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Use of Virtual Resources for Older Adults with Mild Depressive Symptoms

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Abstract

With the higher prevalence of depression and disrupted access to healthcare caused by the COVID-19 pandemic, there was a rapid shift towards utilizing virtual platforms for treating patients. The use of technology was an innovative way of solving the dilemma but use of this is low among older adults and minorities of low socioeconomic status due to education and access.

The purpose of this study was to develop a guide of virtual resources for residents of an assisted living and to assess its usability and effectiveness in reducing depressive symptoms in lower socioeconomic status and minority older adults. The Donabedian Model was used to develop a mixed method, pre-posttest study to evaluate the implementation of a telehealth resource guide for older adults with mild depression at Kin On assisted living.

Results were analyzed using descriptive statistics, content summarization, column charts, and a paired t-test. Findings regarding attitudes towards technology noted frustrations were based on unfamiliarity and learning something new, while the appeal was the ability to connect and increased access to knowledge. The likelihood of use among various formats of therapy demonstrated a high preference for in-person and the least preference for phone call therapy. All participants found the resource guide helpful but did not use any resources within the guide within 2 weeks, demonstrating no significant difference in depressive symptoms (mean before:1.75 (SD: 0.96), after: 1.75 (SD: 0.96), p =1).

This project has implications for providing a variety of treatment options for depression, increasing access, and empowering the use of technology for lower socioeconomic status and minority older adults.

Keywords: depression, older adults, quality improvement, resource guide, technology, virtual

Background

The COVID-19 pandemic affected many areas of life, impacting both physical and mental health. Mandatory lockdowns and social distancing restrictions impacted social interactions tremendously to where feelings of loneliness were accentuated and posed as risk factors for depression or other mental illnesses (Domènech-Abella et al., 2019). A study by Ettman et al. (2020) found that the prevalence of depressive symptoms in adults (18 or older) in the United States was more than threefold higher during than before the pandemic. With a higher prevalence of depression and clinical restrictions to avoid COVID-19 transmission, there was a rapid shift towards utilizing virtual platforms to provide innovative methods towards solving the dilemma of disrupted access to healthcare.

Increasing access to mental health services is crucial given the high prevalence of depression since the COVID-19 pandemic. With the pandemic impacting social interactions with mandatory lockdowns and social distancing restrictions, feelings of loneliness were accentuated and led to an increase in mental disorders. The Center for Disease Control and Prevention (CDC) partnered with the National Center for Health Statistics (NCHS) in an experimental data system called the Household Pulse Survey to track recent changes in mental health due to the pandemic, they found that during the pandemic indicators of depression for the national average of all ages 18 and older ranged from 23-30% (Center for Disease Control and Prevention, 2021). In contrast to data before the pandemic, in January- June 2019, the NHIS benchmark surveyed rates of depressive disorders in ages 18 and older to average 6.7% at its highest. This demonstrates a national increase in depression that coincided with the COVID-19 pandemic.

The demand for treatment of depression now, more than ever, has become a necessity and utilizing technology to support various treatment modalities has the potential to

expand clinical care. Despite the rapid technological advancement in recent years, the use of this technology among older adults, especially minorities of low socioeconomic status, is low due social determinants such as language, lack of education, and access (Smith, 2014; Vaportzis et al., 2017). This disparity poses a need for a simplified linguistically and accessible guide on the vast treatment modalities for depression. A guide that can promote existing evidence-based treatments and empower connections to these organizations through the use of technology is necessary to promote access for minority older adults with mild depression.

Project Purpose and Aims

The purpose of this study was to develop a guide of virtual resources for residents of an assisted living and to assess its usability and effectiveness in reducing depressive symptoms in lower socioeconomic status and minority older adults.

Project Aims

1. To explore participant attitudes towards virtual technology
2. Gauge likelihood of use for various forms of therapy (self-guided, in-person, phone call, and video call)
3. To assess the impact of the resource guide on reducing depressive symptoms (measured by 5-item Geriatric Depression Scale) two weeks after implementing the resource guide.

Literature Review

Humans thrive on social interactions as a means of providing mutual protection and assistance, without it we perceive pain and have difficulties with survival (Cacioppo et al., 2011). Several studies have found associations between social isolation with various adverse health outcomes such as increased blood pressure, increased cortisol levels, decreased rates of wound healing, increased mortality risks, and impaired immune function, which can create greater risks

of contracting the coronavirus infection (Douglas, 2020; Cacioppo et al., 2011; Van Orden et al., 2020). Social isolation and the psychological stressors of living alone or feelings of loneliness are risk factors for depression and can exacerbate other disease morbidities (Batistella et al., 2017; Domènech-Abella et al., 2019; Tabue-Teguo et al., 2016).

Trauma Informed Care

Mental health is a vital aspect of an individual's health and can be sensitive to traumatic events. The COVID-19 pandemic has caused social disruptions like other historic large-scale traumatic events that have severely impacted mental health. A comparable traumatic event such as the Twin Tower attack on September 11, 2001, reported that 9.6% of Manhattan residents had symptoms consistent with depression (Ettman, 2019). The prolonged social isolation experience during the COVID-19 pandemic challenged many individuals but disproportionally affected the elderly population, whose prior social contact occur at community centers, places of worship, or intergenerational family gatherings, all of which were affected by the pandemic (Douglas, 2020). Two longitudinal studies by Tabue-Teguo et al. (2016) and Domènech-Abella et al. (2019) both independently came to a similar conclusion regarding social isolation; living alone or feelings of loneliness, imposes strong risk factors for poor mental health and the development of depression. Without strong social support, mental disorders like depression can increase in severity and lead to poor health outcomes. Unlike any other traumatic event, COVID-19 was not short-lived, it placed strains on many social relationships and our economy with more than 20 million unemployed people. The effects of COVID-19 will continue to negatively impact outcomes on the social and economic spheres for the years to come (Douglas, 2020; Ettman, 2019). There is a need to consider a trauma-informed care approach to the treatment of mental health disorders in relation to the current events of the pandemic.

Older Adult Health Disparities

The intersectionality of trauma is influenced by cultural and socioeconomic factors that vary among individuals. To consider a trauma-informed care approach in treatment of depression there are many disparities to consider, especially when it comes to utilizing telemedicine. Those of lower socioeconomic status or living in rural areas may not have access to the technological tools required for this intervention such as a computer or adequate bandwidth for video conferencing (Heckman et al., 2017; Smith, 2014; Weightman, 2020). A systematic review by Guaiana et al. (2020), also found that several randomized controlled trials were conducted largely on veterans, Caucasian, and/or male populations – implicating non-generalizable applications to other populations, most notably minorities who face more complex intersectionality that can inhibit their access to telemedicine. Along with the potential cultural and socioeconomic disparities faced regarding the use of technology and healthcare, ageism is another part of intersectionality that is important to note. Older adults encounter multiple barriers and challenges when it comes to adopting novel technologies such as physical challenges (health conditions or disability), hold skeptical attitudes about the benefits of technology, and difficulties learning to use novel technologies (Smith, 2014). Age alone is not a single factor contributing to this gap in technological knowledge and use but it is perpetuated by other variables such as income, education, location, access to healthcare, and disease comorbidities (Vaportzis et al., 2017; Smith, 2014).

Evidence to Support Various Treatment Modalities

A systematic review by Guaiana et al. (2020) found satisfaction and efficacy were either equivalent to face-to-face or significantly higher for telepsychiatry interventions, suggesting overall acceptability by patients. Another review by Weightman (2020) came to a similar

conclusion but found, that cognitive-behavioral therapy was most effective at reducing depressive symptoms and was the most studied type. A divergent study on telephone-administered interpersonal psychotherapy by Heckman et al. (2017), demonstrated a brief acute decrease in depressive symptoms and interpersonal problems in depressed rural people living with HIV. Although this study did not particularly use video platforms for psychotherapy, the use of telephones fits into the broader definition of telecommunications. This alternative platform may provide an option for patients that face barriers to a video platform such as in rural areas that lack adequate bandwidth for video calls.

There are several limitations to the current research on this intervention that inhibit a full virtual clinical transition from cost-effectiveness, accessibility, generalization to other populations, lack of psychotherapy structure, small sample sizes, lack of patient awareness, funding gaps, and short-term study periods (Guaiana et al., 2020; Heckman et al., 2017; Weightman, 2020; Choi et al., 2014). Additional research is needed to modulate psychotherapy into various languages for non-native English speakers to access this form of treatment. The integration of either method of psychotherapy, in-person or remote, has shown effectiveness and in the next section, a further explanation of implementing the proposed DNP project will be discussed.

Conceptional Framework

The Donabedian Quality Improvement framework was used to guide this project in the structure, process, and outcomes to examine the quality of healthcare. Using this framework to identify the structure, Kin On assisted living, and the process of an interdisciplinary delivery with the assistance of the staff. The outcome was to assess the reduction of depressive symptoms 2 weeks after implementation of the resource guide.

Methods

Design and Setting

This project was a mixed method, pre-posttest study to evaluate the implementation of a telehealth resource guide for older adults with mild depression at Kin On among their assisted living residents.

Kin On Assisted Living

Kin On is a non-profit organization that offers home care, caregiver support services, assisted living, and healthy living classes located in Seattle, WA. They focus on honoring and supporting elders, and their families, by offering culturally Asian and linguistically appropriate healthcare services in the Puget Sound Region.

Recruitment of Participants

Participant recruitment occurred at Kin On's assisted living facility in Seattle, WA. They were enlisted with the help of Kin On staff, word of mouth amongst residents, flyers, or in-person community outreach. Inclusion criteria included: 1) age ≥ 65 years old, 2) self-reported current or history of having mild depression, 3) living in assisted living, and 4) willing to sign informed consent. Exclusion criteria: 1) living in skilled nursing, long-term care facilities, 2) currently experiencing suicidal ideations or severe depression in need of immediate care, 3) inability to read or fully comprehend project to consent, or 4) comorbidities such as anxiety, mood disorders, chronic diseases, cancers.

Intervention

The resource guide was developed by this principal investigator to include an overview of depression, helpful tips on use of telehealth technology, self-guided cognitive behavioral therapy website, low-cost organizations that offer psychotherapy virtually, local Asian American

organizations, and emergency hotline numbers for older adults experiencing suicidal ideations (see Appendix A). The purpose of this intervention is to increase access to mental health services and provide Asian American centered resources such as Asian Counseling and Referral Services, Washington State Counselors of Color, Ayana, Institute of Cognitive Therapy, and Kin On's Healthy Living SmartLab. Additionally, to encourage the use of virtual resources to help reduce mild depression in older adults.

Data Collection Procedures

After recruitment of subjects, data was collected through interview style surveys by this principal investigator in the communal area or private rooms within Kin On's assisted living facility. Informed consent was acquired verbally after reading the consent form or in the beginning of the survey prior to starting the pre-survey, which was to assess baselines and collect demographic information. After completion of the pre-survey, participants were given the resource guide in person and asked to review its contents. Following two weeks, a post-survey was organized by this principal investigator after the implementation of the resource guide, to evaluate use, depressive symptoms, and inquire feedback pertaining to the resource guide. Data collection occurred between January and April 2022.

Instrument

An online or printed Qualtrics® survey was used to gather information. The Qualtrics® pre-survey had 17 questions pertaining to participant demographics (age, gender, race/ethnicity, and preferred language), attitudes towards technology, perceived barriers to healthcare, the likelihood of use for various therapy formats, and the GDS-5. The post-survey had 17 questions pertaining to participant demographics (age, gender, race/ethnicity, and preferred language), the likelihood of use for various therapy formats, GDS-5, and feedback regarding the resource guide.

Depression was measured with the 5-item Geriatric Depression Scale (GDS-5), the scores of GDS-5 can range from 1-5, a score of > 2 indicates possible depression (see Appendix B). The GDS-5 was developed and tested by Hoyl et al. (1999) to reduce administration time while still effectively screening for depression. The GDS-5 was created from the GDS-15 by selecting the items with the highest Pearson Chi^2 correlation with the clinical diagnosis of depression. A systematic review by Brañez-Condorena et al. (2021), found the GDS-5 had a pooled sensitivity of 0.85 (0.80–0.90) and a pooled specificity of 0.75 (0.69–0.81) for detecting depression among geriatric patients. For this project, conducting short surveys prevented participant fatigue and simplified screening for mild depression.

The likelihood of use for various forms of therapy (self-guided, phone call, video call, or in-person psychotherapy) was measured with a Likert rating scale of 1-5 (1 being least likely to 5 being most likely). It was given prior to and after the intervention. This instrument was used to gauge participant attitudes towards various forms of therapy.

Open-ended questions provided qualitative data, to collect dynamic responses on attitudes towards technology, perceived barriers to mental health, and feedback regarding the resource guide.

Data Analysis

Data collected through a paper survey or Qualtrics®, was entered into Microsoft Excel for analysis. Descriptive statistics were conducted to analyze demographic characteristics. For aim 1, to explore participant attitudes towards technology and mental health, interviews were transcribed and analyzed to identify common themes and key concepts summarized in a descriptive table. For aim 2, to gauge the likelihood of use for various forms of therapy, both descriptive statistics and a summary of the response of the qualitative responses were done. For

aim 3, to assess the impact of the resource guide on reducing depressive symptoms (measured by GDS-5) two weeks after implementation, paired t-test was used. The significance level was set at $p < 0.05$ in two-tailed test.

Results

Participant Characteristics

About 30 residents resided at Kin On's assisted living facility and all over the age of 65. The majority of residents approached declined self-reports of any current or historical depression. One resident who declined to participate in the study but asked for copies of the resource guide stated, "I am not depressed but I will give these to my friends." Of those approached, only a total of four people consented to participate in the study. There was wide variation in ethnicity amongst participants: Caucasian, Chinese, Thai/Loas, and Japanese. The mean age was 83 (SD = 6.75, range: 74-89) with a high percentage of male participants of 75% (see Table 1).

Table 1

Participant Demographics (n = 4)

Variable	*n*	(%)
Age (mean ± SD, range)	83 (6.8, 74-89)	
70-75	1	25%
76-80	0	0%
81-85	1	25%
86-90	2	50%
Gender		
Male	3	75%
Female	1	25%
Race/Ethnicity		
Caucasian	1	25%
Japanese	1	25%
Thai & Loa	1	25%
Chinese	1	25%
Preferred Language		
Thai & Loa	1	25%
English Only	1	25%
English and Other:		
Japanese	1	25%
Chinese	1	25%

Aim 1: To Explore Participant Attitudes Towards Technology and Mental Health

When it comes to fear and frustrations about using technology, most participants agreed that their frustration arises from having to learn something new and the unfamiliarity of how to use it (see Table 2). An 81-year-old male participant said he had a good understanding of the basics when using his computer but often finds it challenging to learn new formats whenever there is an update, citing the new Windows 11 update as an example and having to spend a copious amount of time searching for resources to help him learn. An 89-year-old male participant said his fear arose from “not knowing what to do to”, having little to no background

on how to use technology in general. Two other participants, who did not perceive any fears or frustrations, stated that they could ask for help if needed, from staff or family.

Participants liked using technology because it allows them to connect with others (such as their grandchildren) and preserves knowledge (increasing access to things). One 74-year-old participant only responded “yes” to the survey question but could not explain the particular reasoning beyond that.

All participants did not perceive any barriers to mental health, although most participants cited not knowing any resources before they were given the resource guide. An 87-year-old female stated that their doctor would provide them with the resources if she asked, following her answer of not experiencing barriers to seeking healthcare. An 89-year-old male cited his church (undisclosed religion) as a resource for mental health services.

Table 2

A Summary of the Response

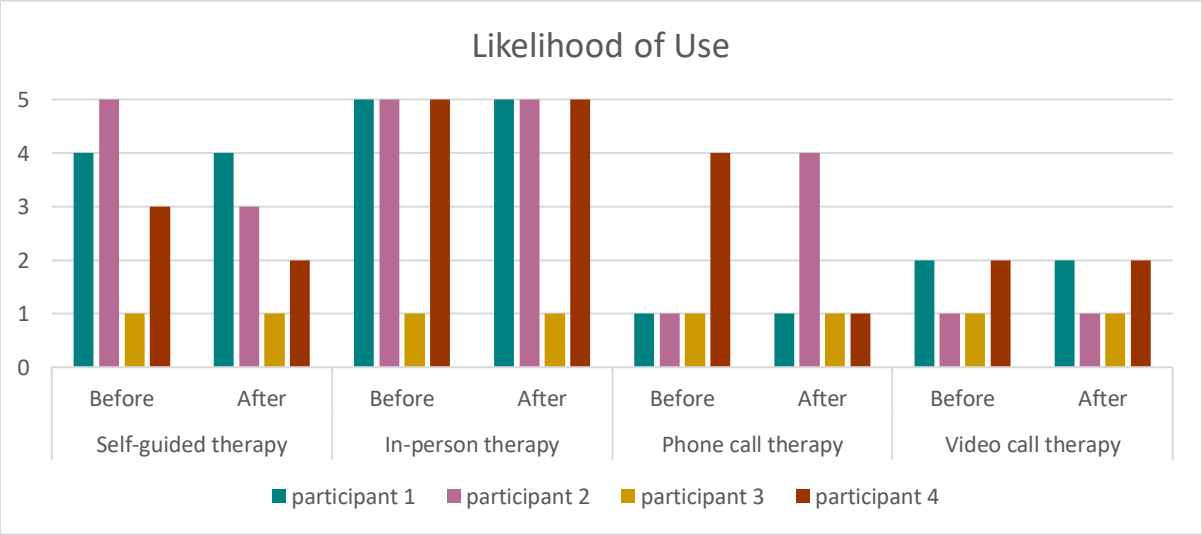
Question	Themes
What frustrates you about using technology?	Unfamiliarity Learning something new Nothing
What do you like about technology?	Preserves knowledge Connecting with others
What barriered do you face when seeking healthcare? Especially for mental health?	Nothing
What resources do you know about regarding mental health services	Not much Church Doctors will give them to me if I need it

Aim 2: Gauge the Likelihood of Use for Various Forms of Therapy

A clustered column chart was used when analyzing the likelihood of use among the various forms of therapy: self-guided, in-person, phone call, or video call (see Figure 1). The results showed that 75% of the participants responded that they were extremely likely to use in-person therapy, both before and after the intervention, demonstrating the most preference for in-person therapy compared to all other forms. In contrast, 75% of the participants responded that they were extremely unlikely to use phone call therapy, both before and after the intervention, demonstrating the least preference for phone call therapy. Overall preferences remained mostly consistent before and after, except for two participants who showed less likelihood of use with self-guided therapy after they were given the resource guide.

Figure 1

Likelihood Of Use of Various Forms of Therapy Before and After Intervention



Note. The y-axis depicts the likelihood rating scale, where 1 = extremely unlikely, 2 = somewhat, 3 = neither likely nor unlikely, 4 = somewhat likely, 5 = extremely likely.

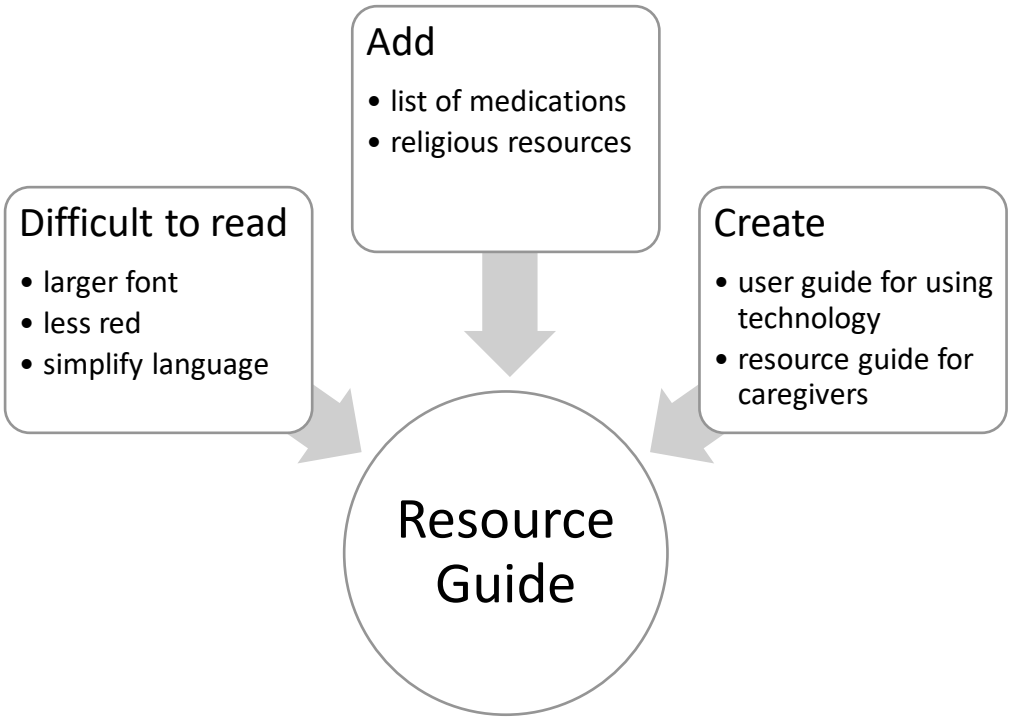
All participants responded that they found the resource guide helpful, but no one had used a specific resource listed in the resource guide within the 2 weeks after they were given the resource guide. All participants did not cite a particular reason for the resource guide not being helpful or not using any of the resources in the guide. However, they provided feedback on the question "what should be included in the resource guide." People suggested simplifying the resource guide, including additional resources such as religious affiliations, and creating additional resource guides for other related topics such as one specifically for technology use (see Figure 2). An 89-year-old man disclosed that he has vision problems and found the colors and font size difficult for him to read, requesting a resource guide in black-and-white.

An 81-year-old man explaining why a resource guide on depression is needed for caregivers:

> I notice a lot of things around here, especially among the staff (at Kin On, they are overworked and overwhelmed. If your patient is drowning in the middle of the sea but you jump in to save them without a floatation device, you too would drown along with them. I know caregiver burnout is a pressing issue right now and I would want someone who is caring for me to be in the right headspace when I'm not.

Figure 2

A Summary of the Feedback on the Resource Guide



Aim 3: To Assess Depressive Symptoms (Measured By GDS-5)

A paired t-test revealed no significant difference in depressive symptoms after the intervention (mean before: 1.75 (SD: 0.96), after: 1.75 (SD: 0.96), $p = 1$). The significance level was set at $p < 0.05$ in two-tails. The range of participant GDS-5 scores spanned from 1 to 3, a score >2 indicates possible depression. Before the intervention, 3 out of 4 participants had a score of more than 2, indicating possible depression (see Figure 3). After the invention, 3 out of 4 participants had a score of more than 2 but one of those participants had previously had a score of 1 before, not indicating depression. Participant 2 showed improvement in their score by 1 point, while participant 1 showed a worsening score by 1 point over the course of 2 weeks.

Figure 3

Geriatric Depression Scale- 5 Item (GDS-5) Score Before and After Intervention

Note. A score of 2 or more indicates possible depression.

Discussion

This mixed method project was aimed to explore attitudes towards technology, the likelihood of use of various forms of therapies, and assessing depressive symptoms after giving a resource guide on virtual resources for depression in older adults living in an assisted living facility.

When exploring attitudes towards technology the findings of this project were consistent with findings in another study, Vaportzis et al. (2017), where they found that a barrier to using tablet computers was the lack of knowledge and confidence. The apprehension of the participants in this project arose from having to learn something new but unlike the participants in Valportzis et al. (2017) who were younger and lived independently, they did not perceive barriers such as cost or inability to seek assistance with technology. Perhaps this variance is due to the

participants residing in assisted living and receiving adequate support from the organization, staff, peers, family, and healthcare providers. An 87-year-old female did describe that whenever she needed to seek mental health care, her primary care provider was available to her and helped provide treatment to all her ailments. Additionally, she cited that during the pandemic when she had to talk to her provider on the computer the staff were able to assist with the setup. Smith (2014) examined multiple factors that influenced older adults to use technology; they found that younger individuals with higher education, more affluence, and without disabilities had more substantial technology assets. Perhaps to improve this project, additional demographics should have been collected, such as education level, insurance coverage, family income, and disclosure of disabilities. Further studies to explore attitudes towards technology amongst independent living compared to assisted living individuals could provide further insight.

When considering the various forms of therapies for depression (self-guided, in-person, phone call, or video call), there is evidence to support each form in reducing depressive symptoms. Weightman (2020) conducted multiple randomized controlled trials and a meta-analysis to conclude that digital psychotherapy, particularly cognitive-behavioral therapy, is effective as face-to-face psychotherapy. Heckman et al. (2020), conducted a randomized controlled study to demonstrate that telephone-administered interpersonal psychotherapy is effective for acute reductions in depressive symptoms in rural persons living with HIV. This project was focused on determining the effectiveness of these therapies but sought to gauge preferences amongst older adults residing in assisted living. The participants of this project had a stronger preference for in-person therapy and the least preference for phone call therapy. Interests in self-guided therapy saw a drop in interest after given the resource guide. This could be because given the array of options, self-guided was less interesting to the participants. Holst

(2017) conducted a qualitative study on internet mediated cognitive behavioral therapy (iCBT) for treating depression and concluded iCBT was an attractive alternative, however, most of their participants described a stronger preference for face-to-face meetings. Individuals have varying preferences for treatment modalities based on their individual needs, and by providing patients with evidence-based options to choose from can further increase treatment, especially if paired in complement.

Providing a variety of treatment options for patients was the purpose of the resource guide since depression treatment should be highly individualized. The findings that all participants found the resource guide helpful showed that it may be useful; however, since none of the participants used any of the resources in the guide within the 2 weeks contradicts their statement. Perhaps participants were not allotted enough time to utilize the resources in the guide, given the limited nature of this project. Further studies and projects should be conducted to allow for more time.

Assessing the effectiveness of the resource guide on depressive symptoms (measured by GDS-5) demonstrated insufficient evidence to determine any difference in GDS-5 scores with the intervention. This could mainly be due to the participants not using any of the listed resources in the resource guide within 2 weeks, inferring that the results were inconclusive in determining the efficacy of the resource guide.

Limitations

The main limitation of this project is the sample size, impeding the power to detect statistical differences. Additionally, the sample was conducted at a single facility, which limits the ability to generalize findings to other settings.

Additionally, factors such as the participants already being treated for depression were not fully investigated, given the self-reporting nature of the surveys and restricted access to medical records. Further projects or research with a larger sample size and random controlled trials are needed to expand this topic to bridge the gap between technology and resources for depression amongst older adults.

Recommendations

This project has implications for the prevention and treatment of depression, empowering older adults to use technology, and increasing access to viable healthcare options. Although this project is limited to a small sample at single organization within the state of Washington, designed with a focus towards serving low-income Asian Americans it can apply to other minority populations, limited socio-economic status, and locations outside of Washington (especially in rural areas). To continue the dialogue about depression, further projects are needed to explore treatment interventions, and using more technology can be a great tool for preserving that knowledge and accessing those treatment options.

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Appendix A

Depression Resource Guide Created by Stephanie Sirisithi

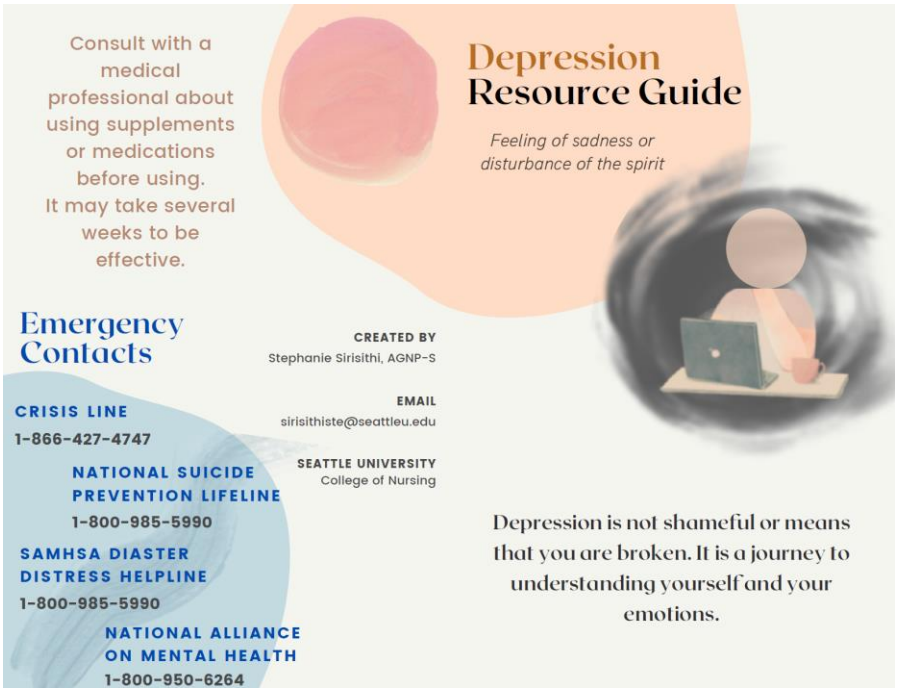

Figure A1. First page of the resource guide

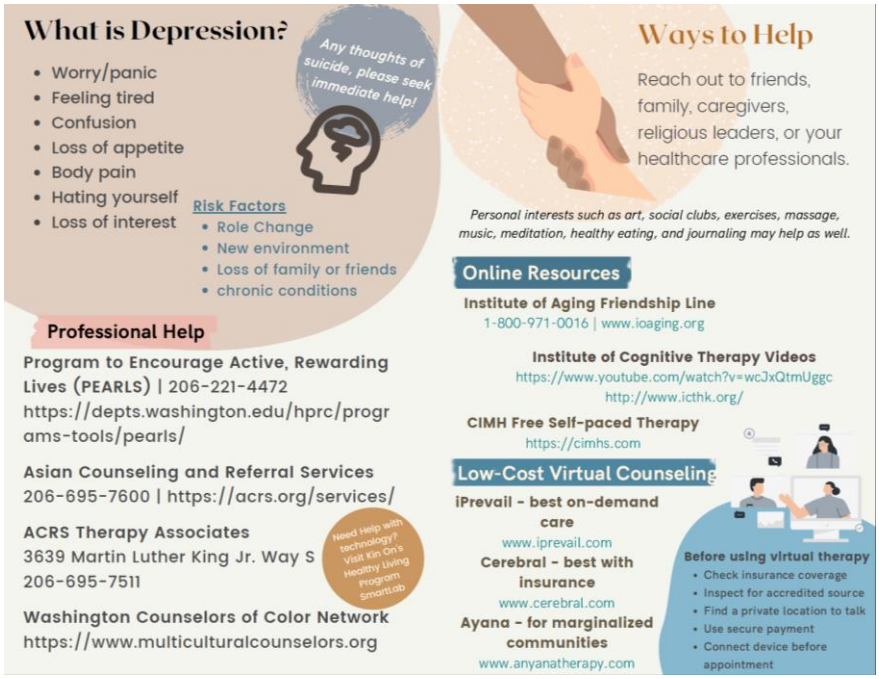

Figure A2. Second page of the resource guide

Appendix B

5-Item Geriatric Depression Scale Questions as adapted from Hoyl et al. (1999)

Table 2 Five-item version of the Geriatric Depression Scale

1. Are you basically satisfied with your life?
2. Do you often get bored?
3. Do you often feel helpless?
4. Do you prefer to stay home rather than going out and doing new things?
5. Do you feel pretty worthless the way you are now?

Positive answers for depression screening are "yes" to questions 2, 3, 4, and 5 and "no" to question 1. A score of 0 to 1 positive answer suggests the patient is not depressed; a score of 2 or higher indicates possible depression

Sensitivity: 97%; specificity: 85%; positive predictive value: 85%; negative predictive value: 97%

Source: Reprinted with permission from Hoyl MT, Alessi CA, Harker JO, et al. Development and testing of a five-item version of the Geriatric Depression Scale. J Am Geriatr Soc 1999; 47(7):873-8.