCLA.	sufficient attention to other possible relationship statuses.	
4	Cacioppo, J., Hawkley, L., Crawford, L., Ernst, J, Burleson, M., Kowalewski, R., Malakkey, W., Van Cauter, E., & Bernston, G., (2002)	Research; experimental cross-sectional design	Study 1 assessed biomarkers and health behaviors in 89 undergraduate students. Study 2 assessed biomarkers in 25 lonely older adults all living in their homes and used the R-UCLA as a loneliness measure	Results concluded that lonely older adults experienced higher rates of poor sleep quality	Analyses of scores at follow-up on the R-UCLA confirmed that groups differed in loneliness p<.001. Health behaviors: no difference between groups, Cardiovascular activity – Cardiac output lower in lonely participants.	Self-report is a limitation in this study	Level 3; Good quality
5	AARP Foundation Isolation Framework. (2012, May 30).	Literature Review	NA	The article summarizes several bodies of work including research, nonresearch, expert opinion and other levels of evidence to elucidate the problem of loneliness	NA	As a literature review the article can draw no conclusions	Level 4; Good quality

	Author and Date	Evidence Type	Sample, Sample Size, Setting	Findings That Help Answer the EBP Question	Observable Measures	Limitations	Evidence Level, Quality
6	Aung, Moolphate, Nyein-Aung, Katonyoo, Khamchai & Wannakrairot, 2016	Quantitative non-experimental	435 persons, median age 83 years old, rural China	The study examined the protective roles of social networks for physical and mental wellbeing	Social Network Index (SNI)	Social network diversity was measured	Level 3; Good
7	Linda Grenade, Duncan Boldy, 2008	Literature Review	NA	Raised the question that community-dwelling older adults more at risk for loneliness that communal living counterparts. Article also used for agreements/disagreements with other article's findings	None	Article is a literature review and can draw no generalizable conclusions	Level 4; Good

8	Elizabeth Rourke, 2019	Literature Review	Article explored issue from an American Context	Article illuminated age-related changes such as loss of driving privileges	None	Article is a literature review and can draw no generalizable conclusions	Level 4; Good
9	De Koning, Louise, Stathi, A, Suzanne Richards, 2017	Case-study; quasi-experimental	884 participants, rural United Kingdom	Study explores predictors of loneliness and social isolation in an older rural-living UK population	Survey	Findings are not generalizable	Level 3; Good
10	Hawkley, Louise & Cacioppo, T.	Expert Opinion	NA	Article explores loneliness in older adults and effects on physical health	None	Findings are not generalizable	Level 5: Good
11	Kornhaber, R, Walsh, K, Duff, J, & Walker, K.	Non-experimental study	NA	Article explores the role of therapeutic relationships	A review of 10 articles at varying levels of evidence articles didn't delimit peer-reviewed publications to any particular time period or type of publication	Potential omission of other comprehensive and rigorous studies.	Level 3; Good
12	Healthy People 2020	Expert Committee/Consensus based on Scientific Evidence	NA	Recommends physical activity in older adults for health maintenance	None		Level IV; Good
13	Boss, Duck-Hee, Branson, 2014	Systematic Review	Canada, Sweden, Scotland, Amsteram, Dublin, England, Finland, United States	Loneliness was higher in people living dementia who were lonely at baseline	10 total studies (5) were longitudinal, (8) were population-based studies, and (2) were from the same cohort of participants. There were no qualitative studies	Causality was not determined in this study	Level I; Good

Appendix C

Categories	Program Information	$ Amount	# Participants	Expense	Total Expense
Nurse Training	Agency employs two staff RN's; participants will attend one workshop – 2 hour duration	NC Average RN salary $29.27/hour (BLS, 2017)	2 nurses	$58.54/nurse	$117.08
Educational Instructor Costs	Program leader will facilitate learning activity	$0.00	1 nurse	$0.00	$0.00
Educational Materials	Program leader will curate and design learning materials	$700.00	2 nurses	$0.00	$700.00
Refreshments	Program will offer participants refreshments	Muffins (5 muffins x $3.00/each) Beverages (2 bottles x $3.00/each) Paper products: cups and napkins ($10)	2 nurses	Muffins =$15.00 Beverages=$6.00 Paper Goods=$10.00	$31.00
Promotional Material	Loneliness campaign materials to create excitement	Wristbands (100 x 2$/item)	100 employees	$200	200
Total Cost					$1048.08

Figure 3. Pre/Post-Test Knowledge Measure
Quiz 1
"Stay Connected": Loneliness Education Module:
Employee Name: _____ Date: _____

1. Loneliness and social isolation are overlapping concepts.

   True

   False

2. Social isolation occurs when the older adult is no longer able to connect with others due to factors like inadequate adequate transportation?

   True

   False

3. Some older adults may be at a greater risk for loneliness than others. A significant risk factor might include which of the following:
   a. Living in a walkable urban area
   b. A heart attack a year ago
   c. Loss of a spouse one month ago
   d. A frequent need to use the bathroom

4. Loneliness is an unwelcome experience and its effect on health is:
   a. It doesn't have an effect on health
   b. It can worsen existing health conditions
   c. It has minimal negative effects and all of us experience it
   d. It does not occur among the wealthy

5. Older adults are at risk for loneliness because:
   a. They prefer to be alone and stay in their routines
   b. They no longer desire to maintain social connections
   c. They require the assistance of others to do things
   d. They no longer socialize well

6. Which of the following older adults is most at risk for loneliness?

   a. Bob is 67 years old, lives alone, drives on secondary roads a few times a week for shopping and errands
   b. Judy lost her husband 6 months ago and her family takes turns visiting her a few times a week
   c. Gertrude is 88 and her children live in other states, she uses a wheelchair and has a homecare aide 6 hours per day to assist with meals and ADL's (activities of daily living)
   d. Ernest is 92 lives in a senior building and regularly attends events at the residence

7. Loneliness can be reduced among older adults through effective strategies. Which strategy done regularly each week do you feel would be the most effective to reduce loneliness?

a. Going shopping for the client
b. Assisting her with getting dressed and cooking delicious meals
c. Discussing old funny stories and laughing
d. Watching television thirty minutes

8. Older adults may be reluctant to admit they are lonely.

True

False

9. The topic of loneliness receives little attention in home care training program's because there are no reliable tools to measure if a person is lonely?

True

False

10. Feeling lonely suggests dissatisfaction with one's?

a. Health status
b. Friendships
c. Financial status
d. Immigration status

11. Older adult clients may experience loneliness because they are isolated from their social network. Which of the following might suggest social isolation?

a. Living in a big city
b. Living in the home with children and other relatives
c. Living in a rural area
d. Living near public transportation

Table 4.

Loneliness Program – Data Management Plan

Measurable Outcomes	Data Collection	Data Management	Data Analysis	Plan's Strengths and Limitations	Cost Benefit Analysis Objective
Increase agency nurse's and staff's knowledge of the clinical problem of loneliness, its assessment, and strategies for intervention	Electronic Survey Monkey/Mailed pre-test Education Module via an online learning format Electronic Survey Monkey/Mailed Post-test knowledge measure	Education module shared using Prezi Video or Power Point with Notes Nurses/Staff Training: Teach nurses on clinical problem, and in use of loneliness reducing interventions Nurses Training: Use of UCLA 3-item scale and R-UCLA 20-item loneliness scale	Knowledge will be measured comparing pre/post test scores and a minimum post-test score of 80% for program inclusion using Survey Monkey/Microsoft Excel	Strengths: Ability to measure knowledge through comparison of pre/post-test scores Limitations: none	Calculate costs of use of technology for pre/post-tests
Level of patient loneliness	Screen clients for loneliness using the UCLA 3-item Clients who test positive for loneliness will be assessed using the R-UCLA loneliness assessment tool	UCLA screening scores and R-UCLA scores pre/post intervention will be entered onto a SmartSheet Updating client electronic and paper care plans for clients and facilitators use of the intervention: reminiscence, friendship line, music therapy, scripture reading, and chair exercises, to facilitate reductions in loneliness.	Caregiver notes will be extracted weekly Project manager will contact agency's day-to-day leader weekly for written intervention notes Pre and post-assessment loneliness scores will be inputted into MS Excel. Post-intervention raw score compared with pre-intervention score Variance in	Strengths: Use of a valid measure to assess loneliness Use of diverse intervention options to determine the most effective Involvement of clients in choosing intervention Limitations: none	Calculate costs of technology needed for storing loneliness scores, and for interventions

			loneliness score will be calculated using a simple calculation in MS Excel		
Client's experience of loneliness program	Post-implementation clients will be called by the program manager to gain qualitative insights regarding the overall program	Measure client experience through a structured interview tool	Client narrative notes will be entered in SmartSheet and complied for descriptive analysis	Strengths: Gain stakeholder insights post-intervention Limitations: Calling clients may reduce the number of client's reached and the sum of feedback	Calculate costs of SmartSheet technology

Table. 5

Post-intervention Interview Guide

Structured Interview Tool Questions (Final)

1. Tell me about how you and your aide interact socially?
2. Tell me about your level of contact with friends, families, or other important relationships?
3. When you feel lonely tell me how you share that with others?
4. Tell me how you think your aide could help you feel less lonely?
5. Tell me about the services you now have that help you feel connected to others?
6. Are there other services that you wished you had access to?
7. Tell me what you talk about with people in your age group?
8. How does reminiscing about your life help you to get to know others? (reminiscing)
9. Describe how you feel when listening to music? (music therapy)
10. Tell me how you feel when you hear a funny story? (humor therapy)
11. Tell me about attending religious services? (spiritual need)

Note. Structured interview questions for client's post-intervention