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Technology Use to Bridge the Gap of Social Distancing during COVID-19

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Introduction

Coronavirus Disease (COVID-19) related ‘social distancing’ and stay-home recommendations have adversely impacted the ‘behavioral pandemics’ of old age; these include physical inactivity (PI) and loneliness [1,2]. To make matters worse, PI and loneliness are intertwined, with one worsening the other. In particular, sedentary behavior and PI are strongly associated with loneliness among those aged 50–81 years [3]. Loneliness is a subjective, stressful, and distressing feeling that results from a perceived loss of companionship and affects over 20% of older adults in the US [4]. Loneliness can cause feelings of social isolation, which has been attributed to more deaths in the US than cancer or stroke [2]. Physical inactivity is high in older adults, with most men (66%) and women (83%) over the age of 65 not meeting physical activity (PA) recommendations. Consequently, PI and health repercussions account for about \$117 billion (11%) of US healthcare expenditure annually [5].

Although the World Health Organization (WHO) has recommended staying physically active during the pandemic, COVID-19 restrictions are a catch twenty-two for older adults

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Author Contributions

All authors have contributed significantly to the paper and approve the final version. Detailed author contributions are as follows: Kalpana Padala: Conceptualization, interview of the patient, and manuscript preparation; Ashlyn Jendro: Critical review of the manuscript; Kerrie Wilson: Critical review of the manuscript; Prasad Padala: Conceptualization, consenting, and critical review of the manuscript.

Conflict of Interest

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who are trying to stay active. WHO recommends that older adults engage in PA at least three days a week. However, the risk of contracting the infection limits older adults from accessing the public places where they would typically exercise [6]. Participation in vigorous intensity, moderate intensity, and walking exercise was significantly reduced (> 33% decrease) during the early COVID-19 period compared to the pre-COVID levels [7]. In turn, COVID-19 restrictions have amplified loneliness and feelings of helplessness, powerlessness, and post-traumatic stress symptoms among older adults [1,2]. Additionally, these restrictions have alienated older adults from spiritual places and other social networks such as coffee shops, restaurants, and adult day care centers.

Technology use has been recommended as a way to assess and mitigate loneliness. This advice is more applicable now during the COVID pandemic [2]. It is known that social networks mitigate the detrimental effects of loneliness by enhancing physical and mental health. Unfortunately, even in normal circumstances, it is difficult for older adults to maintain social networks [8]. Although face-to-face interaction is the ideal way of social networking, literature supports that technology has a role in combating loneliness [9]. The Centers for Disease Control and Prevention (CDC) has released interim guidance for community and faith-based organizations to cancel their gatherings. They are instead advised to provide mental/spiritual support with the use of technology [10]. Additional CDC recommendations support a home exercise program that includes strength, balance, and aerobic activities. The Nintendo Wii-Fit, among other exergames, is known to provide all recommended components of exercise in older adults [11]. We present a case of an older adult that used technology for physical, mental, social, and spiritual well-being during the COVID-19 pandemic.

Lubben Social Network Scale-6 (LSNS-6) item version, a well-validated scale, was used to measure the impact of COVID-19 restrictions on the strength of participant's social network [8]. LSNS-6 has three questions each to evaluate kinship and non-kinship ties, with scores ranging from 0 to 30. A total score of less than 12 is considered to be an indicator for risk for social isolation. LSNS-6 was developed specifically for use among older adults and has been associated with a wide array of health indicators. Low scores have been correlated with mortality; all cause hospitalization, depression, suicidality, and other mental health problems [12].

Case Description

Mr. P. was a 73-year-old, college-educated, retired, Caucasian male who lived in his own home with his wife. His comorbidities included diabetes mellitus, hypertension, coronary artery disease, hyperlipidemia, and hearing loss. At baseline, in February 2020, prior to COVID-19 pandemic, he was independent with his activities of daily living and instrumental activities of daily living. He was physically active (walked with his dog daily) and stayed connected with family and friends. He spent substantial amount of time out of the home and met with his friends at coffee shops.

After COVID-19 restrictions were placed, he reported to practice social distancing and left his home only when necessary. He helped his friend by providing him transportation to the

grocery store. He made sure that both he and his friend wore masks and gloves during any trips. He stated that even though he missed seeing his close friends and grandchildren, he was able to stay connected with them via phone calls, email, and FaceTime. He also participated in Zoom video conferencing offered by his church for bible studies. Mr. P's Lubben Social Network Scale dropped by only one point (score of 18 to 17) compared to baseline. He reported to have met or heard from eleven relatives before compared to seven during the restrictions and had no change in the number of relatives or friends that he could call, either for help or to discuss private matters.

He reported to exercise one hour daily at home using the Nintendo Wii-Fit. His typical routine on Wii-Fit included aerobic activities, balance games, strength training exercises, and yoga followed by light aerobic activity to cool down. He continued to walk his dog daily at times when there were fewer people on the road so as to maintain physical distancing. He reported to have minimal anxiety for contracting COVID-19, and denied any depression symptoms. He slept well and had a good appetite. He stated that he was looking forward to the FaceTime session with his son and grandchildren on Easter Sunday.

Discussion

Our patient was highly educated, well connected socially, and physically active at baseline. He also lived in an urban area enabling him to access resources to connect with the society. The prevalence of loneliness ranges from 7% to 49% and increases with age, rurality, and the number of medical comorbidities [13]. Although the internet connectivity among older adults has increased in the recent past, it still lags behind the desired levels [14].

In this patient, there was a decrease in social activity during COVID-19. He used to enjoy visiting with his friends at the coffee shops which he had to stop due to COVID restrictions. However, he was able to compensate for the decline in social interactions by the use of technology. His high level of education and premorbid intelligence enabled him to connect seamlessly. Older patients often struggle with technology and many times do not have access to high-speed internet if they are living in rural communities. In our patient, availability of an iPhone enabled him to connect for both FaceTime and Zoom calls. Others have reported that FaceTime can be successfully used to reduce social isolation and stress in older adults residing in nursing homes [15]. Even though FaceTime may be easy to use compared to teleconferencing tools such as Zoom, FaceTime is limited by the number of people that can be connected at any given time. Zoom on the other hand, helps connect many people at any given time. Learning new technology can be challenging in older adults. Among a subsample of 352 adults aged 60 years or older, computer use was a minority pastime activity and was influenced by gender, age, and education [16]. Family members and caregivers can help overcome technological barriers in some.

Physical activity was also reduced in our patient as the venues for exercise were limited due to COVID-19. However, because he was able to use the Nintendo Wii-Fit to exercise, he was able to meet the WHO guidelines of 150 minutes of physical activity per week despite the COVID-19 restrictions. Our team and others have reported that the Wii-Fit was engaging, enjoyable, and associated with improvements in balance in older adults [11].

Conclusion

Physical distancing but not social distancing is needed as we fight the spread of COVID-19. Technology can be used to achieve physical, mental, social, and spiritual well-being by older adults (Figure 1). A high degree of personal and societal commitment is needed to help mitigate loneliness and PI among older adults. Together we can help usher in a post-COVID, digitally connected world.

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Figure 1: Connected with technology: Physical, mental, social, and spiritual well-being during the COVID-19 pandemic.