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## Evaluating Mindfulness on Loneliness in an Older Adult Population

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# **Evaluating Mindfulness on Loneliness in an Older Adult Population**

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### Abstract

**Problem:** Loneliness is a widespread public health concern and has negatively impacted mortality and health outcomes among older adults. This quality improvement project's purpose was to evaluate mindfulness on loneliness and quality of life among adults aged 65 years and older, participating in a weekly befriending socialization program.

**Methods:** A descriptive cohort design was utilized to assess loneliness pre-and post-implementation of a mindfulness telephone line over three months. A convenience sample of 22 older adults enrolled in a befriending socialization program was used. The Iowa Model of Evidence-Based Practice framework was applied to guide the implementation of a practice change and evaluate its impact on healthcare outcomes.

**Results:** Participation in mindfulness was independent of post-implementation perceived loneliness ( $p = .697$ ) and quality of life ( $p = .711$ ). No difference was noted between the post-implementation mean loneliness scores among the mindfulness participation ( $M = 3.57$ ,  $SD = 2.70$ ) and no participation groups ( $M = 3.53$ ,  $SD = 1.88$ ),  $t(20) = -0.04$ ,  $p = .970$ . Mindfulness participation did not have a significant difference for the mean loneliness scores in the pre- ( $M = 3.86$ ,  $SD = 2.54$ ) and post-implementation screenings ( $M = 3.57$ ,  $SD = 2.70$ ),  $t(6) = 0.79$ ,  $p = .457$ . A mean decrease from 3.86 to 3.57 is clinically significant.

**Implications for Practice:** Mindfulness meditation may provide a positive impact on the older adult population. Telephone-based mindfulness meditations have the potential to reduce anxiety and stress while improving focus and sleep, as well as creating the daily habit of deep breathing and mindfulness. The daily activity of telephone-based mindfulness could supplement weekly befriending socialization programs for older adults.

**Keywords:** older adults, loneliness, mindfulness, meditation, telephone-based, befriending socialization programs, quality of life

### **Evaluating Mindfulness on Loneliness in an Older Adult Population**

Loneliness is a widespread public health concern, with 20-34% of older adults reporting being lonely across the globe (World Health Organization [WHO], 2021). In 2016, the prevalence of loneliness among older adults in the United States was 25-29% (Ong et al., 2016). Loneliness has been shown to negatively impact mortality and health outcomes (Beller & Wagner, 2018; Campagne, 2019; Courtin & Knapp, 2017; Gardiner et al., 2020; Holt-Lunstad, 2017; Ong et al., 2016; Solmi et al., 2020). Today, 14.7 million adults aged 65 years and older live alone, putting them at an increased risk of being lonely (Courtin & Knapp, 2017; U.S. Department of Health and Human Services [HHS], 2020). The current population of adults aged 65 years and older is projected to be 80.8 million by 2040 and increase 35% by 2060, totaling 94.7 million in the United States (HHS, 2020). With this alarming projection, the focus must be on loneliness, its impact on the older adult population, and public health.

Loneliness and social isolation are closely related; therefore, it is essential to have a basic understanding of their unique effects. Loneliness is thought to be measured subjectively, whereas social isolation can be objectively quantified. More than four decades ago, Peplau and Caldwell (1978) described loneliness as an individual's perception of social interaction achieved is less than the desired level of social contact. Social isolation is viewed as the number of social interactions achieved (Peplau & Caldwell, 1978). Within the last five years, researchers have continued to provide individual context to loneliness and social isolation (Beller & Wagner, 2018; Campagne, 2019; Courtin & Knapp, 2017; Ong et al., 2016; Solmi et al., 2020). When studied independently, loneliness has been linked to depression and can predict poor mental health (Beller & Wagner, 2018). In

contrast, social isolation was not related to depression and had minimal associations with poor mental health (Beller & Wagner, 2018). As aforementioned, within the last five years, loneliness and social isolation have been defined independently. This project will focus on loneliness among older adults aged 65 years and older.

Engaging in effective interventions to reduce loneliness is crucial, including social support, mindfulness meditation, and technology (Creswell et al., 2012; Lindsay et al., 2019; Siette et al., 2017; Veronese et al., 2020; Wiles et al., 2019; Zhang et al., 2021). Interventions to reduce loneliness, such as social support and mindfulness meditation, do not require the internet or a smartphone and can be provided through the telephone (Felsted, 2020; Siette et al., 2017; Wiles et al., 2019). Unfortunately, technology-based interventions require participants to access either the internet or a smartphone, which is a barrier to older adults without this technology (Lindsay et al., 2019; Pew Research Center, 2021a; Pew Research Center, 2021b; Zhang et al., 2021).

A non-profit healthcare organization in the Midwest provides social support for older adults experiencing loneliness through their weekly befriending socialization program called Visit-a-Bit (VAB). The goal of the VAB program is to address loneliness and improve the quality of life for participants. VAB provides weekly visits with a volunteer, access to social activities, and resources to facilitate participants' independence. While the VAB program offers weekly social activities, the program lacks a daily activity to reduce loneliness. Mindfulness, the act of focusing on the present moment in a relaxed, purposeful way, is an activity that can be performed daily and has shown to decrease loneliness (Creswell, 2017; Creswell et al., 2012; Felsted, 2020; Lindsay et al., 2019; Veronese et al., 2020).

Mindfulness is rooted in ancient Buddhism and can be traced back thousands of years (Creswell, 2017; Felsted, 2020). Modern mindfulness was developed by researchers in the 1970s at the University of Massachusetts, who took the ancient idea and turned it into a program to reduce stress by having participants concentrate on the present moment (Creswell, 2017; Felsted, 2020). Creswell et al. (2012) performed the first study to show that mindfulness reduced feelings of loneliness. Older adults are good candidates for mindfulness, as research has shown they have a high adherence rate and benefit from nonpharmacologic interventions (Felsted, 2020).

The purpose of this evidence-based pilot quality improvement project was to evaluate mindfulness on loneliness and quality of life among older adults participating in the VAB weekly befriending socialization program. The evidence-based framework selected to guide this project was the Iowa Model. This project aimed to assess loneliness in 22 adults aged 65 years and older who enrolled in the VAB program and participated in telephone-based mindfulness over three months. The primary outcome measures for this project were feelings of loneliness measured by the DeJong Gierveld Loneliness Scale and the rate of participation in mindfulness. The question to be addressed in this project is: In adults aged 65 years and older participating in the VAB weekly befriending socialization program, what is the impact of telephone-based mindfulness on feelings of loneliness over a three-month period?

### **Literature Review**

A review of the literature was conducted, including a search of CINAHL, Medline (EBSCO), APA PsychInfo, and PubMed databases. The search terms utilizing Boolean operators were *lonel\** AND *older adults* OR *elderly* OR *geriatric* OR *geriatrics* OR *aging*

OR *senior* OR *seniors* OR *older people* OR *aged 65* OR *65+* AND *mindful\** OR *intervention*, with the result of 5,295 research articles. Publications were reviewed for relevancy; 20 articles were retained for review after duplicates were removed. Publications selected for review maintained the following inclusion criteria: published between 2016 - 2021, peer-reviewed, written in the English language, studies with participants aged 65 years and older, and studies on loneliness or mindfulness. Exclusion criteria included studies published before 2016, not written in English, participants under 65 years old, and studies that did not include loneliness or mindfulness.

Loneliness is widely found to negatively impact an individual's physical and mental health (Beller & Wagner, 2018; Campagne, 2019; Courtin & Knapp, 2017; Gardiner et al., 2020; Holt-Lunstad, 2017; Ong et al., 2016; Solmi et al., 2020). Loneliness has been shown to impact comorbid conditions, such as hypertension, stroke, heart disease, and diabetes (Courtin & Knapp, 2017; Holt-Lunstad, 2017; Ong et al., 2016; Solmi et al., 2020). Chronic stress resulting from feelings of loneliness can weaken the immune system and increase inflammation within the body (Campagne, 2019; Holt-Lunstad, 2017; Lindsay et al., 2021; Solmi et al., 2020). In addition, loneliness impacts mental health, increasing the risk of depression, impairment of cognitive function, poor sleep quality, and a decreased quality of life (Beller & Wagner, 2018; Courtin & Knapp, 2017; Gardiner et al., 2020; Holt-Lunstad, 2017; Mallidou & Babalola, 2020; Ong et al., 2016; Solmi et al., 2020). Gender is also a risk factor for loneliness and may contribute to its health impacts. Loneliness is more likely to impact men's mental health, whereas women are more likely to experience adverse physical health effects and are at an increased risk for loneliness (Courtin & Knapp, 2017; Solmi et al., 2020).

Older adults are at an increased risk of experiencing loneliness due to decreased social connections, living alone, limited functional mobility, insufficient socioeconomic resources, and poor health conditions (Campagne, 2019; Courtin & Knapp, 2017; Holt-Lunstad, 2017; Ong et al., 2016; Solmi et al., 2020). A meta-analysis by Gardiner et al. (2020) examined the prevalence of loneliness among older adults with a mean age of 83.5 years old, living in residential and nursing care homes. The estimated mean prevalence found that moderate and severe loneliness accounted for 65% and 31% of the elderly residents, respectively (Gardiner et al., 2020). Additionally, loneliness increases mortality risk among older adults (Courtin & Knapp, 2017; Gardiner et al., 2020; Holt-Lunstad, 2017; Ong et al., 2016). Ong et al. (2016) reported that premature mortality risk was increased among those experiencing loneliness by 26% and those living alone by 32%. The mortality rates for loneliness are comparable to other well-known risk factors for mortality, such as obesity and smoking (Courtin & Knapp, 2017; Holt-Lunstad, 2017; Ong et al., 2016).

The DeJong Gierveld Loneliness scale evaluates two dimensions of loneliness, emotional and social, but can also be used as a unidimensional loneliness scale. The six-item loneliness scale uses the first three items to assess emotional loneliness and the last three to evaluate social loneliness. The six-item scale was adapted from the original eleven-item scale and is a reliable and valid measurement instrument. In addition, the shortened six-item loneliness scale is convenient for large surveys and applies to a wide age range of adults from 18 to 99 years old. The loneliness scale gives an objective score to the subjective feelings of loneliness. The loneliness score is calculated by totaling the



emotional and social loneliness scores. A score of zero indicates the least lonely, whereas a score of six indicates the most lonely (DeJong Gierveld & Van Tilburg, 2006).

Several interventions have been explored to reduce loneliness, including social support, social skills training, befriending socialization programs, mindfulness meditation, the use of technology, and animal therapy/robotpets (Abbott et al., 2019; Creswell et al., 2012; Lindsay et al., 2019; Siette et al., 2017; Veronese et al., 2020; Wiles et al., 2019; Zhang et al., 2021). A review conducted by Veronese et al. (2020) found that interventions such as social support and mindfulness meditation significantly decreased the perception of loneliness among participants. Befriending socialization programs have been developed to provide social support and reduce loneliness by providing routine, emotional support, and companionship by a volunteer (Siette et al., 2017; Wiles et al., 2019). Research by Siette et al. (2017) and Wiles et al. (2019) has shown positive impacts on the perception of loneliness among older adults participating in befriending socialization programs.

Likewise, technological interventions providing social support through social media or electronics have reduced loneliness among older adults (Abbott et al., 2019; Zhang et al., 2021). A randomized control trial by Lindsay et al. (2019) found participants' attention and acceptance skills from a two-week smartphone-based mindfulness intervention reduced loneliness by 22% and increased their willingness to engage in social contact. These technology-based interventions require participants to access either the internet or a smartphone; however, 36% of older adults do not have home internet, and 39% do not have a smartphone (Pew Research Center, 2021a; Pew Research Center, 2021b). Alternatively, the telephone is a universal form of communication, with 42% of older adults utilizing a landline and 29% having access to a non-smartphone mobile device

(Creech, 2019; Federal Communications Commission [FCC], 2021; Pew Research Center, 2021b). Mindfulness is thought to be ideal for reducing loneliness in older adults as it does not require the internet or a smartphone and can be practiced as an individual activity (Felsted, 2020; Lindsay et al., 2019).

Moreover, research has shown that mindfulness interventions effectively reduce loneliness (Creswell et al., 2012; Felsted, 2020; Lindsay et al., 2019; Veronese et al., 2020). Studies have suggested that stress is linked to feelings of loneliness; therefore, techniques to reduce stress, such as mindfulness, are effective interventions to decrease loneliness (Campagne, 2019; Creswell et al., 2012; Felsted, 2020; Lindsay et al., 2021). As aforementioned, the sentinel randomized control study by Creswell et al. (2012) evaluated the effects of mindfulness on loneliness among adults 55-85 years old and found a significant decrease in loneliness among participants compared to the control group. Additionally, mindfulness decreased pro-inflammatory gene expression associated with subjective loneliness in participants. A randomized control trial exploring the effects of mindfulness on glucocorticoid resistance among older adults by Lindsay et al. (2021) suggests that mindfulness provides a buffer against glucocorticoid resistance, therefore decreasing inflammation. The studies by Creswell et al. (2012) and Lindsay et al. (2021) demonstrate how loneliness impacts an individual at the cellular and genomic level and how mindfulness can protect and reverse this effect.

Mindfulness provides several health benefits for mental and physical health and chronic conditions (Creswell, 2017; Felsted, 2020). Improvement in mental health components is seen with the practice of mindfulness, including a reduction in stress, loneliness, depression, anxiety, and post-traumatic stress disorder (Creswell, 2017;

Creswell et al., 2012; Creswell et al., 2019; Felsted, 2020; Reangsing et al., 2021). Studies have shown that mindfulness improves sleep quality, cognitive function, memory, and quality of life (Creswell, 2017; Felsted, 2020; Mallidou & Babalola, 2020). Mindfulness positively impacts physical health by reducing blood pressure and chronic pain, improving insulin resistance, decreasing symptoms of rheumatoid arthritis, irritable bowel syndrome, and urge urinary incontinence (Creswell, 2017; Creswell et al., 2019; Felsted, 2020). While mindfulness can treat various conditions, it is unique because it does not need to be customized to be effective (Felsted, 2020).

Mindfulness practice can vary widely in frequency, length, location, and transmission (Creswell, 2017; Creswell et al., 2012; Felsted, 2020; Lindsay et al., 2019). A constant among mindfulness-based interventions is that it teaches participants how to be aware of and accept the present moment in a relaxed, calm way, free from suffering (Creswell, 2017; Creswell et al., 2012; Creswell et al., 2019; Felsted, 2020; Lindsay et al., 2019, Lindsay et al., 2021). There is no definitive recommendation on the amount of time or frequency mindfulness must be practiced to gain benefits (Creswell, 2017). Brief mindfulness sessions of five to ten minutes have shown positive outcomes (Creswell, 2017). A systematic review conducted by Creswell (2017) suggested mindfulness over short time results in smaller benefits than mindfulness practiced over more extended periods, such as eight weeks, produces a more significant benefit. Felsted (2020) posited mindfulness as a simple and cost-effective intervention because it does not require continuous maintenance. A distinct feature of mindfulness is that it is more effective over time, unlike pharmacologic remedies that may decrease potency with continued use (Felsted, 2020).

Loneliness and mindfulness have an inverse relationship. Loneliness is associated with increased mortality and adverse mental and physical health outcomes among older adults (Beller & Wagner, 2018; Campagne, 2019; Courtin & Knapp, 2017; Gardiner et al., 2020; Holt-Lunstad, 2017; Ong et al., 2016; Solmi et al., 2020), whereas mindfulness has been shown to improve mental and physical health and reduce the impact of stress on normal aging (Creswell, 2017; Creswell et al., 2012; Creswell et al., 2019; Felsted, 2020; Lindsay et al., 2021; Reangsing et al., 2021). There is a dearth of studies addressing mindfulness as an intervention to reduce loneliness in the older adult population. While mindfulness-based interventions have decreased loneliness, study interventions typically require the participant to attend a group session or access technology, such as the internet or a smartphone (Creswell et al., 2012; Lindsay et al., 2019). Older adults risk being excluded from participating in these mindfulness-based activities without access to basic technology. Among the older adult population, access to a telephone should be universal, making it a convenient way to provide them with mindfulness content (FCC, 2021; Pew Research Center, 2021b). In previous studies, it has been shown that telephone-based mindfulness interventions are beneficial in reducing stress among participants experiencing chronic physical ailments (Aivaliotis et al., 2017; Cox et al., 2014; Gross et al., 2017), although, during this review of literature, no studies explored a telephone-based mindfulness intervention for loneliness among older adults.

The framework selected to guide this project was the Iowa Model, as it guides the implementation of evidence-based practice to improve healthcare outcomes (Buckwalter et al., 2017). The VAB program identifies loneliness as a concern among the older adult population, and the stakeholders met to discuss opportunities to address it among VAB

participants. The literature review above yielded mindfulness-based interventions as an effective strategy to reduce loneliness among older adults. It also provided sufficient evidence to support a pilot project for a practice change. The stakeholders implemented a telephone-based mindfulness pilot intervention with outcome evaluation through team collaboration. The project results were disseminated to the stakeholders to determine if the evidence-based change would be adopted. The process may be repeated for continuous quality improvement within the healthcare organization (Buckwalter et al., 2017).

## **Methods**

### **Design**

This evidence-based pilot quality improvement project utilized a descriptive cohort design with a pre- (August 2021 - January 2022), and post- (February 2022 - April 2022) implementation screening completed three months apart to evaluate the program's outcomes. Data collection occurred through a retrospective and prospective electronic screening review over nine months, from August 2021 to April 2022.

### **Setting**

The setting for this project was a Midwestern suburban non-profit healthcare organization. The VAB program employs one manager, 28 volunteers, and 23 participants are enrolled. The United States Census Bureau (USCB) (2020) estimates the population in the surrounding area at 28,284, of which 14.5% are aged 65 years and older, and 51.6% are female.

### **Sample**

This project utilized a convenience sample of 22 older adults, including English-speaking participants enrolled in the VAB socialization program, aged 65 years and older,

with access to a telephone. Non-English-speaking participants, those not enrolled in the VAB socialization program, less than 65 years of age, and without access to a telephone, were excluded. The desired sample size was a minimum of 20 participants.

### **Data Collection and Analysis**

The VAB Screening Assessment Instrument (VAB-SAI) was administered to VAB participants by the organization via telephone to collect pre-and post-implementation data. The screening included perceived quality of life, perceived loneliness, the loneliest time of day, and the DeJong Gierveld Loneliness score. All VAB participants were de-identified by the organization with a numerical identifier. A list of participants' de-identified numerical identifiers and the last five digits of their telephone numbers were transferred to the primary investigator in an encrypted file. The password-protected electronic telephone system recorded the participants' telephone numbers, call dates, call times, and the meditation participants selected. Descriptive data obtained included age, gender, race, and whether participants live alone or have children.

Data were analyzed using Intellectus Statistics and Microsoft Excel software. The VAB-SAI pre-and post-implementation and electronic telephone management system data were analyzed using two-tailed paired and independent samples *t*-tests, two-tailed Wilcoxon signed-rank test, Fisher exact test, and descriptive statistics. Nominal descriptive data were evaluated with descriptive statistics, while age was described as mean and standard deviation. Approval was obtained from the organization and the university's Institutional Review Board (IRB) prior to data collection and analysis.

**Approval Process**

Formal, written approval was obtained from the organization, the doctoral committee of graduate studies, and the IRB of the University. There were no ethical considerations to be addressed.

**Procedures**

Stakeholders met to discuss the results of a previous quality improvement project performed by a DNP student involving VAB participants. Further discussions explored possible daily activities focused on alleviating loneliness. After conducting a literature review, mindfulness was revealed to be an evidence-based activity that reduces loneliness among older adults. The literature review results were discussed with stakeholders, and bi-monthly meetings were held over three months to determine how best to implement mindfulness into the VAB program. The established VAB-SAI was reviewed to determine applicability to project goals. The participating program staff selected and approved public domain mindfulness audio clips for intervention implementation. The stakeholders discussed a plan to activate the electronic telephone management system and launch the mindfulness telephone line.

The electronic telephone management system's menu options were set up to include the mindfulness audio clips, instructions for preparing for mindfulness, and the benefits of mindfulness. Three mindfulness audio clips varied in length from three, five, and twelve minutes. Before the mindfulness telephone line was initiated, participants were informed of the upcoming mindfulness activity during the pre-implementation screening calls and in the VAB newsletter. One week before implementation, VAB participants were sent a flyer in the mail with the details of the mindfulness activity. The flyer included the date of

implementation, the mindfulness telephone line number, and the benefits of mindfulness. The mindfulness telephone line was promoted during one telephone-based social activity and in the VAB newsletter during the implementation period. Over the three-month pilot period, data obtained was transferred to a data collection tool for analysis.

### Results

Twenty-two ( $N=22$ ) older adults active in the VAB program were included in this study. Participants' age ranged from 68- to 94- years of age, with a mean of 77.55 years ( $SD = 7.63$ ). Only seven ( $n=7$ ), 32%, chose to participate in telephone-based mindfulness, while the other fifteen ( $n=15$ ), 68%, did not participate. Among the seven ( $N=7$ ; 100%) who participated in mindfulness, 57% were female ( $n=4$ ), and 43% ( $n=3$ ) were male. Seventy-one percent ( $n=5$ ) were Caucasian, followed by African American at 29% ( $n=2$ ). While 86% ( $n=6$ ) lived alone, 14% ( $n=1$ ) lived with others, and of those 86% ( $n=6$ ) have children, while 14% ( $n=1$ ) had no children. In the group of fifteen ( $n=15$ ) participants who did not partake in mindfulness, 73% were female ( $n=11$ ), and 27% ( $n=4$ ) were male. Seventy-three percent ( $n=11$ ) were Caucasian, followed by African American at 27% ( $n=4$ ). While 87% ( $n=13$ ) lived alone, 13% ( $n=2$ ) lived with others, and of those 73% ( $n=11$ ) have children, while 27% ( $n=4$ ) had no children (see Appendix A).

Perceived loneliness, "How often do you feel lonely?" in the pre-and post-implementation screenings among the mindfulness participation group ( $N=7$ ), were reported as *often* at 57% ( $n=4$ ), *never* at 29% ( $n=2$ ), *sometimes* at 14% ( $n=1$ ), and *rarely* at 0% ( $n=0$ ) (see Appendix B). Also observed in the post-implementation screening, the loneliest time of day was described as *night* at 43% ( $n=3$ ), followed by *afternoon* ( $n=2$ ) and *not applicable* ( $n=2$ ) each at 29%, and *morning* at 0%. In the no participation group



( $n=15$ ), perceived loneliness in the pre-implementation screening was reported as sometimes at 47% ( $n=7$ ), often at 27% ( $n=4$ ), rarely ( $n=2$ ) and never ( $n=2$ ) were each at 13%. In the post-implementation screening, perceived loneliness was often at 33% ( $n=5$ ), never at 27% ( $n=4$ ), sometimes ( $n=3$ ) and rarely ( $n=3$ ) were each 20% (see Appendix B). The post-implementation screening also described the loneliest time of day as night at 47% ( $n=7$ ), not applicable at 33% ( $n=5$ ), morning at 13% ( $n=2$ ), and afternoon at 7% ( $n=1$ ).

For quality of life, “How would you describe the quality of your life?” in the mindfulness participation group ( $N=7$ ), the pre-implementation screening showed *excellent* at 43% ( $n=3$ ), *fair* ( $n=2$ ), and *poor* ( $n=2$ ) each at 29%, and *good* at 0% ( $n=0$ ). In the post-implementation screening, *excellent* ( $n=2$ ), *fair* ( $n=2$ ), and *poor* ( $n=2$ ) were reported equally each at 29%, followed by *good* at 14% ( $n=1$ ). Among the no participation group ( $n=15$ ), pre-implementation screening for quality of life was *good* at 40% ( $n=6$ ), *poor* at 27% ( $n=4$ ), *fair* at 20% ( $n=3$ ), and *excellent* at 13% ( $n=2$ ). In the post-implementation screening, *good* ( $n=5$ ) and *fair* ( $n=5$ ) were reported equally each at 33%, *excellent* at 20% ( $n=3$ ), and *poor* at 13% ( $n=2$ ) (see Appendix C).

A Fisher’s exact test, a two-tailed independent and paired samples  $t$ -tests, and a two-tailed Wilcoxon signed-rank test were conducted, and all tests were based on an alpha value of 0.05. The Fisher’s exact test resulted in ( $p = .697$ ) perceived loneliness and ( $p = .711$ ) quality of life. These values represent that participation in mindfulness was independent of post-implementation perceived loneliness and quality of life. The two-tailed independent samples  $t$ -tests indicated there were no significant difference between the mean loneliness scores in the pre-implementation screening among the mindfulness participation group ( $M = 3.86$ ,  $SD = 2.54$ ) and no participation group ( $M = 3.60$ ,  $SD =$

2.20),  $t(20) = -0.24, p = .810$ . There was also no significant difference between the loneliness scores in the post-implementation screening among the mindfulness participation group ( $M = 3.57, SD = 2.70$ ) and no participation group ( $M = 3.53, SD = 1.88$ ),  $t(20) = -0.04, p = .970$  (see Appendix D). A two-tailed Wilcoxon signed-rank test indicated no significant difference between pre-and post-implementation screening loneliness scores for the no participation group ( $z = -0.44, p = .660$ ). A two-tailed paired samples  $t$ -test showed the mindfulness participation group did not have a significant difference for the mean loneliness scores in the pre-implementation screening ( $M = 3.86, SD = 2.54$ ) and post-implementation screening ( $M = 3.57, SD = 2.70$ ),  $t(6) = 0.79, p = .457$  (see Appendix E).

Older adults who participated in mindfulness ( $N=7$ ) called the mindfulness telephone line one to 45 times, with a mean of 9.71 and a median of two calls. Fifty-seven percent ( $n=4$ ) of participants called the mindfulness telephone line multiple times, while 43% ( $n=3$ ) called once (see Appendix F). Among the calls to the mindfulness telephone line, the meditation length most frequently observed was five minutes with 42 calls at 62%, followed by the three-minute meditation with 13 calls and twelve-minute meditation with 13 calls, each at 19%. The time of day with the highest call volume occurred in the morning with 53 calls at 78%, followed by the afternoon with nine calls at 13%, and the evening with six calls at 9% (see Appendix G).

### **Discussion**

This evidence-based pilot quality improvement project aimed to evaluate telephone-based mindfulness on feelings of loneliness and quality of life among older adults aged 65 years and older participating in the VAB weekly socialization program.

Over three months, participation in telephone-based mindfulness did not show a statistically significant difference in perceived loneliness ( $p = .697$ ) or quality of life ( $p = .711$ ). There was no difference in post-implementation screening loneliness scores among the mindfulness participation group and the group that chose not to participate ( $p = .970$ ). However, the mindfulness participation group started with a greater mean loneliness score of 3.86 in the pre-implementation screening compared to the no participation group at 3.60. No statistical difference was found among the mindfulness participation group in mean pre-and post-implementation screening loneliness scores ( $p = .457$ ). However, the mean loneliness scores decreased from 3.86 to 3.57 among mindfulness participants after implementing the mindfulness telephone line.

Among the participants who called the mindfulness telephone line ( $N=7$ ), the five-minute meditation was listened to most frequently, and the highest call volume occurred in the morning. The mindfulness participants reported their loneliest time of day was at night, but the call volume to the mindfulness telephone line was the lowest in the evening. While the mindfulness telephone line was available to participants every day for the three-month pilot period, the individual with the greatest rate of participation called 45 times, accessing the meditation line on average every other day. Of the two participants with the highest rate of calls to the mindfulness telephone line, one participant's post-implementation screening revealed a loneliness score of six, indicating most lonely, perceived loneliness as often, and poor quality of life. The other participant's post-implementation screening showed a loneliness score of zero indicating least lonely, perceived loneliness as never, and excellent quality of life (see Appendix F). Although these two participants have differing degrees of loneliness and quality of life, they both reported the mindfulness

telephone line was beneficial. These results were discussed with stakeholders within the VAB program and have prompted the organization to explore offering telephone-based mindfulness as a routine activity for VAB participants.

A strength of this project was one surveyor conducted all the pre-and post-implementation screenings to reduce variation in how the questions were asked to participants. Additionally, the mindfulness telephone line was easy and inexpensive to implement. A weakness was the small sample size, in addition to the limited number of older adults who chose to participate in telephone-based mindfulness. Recommendations for future study include utilizing a larger sample size and evaluating the impact of mindfulness over a more extended period. Implementing an evening activity is indicated to target evening loneliness among VAB participants. Automated telephone calls to participants utilizing the electronic telephone management system is advised to promote the mindfulness telephone line and raise the rate of participation in mindfulness. In addition, data collection of participants' health status during pre-and post-implementation screenings is suggested. During screening calls, participants discussed their current health status, and the state of their health may have impacted their responses regarding feelings of loneliness and quality of life. Impaired health status may reduce one's social contacts and increase feelings of loneliness (Beller & Wagner, 2018). To capture this information, it is recommended to add questions such as "How is your health impacting your quality of life?" and "How is your health status impacting your feelings of loneliness?" to the VAB-SAI. Future studies should investigate the impact of health status on feelings of loneliness and quality of life among older adults.

### **Conclusion**

Mindfulness meditation may provide a positive impact on the older adult population. Although no significant difference was found in feelings of loneliness among older adults who participated in the telephone-based mindfulness, clinical significance was discovered. Mindfulness participants expressed how the meditations were incredibly beneficial. The participants who called the mindfulness telephone line revealed that the meditations assisted with multiple aspects of their life, including anxiety, stress, focus, and sleep. Some also verbalized how the mindfulness telephone line helped them create the daily habit of deep breathing and mindfulness. Altogether, participants found telephone-based mindfulness to be a valuable addition to their daily lives. The VAB program is considering the adoption of telephone-based mindfulness as an accessible, low-cost activity with the potential to alleviate loneliness and improve the quality of life among VAB participants.

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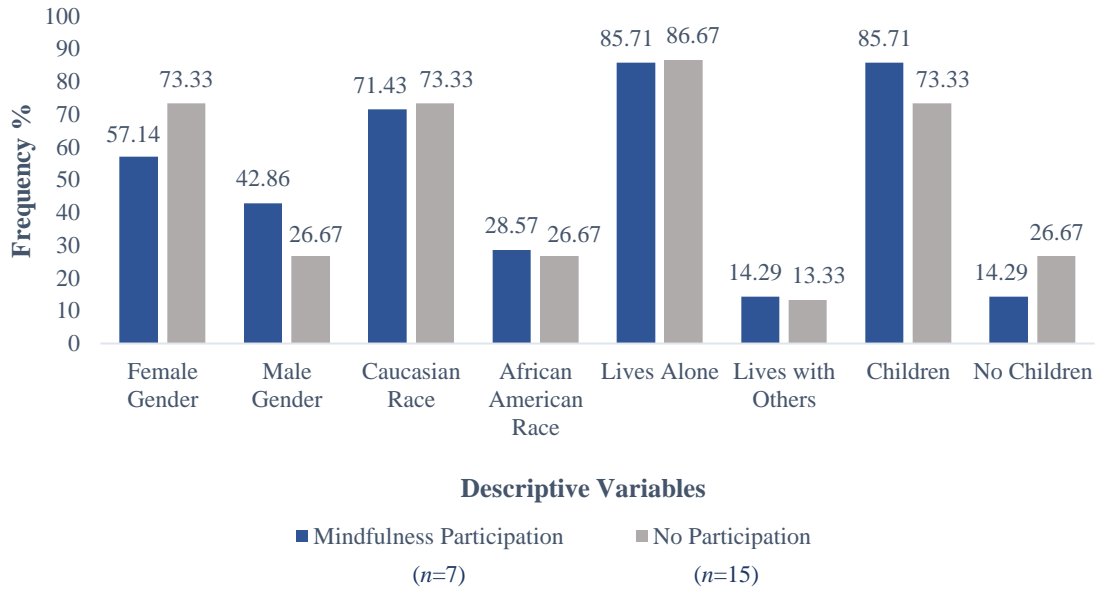
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**Appendix A**

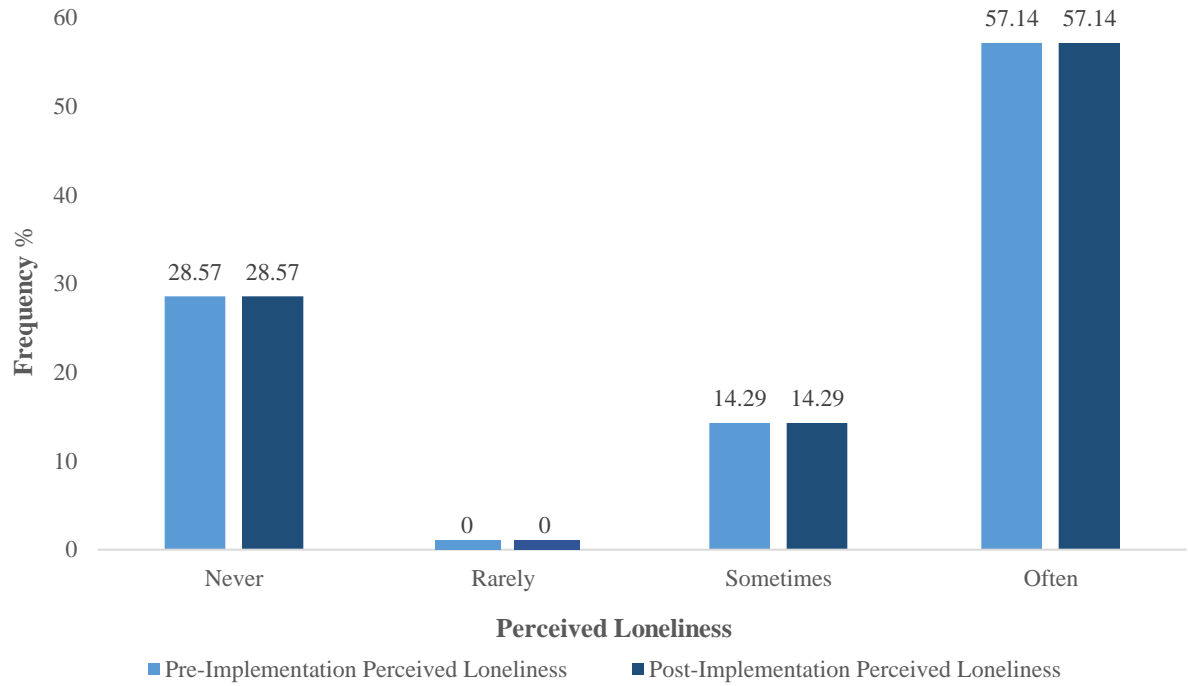
**Figure 1**

*Frequency of Descriptive Variables by Participation in Mindfulness (N=22)*



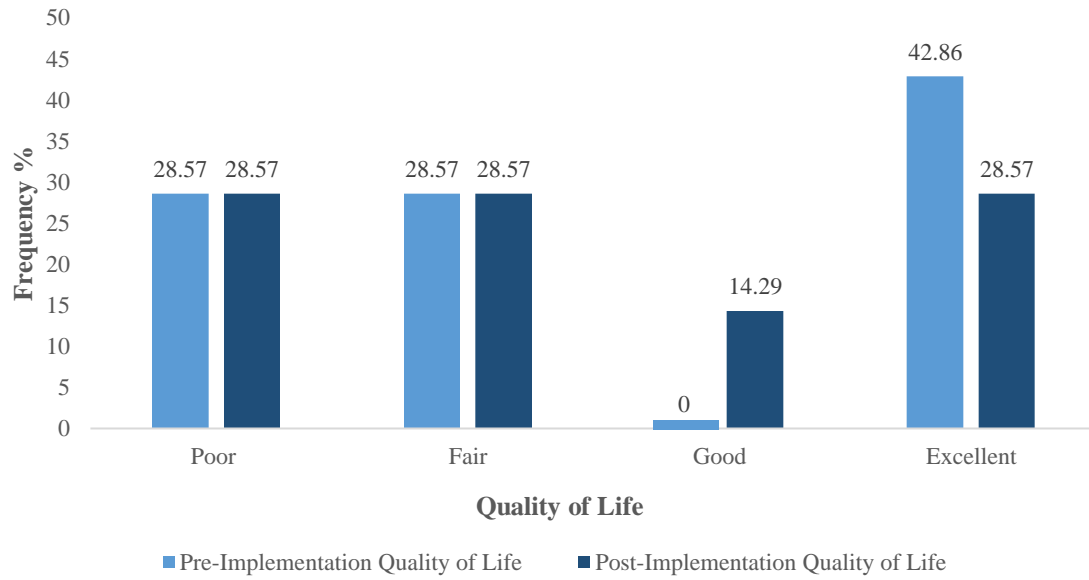
**Appendix B****Figure 2**

*Frequency of Perceived Loneliness among Mindfulness Participants (N=7) Pre-and Post-Implementation*



**Appendix C****Figure 3**

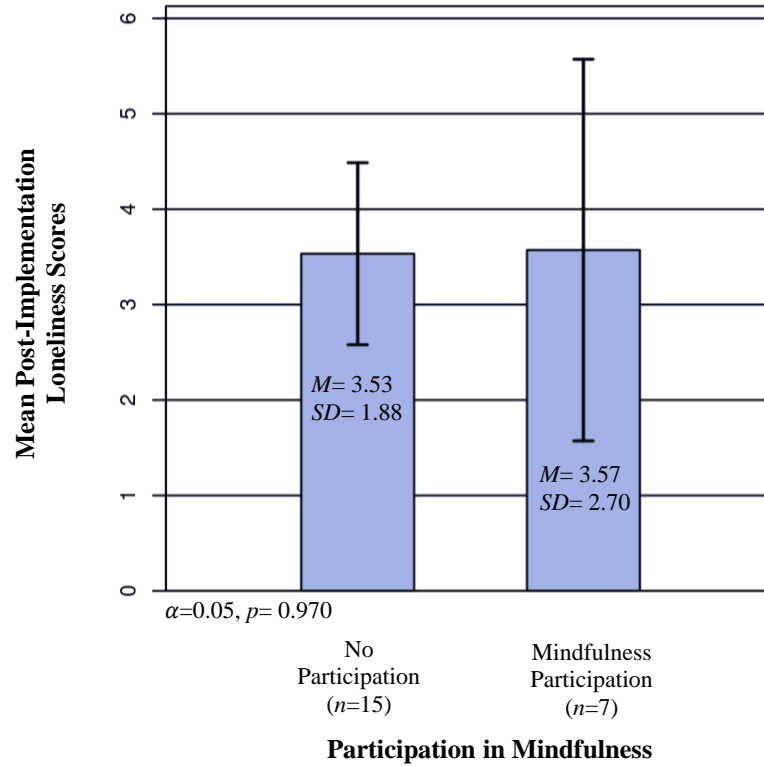
*Frequency of Quality of Life among Mindfulness Participants (N=7) Pre-and Post-Implementation*



## Appendix D

Figure 4

*Independent t-test: Mean Post-Implementation Loneliness Scores by Participation in Mindfulness (N=22)*

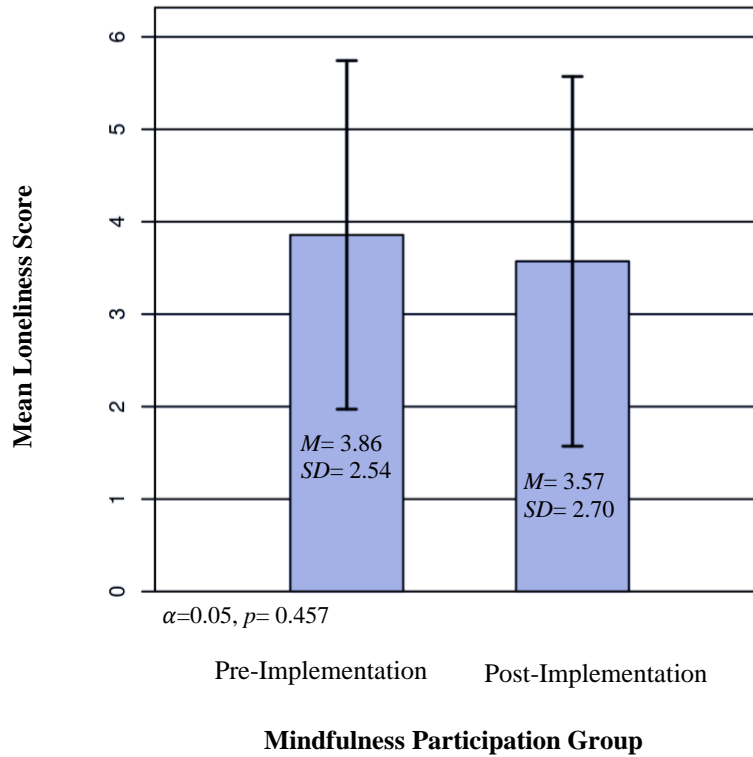


*Note.* Confidence interval error bars of 95%.

## Appendix E

Figure 5

*Paired t-test: Mean Pre-and Post- Implementation Loneliness Score for Mindfulness Participation Group (N=7)*



*Note.* Confidence interval error bars of 95%.



**Appendix F****Table 1**

*Mindfulness Participants (N=7) Call Frequency and Post-Implementation Perceived Loneliness, Quality of Life, and DJG Loneliness Score*

Participants	Call Total	Perceived Loneliness	Quality of Life	DJG Loneliness Score
1	45	Often	Poor	6
2	15	Never	Excellent	0
3	3	Often	Fair	3
4	2	Never	Excellent	0
5	1	Often	Poor	6
6	1	Often	Fair	6
7	1	Sometimes	Good	4

### Appendix G

**Table 2**

*Frequency Table for Meditation Length and Time of Day (N=7)*

Variable	<i>n</i>	%
Meditation Length		
Three-Minute Meditation	13	19.12
Five-Minute Meditation	42	61.76
Twelve-Minute Meditation	13	19.12
Meditation Time of Day		
Morning	53	77.94
Afternoon	9	13.24
Evening	6	8.82

*Note.* Due to rounding errors, percentages may not equal 100%.