Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Digital Tools and Care Practices: Technology Utilisation Amon Caregivers in South African Old Age Homes

Kefiloe Maboe

maboekefiloe@gmail.com

University of South Africa https://orcid.org/0000-0003-3842-3976

Research Article

Keywords: Caregivers, Digital health, Elderly care, Technology adoption

Posted Date: July 1st, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10193112/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: The authors declare no competing interests.

Abstract

Caring for the elderly is increasingly complex in the era of the Fourth Industrial Revolution, where technology plays a central role. Equipping caregivers with relevant technological skills is essential for effective elderly care. This study explored caregivers' attitudes, knowledge and experiences in order to equip them in using technology to care for elderly individuals in rural and urban old age homes in South Africa, to develop a training programme.

A qualitative, exploratory, descriptive, and contextual design was employed. Thirteen caregivers were selected through purposive sampling and interviewed face-to-face. Their responses were audio-recorded, and data were analysed using Tesch's eight-step method.

Findings revealed that caregivers demonstrated positive attitudes towards using technology in elderly care, recognising its benefits for communication, entertainment, and care efficiency. Furthermore, they viewed technology as critical to improving the efficiency and quality of elderly care, particularly in emergency responses. They highlighted the convenience and time-saving benefits of digital tools: However, limited network coverage emerged as a significant barrier and financial constraints

The study will contribute towards the development of a training programme that will empower caregivers' efficiency in the use of technology, enhancing both elderly care and caregivers' opportunities for professional growth through technology use.

1. INTRODUCTION AND BACKGROUND.

The Technology Acceptance Model (TAM) was employed as a conceptual framework, focusing on how individuals perceive the usefulness and ease of use of new technologies [30]. The integration of digital health technologies into caregiving is increasingly vital, particularly in low- and middle-income countries (LMICs) such as South Africa. Digital solutions are becoming essential tools to support caregivers in these settings. This transition accelerated during the COVID-19 pandemic, which exposed significant weaknesses in global health care systems. In South Africa, the shift to digital platforms was rapid and often unplanned, leaving many caregivers without sufficient infrastructure or training, especially in under-resourced and rural areas. While digital innovation expanded, it also highlighted persistent inequalities in digital access, disproportionately affecting caregivers tasked with navigating an unfamiliar digital care environment [16].

1. ***Digital Health and Ageing Populations***

Digital health encompasses the utilisation of technologies, including mobile health (mHealth) applications, telemedicine, electronic health records (EHRs), and remote monitoring systems, to achieve healthcare objectives. In South Africa, the COVID-19 pandemic made these tools indispensable in ensuring continuity of care amid lockdowns [20]. Long-term care facilities, integral to the elderly care system, faced unique challenges due to chronic underfunding and staffing shortages. Despite these

difficulties, digital technologies offered clear benefits, including improved coordination, better medication management, faster consultations, and sustained care delivery [29].

However, implementation of technology in low-resource settings remains problematic. Advanced technologies are often inaccessible due to high costs, poor internet infrastructure, and limited electricity, especially in rural areas [3]. Digital literacy gaps further constrain the effective use of these tools. Thus, while the theoretical potential of digital health is widely recognised, practical impact remains limited and affects negatively to continuity of care.

1.2 Caregiver Roles and Technology Utilisation

Technology can enhance the quality of life and social engagement for older adults; yet, many require assistance to use it effectively. In assisted living facilities, care workers play a crucial role in supporting residents' use of technology. In this context, it is essential to provide stronger recognition and structural support for care givers, who are increasingly responsible for enabling and managing technology use in residential care environment [30].

Caregivers commonly use accessible technologies such as smartphones, WhatsApp, and Facebook due to their affordability and familiarity [22, 11]. More, specialised tools, including telehealth systems and digital health tracking applications, are seldom used largely due to a lack of awareness, insufficient training, and device limitations. Yet studies suggest that when used effectively, digital tools can reduce caregivers' burden, streamline communication, and provide access to peer and professional support networks [24].

1.3 Barriers to Technology Adoption

Lack of digital literacy remains a significant barrier to the effective adoption and utilisation of digital technologies [11]. Older adults may face emotional challenges and often have limited experience with digital tools, which can hinder adoption and reduce the effectiveness of such technologies [1]. Without digital tool skills, even basic functions such as sending emails, accessing online health portals, or using video calling applications become challenging. This significantly limits the benefits they can derive from digital health systems.

Affordability presents another major obstacle. Although smartphone ownership is increasing, the cost of data remains high in relation to income [8]. Many caregivers struggle to afford the devices and data needed to engage fully with digital systems. In rural and urban areas, weak network coverage and intermittent electricity compound the problem, further reducing access and usability.

Additionally, many technologies are not designed with low-resource settings in mind. Tools requiring high-speed internet, regular updates, or expensive subscriptions are impractical for caregivers in underfunded facilities [28]. These structural issues contribute to a broader digital divide rooted in social and economic inequities. Digitally excluded caregivers face increased isolation, limited access to professional development, and reduced capacity to deliver quality care [3].

1.4 Ubuntu and Digital Care in South African Elderly care Contexts

The Ubuntu philosophical framework, often summarised as “I am because you are,” offers a strong ethical and cultural lens for analysing caregiving and technology adoption in South African residential facilities for older persons. Rooted in African communitarian thought, Ubuntu emphasises relationality, reciprocal care, human dignity, and collective responsibility within families and communities [13]. In long-term elderly care, this aligns with the relational nature of caregiving, where duties extend beyond formal tasks to emotional, social, and spiritual support [31]. In both rural and urban settings, caregivers’ motivations are shaped not only by their jobs but also by a communal moral ethos that prioritises collective wellbeing over individual self-interest [17].

Aligning digital inclusion with “Ubuntu” means recognising that technology should support, not replace, relational care by strengthening communal bonds and shared participation [21]. When conceptualised, designed, and implemented with caregivers at the centre, digital systems can enact “Ubuntu” by fostering collaboration, shared knowledge production, and collective problem-solving. By contrast, poorly designed technologies that marginalise caregivers through high costs, low digital literacy, or infrastructural barriers undermine this ethic by deepening social isolation and existing inequalities [18].

Within the Engaged Scholarship framework adopted in this study, “Ubuntu” aligns with participatory, co-creative approaches to knowledge generation. By foregrounding caregivers lived experiences and collective wisdom, the research process embodies “Ubuntu’s” emphasis on dialogue, mutual respect, and shared humanity [6]. Integrating Ubuntu into training and policy development advances not only digital competence but also culturally grounded empowerment. This approach ensures that technology enhances relational care, affirms dignity, and strengthens community in rural and urban elderly care settings in South Africa [21].

1.5 Implications for Training and Policy Development

Given the growing reliance on digital health systems, it is crucial to equip caregivers with relevant digital skills. Training programs should cover basic device use, application, navigation, communication tools, online safety, and effective interaction with health platforms. These programs must be tailored to caregivers' contexts, acknowledging the constraints they face in rural and underfunded environments [20].

The researchers observed a gap in caregivers’ use of technology when caring for the elderly and assumed this might be linked to limited training. Therefore, this study aimed to explore caregivers’ knowledge, attitudes, and experiences to better equip them to use technology in elderly care across rural and urban old age homes. This exploration was intended to inform the development of a caregiver training programme and to inform strategies that promote digital utilisation, empower caregivers, and enhance the quality of elderly care in South Africa. By addressing training gaps, improving infrastructure, and advocating for caregiver-centred design, digital health can become a tool of empowerment rather than exclusion.

This study applies an Engaged Scholarship (ES) approach, which underscores collaborative partnerships with participants to co-create knowledge and develop solutions to real-world challenges [10]. This participatory method ensures that caregiver voices guide the design of digital interventions and training. By drawing on the lived experiences of caregivers in both rural and urban long-term care facilities, this research offers actionable insights for designing inclusive, practical policies.

2. METHODOLOGY

This study employed a qualitative, exploratory, descriptive, and contextual design to explore caregivers' utilisation of technology in elderly care. The approach enabled an in-depth understanding of participants' experiences and the contextual factors influencing technology adoption in both rural and urban environments.

2.1 Setting

This research was conducted in two elderly care facilities, one located in an urban area and the other in a rural area, chosen for their contrasting demographics, culture and infrastructure.

2.2 Population and Sampling

The study population included caregivers', social healthcare workers, and managers from the two facilities. Using purposive sampling [9]. The sample comprised of thirteen caregivers purposefully selected from the two facilities. Eligibility criteria included being 18 years or older, employed at the facility for at least one year, and being willing to provide informed consent. Those with limited English proficiency were supported by trained interpreters fluent in both English and the local language.

2.3 Data Collection

Semi-structured interviews [2] comprise pre-determined open-ended questions, permitting flexibility to discover emergent themes during conversation. Thirteen participants took part in the study, nine from the rural site and four from the urban facility. Participants were provided with detailed study information and given a written informed consent each, with assurance of voluntary participation and the right to withdraw. Data were collected over two months through individual, semi-structured face-to-face interviews conducted in private settings with basic post-COVID-19 safety protocols to maintain confidentiality and participant comfort. Codes were used to maintain anonymity. audio was recorded on data collectors' devices after obtaining written consent. Field notes were taken, and each interview lasted about 25–30 minutes.

2.4 Data Analysis

Tesch's [25] method of qualitative data analysis guided the process [4]. The analysis was conducted independently by the researchers to enhance credibility [14].

2.5 Trustworthiness

Trustworthiness was established according to the criteria suggested by [14] in [23]).

Credibility was maintained by regular and persistent engagement with participants, and field notes were reviewed by peer researchers to validate interpretations. An audit trail was done to maintain dependability. Rich contextual information about the research settings in urban and rural old-age homes was provided to enhance the transferability of the findings. A peer researcher with qualitative expertise reviewed the research process and findings to ensure confirmability. Member checks were employed during theme validation to ensure authentic representation.

2.6 Ethical considerations

Ethical clearance for the study was obtained from the College of Human Sciences Research Ethics Committee at the University of South Africa (Ref. No. 90167694). Subsequently, formal permission was obtained from the Department of Social Development and the management of the two selected elderly care facilities. Participation was voluntary. -To ensure participant privacy, interviews were conducted in private rooms, and anonymity was maintained by using coded identifiers in all transcripts and reports.

3. FINDINGS

A total of thirteen (13) interviews were conducted for this study. These interviews were transcribed verbatim and the data cleaned. Field notes were also analysed and have been integrated into the discussion presented below.

3.1 Demographic Characteristics of the Research Participants

All the thirteen participants were caregivers, comprising three males and ten females. Participants were recruited from two facilities and were aged between 38 and 51 years. Interestingly, despite the age gap, older participants demonstrated a strong interest and willingness to use technology in caregiving, suggesting that enthusiasm for technology is not necessarily age dependent. Educational backgrounds varied, ranging from a home-based care certificate and limited formal education (Grades 5, 8, 11, and 12), to nursing diplomas. Three participants did not disclose their educational background. Overall, the findings indicate a generally low level of formal education among participants, highlighting the need for additional training and educational support to enhance their digital literacy.

Themes and Sub-Themes

Thematic analysis of the interview data revealed six main themes and several related sub-themes. Each theme reflects recurring patterns in the participants' responses across both urban and rural elderly care facilities. To ensure clarity and traceability, quotations were numbered from 1–13 and labelled using participants codes that indicate each participant’s role as caregivers and setting, either urban or rural, with “p” denoting participant.

Theme 1: Acceptance of Technology Use

This theme reflects participants' acceptance and use of technology in the context of caregiving. Drawing on the **Technology Acceptance Model (TAM)** [5], acceptance was assessed based on actual usage, perceived usefulness, and ease of use. While technology use was generally welcomed, it was mostly limited to personal mobile phones, used primarily for communication, information searches, and limited administrative functions.

Sub-theme 1.1: Reliance on Personal Mobile Devices

All participants reported using their own mobile phones to perform care-related tasks. These included calling families, accessing medical information, and coordinating with clinics or management. None of the facilities provided mobile phones or airtime support, and participants bore these costs personally.

"It is something that makes things easy… WhatsApp, calls, or Facebook make it easy to talk to one another. We check information on Google… We use cell phones when we are unsure what the medication is used for. We also use this to communicate with family; we send them a WhatsApp." (P10, Urban Caregiver)

"We have no work cell phone, and no data or airtime is provided by the company or employer. I use my own cell phone data and airtime." (P11, Rural Caregiver)

Sub-theme 1.2: Use of Technology for Information Seeking and Medication Support

Mobile phones were also used to search for health-related information. Caregivers described using Google to better understand prescriptions and to support elderly residents with dementia or other chronic conditions.

"Sometimes when they come with a prescription, we Google to understand what this medication is doing in the body of the elderly… We also ask [clinic nurses] what helps with dementia, then we also Google." (P06, Rural Caregiver)

Sub-theme 1.3: Limited Technological Infrastructure at Facilities

Institutional technology access varied between the two sites. In the rural setting, participants reported having access to basic tools such as a desktop computer, printer, and the manager's laptop, although equipment was not always functional or consistently available.

Sometimes we run short of ink for a typing machine and printer. We go outside to print… We pay with our own money when we photocopy outside.

(P02, Urban Caregiver)

In contrast, Urban participants reported even fewer resources and no institutional printing or communication tools. Any necessary printing was done externally, often through favours at nearby

clinics.

“We have no public phones, so you use your own cell phone even to call the line manager at the main office in Lyttleton. Printing and photocopying are done in the clinic as a favour, not as a must.”(P08, Rural Caregiver)

“We only depend on [the line manager] for printouts of health education. One must search for information oneself.”(P10, Urban Caregiver)

Sub-theme 1.4: Energy-Related Barriers to Technology Use

Participants also pointed out that technological needs extended beyond communication. In the rural kitchen setting, for example, caregivers highlighted how unstable the electricity supply impacted their work and called for alternative energy solutions.

“When the power goes out, we struggle to cook. We need gas stoves or something reliable because electricity is expensive and not stable.” (P03, Urban Caregiver)

Theme 2: Perceived Usefulness of Technology for Elderly Care

Guided by the Technology Acceptance Model (TAM), which defines perceived usefulness as the degree to which an individual believes that using a technology will enhance their job performance (Davis, 1989), this theme explores caregivers’ perceptions of technology in the context of elderly care. Four sub-themes emerged: (1) understanding of technology, (2) technology as a tool for caregiving enhancement, (3) technology for social engagement and emotional support, and (4) technology in administrative functions.

Sub-theme 2.1: Understanding of Technology

Caregivers demonstrated a broad understanding of the term "technology," associating it with speed, communication efficiency, access to information, and improved responsiveness—particularly in emergency medical situations. Technology was framed as a practical enabler of caregiving tasks:

“I can use technology to call an ambulance.” (P11, Rural Caregiver)

“Technology means fast things, to instantly send messages. To learn on the spot… Life is fast because of technology.” (P04, Urban Caregiver)

“It means change so that we can use things more simply. You can do things faster. Laptop, landline… we need a printer in the office, and especially a landline phone.” (P05, Urban Caregiver)

Beyond operational utility, caregivers acknowledged the role of technology in facilitating communication with family members during critical events:

When an elderly person starts behaving differently… we need to contact the family... or perhaps ask them to take [the elder] to the doctor.

"If there were no technology, we would have real problems. We wouldn't be able to call ambulances or contact our employer to come with her car so that we can take the elderly to the hospital when they are unwell." (P08, Rural Caregiver)

However, a few participants responded from a broader care philosophy perspective, highlighting the emotional and ethical dimensions of elder care:

"The elderly must be cared for… be clean always… eat well… Take care of the elderly like I take care of my parent." (P13, Rural Caregiver)

"Grannies need a person who is patient and listens to them. Some are abused by their children… So, as a worker, I talk to the elderly nicely, asking for forgiveness and building trust." (P06, Rural Caregiver)

They are old… so I have to be patient with them… all they need is love.

(P09, Rural Caregiver)

These responses reflect a culturally rooted, humanistic understanding of care that complements technological support. Notably, one caregiver emphasised the continued value of direct interpersonal responses during emergencies:

"I never phone; instead, I went to the nurse's room… We assisted the patient quickly." (P07, Rural Caregiver)

This suggests a coexistence of traditional care practices and digital interventions in the caregiving environment.

Sub-theme 2.2: Enhancing Caregiving through Technology

Participants viewed technology as critical to improving the efficiency and quality of elder care, particularly in emergency response, family coordination, and psychosocial support.

Communication technologies such as mobile phones and messaging platforms were described as vital in reducing elders' feelings of isolation and maintaining contact with their families:

"When phoning a family member, I put the cell phone close to the elder's ear… or we do a video call with the family." (P10, Urban Caregiver)

We use voice notes. We even type WhatsApp messages for families.

(P12, Rural Caregiver)

I don't mind borrowing him or her my cell phone to phone a relative at home.

(P06, Rural Caregiver)

In health-related emergencies, technology was instrumental in coordinating rapid responses:

When the elderly need help, we help him or her fast.

We can call an ambulance or Google anything related to the elder's illness.

"I use my own cell phone to make hospital appointments… I also organise events using my own data and airtime." (P04, Urban Caregiver)

However, caregivers noted financial constraints, especially related to personal costs for airtime and data:

"The landline was removed by the employer due to high costs… It's been nearly two years now, and no one is funding airtime anymore."

"Without technology, we wouldn't be able to call for transport we would have to take a taxi to the clinic, which is far." (P10, Urban Caregiver)

Digital tools were also used to monitor health, make home visit appointments, and offer psychological reassurance:

I check on the elderly by using my cell phone… I reassure them with a call, comfort them, and they feel free and open.

"I often give a 20-minute health talk… but sometimes I just talk to them or remind them to take their treatment." (P12, Rural Caregiver)

Sub-theme 2.3: Technology for Entertainment and Social Engagement

Caregivers emphasised the importance of digital tools for emotional connection and quality of life. Media such as music, photos, and videos were used to entertain and emotionally engage the elderly:

"We take pictures, we listen to music, we take video pictures, and we show them these." (P01, Urban Caregiver)

"Life is easier with technology… we can help our grannies talk with their family members." (P 04, Urban Caregiver

)

"With my cell phone, I can access music to sing to the elderly and then the day goes by more easily." (P13, Rural Caregiver)

"I tune to music such as gospel songs or wedding songs to make the elderly happy." (P10, Urban Caregiver)

These uses of technology contributed to a sense of normalcy, identity, and joy, reducing loneliness and monotony within care settings.

Sub-theme 2.4: Technology for Administrative Support

In contexts where human and material resources are limited, technology supported a range of administrative functions, including communication, recordkeeping, scheduling, and networking.

"Technology helps us in making calls and taking photos of ID documents for the elderly." (P11, Rural Caregiver)

"[With mobile phone technology] things are faster, simpler to get things done… I can check up on the elderly by cell phone to avoid spending money on transport for home visits." (P07, Rural Caregiver)

Caregivers highlighted the convenience and time-saving benefits of digital tools:

You can work sitting in the office… send an email, you get a response at the same time; send a WhatsApp, you get a response at the same time.

"Without technology, you would have to travel certain distances… Technology reduces stress and helps us reach out to families in time."(P12, Rural Caregiver)

Technology also supported resource procurement and public engagement:

"When we purchase groceries for the centre, we get specials and advertisements… When they showed our centre on TV, we got sponsors… all through phones and social media." (P03, Urban Manager)

"Shops such as Big-Safe send us specials through cell phones." (P03, Urban Caregiver)

Finally, mobile and wearable technologies enabled multitasking, allowing caregivers to access information while remaining physically present with elders:

"You do not need to stand up and do anything; you can do everything while being with them… and then everything is done quickly." (P02, Urban Caregiver)

While digital tools significantly enhance care delivery, they also intersect with cultural norms, economic constraints, and the enduring value of direct human interaction.

Theme 3: Perceived Ease of Use

In alignment with the Technology Acceptance Model (TAM), perceived ease of use refers to the degree to which a person believes that using a particular system would be effortless [5]. Many caregivers described technology as enabling them to "move fast," highlighting its immediacy and intuitive usability. They emphasised that mobile communication allows them with the ability to reassure both the elderly and their family members:

“The family cannot complain or have doubts because they see the elderly person on a video call. Also, the caregiver can phone so that the family can hear the voice of the elderly person and be reassured that the elder is still alive.” (P04, Urban Caregiver)

The response reflects that caregivers perceive technology as both accessible and functional for daily care tasks.

4. DISCUSSION

The study aimed to explore caregivers’ knowledge and experiences related to using technology in caring for older persons in both rural and urban old age homes. This exploration was intended to inform the development of a caregiver training programme. The discussion of findings was guided by key themes and supported by relevant literature.

Acceptance of Technology Use

According to [7], factors such as performance expectancy, reliability, anxiety, and social context significantly influence the acceptance of assistive technology in aged care.

Participants demonstrated a positive attitude toward adopting technology in caregiving. They used basic tools such as mobile phones for communication, including WhatsApp, Facebook, and Google for searching information about illnesses and medications. They also used these tools to verify prescriptions with nurses and communicate with the families of elderly residents.

A study by [12] identified similar trends but found that caregivers did not use technology for medication alerts or tracking, contrasting with this study, where participants used Google to understand prescribed treatments.

Access and Use of Technology in Rural vs. Urban Settings

In rural areas, caregivers reported access to a range of devices, including personal phones, a manager’s phone, a landline, a desktop computer, a tablet, a router, and a printer, though printing was limited due to frequent ink shortages, often requiring personal funds. In urban settings, access to technology was more restricted. Caregivers relied on their personal phones for all communication and lacked organisational support for airtime or data. Unlike in rural areas, printing and photocopying were conducted at the clinic rather than the care facility.

Despite infrastructural and financial barriers, participants in both settings showed a willingness to use technology for caregiving, especially for communication, accessing information, and delivering health education.

Perceived Usefulness of Technology in Elderly Care

Consistent with the literature [27], participants recognised that technology improves their caregiving tasks. They mentioned benefits such as quicker emergency responses, easier access to information, better communication with stakeholders, and simpler report submissions. Caregivers utilised their own data and airtime for professional tasks, including scheduling appointments, reaching hospitals, and staying in touch with families through voice notes and messages.

Participants also used technology to improve the social and emotional well-being of elderly residents through music, entertainment, and helping to connect with family. They further noted that online access to grocery deals assisted with budgeting and planning.

[24] emphasised that while perceived usefulness alone may not directly influence willingness to use smart devices, interactive and anxiety-reducing features can enhance acceptance. Similarly,[15] outlined technology's potential to improve cognitive engagement, medication management, physical activity, and safety benefits echoed by participants in this study.

Perceived Ease of Use

Participants found technology quick and helpful for storing and retrieving information. It reassured families and improved documentation and communication processes. These findings align with [19], who found that older adults generally hold positive attitudes toward technology, contradicting the stereotype that they resist its use. [26] similarly highlighted benefits such as improved healthcare access, safety, personalised care, and reduced caregiver burden.

5. CONCLUSIONS

This study explored caregivers' knowledge, experiences, and attitudes regarding the use of technology in elder care facilities across rural and urban South Africa. Despite limited formal education and constrained resources, caregivers demonstrated a strong willingness to adopt and embrace technology, recognising its value in improving communication, information access, health education, and emotional support for older persons.

Findings revealed that while rural caregivers had slightly more diverse access to devices, they faced severe infrastructural challenges such as unreliable electricity, poor network coverage, and a lack of transport, which hampered effective technology use. Urban caregivers, though similarly motivated, struggled with limited organisational support and financial resources, relying heavily on personal phones and data.

The study underscored the importance of perceived usefulness and ease of use in shaping caregivers' attitudes toward technology, as outlined in the Technology Acceptance Model. The recommendation will be the consideration of future studies to explore the attitudes of the elderly regarding the use of technology by caregivers during their care.

6.CONTRIBUTION

The study will contribute towards the development of a training programme that will empower caregivers' efficiency in the use of technology, enhancing both elderly care and caregivers' opportunities for professional growth through online learning.

Declarations

Acknowledgement

The authors express heartfelt gratitude to the caregivers, social workers, facility managers, and all supporting stakeholders including the Department of Social Development, ethics committee, data collectors, interpreters, and academic peers whose contributions, guidance, and dedication made this study possible and meaningful, especially in honour of the resilient caregivers and elderly they serve. Prof Gisela Van Rensburg and Prof Gretchen Du Plessis your contribution towards data analysis and the findings even in writing this article is commendable. Prof Rose Mmusi-Phetoe and Dr Mandla Bhuda your final reviewing of this article, is highly appreciated.

Authorship contribution statement

Kefiloe Maboe (corresponding author) conceptualized the study, coordinated the research team, overseer of the project, and contributed to the manuscript writing by writing introduction and background, problem statement, objective, discussion of the findings, abstract and final revision.

Naomi Nkoane did pilot- testing, collected data and reviewed this article.

Debbie Habedi contributed to methodology and design, collected data and reviewed this article and final revision.

Sheila Mokoboto-Zwane contributed the methodology and design of the study, reviewed and edited the article and final revision.

Kelebogile Olyn contributed to methodology and design**,** collected data, reviewed this article and final revision.

Faniswa Mfidi did pilot-testing and reviewed the article.

Funding

No funding source is declared.

Declaration of competing interest

The authors declare no competing interests.

Declaration of generative AI in Scientific writing

The authors declare that no AI was used.

Data availability

Data will be made available on request.

References

1. Ahlund K, Svensson A, Perestelo-Perez L, Acebes S, Hobbelen J, Karsson M (2025) (Older adults' challenges with digital technologies in health and social care – A scoping review. Conference name: 18th annual International Conference of Education, Research and Innovation. ; 10.21125/iceri.2025.0789
2. Belina A (2023) Semi-structured interviewing as a tool for understanding informal civil society. Voluntary Rev 14(2):331–347. https://doi.org/10.1332/2024080522X16454629995872
3. Bradley H, Wicks D (2019) Digital Divides and the Future of Care. Routledge, London
4. Braun V (2006) Clarke V.Using Thematic Analysis in Psychology. Qualitative Res Psychol 3:77–101. http://dx.doi.org/10.1191/1478088706qp063oa
5. Davis FD (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Q 13(3):319–340. https://www.jstor.org/stable/249008
6. Ewuoso C, Hall S (2019) Core aspects of Ubuntu: A systematic review. South Afr J Bioeth Law 12(2):93–103
7. Felber N, Hofer S, Eicher B, Hantikainen V (2024) Factors influencing the acceptance of assistive technology in aged care: A qualitative study. J Gerontol Nurs 50(1):10–18. https://www.researchgate.net/publication/379409794_Informing_existing_tech nology_acceptance_models_a_qualitative_study_with_older_persons_and_ca re givers
8. Gillwald A, Mothobi O, Rademan B (2018) The State of ICT in South Africa. Policy Paper No. 5. Research ICT Africa. Series 5: After Access-Assessing Digital Inequality in Africa)
9. Grove S, Gray J (2019) Understanding Nursing Research. 7th Edition, Elsevier, London
10. Gumede A, Sikhosana Y, Dlamini N, Human Sciences Research Council (2025) Researchers chart the future of engaged scholarship at the Engaged Research Conference 2025; Available at: https://hsrc.ac.za/news/research-impact/researchers-chart-the-future-of-engaged-scholarship-at-the-engaged-research-conference-2025/ (Accessed: 3 March 2026)
11. International Telecommunication Union (2022) *Measuring digital development: Facts and Figs. 2022*. Geneva: ITU. Available at: https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2022.pdf (Accessed: 3 March 2026)
12. Lee S, Kim J, Choi H, Park M (2024) Barriers to the use of technology in caregiving for older adults: A comparative study. Technol Health Care 32(2):21–130

13. Letseka M (2022) Educating for global citizenship, peace and harmony through Ubuntu. *N'Dri Assie-Lumumba & M. Cross (Eds.), Ubuntu and comparative education and international education for peace* ;8–27
14. Lincoln YS, Guba EG (1985) Naturalistic Inquiry. Sage, Newbury Park
15. Lorberbaum M (2024) Digital engagement in elder care: Opportunities and challenges. Ageing Int 49(1):35–54
16. Mabhala MA (2021) Social Justice and Health Equity in South Africa. Unisa, Pretoria
17. Metz T (2019) An African theory of moral status: A relational alternative to individualism and holism. Ethics Social Welf 13(3):1–15
18. Mhlambi S (2020) From rationality to relationality: Ubuntu as an ethical and human rights framework in the age of artificial intelligence. *Carr Center for Human Rights Policy* ; *Harvard Kennedy School*
19. Mitzner TL, Boron JB, Fausset CB, Adams AE, Charnes N, Czaja SJ, Dijkstra K, Fisk AD, Rogers WA, Sharit J (2010) Older adults talk technology: Technology usage and attitudes. Comput Hum Behav 27(4):191
20. Mash B (2020) The impact of digital health solutions on7 primary care during the COVID-19 pandemic in South Africa. South Afr Family Pract 62(1):101–109. https://doi.org/10.4102/safp.v62i1.5138
21. Ndasauka Y (2024) Harmonising technology and humanity through Ubuntu. African mind, culture, and technology: Philosophical perspectives. Springer Nature Switzerland, Cham, pp 129–150
22. Pew Research Center (2021) *Mobile technology and home broadband*
23. (2021). Washington DC Pew Research Center. Available at: https://www.pewresearch.org/internet/2021/06/03/mobile-technology- and-home-broadband-2021/ (Accessed: 3 March 2026)
24. Polit DF, Beck CT (2021) Nursing Research. Generating and assessing Evidence for Nursing Practice, 11th edn. Wolter Kluwer
25. Smith K, Williams A, Thomas J (2020) Caregiving in a Digital Age: Global Trends and Innovations. Springer, New York
26. Sun J, Jiang X, Zhou Y (2024) Enhancing smart technology acceptance in eldercare: The role of anxiety-reducing features. Gerontechnology 23(1):45–53. https://pubmed.ncbi.nlm.nih.gov/39445693
27. Tesch R (1990) Qualitative Research: Analysis Types and Software Tools. Falmer, New York
28. Valerio D (2025) Technological interventions in elderly healthcare: Impacts on carers and service delivery. Health Technol Soc 7(2):90
29.
30. Ven A. Engaged Scholarship: A Guide for Organizational and Social Research. 2007).
31. Verloo H, Kampel T, Vidal, N. & Pereira, F., Technology-supported interventions for older adults with chronic conditions: A scoping review. *BMC Geriatrics*. 2020; 20(1), 191.

32. World Health Organisation (World health statistics 2018: monitoring health for the SDGs, sustainable development goals.
33. World Health Organization. (2020). *COVID-19 Strategy Update*. Geneva: World Health Organization. Published 14 April 2020.
34. Wu Y, Ross N, Kim S. Providing Tech Support as Care Work Among Care Workers in Assisted Living Facilities: Qualitative Interview Study. Journal of Medical Internet Research, Aging. (2026),9:e80272. https://doi.org/10.2196/80272
35. Xiarchi, Lamprini Maria, Kristina Nässén, Lina Palmér, Fiona Cowdell, and Elisabeth Lindberg. "Unveiling the dynamics of older person care: a qualitative exploration of the intersection between formal and Informal Caregiving from the perspectives of registered nurses in Greece." *BMC health services research.* 2024; 24(1), 966.