GERIATRIC CARE IN DIGITAL AGE AND AGEING IN A PLACE (AIP): IMPLICATIONS FOR MEDICAL SOCIAL WORKERS

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Abstract
Health policy and service providers are beginning to acknowledge the benefits of ageing in place through the adoption of digital technologies called gerontechnologies. It is possible for the aged to become independent at home with the help of technology as the ageing society of today. Research through review of literature showed that some aged use digital technologies for different purposes and the use of technology for active and healthy ageing has been proven effective, particularly to combat social isolation and promote social participation as they age, support autonomous living and improve long-term health. There are still barriers to its usage among aged, such as the psychological factors associated with motivation and attitudes, concerns regarding privacy and trust and social issues associated with learning to use the technology. For older people to help overcome these barriers, medical social workers should collaborate with developers and researchers and work with stakeholders in the human services and medical disciplines to create and develop new technologies to enhance healthy ageing and geriatric care.

Keywords: Gerontology, Digital technologies, Gerontechnologies, Aged, Ageing in a place, Social workers.

Introduction

Technology plays a vital role in maintaining functional independence and reducing socio-economic issues associated with aging of the population through the use of social and environmental technologies. Healthy ageing is a broad word that refers to the process of acquiring and retaining functional abilities that enable older people to live happily (WHO, 2019). Sustaining mobility, satisfying one's own basic requirements independently, learning and making decisions, as well as creating and maintaining relationships, are all important aspects of good ageing. The world is changing at a breakneck speed because to digital technologies. The vast majority of individuals, especially aged, must accept technology as an intrinsic part of their daily life and adhere to and incorporate new digital technologies. Over the last few decades, the number of older persons who go online and use digital media has consistently increased (Anderson and Perrin, 2017; Eurostat 2016, 2018b). The aged indicates interest in utilising technology in a variety of ways for informative and social purposes

(Schehl, Leukel & Sugumaran, 2019) to interact with others and for their overall well-being (Quan-Haase, Mo & Wellman, 2017). Digital technologies are a remarkable human achievement that offers unparalleled prospects. The usage of technology by the aged encompasses a wide range of activities. Using Information and Communication Technologies (ICTs) has been shown to increase feelings of belonging among older adults (Francis, Rikard, Cotton and Kadylak, 2019), connect them with loved ones (Heo, Chun, Lee, Lee and Kim, 2015; Quan-Haase, Mo and Wellman, 2017) and help them manage their health through medical and health-related technologies (Van Deursen, 2020).

Recent developments in digital health have been aimed at assisting older people with healthy aging and promoting healthy living. Some of these digital tools are specifically designed to meet the needs and desires of older people and are therefore known as gerontechnologies (Ienca, Schneble, Kressig and Wangmo, 2021). Other tools cater to a wider audience, but they frequently have features that are especially useful to the elderly. Although other digital health devices do not offer unique assistive features, according to the authors, they can produce the data required to use them. As well as self-monitoring, activity tracking, and other fitness-related metrics, digital tools are available for monitoring heart rate, calories consumed, movements, and so on.

Gerontechnologies and other digital health solutions can be used by older individuals to fulfill daily duties. A subset of digital health applications known as Intelligent Assistive Technology (IAT) is particularly useful for older people with dementia and other cognitive impairments. (Ienca, Fabrice, Elger, Caon, Scoccia Pappagallo, Kressig & Wangmo 2017; Ienca, Wangmo, Jotterand, Kressig and Elger 2018). Technology has been shown to aid in the promotion of active and healthy ageing, notably in combatting social isolation and boosting social participation in later life, as well as aiding autonomous and independent living and enhancing health and long-term care (Abdi, Al-Hindawi, Ng and Vizcaychipi, 2018; Baker, Warburton, Waycott, Batchelor, Hoang, Dow, Ozanne and Vetere, 2018; Buyl, Beogo, Fobelets, Deletroz ,Van Landuyt, Dequanter, Gorus, Bourbonnais, Giguère, Lechasseur and Gagnon , 2020).

According to the WHO Centre for Health Development (2004), Aging in Place (AIP) involves enabling people to live independently in their homes, or in appropriate accommodations, by providing appropriate services and assistance. The goal of ageing in place is to avoid or postpone the stress of transferring into a facility such as a nursing home. Ageing in place is the capacity to live

safely, freely and comfortably in one's own home and community, regardless of one's age, money, or degree of competence (Centres for Disease Control and Prevention, 2017). As a result, ageing in place is a shared obligation of both individuals and governments (Martens, 2017). Technology enables or improves aging in place, it can contribute to a higher quality of life while working to improve independence and health-related quality of life. (Orlov, 2019; Tun, Madanian & Mirza, 2020).

A variety of technological advancements, especially in the advent of digital technologies, play a crucial role in supporting healthy aging. In 2013, the World Health Organization reported that such advancements help provide care in a cost-efficient manner and encourage healthy aging. Information and communication technologies, health monitoring, assistive technologies, sensor technology, telemedicine, video games, medication reminders and the internet of things (for example, wearable devices) are all examples of technologies that promote healthy ageing (Pal, Triyason and Funikul 2017; Liu , Li, Jiang, Liu, Leng M, Zhao, Wang, Meng, Shang ,Chen and Huang, 2019: Peek, Luijkx, Vrijhoef, Nieboer, Aarts, van der Voort, Rijnaard and 2019; Sokullu, Akkaº and Demir, 2020).

As part of the COVID-19 pandemic, digital technology was utilised to help deliver care and reduce isolation to older people who remained at home (Mihailidis & Sixsmith, 2021). When every aged is able to participate successfully in today's digital society through devices that provide free access to information and interaction with others, offer appropriate security for health services and feature easy-to-use authentication and interaction mechanisms technology-based communication may foster social wellbeing (Datta, Bhatia, Noll and Dixit, 2019). As a result, technology may provide an alternate approach of alleviating social isolation in older persons while somewhat offsetting the detrimental health effects (Dennis, Alamanos, Papagiannidis and Bourlakis, 2016). The right amount of social engagement is necessary for good aging (Feng, Cramm, Jin, Twisk and Nieboer, 2020).

They are typically used to track, support, or improve daily activities, personal health or safety, mobility, communication and physical activity (Kim, Gollamudi and Steinhubl 2017). Digital technology can also assist aged in overcoming social isolation by increasing their interaction with the outside world and their participation in activities that enjoy in order to increase their self-confidence (Chen & Schulz ,2016). Technology adoption by the elderly is a great idea and a promising one at

that (Peek, Luijkx, Vrijhoef, Nieboer Aarts, van der Voort, Rijnaard, ,& Wouters, 2019), the effectiveness of technology has been largely evaluated in other populations (for example, adults with chronic conditions) (Liu, Li, Jiang, Liu, Leng, Zhao, Wang, Meng, Shang, Chen, & Huang, 2019).

Digital technology, including digital therapies, has altered medical social workers' engagement, service delivery and communication with older persons, carers, families, groups, organisations and communities (Peláez & Marcuello-Servós, 2018; Goldkind, Wolf and Freddolino, 2019; Makin, 2019). Older people are advised to maintain active and healthy ageing in addition to minimising functional loss. (Chang, Lu, Luorand Yang, 2015; Walker and Aspalter, 2015. Meanwhile, digitalisation has quickly permeated many aspects of life and all ages, including everyday activities, safety, entertainment, health care, social relationships and lifelong learning (Golant, 2017). However, as Chang, Lu, Luor and Yang (2015) pointed out, there are few research that analyse the technology that could help people age more actively. This systematic paper looks at how aged utilise digital technology, how it affects their social well-being, what hurdles they have in using it and the implications for medical social workers who provide them geriatric care.

Digital Technology and Healthy Ageing: Lessons from Developed Countries

Generally, Ageing in Place (AIP) refers to staying in one's place as long as possible, even if health concerns arise, and it's thought to reflect most older people's preferences. To cut government costs, AIP is seen as an alternative to institutionalised care as part of the government's response to population aging (National Health Service, 2019). Systematic reviews have found that internet and mobile-based apps, companion robots, video games (Wii & TV gaming systems), video conversations and general computer usage are effective strategies for reducing social isolation and loneliness in older persons, according to Chen (2020). The use of advanced Information and Communication Technologies (ICT) solutions can solve these issues and enable older persons to age in place, allowing them to remain healthy and independent in their familiar environments. The provision of health monitoring and counseling in the home environment is possible through the use of several monitoring gadgets and smart home solutions for the elderly. (Moraitou et al., 2017; Vollenbroek-Hutten et al., 2017).

There are various ICT-based home care solutions that can assist with daily activities, monitor a home's safety and security and support social interaction with family members and caregivers (Moraitou et al., 2017), and facilitate cognitive and physical exercise. (Vollenbroek-Hutten et al., 2017). According to Joe & Demiris (2013), elderly smartphone owners has increased over the past few years. As a result, mobile phones appear to be an ideal technology platform for reaching many aged. A review of the body of research on mobile health applications by Klasnja and Pratt (2012) indicates that these applications can be used in five different ways: tracking health data, engaging healthcare teams, getting support from the community, making health information more accessible, and promoting entertainment. All of these things could help elderly people age in place.

AIP-related technology has been around for a while (such as ramps and stair lifts). The use of digital technologies offers a new opportunity to gather, analyse, and share data about older individuals, thereby improving their social and care-related interactions (United Nations Department of Economic and Social Affairs.2020). Three different sorts of technology are typically referenced in this context, according to Berridge, Furseth, Cuthbertson, & Demello (2014): technological advancements in telehealth, telecare, and smart homes. These are:

- As a result of sensor-based devices, older people can be continuously monitored in their homes (such as fall detection devices or devices designed to track the number of hours spent in different parts of the house or the level of activity they exhibit);
- Among telehealth innovations are devices that monitor clinical data remotely and methodologies for using it to determine what intervention needs to be made;
- personal alarm systems, personal robots, audio/video surveillance and other interactive technologies make it possible for friends and family to interact directly with the elderly These technologies, together with gerontechnologies, were created specially to help AIP. Regardless of the original intent, technology becomes AAL (Active Assisted Living) technology when it is used to improve independent living, according to one report. (Fadrique, Rahman and Morita, 2019).

Similarly, digital technologies are recognised as contributing to the health and well-being of older persons (Digital Health, 2018). Older persons can receive support and feedback from Health and eHealth in the form of computer-tailored lifestyle programs to help them achieve their goals for a healthy lifestyle (Kampmeijer, Pavlova, Tambor, Golinowska and Groot, 2016). The potential for

preventing falls, monitoring, and early medical issue detection are expanding thanks to wearable sensors and the Internet of Things (Baig, Afifi, Gholam Hosseini and Mirza, 2019). Furthermore, access to online information and services has been shown to empower older persons (Hasan and Linger 2016), as well as improve decision-making (James, Boyle, Yu and Bennett, 2013), self-esteemand well-being (Llorente-Barroso, Viarás-Abad and Sánchez-Valle, 2015).

Opportunities for communication and social contact using digital technology improved older persons' social abilities(Llorente-Barroso,Viarás-Abad and Sánchez-Valle 2015), as well as minimize feelings of loneliness (Jones, Ashurst, Atkey and Duffy 2015) and the danger of social isolation (Llorente-Barroso, Viarás-Abad and Sánchez-Valle, 2015), create a sense of connectedness (Hasan and Linger, 2016) or belongingness (Nyman and Isaksson , 2015). Online leisure activities contribute to cognitive stimulation, self-worth and personal growth (Llorente-Barroso, Viarás-Abad and Sánchez-Valle, 2015; Hasan and Linger 2016), contentment, confidence, pride and self-respect (Aguilar, Boerema and Harrison, 2010). A number of older people now have the opportunity to interact with individuals sharing their interests, to be more connected to society, to work and participate in society according to their preferences thanks to the use of digital technology (Larsson, Padyab, Larsson-Lund and Nilsson, 2016).

The Internet, computers, smart phones, and other communication devices may provide a means for reducing health inequities by addressing current and impedimental barriers to accessing health care. (Portz, Miller, Foster and Laudeman, 2016). Health and social care are using ICTs to transform healthcare systems and patient care as they take advantage of the digital revolution to overcome aging-related obstacles and care for the elderly. (WHO 2015; Robbins, Keung and Arvanitis, 2018).

The ability to monitor patients remotely, access telemedicine, and receive other internet-based support is possible. ICTs may facilitate the management and improvement of older adults' health and quality of life. (Bujnowska-Fedak and Grata-Borkowska, 2015; Martínez-Alcalá, Pliego-Pastrana, Rosales-Lagarde, Lopez-Noguerola and Molina-Trinidad,2016; Liu, Stroulia, Nikolaidis, Miguel-Cruz and Rincón,2016). With all of these advantages, there is a case to be made for using digital technologies to support older individuals' social participation. A cost-effective way to promote active ageing can be provided by e-health and robotics, for example. E-health using digital technology

for distant care refers to a wide range of digital health and social care solutions. Based on country reports, the following are some illustrations of digital solutions:

- Tele-health. Patient data, like blood pressure, is collected remotely. Even though some impediments have been found, including as payment restrictions, tele-health implementation in the United States can improve care for Medicare patients.
- Tele-care. Using environmental sensors to detect situations like falls or fires, remote care is offered. Tele-care is an initiative in Poland aimed at improving the quality and safety of life for older people at home.
- Telemedicine is a term that refers to the use of technology Medical care that is delivered across a long distance. It could be about patient-doctor consultations over the phone or via video conferencing. Telemedicine has been developed in Japan due to a shortage of medical personnel. Telemedicine is used by patients in Greece who live on isolated islands.
- Tele coaching. An approach that focuses on changing one's behaviour and aiding healing. It can be provided using a variety of digital devices, including a computer and a smartphone.
- A mobile health application (mHealth). Mobile health apps are used to diagnose and monitor one's health remotely. Automated pill dispensers, remote COPD (Chronic Obstructive Pulmonary Disease) monitoring, and customised health tests are just a few of the innovations that Norway has tested.

In order to help the elderly live more independently, Active and Assistive Living (AAL) uses ICT in the form of Assistive Technologies (AT). These devices are characterised as home-based devices or systems that facilitate a variety of activities for older adults. They allow individuals to participate in activities they may not otherwise be able to do, or make the task easier and safer to complete (Bechtold, Capari, and Gudowsky, 2017). As technologies advance, trade-offs must be considered, such as the risks of technology replacing human help, threats to privacy and other unanticipated consequences (Bechtold and Sotoudeh, 2013). Elderly persons can achieve greater independence with robot-assisted devices, such as wheelchairs, shower chairs, and fall prevention systems. Robotic technologies can aid caregivers, which indirectly benefits older people. For instance, a Swedish study on the Poseidon shower chair discovered that older people feel more autonomous and in charge of their showering environment. Additionally, it has improved the working conditions for care givers and decreased the risk of harm. By enabling older people with such issues to use

technology to listen to music, schedule medication reminders, and make phone calls, especially to vital contacts or emergency numbers, Virtual Assistants (VAs) can help them continue to benefit from it (White, Marston, Shore, and Turner, 2020).

According to Sheerman, Marston, Musselwhite, and Morgan (2020) and White, et al. (2020), the technology behind VA smart speakers can assist older people with emergency response, enabling them to stay connected with family and friends, as well as provide access to important services. Marston and Samuels (2019) noted that people of various ages can carry out a variety of duties thanks to Vas. The development of smart home design is enabling more individuals to obtain suitable housing, which can support successful aging in place. Kim et al. (2017) claim that advanced sensors installed in smart homes can collect physiological and safety data, assist in the early detection of chronic illnesses, and improve response times for emergencies like falls and cardiac arrest. A person's ability to age in situ can be improved while simultaneously promoting healthy aging thanks to new internet tools and technology including telepresence equipment, phone apps, and personal assistive devices (Kwon, 2017).

Barriers to the use of Digital Technologies in Ageing

If older individuals are to benefit from technology in our digitally oriented society, it is essential to find ways to support their successful and ongoing usage of technologies. Passwords, evolving interfaces, privacy and security concerns, as well as deteriorating health, are major barriers to older persons' continuous use of technology (Berkowsky, Rikard and Cotten, 2015; Cotten, Yost, Berkowsky, Winstead and Anderson, 2016). Older adults often face unique challenges to accessing health services, including limited income or insurance, reduced mobility or disability, rural or remote location and negative self-perceptions of ageing (associated with lower health-related quality of life) (Gardiner, Richardson, Bishop, Harwood, Gardiner, Gale, Teoh, Lucas ageing Laverty, 2019). The importance of psychological variables has long been highlighted by research, which contends that older persons are less inclined to utilize the Internet because they have greater rates of computer phobia (Neves, Amaro and Fonseca, 2013; Silver, 2015; Cattaneo, Malighetti, and Spinelli, 2016), the frustration with user interfaces (Hussain, Ross, and Bednar, 2017),negative attitudes towards technology (Kamin, Lang, and Beyer, 2017; Reisdorf and Groselj, 2017) and the concern over security issues associated with the Internet are higher (Hussain et al., 2017). Furthermore,

research has shown that health issues can make it difficult for older people to use digital technology, such as the Internet. Some examples of these issues include poor eyesight, trembling hands, and (mild) cognitive impairment (Hussain *et al.*, 2017).

Conclusion and Recommendations

Aged can benefit from the use of digital technology in the areas of cognition, physical and mental healthand general well-being. Since digital technology offers the elderly a variety of opportunities, medical social workers who specialise in gerontology in social work education are needed to prepare future academics, practitioners, and policymakers to use it. Emerging technologies like sensors, wearables, robots, telepresence, and more are included in these technology resources. The development of tomorrow's gerontological social workers is advanced by the rise of digital technologies in the field. However, there are still certain difficulties to be resolved, including social problems associated with learning how to utilise the technology and psychological problems with motivation, attitudes, privacy, and trust.

In a country like Nigeria, access to digital technologies like the internet is limited and skewed to middle income earners, educated and government workers. The older persons in rural communities and those with cognitive impairment are excluded from having access to digital technologies like the internet, smartphones and telemedicine-based care services (Adebusoye, Cadmus, Labaeka , Ajayi, Olowookere and Otegbayo, 2020). There is a need to for Nigerian government to ensure aged rural areas and those with impairment have access to digital technologies. Additionally, those in the medical social work field who specialise in gerontology should use technology to exchange and disseminate knowledge about the available tools for promoting healthy aging and senior citizens' wellbeing. Medical social workers involved in gerontology can utilise technologies which allows information to be distributed efficiently to diverse older adult populations, enabling data to be shared across multiple languages and formats (audio, writing and video) to improve ageing. For older people to help overcome these barriers, researchers and developers should work with stakeholders of different disciplines and backgrounds to create and develop new technologies. Finally, to build technologies that will be helpful and user-friendly for older adults, gerontologists and ageing experts should work with technology developers.

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