COMMENTARY

Can we bridge the digital divide to improve the mental health of older adults?

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The inexorable pace of technological advancement is accelerating during our "digital revolution" and is continuing to transform all aspects of life – whether we like it or not. One aspect of this is the proliferation of virtual interventions for health (such as telehealth), including mental health. The COVID-19 pandemic added fuel to this revolutionary fire given the need to rapidly pivot towards virtual interventions in the context of "physical distancing" strategies employed to reduce the spread of infection (Chong *et al.*, 2020). Apart from reducing COVID-19 infection risk, there were other advantages of virtual interventions in that for many, this type of delivery could address access barriers such as geographical distance, lack of transport, frailty, anxiety about leaving home, cost, and personal preference.

Internet use and internet skills have been increasing in older adults throughout the world with levels being higher in the young-old compared to more mature older adults (Hunsaker and Hargittai, 2018). For example, in the USA in 2000, 12% of adults aged 65 years and above were using the internet, and this increased to 22% in 2004, 38% in 2008, 53% in 2012, and 67% in 2016 (Hunsaker and Hargittai, 2018). However, while the rate of digital literacy and internet access in older adults is rapidly growing throughout the world, a "digital divide" still exists. For example, internet use in the USA in 2016 is 82% of adults aged 65–69 years but gradually falls to 44% for those aged over 80 years (Hunsaker and Hargittai, 2018). Further exacerbating this digital divide is evidence that middle-aged and older adults who were less frequent users of the internet to contact family and friends experienced greater loneliness, lower life satisfaction, and greater depressive symptoms (Hajek and König, 2022). This finding suggests that the relationship between internet use and depressive symptoms may be bi-directional, although we suspect that there are many other confounding variables at play.

Adding further weight to the concern about the digital divide is a position paper on multidisciplinary mental health research priorities for the COVID-19 pandemic that identified older adults and those with multi-morbidities as a population of interest given that they "might be particularly affected by issues including isolation, loneliness, end of life care, and bereavement, which may be exacerbated by the so-called digital divide" (Holmes *et al.*, 2020).

Depression affects many people globally with a 12-month prevalence of 4.7% and lifetime prevalence of 10.6%, while point prevalence of subthreshold depression could be as high as 17% (Herrman *et al.*, 2022). Depressive disorders and symptoms affect up to one-third of older adults and are associated with more functional and cognitive impairments than in younger adults, leading to significant costs both to individuals and the community (Wilkinson *et al.*, 2018). Despite this, there continues to be relatively less research into effective treatments of depression in older adults (Wilkinson *et al.*, 2018), and this is also the case with virtual interventions.

As clinicians, we do not want to operate in an "evidence-free vacuum", and thus robust evidence that can be applied to the population that we are serving is critical. In particular, we have emphasized the importance of clinical practice guidelines and scales addressing the specific characteristics and needs of older adults (Dumble and Chong, 2022, Hwang *et al.*, 2022).

All of this backdrop demonstrates the importance of the review by Goodarzi and colleagues (Goodarzi *et al.*, 2022). This systematic review examined the efficacy of virtual interventions for reducing depressive symptoms in community-dwelling older adults. This area is of critical importance given the high prevalence of depressive symptoms in older adults, the increasing potential of virtual interventions, accelerated by the COVID-19 pandemic, and the need to address the specific needs and information technology capabilities of older adults.

The review authors conducted a very thorough search that included gray literature and undertook this with clearly articulated rigorous methodology. It was promising to see that 15 randomized controlled trials met inclusion criteria with five that included participants with depressive symptoms or disorders at baseline and ten that examined depression as an outcome (Goodarzi *et al.*, 2022). The studies were mainly undertaken in the USA and Australia, both high-income countries with highly available virtual technologies, and investigated quite a variety of interventions with different levels of health-care provider involvement (Goodarzi *et al.*, 2022). The participants were mostly in the "younger" age groups (mean ages varied between 65.1 years and 79.2 years). Overall, the review findings were that virtual interventions, including the use of telephones, for depressive symptoms in community-dwelling older adults appeared to be feasible with some studies demonstrating efficacy, and importantly, no studies demonstrating harm (Goodarzi *et al.*, 2022).

In any exploration of new treatments/interventions, the modes of delivery should be clearly identified and tested, with any modification to enhance delivery clearly established. With medications as a model, it is necessary to rigorously establish the methodology, suitability, pharmacodynamics, pharmacokinetics, and efficacy of each and all of oral, nasal, topical, rectal (suppository), intramuscular, intravenous, intrathecal, and peritoneal applications. Different modes of delivery may require modifications of the effective constituents as well as their formulation. Virtual interventions, as new modes of delivery and/or new treatments, should also undergo such vigorous examinations. Whether by telephone (landline or mobile), internet (on-line, video-conference such as Zoom), or DVD and other applications should be clearly specified in all controlled studies. For example, our research showed a new mode of delivery (online) of cognitive behavioral therapy for weight loss to be useful and acceptable to adults across a range of ages, including participants over the age of 60 years (Tham and Chong, 2020). Goodarzi *et al.* (2022) have in Table 2 specified such modes of delivery and established examples for other researchers in future explorations to add to the evidence base. Keeping in mind the digital divide, the simple and more basic technology, the landline telephone, should not be sidelined for the more sophisticated applications which may not be accessible to considerable numbers of the community-dwelling older adult population.

Apart from the digital divide, there also exist barriers to accessing care due to services and interventions not catering to the needs of older adults from culturally and linguistically diverse (CALD) backgrounds. It has been recognized that language and cultural barriers can "compound eHealth literacy barriers" (Zibrik *et al.*, 2015). On a positive note, our research has shown that older adults from CALD backgrounds and health-care professionals believed that translation technology had the potential to be helpful to reduce communication barriers and were enthusiastic about learning and using it (Panayiotou *et al.*, 2020). This was followed by an exploratory study of the use of this translation technology in four hospital wards, including an aged psychiatry ward, which found the technology to be helpful to staff in developing rapport and providing care to patients, albeit with some practical limitations (Hwang *et al.*, 2021).

It remains that there is an urgent need for more research to be able to provide clearer guidance about efficacy, as well as qualitative research around the experience of the patient and exploration of ways to address the digital divide. The easy availability to, and level of comfort and acceptance of older adults using the various forms of virtual technologies, from simple landline telephones to the more sophisticated video-conferencing technologies such as Zoom, should be included in developing such guidance. COVID-19 has certainly accelerated this process, including our own experience during the Behavioral Activation in Nursing Homes to Treat Depression (BAN-Dep) randomized controlled trial, where the research team had to rapidly pivot towards more virtual interactions with nursing home staff and residents due to "lockdown" (Almeida *et al.*, 2022). While there is tremendous opportunity to embrace the benefits, scalability, and reach of virtual interventions, we need to ensure that we bring everyone along for the ride so that the digital divide does not become a bridge too far.

Conflict of interest

The authors have no conflicts of interest to declare.

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