



The Use of Information Communication Technologies in a South African Deaf Older Adult Population Living in a Residential Care Home to Communicate with Emigrant Family Members

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Abstract

South Africa has experienced considerable international outward migration in the last half century, which has had a severe psychological impact on members of families affected by this phenomenon. Older parents who remain behind may experience feelings of loss and isolation. Information Communication Technologies (ICTs) are useful in maintaining relationships between family members separated by migration and increasingly allow migrant families to experience a virtual co-presence despite geographical separation. However, the process may be challenging, especially for older people with hearing difficulties. This article reports on a qualitative study exploring the perceptions of a group of older adults who have difficulty hearing and who live in a residential care home about using ICTs to communicate with family abroad. Interview data were analysed using thematic analysis. Most of the participants used either a fixed line telephone or a mobile phone. They reported challenges in communicating with family members abroad arising from their deafness, as well as difficulties using technological devices together with their hearing aids. These challenges resulted in feelings of helplessness and frustration. Although the data collection took place prior to the COVID-19 pandemic, these findings may be of particular relevance to situations such as those during the pandemic when many older adults became more reliant on technology to communicate with family members because of restrictions on direct contact. Accordingly, suggestions are made to address challenges in communication between older adults and loved ones who are geographically separated.

Keywords COVID-19 · deafness · ICTs · migration · older adults · residential care homes

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Introduction

Today, when family members migrate, geographical distance no longer implies the end of relationships, as new applications and technological platforms can now be used effectively in order to communicate. The value of Information Communication Technologies (ICTs) in maintaining relationships at a distance has been foregrounded in several studies examining the experiences of migrant and transnational families (for example, by Bacigalupe & Cámara 2012; Baldassar, 2007, 2016; Baldassar et al., 2007), but there may be constraints to the use of such technology by older adults, who have been described as “digital immigrants” (Prensky, 2001, p. 2). The term refers to individuals who were not born into the digital era, but who at some point in their lives adopted some or most aspects of the new technology. Consequently, some of these people are not entirely comfortable in the new technological environment, despite increasingly being required to negotiate these new technologies successfully. The plight of older adults, who are already at risk for isolation and increased feelings of loneliness when their loved ones emigrate, therefore warrants further investigation, especially given that older adults are also often affected by physical constraints such as deafness, which makes using technology more challenging. This may then negatively affect their experiences and ability to stay connected to loved ones.

In order to shed more light on these issues, we engaged with a sample of older adults who are deaf and live a residential care home in Johannesburg, South Africa. For the purposes of this article, the word “deaf” is used to refer to people who experience deafness in the range of hearing loss associated with deafness. We discuss the results of a research project which examined the ways in which this group of participants used ICTs to communicate with family members who now live abroad. This allowed an exploration of the challenges and also the opportunities that were created for this group of older adults by their use of technology to stay connected to their relatives and friends.

Although the research project on which this article is based took place prior to the COVID-19, this paper was written during one of the series of lockdowns South Africa experienced since 26 March 2020. We therefore could not ignore the prominent role that technology has played in maintaining relationships at a distance during a time when worldwide restrictions on people’s movements and social contact to fight the COVID-19 pandemic meant that many families have been physically separated, and many have had to rely heavily on technology to stay in contact and support each other at a distance. This physical separation from their loved ones has been felt particularly deeply by older adults, especially those living in residential care homes (Van Dyck et al., 2020). The strict COVID-19 restrictions worldwide which limited access to such residential care facilities (Verbeek et al., 2020) to prevent outbreaks in homes for older adults made it very difficult for adult children, even those who live nearby, to visit their parents (Fatmi et al., 2021). Many residential care homes implemented strict rules barring family members from visiting their older relatives. Restrictions on international travel exacerbated the problem for people such as those in our study sample. This widespread intervention during the pandemic implies that isolation and separation from loved ones were no longer the experiences only of separated migrant families but were the overwhelming experience of many families across the globe.

Consequently, some reference is also made in this article as to how these results are relevant in reflecting on the global experience of the COVID-19 pandemic.

Migration of adult children and its impact on parents remaining behind

Most of the literature on the impact of migration focuses on the experiences of those who leave their country of origin and the stresses that they experience as they adapt to their host countries. Notably, Berry (1992, 2001) has explored the different acculturation strategies that migrants employ when they enter a new country. Sluzki (1979), in his seminal article, “Migration and family conflict,” describes the phases that a family goes through when emigrating to a new country, identifying specific phases of the migration process. Each phase has unique characteristics, and triggers various coping mechanisms in the emigrating family, bringing about specific conflicts and symptoms. Ainslie (1994) coined the term “cultural mourning” to describe the significant loss experienced by migrants, a theme that emerges strongly in the research by migration scholars such as Grinberg & Grinberg (1984), and Falicov (2005).

By contrast, less research has considered the experiences of those that remain behind, especially older parents whose adult children have migrated, but in the last decade more studies have investigated this previously under-researched group, for example, research by Antman (2013), Marchetti-Mercer (2012a) and Marchetti-Mercer et al., (2020). Antman (2013) suggests that when adult offspring migrate, the impact on older parents can be detrimental for their health outcomes. Marchetti-Mercer (2012a) and Marchetti-Mercer et al., (2020) have explored the psychological impact of migration specifically on older parents remaining behind and the challenges they experience in maintaining relationships with their migrant offspring. These studies highlight challenges regarding a transformed family system, particularly older parents’ inability to remain part of their children’s and grandchildren’s daily lives. The advantages and disadvantages of the use of ICTs is another theme that emerged in these studies. Feelings of loss experienced by older adults, and increased isolation as a result of the departure of their children have also been explored in depth (cf. King & Vullnetari 2006; Knodel & Saengtienchai, 2007; Miltiades, 2002). South Africa, with its complex history of migration, is a useful source of examples of this phenomenon.

South African migration trends

South Africa’s history of migration is closely linked to its tumultuous political past and present. During the apartheid years (1948–1994), many people left the country to escape the repressive regime and political instability, but despite the advent of democracy in 1994, international outward migration has continued (Marchetti-Mercer, 2012a, b, 2016, 2017; Marchetti-Mercer et al., 2020). Migration since 1994 has been ascribed to high levels of economic uncertainty, job insecurity, uncertainty about the country’s future, as well as rising levels of crime and violence (Kerr-Phillips & Thomas, 2009). Irrespective of the motivation for emigrating, recent research indi-

cates that this phenomenon has resulted in many older adults remaining behind. These older adults experience significant psychological distress because their children and grandchildren now live abroad (Ferreira & Carbonatto, 2020; Marchetti-Mercer et al., 2020). One strategy that families adopt to address the physical separation brought about by migration is to employ the burgeoning range of ICTs now available, such as mobile phones and applications such as Skype, WhatsApp, and Facebook, Google Meets, and Zoom, which have become increasingly popular in recent years.

Migration and the use of ICTs

Recent migration research has therefore also looked at the role that technology can play in maintaining relationships between members of migrant families (Marchetti-Mercer & Swartz, 2020). Baldassar's large body of work on this topic (for example, Baldassar 2007, 2016; Baldassar et al., 2007; Wilding & Baldassar, 2018) shows that by using technology parents and migrant children can maintain "mutually supportive relationships across time and space" (Baldassar, 2007, p. 406). The importance of ICTs in achieving this outcome was already mentioned a decade ago by Bacigalupe and Cámara (2012, p. 1435), who argue that ICTs have the "potential for transforming the psychology of immigration". This view resonates with the argument made even earlier by Wilding (2006, p.132) that ICTs may allow families "to overlook their physical separation by time and space—even if only temporarily". Horst (2006) emphasises the importance of hearing a person's voice and exchanging communications in real time in order to maintain relationships in migrant families. However, this type of communication is not without challenges, as research has revealed. The most significant of these challenges is the lack of intimacy and physical contact experienced in the technological space (Marchetti-Mercer, 2016, 2017; Marchetti-Mercer & Swartz, 2020; Wilding, 2006). Where families are geographically separated, they may also hide problems and difficulties from each other to provide a façade of normalcy because they do not wish to create what they consider unnecessary concern (Baldock, 2003; Marchetti-Mercer & Swartz, 2020).

Importantly, technology can also be alienating in the presence of ageing and/or disability (Marchetti-Mercer & Swartz, 2020; Swartz & Marchetti-Mercer, 2019) if people are unfamiliar with technological devices and applications in a world that is increasingly technology-driven, casting into relief their own declining health or exclusion from an able-bodied society. These difficulties experienced in migrant families are exacerbated for older people when they are called upon to use and adapt to the new technology presented to them, even imposed on them, by modern society (Roupa et al., 2010). The stressors would be likely to increase in unanticipated situations such as those under COVID-19.

The use of technology by older populations

There are various benefits of technology use amongst older adults, including the possibility of using the internet to access health- and non-health related information, and to maintain effective communication and social interactions with friends and family

despite geographical distance (Choi & Dinitto, 2013). Since 2020, these opportunities have become more important because of the reduced physical social contact that characterized the COVID-19 pandemic. ICT may thus have a beneficial effect on their quality of life (Roupa et al., 2010).

Despite such benefits, older adults cite many reasons for not using computer or other internet technology. These include the cost of computers and internet access, functional impairments such as arthritis, joint pain and visual difficulties which act as barriers to typing, for example, small font size, a lack of computer knowledge and competence (feeling too old to learn new things), distrust of the internet and concerns related to privacy (Choi & Dinitto, 2013). As mentioned earlier, Prensky (2001, p.2) has referred to the older population as “digital immigrants”. Prensky (2011, p.2) believes that digital immigrants retain an “accent”, in other words, their foot in the past. This can be seen in small things, such as turning to the internet second rather than first when seeking certain information. At times, older people are slow to adjust to the arrival and use of the new technology, compared to younger generations, due to their limited exposure to and experience with such technology (Roupa et al., 2010). Further difficulties may be linked to demographic variables such as income, level of education, geographical location, as well as difficulties related to the complexities of new technologies (Roupa et al., 2010). There may be few incentives to overcome difficulty adjusting to the new technology, especially without appropriate training regarding digital skills (Roupa et al., 2010).

Regarding the methods older individuals use to stay in touch with family members and friends, Hill & Dickinson (2007) found that many of their participants used a telephone when face-to-face communication was not possible. However, participants also indicated that if they are hard of hearing, talking on the telephone is difficult at times, and that they prefer face-to-face communication, because they can then use compensatory strategies such as lip reading. Others reported that even with a hearing impairment, as long as a caller knew to speak clearly, they experienced few difficulties.

It is evident that the use of technology by older adults has the potential to contribute to a better quality of life by improving activities of daily living such as communication, and participation in social activities (Roupa et al., 2010). However, it also poses a number of limitations and challenges that need to be considered, including hearing (dis)ability.

Deafness in older adults

Many people are affected by complete or partial deafness, which may be unilateral or bilateral, and limits an individual’s ability to hear optimally: “[G]lobally more than 1.5 billion people experience some decline in their hearing capacity during their life course, of whom at least 430 million will require care” (World Health Organization, 2021, p. 1). Indeed, “over 65% of adults above 60 years of age experience hearing loss” (World Health Organization, 2021, p.18). Aside from the difficulty hearing, deafness affects and is affected by the social conditions in which people live, as well as their social interactions. The social dimensions of deafness and its impact on peo-

ple's quality of life must be recognized—it is not enough to measure and rehabilitate audiometric hearing levels.

The term presbycusis is used to refer to a sensori-neural hearing loss associated with advancing age. It has been ascribed to the consequences of ageing, together with exposure to noise, trauma and, in some cases, ototoxic medication (Forcica et al., 2004). Age-related hearing loss is the most common form of sensori-neural hearing loss (McCormack & Fortnum, 2013). It usually presents as bilateral sensori-neural hearing loss. Older people often report poor speech discrimination and difficulty hearing clearly where there is background noise; they hear better in quiet environments (Forcica et al., 2004). According to the last census, in South Africa, approximately 3.6 per cent of the population report some kind of hearing difficulty, from mild to severe deafness (Statistics South Africa, 2014). The percentage increases as a function of age: almost 20 per cent of people over the age of 65 years in South Africa may present with some degree of deafness (Joubert & Botha, 2019).

The impact of deafness

Besides the auditory deficits related to deafness described earlier, deafness in older adults may be associated with multiple negative consequences, such as loneliness, isolation, reduced social activity and a feeling of being excluded, which leads to an increase in the prevalence of depression (Arlinger, 2003; Strawbridge et al., 2000). These challenges may be compounded by experiences of dependence, frustration, anxiety, anger, embarrassment, and even guilt (Ciorba et al., 2012). Together with deafness, older people may have mobility and visual difficulties, which may further limit enjoyment of activities interactions with family members and friends, especially for older people in residential care homes (Strawbridge et al., 2000). Although social networks tend to become smaller with age, it has been found that older people appreciate and benefit from the *quality* of that network over the quantity of people in their network (Bruine de Bruin et al., 2020). It is therefore significant that Ogawa et al., (2019) suggests that, even accounting for factors such as age, sex, educational background, activities of daily living, and mental health, the most significant factor related to reduced social network size is hearing impairment. This finding highlights the exclusionary effects of deafness in the older population: although older people are satisfied with smaller social networks (Bruine de Bruin et al., 2020), their deafness may preclude them from enjoying the wellbeing offered by the quality of such smaller networks. Therefore, in order to remain socially engaged and to promote positive physical and mental health, the identification of deafness and its related communication challenges is essential to enable rehabilitative opportunities to be offered and to reduce the risk of negative consequences (Strawbridge et al., 2000). It is thus important to consider older adults in a holistic manner to provide services that are appropriate and effective to each person.

Older adults with hearing loss may acquire hearing aids in an effort to minimise the impact of their deafness, including the communicative and psychosocial problems that may result from deafness (Lewis, 2002), although the average age at which older adults get hearing aids may be as late as 70 years, even if they have experienced deafness for an average of ten years before seeking rehabilitative services (McCormack

&Fortnum, 2013). Given that residential care facilities may not be able to address all the residents' hearing and communication needs (Ludlow et al., 2018), it is often the responsibility of family members to care for older adults' hearing aids and rehabilitation services (Jorgensen & Messersmith, 2015) – this may be difficult to manage if family members live abroad. Hearing-related challenges may thus influence communication between an older adult and family members who have emigrated. Moreover, the noise levels in residential care facilities are not always conducive to hearing due to “background noise from music, televisions, radios, announcement systems, and surrounding conversations” (Ludlow et al., 2018, p.298), making communication with family abroad more difficult, even when ICTs are accessible. Consequently, the challenges older adults face in using ICTs, especially if they experience hearing loss, compound the challenges of communicating with family who have emigrated.

The impact of COVID-19 on older adults' family relationships

The COVID-19 pandemic has had a devastating impact on social relationships, and it is important to specifically consider the impact on older adults and their family relationships. The varying degrees of lockdown implemented world-wide to slow the spread of the virus isolated people and changed the landscape of our relational lives. One group which was particularly negatively affected was the older adult population.

From a health perspective, they were at high risk for fatalities (Kar, 2020) and consequently they often had to adhere to very strict lockdown measures, often preventing them from leaving their place of residence or receiving visitors, even family members. This was particularly the case for those in residential care or nursing homes, which in many cases witnessed an unprecedented number of fatalities, in some places resulting in up to 72 per cent of deaths attributed to COVID-19, due to the advanced age and close proximity of residents (Thompson et al., 2020). Van Dyck et al. (2020) report that such measures led to extreme social isolation among such residents where they were restricted to the facility, and even to their own units or rooms. Other research emerging from the impact of COVID-19 on older adults, for example, by Kar (2020) and Lee et al., (2020) also stressed concern for the impact of isolation on the mental health of older adults. In fact, Lee et al., (2020, p.3) warned that “the mental health problems of the elderly caused by COVID-19 should be... addressed as a public health crisis.” These authors see family relationships as fundamentally important to provide social support for older adults, while providing a necessary context of safety. These relationships were negatively affected by the pandemic. One way to remedy this problem was through contact with family and friends through phone calls, social media and the internet (Fiorillo & Gorwood, 2020; Kar, 2020; Lee et al., 2020) Van Dyck et al. (2020) described the positive results of a telephone outreach programme between older adults residing in a nursing home and student volunteers, where older participants reported decreased social isolation. However, they acknowledged the constraints imposed by some of the problems discussed above, such as older people's lack of knowledge of technology, as well as hearing and visual impairments.

When family members are no longer physically present as a result of emigration and live too far away to be called on even in emergencies, communication is one of

Table 1 Gender and age of participants (n=15)

	70–75 years	76–80 years	81–85 years	86–90 years	91–95years	
Male	5	0	1	3	1	0
Female	10	2	1	5	1	1
Total:	15	2	2	8	2	1

the aspects which is affected. The challenge is compounded in the case of older adults who remain behind and have hearing loss. Although ICTs can potentially facilitate communication, where these technologies are not readily accepted, they can make older people feel even more isolated from family members, highlighting the sense of distance (Marchetti-Mercer, 2012a). Due to these particular challenges related to deafness and communication in older adults when trying to interact with their emigrant family, this study was undertaken to gain an insight into the experience of deaf older adults who live at a residential care home when communicating with family members who live abroad.

Methods

The qualitative study reported in this article draws on data from a research project considering the experience of deaf older adults living in a residential care home in communicating with family members who live abroad. The study involved 15 semi-structured face-to-face interviews with individual older people in a residential care home in Johannesburg, South Africa, in May and June 2017, as part of a larger, ongoing study. The residential care home selected offers a wide variety of services to the residents, many of whom have family who have emigrated. The home offers financial assistance, health care services, residential care services, educational support services, social services, burial services, and emergency services for its residents, irrespective of residents' financial status. The home provides both frail care and medical facilities, as well as accommodation to older adults with a diversity of physical, mental, emotional, and psychological characteristics. The hospital wing of the home is staffed with nurses and general practitioners, with access to consulting specialists. Rehabilitation services are available, including audiology, speech therapy and physiotherapy. A team of social workers provide supportive counselling to residents and their family members. Two of the authors provided prolonged service at this residential care home and were familiar with the trend in emigration in the residents' families, which suggested that purposive sampling conducted at this home would allow us to address the research question for this study.

There were 15 white participants (10 women and 5 men), with ages ranging from 71 years to 93 years, as set out in Table 1.

Ethical clearance was obtained from the non-medical ethics committee of the University of the Witwatersrand prior to the commencement of the research project. In line with the ethical protocol, prior to recruiting participants, permission was sought from the manager of the chosen residential care home in Johannesburg to conduct the study at the home. Once permission was obtained, a purposive sampling strategy was employed to recruit participants: the audiologist at the residential care home was

requested to review residents' records to identify potential participants and to distribute the study information letter, participant information sheet, and consent form to those identified. If residents wished to participate, they returned the consent form to the resident audiologist, who collated the forms and gave them to one of the researchers. This procedure was used to minimise cold calling of potential participants by the researchers. The audiologist at the residential care home also signed a consent form to assist in the research process and a non-disclosure agreement to ensure participants' anonymity and confidentiality.

Eligibility criteria for the study were long-term residence at the home rather than brief respite care. In addition, participants had to have audiological confirmed hearing loss, regardless of degree, for which hearing aids were prescribed and issued. They had to be residents who consistently wore hearing aids (behind-the-ear, or in-the-ear aids), so as to gauge how their communicative experience related to their hearing loss when they used assistive technology as well as ICTs. Residents who did not receive intervention for cognitive deficits by the resident speech-language therapist and resident occupational therapist were also invited to participate in the study. The last criterion for inclusion was that participants had to have family who lived abroad with whom they communicated on a regular basis.

The interviews were conducted in English by one of the authors, as the residents of the home are English-speaking. Participants chose the time and setting for their interviews. Noise levels and participant confidentiality were considered in the choice of setting. The entire interview session was audio-recorded with participants' permission to capture the participants' experiences in detail, and interviews were transcribed by one of the researchers. A flexible interview schedule was used, because this interview format allows a set of questions to guide the conversation, while allowing room to talk about what is of importance or interest to the participants, and permits unexpected turns in the conversation which also allow a researcher to explore new topics that are relevant to a study (Hesse-Biber, 2016).

The questions in these interview guides explored the participants' communication with family members overseas and aspects related to the hearing difficulties experienced, and the resultant communication. Their emotions around communication were also explored. The questions for the interviews were informed by a review of the literature and previous research. Due to the sensitive nature of the questions, which could elicit distress in the participants, a distress protocol was in place for debriefing, and counselling services were available from a social worker based at the residential care home.

The interview recordings were transcribed and analysed by means of thematic analysis, using Braun and Clarke's (2006) six-step procedure, which encompasses capturing patterned responses in the data. The six steps are familiarization with the data, generation of initial codes, searching for themes, review of the themes, definition and naming of themes, and production of the report. The results are presented using gender-matched pseudonyms allocated to the participants to ensure anonymity. Some information was tabulated for grouped themes. All three authors were involved in data analysis process—the third author generated the initial themes, and the other two authors then checked the themes, before a discussion to reach consensus on a final list of themes to ensure trustworthiness and fidelity.

Results

The thematic analysis identified our main themes related to the emigration of the younger generation, as well as the means and technologies used to communicate with family members who had emigrated. The main themes identified were the following:

- Negative psychological impact of their family's emigration;
- Frustration with the use of ICTs;
- Feelings of helplessness as a result of communication difficulties;
- Fear of upsetting family members abroad; and
- Sense of resignation.

All the participants, despite their hearing difficulties, reported using the telephone as their main means of communicating with the family members who had emigrated. There was limited reference to other technologies, except for one deaf participant who reported that her family sent emails to a friend in the home who relayed the content to her, and another participant reported the same for a friend's Facebook. Participants did not seem to favour text communication via mobile phone at all.

Negative psychological impact of their family's emigration

The theme of the negative psychological impact of family members' emigration was not directly associated with the use of ICTs, but the theme emerged strongly in the data analysis. In this context, these older adults want to communicate with the family members who have emigrated. Participants reported experiencing several negative emotions in the wake of their children's emigration. Firstly, they lamented the negative effect of the event on their families:

"...it's broken up the family. He's got a brother here with family so it does break up a family. The cousins hardly get to see each other. It's not easy. Emigration is not nice." (Meryl)

This seemed to lead to feelings of loss and sadness:

"No, look, we were very close actually. She used to live next door to us and spent every Saturday morning together. So obviously when she left, I missed her...." (Meryl)

The loss of relationships with grandchildren was experienced as particularly difficult:

"...[I] miss them. I don't think too much about it now... I wish she was here, I could see the children and three little great grandchildren." (Rebecca)

Participants tried to stay connected through visits, but this option was often limited because of the cost of international travel for both the older adults and the family members who emigrated:

"Everything is so expensive you don't know if you will ever see them. I can't travel." (Rebecca)

Participants tried to make meaning of the emigration through the belief that the emigration benefits their children, giving them better opportunities abroad:

"It's to his benefit and he's done well. He could never have achieved it here." (Shelly)

Despite the challenges, in the end, it seemed as if participants resigned themselves to the younger family members' departure:

"No, look, I got used to it." (Meryl)

Frustration with the use of ICTs

Only one participant expressed a sense of satisfaction with successful communication, notwithstanding the communication difficulties imposed by her being deaf, when she managed just to hear her son's voice:

"I am so thrilled to be able to hear his voice that it overrides everything else." (Moir)

However, the majority of participants expressed frustration in different ways at their attempts at communicating with their family members through ICTs. Often their frustration was directed at themselves:

"Yes, I get fed up with myself and frustrated with myself. Most of the problems I have is frustration." (Florence)

They also recognised the frustration experienced by their interlocutors due to the parents' hearing difficulties:

"I keep saying, 'Say that again, say that again.' So, I'm sure that phoning me is not a joy for him.... My son in England doesn't phone me too often because it's frustrating you know." (Maeve)

This sense of frustration often led to the abandonment of conversations:

"It makes you crazy. Sometimes they say never mind, we will speak to you again... It's a sad story." (Rebecca)

Communication attempts were characterised by anger at the communication device itself:

"I also get frustrated absolutely... The telephone is my biggest frustration."
(Maeve)

This frustration was often exacerbated by noisy situations and ambient noise:

"The telephone is one. My son lives overseas in Canada and he phones me once a week and there are times when I can't hear him at all... All the background noise I can't hear if they are talking to me or not... I find it very frustrating."
(Sarah)

Their frustration also extended to their hearing aids and their feeling that these devices were not assisting them:

"Well look, sometimes I can hear better without it because when I try and adjust it, it makes noises and I can't hear better. I take it off. I believe there is a telephone adjustment on here; I must try it." (Samuel)
"It's more clear without the hearing aid over the phone." (Shelly)
"I take it out. I can't use it on the telephone, definitely not." (Victoria)

By contrast, for some residents, the frustration was eased by the use of their hearing aids, and one shared a strategy:

"No, no. I feel fine with it. This one has a little buzzer at the bottom so when you start talking on the telephone you press it... it makes it clearer." (Maurice)
"I do speak on that side but place the phone on top, not the side. I was told to do it above the ear." (Miriam)

Feelings of helplessness as a result of communication difficulties

A number of participants expressed feelings of helplessness as a result of the different communication challenges they experienced. Some reported that they struggled to adapt to using communication modalities and therefore did not use means such as video calling:

"No, I haven't got it and I couldn't. I'm not very mechanical. I don't adapt so quickly." (Shelly)
"I don't know how to use it. I don't know how to use it and I feel like an idiot. And I wouldn't know to send MSs [SMSs, a text message]." (Maeve)

Even with other communication options available, such as apps with which to communicate with family abroad, some participants seemed to give up:

"I am of the older generation and I find that I am not good at using a cellphone [mobile phone]." (Miriam)

Participants at times had to rely on the assistance of others. Although for some this emphasised their sense of ineptitude, for others, this helpful social interaction appears to have reduced their sense of helplessness:

“[Fellow resident’s name] here is friends with my daughter on Facebook and she shows me the picture.” (Meryl)

“There’s a lovely lady here, [fellow resident’s name], she lets me email. She has said to me if you have any friends or family that you can’t hear over the phone, tell them to email me.” (Sarah)

Fear of upsetting family members abroad

Participants indicated that sometimes they did not report their difficulties in trying to communicate with their family members because they feared upsetting these family members. This led to less frequent communicative interactions:

“I don’t want to upset him. I don’t want him to think I’m not communicating properly so I don’t do that.” (Miriam)

They also seemed to fear the end of regular communication:

“I can’t talk to him. I say to him: ‘Listen I can’t hear you; can I phone you back later or can we postpone it for tomorrow?’ I said to him it’s important to be able to talk to you, don’t take that away from me.” (Sarah)

Sense of resignation

It seemed that some participants eventually resigned themselves to the constraints regarding their communication and gave up trying to communicate effectively with their emigrant families because of the challenges described above. They seemed to make peace with their inability to understand and hear everything:

“Sometimes I don’t hear properly and it’s okay.” (Meryl)

“You know, I’ve got used to not being able to hear everything I want to.” (Joan)

Participants acknowledged that they often knew that they had misheard, but they gave up and accepted the fact:

“I try and hear what I have to hear and get around... Sometimes I hear things and you know it’s wrong.” (Shelly)

It seems as though participants have become accustomed to mishearing when communicating with their family abroad:

“I might have gotten used to it.” (Miriam)

Discussion

Emigration has been shown to have a significant impact on the lives of those that remain behind. In the case of older adults, they often experience feelings of loss and loneliness as they struggle to make meaning of the departure of their children and grandchildren (Jithoo et al., 2020). One way to ameliorate these negative experiences is to use ICTs, which allow for rapid, indeed immediate, communication. There is a body of research which has focused on the advantages of ICTs in maintaining relationships of care amongst members of transnational families (for example, Baldassar 2007), but, given the limited samples used in qualitative studies, this research has so far tended to neglect the physical difficulties – in this case, deafness – and other challenges that older adults may experience in this process. Tucker (2017) has pointed out that despite optimism about the potential of ICTs to transform the lives of disabled people, the danger still exists that the lived and embodied experience of disability may go unnoticed. This seems to have been the case for the participants of the study reported here: they all experienced different levels of deafness and the constraints of the challenges of using ICTs for older adults. Firstly, older people are not always comfortable with the technology (Roupa et al., 2010). Secondly, physical limitations such as age-related deafness makes these modes of communication extremely challenging.

The findings of our study are in line with those of other research which has shown that older people often experience the emigration of their adult children and grandchildren negatively. Our participants reported feelings of loss, confirming other South African research (Ferreira & Carbonatto, 2020; Marchetti–Mercer et al., 2020). The impact of emigration of the younger generation on the family structure and the inability of older people to be part of their grandchildren’s lives were highlighted as particularly distressing. Therefore, it seems that when participants have to deal both with the loss of their children to emigration and the loss of communication efficacy due to their loss of hearing, the resulting decrease in connection with their children abroad culminates in social loss (Ciorba et al., 2013). For our participants, this social loss became more prominent when they had to rely primarily on technological means to stay connected with their distant kin. Under COVID-19 conditions, this situation would have affected all the residents of such homes when strict isolation protocols were followed.

Difficulties with ICTs are reflected in relevant experiences that participants reported. Participants used the technology as a way to stay in touch with their family members, but all of them mentioned some degree of frustration. Part of this frustration was directed at themselves, for not being able to use the technology properly, as is indicated by Florence’s admission of getting “*fed up*” with herself and “*frustrated*” with herself. Another source of frustration was their own experience of deafness, which in many instances required them to have to ask callers to repeat what they were saying over the telephone. Such experiences instilled the fear that their children

might not want to call them again because the interaction was so challenging, that if their children understood the extent of their deafness, their children might stop communicating with these parents altogether. Eventually a sense of frustration and helplessness sometimes led to resignation because they felt that there was not much they could do about the situation and that they had to make peace with their inability to communicate clearly with their distant family members.

The participants often felt a sense of helplessness at their own perceived inability to use the technology properly; for example, struggling to text a message made them feel incompetent. This experience reinforces the assessment of older people as “digital immigrants” (Prensky, 2001, p.2), which assumes that older adults are slower to adopt and adjust to new technology, compared to the younger generation, due to limited exposure to and experience with this technology, and their current health status. Strawbridge et al., (2000) warned that older people with deafness struggled with, and their hearing impairment impacted on, activities of daily living, business transactions, shopping, interactions with friends and family, or medical consultations. In some instances, some of our participants sought assistance to work with the technology from other people in the residential home.

Nevertheless, there were some responses that indicated the advantages of hearing aids in this process. This suggests the advantages that good quality hearing aids may have for the lived experiences of older people struggling with deafness and supports previous research which found that the use of hearing aids results in an increase in social participation and feelings of well-being, accompanied by reduced effort and fatigue in communicating (Holman et al., 2019). However, research has also shown that despite the advantages of using hearing aids, a number of social and psychological factors may impede proper use, including stigma, limited opportunities and situations in which hearing aids are deemed necessary, the fact that hearing aids are reported not to work with telephones, the perceived nuisance and “hassle” of wearing hearing aids, as well as people’s forgetting to wear them (McCormack & Fortnum, 2013). Furthermore, embarrassment, frustration, poor coping strategies, and low self-esteem can exacerbate challenges (Ciorba et al., 2013). These obstacles may have an impact on the social and psychological domains related to improving communication in relationships, intimacy and warmth in family relationships, emotional stability, sense of control over life events, and perception of mental functioning and physical health (McCormack & Fortnum, 2013).

Residential care home residents’ negative emotions relating to their hearing and communication may ultimately impact negatively on their quality of life (Ciorba et al., 2012) Ogawa et al. (2019) have shown that the challenges in communicating experienced by older people with hearing impairment put them at great risk of exclusion and reduced social networks. In the case of our participants, this challenge appears to have had a negative effect on their ability to maintain positive relationships with their family members living abroad.

Therefore, the findings from this study seem to be in line with those reported in previous research regarding withdrawal from communicative and social interactions by members of older populations affected by hearing loss (Ciorba et al., 2012; Ludlow et al., 2018; Strawbridge et al., 2000). Moreover, in residential care homes with their smaller social networks, despite the potential intimacy of this smaller net-

work, for older adults with deafness, there may be an experience of social isolation and reduced social participation if they withdraw from social interaction (Ludlow et al., 2018) and they are not able to experience the wellbeing offered by their closer, smaller networks.

Recommendations

The experiences of our participants confirm that ICTs are valuable in keeping migrant families connected, but it is clear that there has not been sufficient research on the role played by physical limitations such as deafness in such situations, where the practical ability of older people to deal with technology may be affected, and the psychological impact of such challenges may be considerable. Feelings of frustration, helplessness and eventually resignation seem to arise when older adults with such limitations face the additional obstacle of unfamiliar technology. These emotions add to the sense of isolation following the migration of family members (or due to other causes, such as COVID-19 lockdowns), and should be addressed as far as possible.

The experiences described in this article are of particular significance given the isolation that older adult populations increasingly experienced since the start of 2020 under the conditions imposed by governments and care facilities to combat the COVID-19 pandemic. The experiences described in this article are now not limited only to those with family members living abroad, but extend to other older people who are living with deafness and whose social interactions were restricted during the COVID-19 lockdowns, when family and friends, even if they lived close by, might as well have been on another continent. As Van Dyck et al., (2020) have shown, COVID-19 restrictions greatly increased the isolation and loneliness of many older people. Consequently, although technology has been hailed as a very important communication tool for migrant families (Bacigalupe & Cámara, 2012) and thus for other separated families, the results of our study indicate that much more attention must be given to the potential physical limitations that older adults may experience if they are subject to physical limitations such as deafness. Audiological support, together with technological support, appears to be necessary to reduce the communicative challenges experienced by older people with hearing loss. For those who live in residential care homes, there need to be contextual and environmental modifications to improve communication opportunities and communicative success, including noise management and environmental adjustments (Ludlow et al., 2018).

Limitations

All our participants were white, which, given the cultural diversity of the country, may provide a limited view of the South African experience. However, given that the majority of South African international out-migrants tend to be white (Marchetti-Mercer et al., 2020), and that a critical inclusion criterion was having adult children who had emigrated, this was inevitable and reflects the situation. Most of our participants were women, which could potentially result in a skewed gendered perspective. However, this distribution is in line with the greater propensity of women to agree to participate in family-related research (Charles & Davies, 2008; Marchetti-Mercer et

al., 2020). Given that the population for the sample was older adults, life expectancy differences between older men and women – estimated at 4.57 years in South Africa (Chirinda & Chen, 2017) – may also explain the higher number of female participants. Another limitation is that this study was conducted at a residential home for older adults and may not reflect the situation for older adults who do not live within supported environments.

Conclusion

This study was conducted on a sample of deaf older adults whose children had emigrated, showing the difficulties in communication that this population experiences, despite access to appropriate technology. The findings described in this study add to the limited literature on the use of ICTs by older parents whose children have migrated, filling a gap in research on how disabilities may affect the use of ICTs by older adults communicating with migrating families, an exception being Swartz & Marchetti-Mercer (2019). Support and sensitivity must be shown towards this population group, because frustration and helplessness may have a negative psychological impact on them instead of assisting them to find and maintain a sense of connection with the outside world.

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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Informed consent Informed consent was received from the participants in the study.

References

- Ainslie, R. C. (1994). Notes on the psychodynamics of acculturation: A Mexican–American experience. *Mind & Human Interaction*, 5(2), 60–68
- Antman, F. M. (2013). The impact of migration on family left behind. In A. F. Constant, & K. F. Zimmermann (Eds.), *International handbook of the economics of migration* (pp. 293–308). Cheltenham: Edward Elgar
- Arlinger, S. (2003). Negative consequences of uncorrected hearing loss: A review. *International Journal of Audiology*, 42(Suppl. 2), 2S17–2S12. <https://www.speechhearingtherapy.com/wp-content/uploads/sites/2/2021/05/Negative-Consequences-of-Uncorrected-Hearing-Loss.pdf> S20. Retrieved 2021-10-28 from
- Bacigalupe, G., & Cámara, M. (2012). Transnational families and social technologies: Reassessing immigration psychology. *Journal of Ethnic and Migration Studies*, 38(9), 1425–1438. <https://doi.org/10.1080/1369183X.2012.698211>
- Baldassar, L. (2007). Transnational families and aged care: The mobility of care and the migrancy of ageing. *Journal of Ethnic and Migration Studies*, 33(2), 275–297. <https://doi.org/10.1080/13691830601154252>

- Baldassar, L. (2016). De-demonizing distance in mobile family lives: Co-presence, care circulation and polymedia as vibrant matter. *Global Networks*, 16(2), 145–163. <https://doi.org/10.1111/glob.12109>
- Wilding, B. L., R., & Baldock, C. (2007). Long-distance caregiving: transnational families and the provision of aged care. In I. Paoletti (Ed.), *Family caregiving for older disabled people: Relational and institutional issues* (pp. 201–228). New York, NY: Nova Science
- Baldock, C. V. (2003). Long-distance migrants and family support: A Dutch case study. *Health Sociology Review*, 12(1), 45–54. <https://doi.org/10.5172/hesr.12.1.45>
- Berry, J. W. (1992). Acculturation and adaptation in a new society, *International Migration*, 30, Special issue: Health and Migration in the 1990s, 69–85. <https://doi.org/10.1111/j.1468-2435.1992.tb00776.x>
- Berry, J. W. (2001). A psychology of immigration. *Journal of Social Issues*, 57(3), 615–631. <https://doi.org/10.1111/0022-4537.00231>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Bruine de Bruine, W., Parker, A. M., & Strough, J. (2020). Age differences in reported social networks and well-being. *Psychology and Aging*, 35(2), 159–168. <https://doi.org/10.1037/pag0000415>
- Charles, N., & Davies, C. A. (2008). My family and other animals: Pets as kin. *Sociological Research Online*, 13(5), 13–26. <https://doi.org/10.5153/sro.1798>
- Chirinda, W., & Chen, H. (2017). Comparative study of disability-free life expectancy across six low- and middle-income countries. *Geriatrics and Gerontology International*, 17(4), 637–644. <https://doi.org/10.1111/ggi.12748>
- Choi, N. G., & Dinitto, D. M. (2013). The digital divide among low-income homebound older adults: Internet use patterns, ehealth literacy, and attitudes toward computer/internet use. *Journal of Medical Internet Research*, 15(5), e93. <https://doi.org/10.2196/jmir.2645>
- Ciorba, A., Bianchini, C., Pelucchi, S., & Pastore, A. (2012). The impact of hearing loss on the quality of life of elderly adults. *Clinical Interventions in Aging*, 7, 159–163. <https://doi.org/10.2147/CIA.S26059>
- Falicov, C. J. (2005). Emotional transnationalism and family identities. *Family Process*, 44(4), 399–406. <https://doi.org/10.1111/j.1545-5300.2005.00068.x>
- Fatmi, M. R., Thirkell, C., & Hossain, M. S. (2021). COVID-19 and travel: How our out-of-home travel activity, in-home activity, and long-distance travel have changed. *Transportation Research Interdisciplinary Perspectives*, 10, 1–10. <https://doi.org/10.1016/j.trip.2021.100350>
- Ferreira, S., & Carbonatto, C. (2020). “A license to leave South Africa”: A qualitative study of South African parents’ narratives of their children’s reasons for emigration. *Social Work*, 56(3), 310–327. <https://doi.org/10.15270/52-2-860>
- Fiorillo, A., & Gorwood, P. (2020). The consequences of the COVID-19 pandemic on mental health and implications for clinical practice. *European Psychiatry*, 63(1), e32. <https://doi.org/10.1192/j.eurpsy.2020.35>
- Forciea, M. A., Schwab, E. P., Raziano, D. B., & Lavizzo-Mourey, R. (2004). *Geriatric Secrets* (3rd ed.). Philadelphia, PA: Elsevier/Mosby
- Grinberg, L., & Grinberg, R. (1984). A psychoanalytic study of migration: Its normal and pathological aspects. *Journal of the American Psychoanalytic Association*, 32(1), 13–38. <https://doi.org/10.1177/000306518403200103>
- Hesse-Biber, S. (2016). *The practice of qualitative research* (3rd ed.). Los Angeles, CA: Sage
- Hill, R. L., & Dickinson, A. (2007). Keeping in touch: Talking to older people about computers and communication. *Educational Gerontology*, 33(8), 613–630. <https://doi.org/10.1080/03601270701363877>
- Holman, J. A., Drummond, A., Hughes, S. E., & Naylor, G. (2019). Hearing impairment and daily-life fatigue: A qualitative study. *International Journal of Audiology*, 58(7), 408–416. <https://doi.org/10.1080/14992027.2019.1597284>
- Horst, H. (2006). The blessings and burdens of communication: Cell phones in Jamaican transnational social fields. *Global Networks*, 6(2), 143–159. <https://doi.org/10.1111/j.1471-0374.2006.00138.x>
- Jithoo, V., Marchetti-Mercer, M. C., & Swartz, L. (2020). The search for significance: Meaning making in elderly South Africans following the emigration of their adult children. *South African Journal of Psychology*, 50(4), 469–479. <https://doi.org/10.1177/0081246320907029>
- Jorgensen, L. E., & Messersmith, J. J. (2015). Impact of aging and cognition on hearing assistive technology use. *Seminars in Hearing*, 36(3), 162–174. <https://doi.org/10.1055/s-0035-1555119>

- Joubert, K., & Botha, D. (2019). Contributing factors to high prevalence of hearing impairment in the Elias Motsoaledi Local Municipal area, South Africa: A rural perspective. *South African Journal of Communication Disorders/Suid-Afrikaanse Tydskrif vir Kommunikasieafwykings*, 66(1), e1–e7. <https://doi.org/10.4102/sajcd.v66i1.611>
- Kar, N. (2020). COVID-19 and older adults: In the face of a global disaster. *Journal of Geriatric Care and Research*, 7(1), 1–2
- Kerr–Phillips, B., & Thomas, A. (2009). Macro and micro challenges for talent retention in South Africa. *South African Journal of Human Resources Management*, 7(1). <https://doi.org/10.4102/sajhrm.v7i1.157>
- King, R., & Vullnetari, J. (2006). Orphan pensioners and migrating grandparents: The impact of mass migration on older people in rural Albania. *Ageing & Society*, 26(5), 783–816. <https://doi.org/10.1017/S0144686X06005125>
- Knodel, J., & Saengtienchai, C. (2007). Rural parents with urban children: Social and economic implications of migration for the rural elderly in Thailand. *Population Space and Place*, 13(3), 193–210. <https://doi.org/10.1002/psp.436>
- Lee, K., Jeong, G. C., & Yim, J. (2020). Consideration of the psychological and mental health of the elderly during COVID-19: A theoretical review. *International Journal of Environmental Research and Public Health*, 17(21), 8098. <https://doi.org/10.3390/ijerph17218098>
- Lewis, C. B. (2002). *Ageing: The health-care challenge. An interdisciplinary approach to assessment and rehabilitative management of the elderly*. Philadelphia, PA: Davis
- Ludlow, K., Mumford, V., Makeham, M., Braithwaite, J., & Greenfield, D. (2018). The effects of hearing loss on person-centred care in residential aged care: A narrative review. *Geriatric Nursing*, 39(3), 296–302. <https://doi.org/10.1016/j.gerinurse.2017.10.013>
- Marchetti-Mercer, M. C. (2012a). Those easily forgotten: The impact of emigration on those left behind. *Family Process*, 51(3), September, 373–383. <https://doi.org/0.1111/j.1545-5300.2012.01407.x>
- Marchetti-Mercer, M. C. (2012b). Is it just about the crime?: A psychological perspective on South African emigration. *South African Journal of Psychology*, 42(2), 243–254. <https://doi.org/10.1177/008124631204200211>
- Marchetti-Mercer, M. C. (2016). “If you uproot a tree you leave a big hole behind”: Systemic interconnectedness in emigration and family life. *Contemporary Family Therapy*, 38(3), 339–352
- Marchetti-Mercer, M. C. (2017). The screen has such sharp edges to hug: The relational consequences of emigration in transnational South African emigrant families. *Transnational Social Work*, 7(1), 73–89. <https://doi.org/10.1080/21931674.2016.1277650>
- Marchetti-Mercer, M. C., & Swartz, L. (2020). Familiarity and separation in the use of communication technologies in South African migrant families. *Journal of Family Issues*, 41(10), 1859–1884. <https://doi.org/10.1177/0192513X19894367>
- Marchetti-Mercer, M. C., Swartz, L., Jithoo, V., Mabandla, N., Briguglio, A., & Wolfe, M. (2020). South African international migration and its impact on older family members. *Family Process*, 59(4), 1737–1754. <https://doi.org/10.1111/famp.12493>
- McCormack, A., & Fortnum, H. (2013). Why do people fitted with hearing aids not wear them? *International Journal of Audiology*, 52(5), 360–368. <https://doi.org/10.3109/14992027.2013.769066>
- Miltiades, H. B. (2002). The social and psychological effects of an adult child’s emigration on non-immigrant Asian Indian elderly parents. *Journal of Cross-Cultural Gerontology*, 17, 33–55. <https://doi.org/10.1023/A:1014868118739>
- Ogawa, T., Uchida, Y., Nishita, Y., Chikako, T., Sugiura, S., Ueda, H., Nakada, T., Suzuki, H., Otsuka, R., Ando, F., & Shimokata, H. (2019). Hearing-impaired elderly people have smaller social networks: A population-based aging study. *Archives of Gerontology and Geriatrics*, 83, 75–80. <https://doi.org/10.1016/j.archger.2019.03.004>
- Prensky, M. (2001). Digital natives, digital immigrants. Part 2: Do they really think differently? *On the Horizon*, 9(5), 1–6. <https://doi.org/10.1108/10748120110424843>
- Prensky, M. (2011). Digital wisdom and homo sapiens digital. In M. Thomas (Ed.), *Deconstructing digital natives: Young people, technology and the new literacies* (pp. 15–29). New York, NY: Routledge, Taylor and Francis
- Roupa, Z., Nikas, M., Gerasimou, E., Zafier, V., Giasyrani, L., Kazitori, E., & Satiropoulou, P. (2010). The use of technology by the elderly. *Health Science Journal*, 4(2), 118–126
- Sluzki, C. E. (1979). Migration and family conflict. *Family Process*, 18(4), 379–390. <https://doi.org/10.1111/j.1545-5300.1979.00379.x>

- Statistics South Africa. (2014). *Census 2011: Profile of persons with disabilities in South Africa*. Pretoria: Statistics South Africa
- Strawbridge, W. J., Wallhagen, M. I., Shema, S. J., & Kaplan, G. A. (2000). Negative consequences of hearing impairment in old age: A longitudinal analysis. *The Gerontologist*, 40(3), 320–326. <https://doi.org/10.1093/geront/40.3.320>
- Swartz, L., & Marchetti-Mercer, M. C. (2019). Migration, technology and care: What happens to the body? *Disability and Society*, 34(3), 407–420. <https://doi.org/10.1080/09687599.2018.1519409>
- Thompson, D. C., Barbu, M. G., Beiu, C., Popa, L. G., Mihai, M. M., Berceanu, M., & Popescu, M. N. (2020). The impact of COVID-19 pandemic on long-term care facilities worldwide: An overview on international issues. *BioMed Research International*, 8870249. <https://doi.org/10.1155/2020/8870249>
- Tucker, B. (2017). Technocapitalist disability rhetoric: When technology is confused with social justice. *Enculturation*, 24. Retrieved 2021-02-02 from: <http://enculturation.net/technocapitalist-disability-rhetoric>
- Van Dyck, L. I., Wilkins, K. M., Ouellet, J., Ouellet, G. M., & Conroy, M. L. (2020). Combating heightened social isolation of nursing home elders: The telephone outreach in the COVID-19 outbreak program. *American Journal of Geriatric Psychiatry*, 28(9), 989–992. <https://doi.org/10.1016/j.jagp.2020.05.026>
- Verbeek, H., Gerritsen, D. L., Backhaus, R., De Boer, B. S., Koopmans, R. T., & Hamers, J. P. (2020). Allowing visitors back in the nursing home during the COVID-19 crisis: A Dutch national study into first experiences and impact on well-being. *Journal of the American Medical Directors Association*, 21(7), 900–904. <https://doi.org/10.1016/j.jamda.2020.06.020>
- Wilding, R. (2006). “Virtual” intimacies? Families communicating across transnational contexts. *Global Networks*, 6(2), 125–142. <https://doi.org/10.1111/j.1471-0374.2006.00137.x>
- Wilding, R., & Baldassar, L. (2018). Ageing, migration and new media: The significance of transnational care. *Journal of Sociology*, 54(2), 226–235. <https://doi.org/10.1177/1440783318766168>
- World Health Organization (2021). *World Report on Hearing*. Retrieved 2021-03-23 from: file:///C:/Users/Name/Downloads/9789240020481-eng%20(2).pdf

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