Population Dynamics in Sri Lanka: Socio-economic and Health Perspectives

University of Colombo, Sri Lanka
in collaboration with the Government of Japan
and the United Nations Population Fund (UNFPA)

Centre for Multidisciplinary Research and Innovation
in Social Policy

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Published by

Centre for Multidisciplinary Research and Innovation in Social Policy
University of Colombo
Sri Lanka

Cover Design
Nipunika Dahanayake

Cover Page Photograph
Designed by Freepik

ISBN - 978-624-5518-33-3

ISBN (eBook) - 978-624-5518-34-0

Printed by
Colombo University Press
University of Colombo
Prof. Stanley Wijesundera Mawatha
Colombo 07
Sri Lanka

BRIDGING THE DIGITAL DIVIDE: FACTORS INFLUENCING THE ADOPTION AND USE OF DIGITAL PLATFORMS AMONG OLDER ADULTS IN SRI LANKA

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Abstract

This study investigates the adoption, usage, and barriers to digital platform engagement among older adults in Sri Lanka, using a mixed-methods approach grounded in demographic, socio-economic, and environmental analysis. Drawing on data from a nationwide survey, the findings reveal that while 82% of older adults use digital devices, significant disparities persist across age, education, income, employment status, and residential sector. Digital adoption declines notably with age, with the 75–80 age group showing the lowest usage and highest dependency rates. Higher education, income, and prior employment are positively correlated with digital engagement, whereas estate sector residents and widowed or divorced individuals face heightened exclusion. Despite no significant gender divide in overall access, female older adults exhibit lower digital confidence and independence. Major barriers include lack of exposure and training (16.7%), physical and cognitive limitations, and fear of scams (9.4%). Access to technology is heavily influenced by urban-rural divides, with urban residents benefiting from better infrastructure and connectivity. Mobile phones and smartphones are the most used devices, while laptops and tablets see limited adoption. Importantly, digital literacy support is primarily provided by family members (54.3%), underscoring the role of intergenerational assistance. The study

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highlights the urgent need for targeted policy interventions, including age- and gender-sensitive digital literacy programmes, improved rural connectivity, and inclusive technology design. These findings inform a nuanced understanding of the digital divide among Sri Lanka's older adults and offer direction for enhancing digital equity and participation in an increasingly digital society.

Keywords: *digital divide, older adults, use of digital platforms*

Introduction

The swift evolution of digital technology has dramatically altered the way societies interact, exchange information, and organise their daily lives. In Sri Lanka, as in any developing country, the digital revolution has brought unparalleled opportunities and significant challenges, especially for the elderly, who may be threatened with exclusion from embracing and utilising technology. All over the world, the world's ageing population has become an increasingly important population trend, with progressively older individuals composing a rising percentage of the world's population. Based on statistics by the World Health Organisation (WHO), the number of people aged over 60 years in 2050 will double to 2.1 billion.

The digital divide still persists in developing countries such as Nigeria, with the added hindrance of a lack of access to technology, and the same can be said about South Asian environments. Digital change, or mediatisation services, is a high priority for governments in developed and developing countries, and digitalisation is expected to expand access and guarantee equality of access.

The population structure of Sri Lanka is facing a remarkable shift towards ageing. The latest census data reveal that the proportion of individuals 60 years and above has been increasingly growing, which is proof of improved healthcare success as well as dwindling

birth rates. The population shift has come in the wake of the nation's continued digital revolution, bringing forth an interesting nexus worthy of serious scrutiny. Studies have shown that older people stand at the crossroads of opportunities and challenges in digital on behalf of society.

The pandemic has also hastened the use of digital platforms by all ages, with physical contact limited and digital technology becoming essential to social interaction, access to healthcare, financial services, and the purchase of essential services. A double burden of exclusion? The digital and social exclusion of older adults during the Coronavirus Disease of 2019 (COVID-19) chronicled how the pandemic increased pre-existing digital divides across older populations. For Sri Lanka's elderly, this was a moment of significance in their engagement with digital technology.

For the elderly, digital inclusion is not merely access to technology but also being able to use and navigate digital environments effectively. The elderly are confronted with enormous barriers to digital access, including the lack of digital literacy, mental and physical disabilities, socio-economic limitations, and fear or unfamiliarity with new technology. The digital divide has been a wide-ranging problem throughout most developed and developing nations, respectively, excluding older people from digital society and from vital services that are ever more provided over the internet. International bodies like the United Nations and organisations such as the International Telecommunication Union (ITU) emphasise the importance of digital literacy programmes and interventions that support older adults in overcoming these barriers (Orlov & Chugunov, 2023 and Li, 2024).

Literature review and theoretical framework

Existing research on the digital inclusion of older adults has demonstrated multi-dimensional trends due to numerous reasons. Yang et al. (2022) found that the digital inclusion of the elderly has a direct relationship with the quality of life, where digital inclusion is set as the process of closing the digital divide to engage in a knowledge society and economic development effectively. Their work in China revealed that digital inclusion has a significant influence on the well-being and social engagement of older people.

Digital literacy is a set of skills associated with the use of Information and Communication Technology (ICT) that every individual should develop to be able to perform in a computerised society (Friemel, 2016; Van Deursen et al., 2016). Digital literacy has then emerged as the key factor in older people's capacity to engage with society. ICT's ongoing development introduces the necessity for older people to learn ever-increasing levels of digital literacy in order to be able to belong.

In the context of developing countries, Ani et al. (2024) examined digitisation among older Nigerian persons on the multidimensional role of digital inclusion in response to the World Health Organisation's Global Strategy on Ageing and Health and supporting Sustainable Development Goals 3, 4, and 10. Their research pointed out that while there may be benefits, the digital divide continues to exist among developing countries, especially among the aged.

Older adults' technological adoption involves complex socialisation processes. Aleti et al. (2024) found that older adults' learning and usage socialisation processes in incorporating technology often involve outsourcing strategies, which allow them to achieve ICT consumption goals without necessarily being skilful

digital consumers. Marketplace and social exclusion issues are seen to have an essential influence on older adults' technology adoption processes.

Mubarak and Suomi (2022) introduced the "grey digital divide", that digital divide that is specifically related to the elderly in this digitalised era. In their research, the elderly are largely disregarded in digital change processes, which gives rise to enhanced social isolation and limited accessibility to essential services.

This study is based on some interconnected theories related to digital usage among older adults. *Digital Divide Theory* is one of the foundational frameworks, analysing inequalities in digital technology access and use. Van Dijk (2005) has constructed a comprehensive model that synthesises four consecutive access types: motivational, physical, skills, and usage access. It is especially applicable to the study of the "grey digital divide"—the "particular digital exclusion of older people". The model has been built to identify three levels: first-level divide (access to technology and internet connectivity), second-level divide (digital skills and literacy differences), and third-level divide (tangible outcomes and benefits from technology use).

Davis's (1986) *Technology Acceptance Model (TAM)* has been developed, and its improved versions can be used in the explanation of the adoption process with the variables perceived usefulness (how older adults view the benefits of digital platforms), perceived ease of use barriers related to usability and complexity, behavioural intention (willingness to adopt and continue using technology), and actual use (real-world usage patterns and behaviours). TAM has been extensively utilised to explain that technology acceptance varies among different user groups and settings (Venkatesh & Davis, 2000).

Successful Ageing Theory was developed by Rowe and Kahn (1997), and the interrelationship between this theory and digital usage among older people can be seen. Rowe and Kahn's Model (1997), the most widely cited theory of successful ageing, defines it as a combination of three key factors: (1) a low probability of disease and disability, reflecting good physical and cognitive health; (2) high cognitive and physical functioning, enabling engagement in daily activities; and (3) active social engagement through meaningful relationships and participation in society. Digital technology supports successful ageing by addressing Rowe and Kahn's (1997) three key criteria: (1) health management through digital tools like medication reminders, telemedicine, and wearable devices to reduce disease and disability; (2) cognitive engagement via brain-training applications and online learning platforms to maintain high cognitive functioning; and (3) social connection through social media and video communication tools to foster active social engagement and reduce loneliness, as demonstrated by research linking digital communication use to improved empowerment in older adults (Hill et al., 2015).

In the Sri Lankan context, digital behaviour studies have been preoccupied with predominantly young populations. A significant gap still exists in understanding how aged Sri Lankans utilise these platforms. The overall South Asian context follows the same trends of digital divide challenges. Studies on language and ICT access issues for narrowing the digital divide in Sri Lanka have established several areas of challenges and opportunities, specifically language and access issues to ICTs. The studies emphasise the need to address issues and challenges of digital usage among older adults in Sri Lanka.

Methodology

To examine the use of digital platforms among older adults and the issues faced by them, this study employed a mixed-methods

research approach, integrating both quantitative (questionnaire survey) and qualitative methods (focus group discussions) for comprehensive data collection.

The research was conducted covering all twenty-five districts in Sri Lanka. Based on the Census and Statistics Report (2012), which is the most recent census report available, individuals aged 60+ in each district have been selected for the sample. The sample selection for the research will only be restricted to the age category up to 80 years old. Considering the physical and mental difficulties of older adults aged 80 years and above, they were excluded from the sample.

The Divisional Secretariat (DS) with the highest number of older adults in each district has been selected in the said sample selection. The stratified random sampling technique used in selecting the sample population and the basis of the sample selection is as follows.

The highest older adult population was reported from the Kaduwela DS (37564) in the Colombo district, while the lowest was reported from the Maritimepattu (2746) DS in the Mullaitivu district. The ratio between the highest and the lowest was 1:14. A 0.5 per cent rate was used in the sample calculation, leading to a total sample of 1890 older adults. Reports available at the DS level on the gender distribution of older adults have been considered, ensuring an equal percentage from both genders in the sample.

Primary data was collected from the sample population using both quantitative and qualitative research techniques. A structured questionnaire was used to collect quantitative data from the sample. Moreover, the focus group discussions were carried out with a semi-structured approach to gathering additional information about assessing the use of digital platforms among adults.

Four (04) Focus Group Discussions (FGDs) were conducted using purposive sampling, taking into account the variables of gender, ethnicity, and residential sectors (urban, rural, and estate). Additionally, five (05) Key Informant Interviews (KIIs) were carried out with service providers, including a telecommunication service provider, a bank officer, an officer from the Elderly Secretariat Office of Sri Lanka, a digital service officer from a private hospital, and an officer from the Ceylon Electricity Board, to gather qualitative data.

Results

The adoption and utilisation of digital platforms among older adults is influenced by a range of demographic, socio-economic, employability, and environmental factors. As digital technologies become increasingly integrated into everyday life, understanding how older individuals engage with these platforms is essential for assessing the extent of digital inclusion and the challenges they face. In Sri Lanka, older adults exhibit varying levels of digital engagement, shaped by personal circumstances, access to technology, and broader societal influences.

Demographic characteristics such as age, gender, and marital status play a crucial role in determining patterns of digital usage. While younger cohorts within the older adult population may demonstrate higher levels of digital adoption, older individuals often encounter greater difficulties in accessing and using digital services. Additionally, socio-economic factors, including education level, ethnicity, and income, significantly influence digital engagement, as higher education and financial stability are often associated with greater technological proficiency and access.

Employment status and living arrangements further impact digital usage, as employed or recently retired individuals may have more exposure to technology through professional settings, whereas

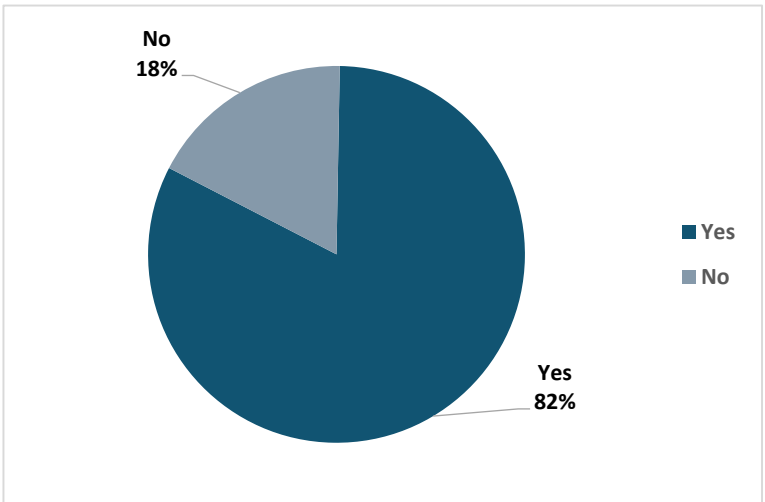
unemployed or socially isolated individuals may face greater barriers to digital engagement. Furthermore, built environmental factors, such as access to technology, internet infrastructure, and residential location (urban, rural, or estate areas), determine the availability and reliability of digital services for older adults.

This section examines the ways in which older adults in Sri Lanka utilise digital platforms, considering the interplay of these influencing factors. By analysing their digital behaviours across different socio-demographic and environmental contexts, this section aims to provide a comprehensive understanding of digital accessibility and the potential strategies needed to bridge the digital divide within this population segment.

Usage of digital platforms by respondent's demographic and socio-economic Factors

According to the data revealed, the graph shows that, among the respondents, 82% of older adults use digital devices in their day-to-day lives, while nearly 20% are not using any digital devices (Figure 1).

Figure 1: Usage of digital platforms among older adults



Source: Compiled by authors, 2025

When it is considered with the gender of the respondents, it clearly shows that 46.6% of non-users are male, whereas 53.4% are female. Notably, 50.7% of digital device users are male, and 49.3% are female (Table 1).

Table 1: Usage of digital platforms by gender

Using of digital devices	Gender of the respondent		Total (%)
	Male (%)	Female (%)	
No	46.0	53.0	100
Yes	50.7	49.3	100
Total	50.0	50.0	100

Source: Compiled by authors, 2025

Further, the chi-square test statistics (p = 0.166) suggest no statistically significant association between the gender of the respondents and digital device usage. This finding indicates that gender alone does not create a digital divide among older populations, although social norms may still influence digital adoption.

Table 2: Digital usage among older respondents

Digital Usage	Age Groups				Total (%)
	60 - 64 Years (%)	65 - 69 Years (%)	70 - 74 Years (%)	75-80 Years (%)	
No	14.3	28.7	35.8	21.2	100.0
Yes	36.7	36.6	20.3	6.4	100.0
Total	32.8	35.2	23.0	9.0	100.0

Source: Compiled by authors, 2025

Furthermore, digital usage among older respondents was considered underage. For groups of the respondents, it clearly shows that digital device usage declines with increasing age of older people.

Notably, among ages of 60-64 years, 85.1% of adults use digital devices, while among the age group of 75-80 years, only 58.5% use digital devices. The chi-square test statistics ($p < 0.001$) indicate a statistically significant relationship between age and digital device usage. This result supports the "age-based digital divide," where older age groups are less likely to use digital services, emphasising the need for age-friendly technology solutions.

Further, the level of education plays a significant role in the use of digital devices, as revealed from the data gathered through the survey. It shows digital device usage increases with higher education, which shows that primary education users are 14.0%, grades 6-11 users are 27.8%, and advanced level users are 20.6%.

Statistically this association can be proven: the chi-square test ($p < 0.001$) confirms education is a significant predictor of digital usage. This finding underscores the role of formal education in digital literacy, highlighting the need for alternative learning strategies for those with lower educational backgrounds among older adults.

The residential sector is another influential factor on digital usage, as data clearly shows that there is a significant association between the sector of residence and the usage of digital devices (Table 3).

The chi-square test ($p = 0.009$) confirms the significant association of that, and the above table emphasises that, among urban older adults, 57.6% use digital devices, while 42.3% of older adults in rural areas are using digital devices. However, among the estate sector respondents, only 2 out of 3 respondents use digital devices. Further, this result highlights geographical disparities in

digital access, necessitating rural infrastructure improvements and community-based digital education programmes.

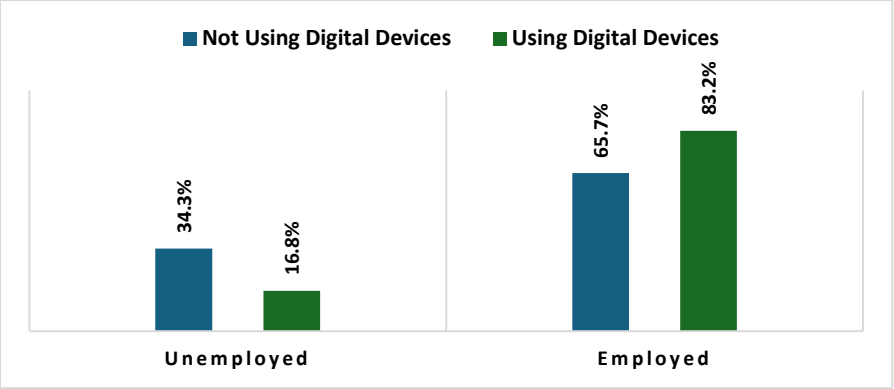
Table 3: Digital usage by residential sector

Usage of Digital devices	Rural (%)	Urban (%)	Estate (%)	Total (%)
No	51.0	48.7	0.3	100.0
Yes	42.3	57.6	0.1	100.0
Total	43.8	56.0	0.2	100.0

Source: Compiled by authors, 2025

In addition to that, employment statuses of the older adults influence usage of digital devices, since it can be justified that 83.2% of respondents with employment history are using digital devices while only 16.8% of never-employed respondents are using digital devices (Figure 2).

Figure 2: Digital Platform Usage by Employment Status



Source: Compiled by authors, 2025

This residential sector-wise digital device use disparity was further shown in qualitative data gathered through focus group discussions conducted in chosen areas representing urban, rural, and estate sectors. Based on the location and belonging to either rural, urban, or estate areas, older adults' access to and familiarity

with digital devices and services differ, as identified through the study. The following quotes from respondents indicate the nature of this disparity:

"What is Facebook? Is it a phone? I don't know what that is. I use a phone to call someone when it is an essential thing. I have this phone number. I barely charge this, as it is an unnecessary expense for me. When I got this phone, I charged 100 Rs monthly. But sometimes when I try to make a call, it says insufficient balance. I don't know where that money went…" (Focus Group Discussion: Nuwara Eliya, 2024)

"Our kids handle most things on the phone, so we don't need to do much. We know how to watch news on YouTube, and Facebook is fun, though we don't use it like they do. Once, my kids helped me watch a friend's funeral on the periya phone after her son sent the video. Other than that, we don't use the periya phone much ourselves. When there's an issue in the periya phone, it's hard to sort out…" (Focus Group Discussion: Vavuniya, 2024).

"We have a WhatsApp group of elders in this area, which is a very active one. We are all on Facebook. Apart from that, most of us use banking apps; even though some of us don't use them ourselves, we know that banking services are possible through the smartphone. Also, we order food via Pick Me and Uber, which is very convenient. When our friends ordered goods online via Daraz, we also ordered once; now it is a piece of cake" (Focus Group Discussion: Colombo, 2024).

Nuwara Eliya (NE) district represents the estate sector of the country, and the FGD in NE was comprised of the estate sector's older adults. The FGD in Colombo represents the urban sector, while the one in Vavuniya represents the rural sector. The above three quotes on their use of smartphones clarify the disparities in their digital literacy and the gap in their knowledge on effective use of those technologies and services.

The NE estate sector's older adults depict a lower awareness of digital platforms on smartphones and their poor awareness of the use of those devices. In contrast, urban older adults have advanced awareness and use of smartphones in terms of digitalised platforms and services, with a higher level of pragmatic use of those technologies evident in using networking sites and utility services. The rural sector comprises a mix of estate and urban characteristics in terms of digital literacy, while the continuum is biased towards urban and less biased towards estate characteristics.

However, the rural sector still shows a high level of dependency on children by older adults for digital knowledge, while their exposure to digitalised knowledge is relatively better and higher than the estate sector's older adults. They are unaware of and not using any advanced networking or digitalised services on their own, such as their urban counterparts, but are limited to some popular sites in digitalised forms. On the flip side, the estate sector depicts the poor knowledge of both digital devices and digital services, which highlights the severe gap in digital literacy between these three typically different sectors of the country.

The chi-square test statistics clearly ($p < 0.001$) confirm employment status of older adults significantly impacts digital adoption. These findings suggest economic factors directly influence digital access, with unskilled labourers and retirees facing the most barriers. Further, income level is a major shaping factor on using digital platforms, and according to the study results, it clearly proves that 33.7% of non-users of digital platforms do not have monthly income. It shows digital adoption increases with rising income, with the chi-square test statistics ($p < 0.001$) confirming a strong link between income and digital adoption.

As an interesting point, social isolation may contribute to lower digital engagement among widowed and divorced seniors, emphasising that married individuals (82.4%) show higher digital adoption, while widowed and divorced individuals are more likely to be non-users (Table 4).

As further proved through qualitative data, older adults, more specifically, men who have retired from government or private sector employment, do have smartphones, and they are relatively aware of using smartphones not only for calling but also to navigate social media platforms, which is proving the relation of this exposure with the employment level or post-employment experiences.

Table 4: Digital Platform Usage by marital status

Digital Usage	Marital status					Total (%)
	Divorced (%)	Married (%)	Never married (%)	Separated (%)	Widowed (%)	
No	0.3	78.2	4.8	0.0	16.7	100.0
Yes	1.5	82.4	3.3	1.2	11.6	100.0
Total	1.3	81.7	3.5	1.0	12.5	100.0

Source: Compiled by authors, 2025

Further, the chi-square test statistics ($p = 0.004$) confirm a significant relationship between marital status and digital platform usage.

Reasons for non-usage of digital platforms

According to the survey, limited exposure and training in digital technology (16.7%) is the leading barrier among older adults, which emphasises the need for structured digital literacy programs (Table 5).

Further physical limitations (10.4%), such as vision impairment and arthritis, hinder digital engagement among the respondents. Notably, fear of complex technologies (9.4%) and poor accessibility designs on digital platforms (9.3%) highlight usability concerns among respondents.

Table 5: Reasons for not using digital platforms

Reasons for not using Digital Platforms	***Frequency***	***Percentage (%)***
Limited exposure and training in digital technology	174	16.70
Intimidation by new and complex technologies	98	9.40
Confusing interfaces and terminology	71	6.80
Poor accessibility design (small fonts, difficult touchscreens)	97	9.30
Fear of scams, fraud, and data misuse	42	4.00
Distrust in digital platforms and online services	24	2.30
High costs of devices and internet services	83	8.00
Limited access to affordable digital resources	62	6.00

Reasons for not using Digital Platforms	***Frequency***	***Percentage (%)***
Physical issues like vision impairment, arthritis, or mobility limitations	108	10.40
Difficulty using small, intricate device components	25	2.40
Satisfaction with traditional communication methods	55	5.30
Limited understanding of digital benefits	66	6.30
Concern over becoming reliant on technology	5	0.50
Preference for self-sufficiency in daily tasks	21	2.00
Cognitive decline impacting learning capacity	42	4.00
Anxiety or fear of technology-related errors	12	1.20
Other	57	5.50
Total	1042	100.00

Source: Compiled by authors, 2025

Additionally, Table 6 clearly indicated that high costs of digital devices and internet services in Sri Lanka (8.0%) prevent many older adults from accessing digital tools. And as a point to be noted, social factors, such as preference for traditional communication (5.3%) and distrust in digital platforms (2.3%),

among older adults also play a major role in not using digital devices.

Further, these issues were considered for an in-depth analysis through respondents age and gender, which clearly shows older adults, those who are aged 70-80 years, report higher struggles with confusing interfaces (28-39%), cognitive decline (26%), and anxiety over technology (66%) when they use digital platforms and services.

Table 6: Reasons for not using digital platforms by age

Reasons for not using Digital Platforms	Completed Years of respondents				Total (%)
	60 - 64 Years (%)	65 - 69 Years (%)	70 - 74 Years (%)	75-80 Years (%)	
Limited exposure and training in digital technology	18.4	31.6	29.9	20.1	100
Intimidation by new and complex technologies	17.3	26.5	35.7	20.4	100
Confusing interfaces and terminology	26.8	31.0	28.2	14.1	100
Poor accessibility design (small fonts, difficult touchscreens)	17.5	39.2	29.9	13.4	100
Fear of scams, fraud, and data misuse	23.8	40.5	21.4	14.3	100

Reasons for not using Digital Platforms	Completed Years of respondents				Total (%)
	60 - 64 Years (%)	65 - 69 Years (%)	70 - 74 Years (%)	75-80 Years (%)	
Distrust in digital platforms and online services	16.7	33.3	20.8	29.2	100
High costs of devices and internet services	20.5	36.1	26.5	16.9	100
Limited access to affordable digital resources	19.4	32.3	30.6	17.7	100
Physical issues like vision impairment, arthritis, or mobility limitations	14.8	25.9	38.9	20.4	100
Difficulty using small, intricate device components	16.0	28.0	24.0	32.0	100
Satisfaction with traditional communication methods	18.2	29.1	32.7	20.0	100
Limited understanding of digital benefits	13.6	24.2	43.9	18.2	100
Concern over becoming reliant on technology	0.0	60.0	20.0	20.0	100
Preference for self-sufficiency in daily tasks	19.0	28.6	33.3	19.0	100

Reasons for not using Digital Platforms	Completed Years of respondents				Total (%)
	60 - 64 Years (%)	65 - 69 Years (%)	70 - 74 Years (%)	75-80 Years (%)	
Cognitive decline impacting learning capacity	7.1	31.0	35.7	26.2	100
Anxiety or fear of technology-related errors	8.3	66.7	16.7	8.3	100
Other	28.1	10.5	38.6	22.8	100

Source: Compiled by authors, 2025

Further, younger seniors, who belong to age groups of 60-64 and 65-69 years, cite affordability and accessibility issues more frequently compared to other age categories. Fears of scams and fraud (40.5%) are particularly high among the older adults who belong to the 60-64-year-old and 65-69-year-old age groups, pointing to a need for cybersecurity awareness programmes.

Gender plays a crucial role in digital platform usage, and it clearly shows that males report higher concerns over affordability and usability than the older adult females. Further females (58.3%) report more fear of scams, distrust in digital services, and lower digital confidence compared to the male adults. It is clear that programmes should include gender-sensitive digital literacy training among older adults.

Table 7: Reasons for not using digital platforms by gender

Reasons for not using Digital Platforms	Gender of the respondents		Total (%)
	Male (%)	Female (%)	
Limited exposure and training in digital technology	50.6	49.4	100
Intimidation by new and complex technologies	51.0	49.0	100
Confusing interfaces and terminology	54.9	45.1	100
Poor accessibility design (small fonts, difficult touchscreens)	54.6	45.4	100
Fear of scams, fraud, and data misuse	45.2	54.8	100
Distrust in digital platforms and online services	45.8	54.2	100
High costs of devices and internet services	56.6	43.4	100
Limited access to affordable digital resources	43.5	56.5	100
Physical issues like vision impairment, arthritis, or mobility limitations	44.4	55.6	100
Difficulty using small, intricate device components	52.0	48.0	100
Satisfaction with traditional communication methods	54.5	45.5	100
Limited understanding of digital benefits	47.0	53.0	100

Reasons for not using Digital Platforms	Gender of the respondents		Total (%)
	Male (%)	Female (%)	
Concern over becoming reliant on technology	60.0	40.0	100
Preference for self-sufficiency in daily tasks	61.9	38.1	100
Cognitive decline impacting learning capacity	50.0	50.0	100
Anxiety or fear of technology-related errors	41.7	58.3	100
Other	45.6	54.4	100

Source: Compiled by authors, 2025

Further, older male adults are more concerned (60%) over becoming reliant on technology than the older female adults, while cognitive decline impacting their learning capacity is highlighted by both males and females in the same manner (50%). However, the study emphasises that older male adults (61.9%) prefer not to use digital platforms and services due to their self-sufficiency in day-to-day tasks.

Moreover, when considering the residential sector's influence on digital platform usage, the majority of urban respondents (81%) report more fear of scams and digital fraud than rural users (19%). Further rural users struggle with accessibility (51.5%) and affordability (50%), while estate sector respondents are the least digitally included.

Type of digital devices used by older adults

This section elaborates on what the digital devices are that older adults use and the frequency of using those devices by them.

According to the results revealed, mobile phones (45.7%) and smartphones (35.2%) are the most used devices by older adult respondents.

Table 8: Digital device usage by device type

Digital Device	Responses	
	Number	Percentage (%)
Mobile phone	1,223	45.7
Smartphone	942	35.2
Laptop	147	5.5
Computer	91	3.4
Tablet	69	2.6
None	204	7.6
Total	2,676	100.0

Source: Compiled by authors, 2025

However, usage of laptops (5.5%), computers (3.4%), and tablets (2.6%) has limited adoption among respondents. Notably, the findings show that 7.6% of older adults own no digital device. Further, when studying their accessibility to digital devices, it was considered by the respondent's age, gender, and residential sector. According to the residential sector, urban users dominate laptops (66.7%), tablets (75.4%), and computer accessibility (64.8%) more than older adults in the rural and estate sectors. Nearly 45

per cent of rural users rely more on mobile phones (44.2%) than smartphones (35%). (Table 9)

Table 9: Digital device usage by residential sector

Digital Device	Residential Sector		
	Urban (%)	Rural (%)	Estate (%)
Mobile phone	55.7	44.2	0.2
Smartphone	64.4	35.6	0.0
Laptop	66.7	33.3	0.0
Computer	64.8	35.2	0.0
Tablet	75.4	24.6	0.0
None	41.7	57.8	0.5
Total (N)	1051	815	3

Source: Compiled by authors, 2025

Qualitative data reveals that older adults predominantly prefer using simple mobile phones (non-smartphones) due to their ease of operation. The primary purpose of mobile usage is to remain connected with family and relatives. As several participants explained:

"We only have small phones. We use it only for calls with others."

In contrast, parents whose children live abroad exhibit relatively greater familiarity with smartphones, particularly using them for video calls. This supports the broader observation that older adults face significant barriers in using digital platforms. These barriers include unfamiliarity with technology, physical challenges, and a persistent preference for traditional, straightforward communication methods.

The study also identified financial constraints as a major factor influencing the preference for simple mobile phones. As highlighted in the quantitative data, the cost of smartphones remains prohibitive for many older adults. One participant noted,

"We don't have enough income to buy a 'Periya Phone [smartphone]'... The income we earn is only enough for food. Even if we buy one, we can't afford the monthly internet bills."

Thus, the economic burden of purchasing and maintaining digital devices continues to hinder digital inclusion among older adults.

Additionally, older adult males exhibit higher accessibility to mobile phones (53.1%), smartphones (51.6%), laptops (52.4%), and computers (54.9%) compared to older adult females. However, female respondents have higher accessibility to tablets (53.6%) than males (46.4%). (Table 10)

Table 10: Digital device usage by gender

Digital Device	**Gender of the respondents**	
	Male (%)	**Female (%)**
Mobile phone	53.1	46.9
Smartphone	51.6	48.4
Laptop	52.4	47.6
Computer	54.9	45.1
Tablet	46.4	53.6
None	42.2	57.8
Total (N)	938	931

Source: Compiled by authors, 2025

Notably among non-digital device users, a significantly higher proportion of older adult females (57.8%) have no access to any digital device, compared to males (42.2%). It shows females without digital devices (57.8%) create a gender disparity in digital access, possibly influenced by lower digital literacy, affordability concerns, and social barriers.

Further, according to age and accessibility to digital devices, mobile phone usage declines sharply with age, from 38.3% (65-69 years) to just 8.6% (75-80 years). Accessibility to smartphones follows a similar trend, with 42.6% adoption in the 60-64 age group but only 4.4% among 75-80-year-olds. (Table 11)

Table 11: Digital device usage by age

Digital Device	Age categories of respondents			
	60 - 64 Years (%)	65 - 69 Years (%)	70 - 74 Years (%)	75-80 Years (%)
Mobile phone	30.1	38.3	23.1	8.6
Smartphone	42.6	37.2	15.9	4.4
Laptop	45.6	43.5	10.9	0.0
Computer	46.2	37.4	14.3	2.2
Tablet	43.5	43.5	11.6	1.4
None	12.7	28.4	37.3	21.6
Total (N)	616	660	429	164

Source: Compiled by authors, 2025

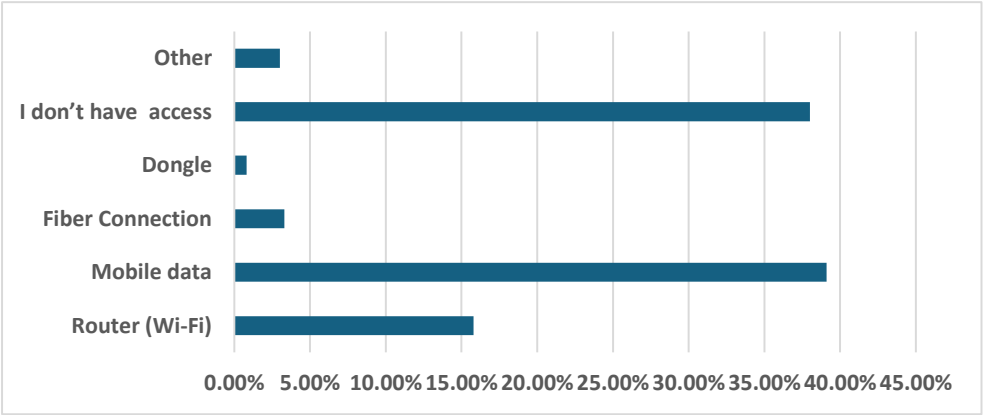
Supplementary, laptop and computer usage are significantly low in older age groups, with almost zero ownership beyond 75 years. Tablet ownership remains stable across younger age groups

(43.5%) but drops drastically in the oldest category (1.4%). Notably, the percentage of respondents not having accessibility to digital devices increases dramatically with age: 12.7% (60-64 years) to 37.3% (70-74 years) and 21.6% (75-80 years). These trends show that, without access to any digital devices, they highlight a severe digital divide among older adults in Sri Lanka.

Modes of internet connectivity among older adults

Results indicate that mobile data (39.1%) is the most common internet connection method, followed by Wi-Fi routers (15.8%), which are used by older adults as the mode of connectivity.

Figure 3: Modes of internet connectivity



Source: Compiled by authors, 2025

Most importantly, 38% do not have internet access, indicating a major barrier to digital inclusion. When this is considered with the residential sector, 88% of urban respondents use fibre connections, the highest among all sectors, indicating better infrastructure and affordability. Further, among urban older adults, 65.7% use routers (Wi-Fi) and 62.8% rely on mobile data, showing diverse connectivity options among urban dwellers. (Table 12)

Table 12: Modes of internet connectivity by residential sector

Way of connection to the Internet	Residential sector		
	Urban (%)	Rural (%)	Estate (%)
Router (Wi-Fi)	65.7	34.3	0.0
Mobile data	62.8	37.2	0.0
Fiber Connection	88.0	12.0	0.0
Dongle	66.7	33.3	0.0
No, I don't have internet access	50.0	49.6	0.4
Other	30.9	69.1	0.0
Total (N)	1,059	827	3

Source: Compiled by authors, 2025

However, among those who stated not having internet access, 50% of urban respondents indicated that the digital exclusion rate is even in developed areas. On the other hand, among rural respondents, mobile data (37.2%) and routers (34.3%) are the primary means of connectivity, suggesting limited fixed broadband infrastructure.

Quality of internet connection among older adults

According to the study results, 37.8% of rural older users experience slow or unreliable internet connections, while 24.5% of urban older users have high-speed internet; however, estate sector users face complete digital exclusion due to not having proper signal coverage.

Table 13: Quality of internet connection among older adults

Quality of the internet connection	Residential sector		
	Urban (%)	Rural (%)	Estate (%)
No need for internet for my digital device	20.3	31.2	0.0
No, I don't have a proper signal coverage	2.5	6.3	100.0
Yes, but with limited connectivity	27.6	37.8	0.0
Yes, with a high-speed connection	49.6	24.5	0.0
Total	100.0	100.0	100.0

Source: Compiled by authors, 2025

Frequency of using digital devices and platforms by older adults

This section will elaborate on the frequencies of using different digital platforms by older adults in Sri Lanka and how far they can handle those platforms on their own. Results show the frequency of mobile phone use by older adults by their gender and age. (Table 14)

According to Table 14, it clearly shows the daily use of mobile phones declines significantly with age: (60-64 years: 91.4%, 65-69 years: 87.5%, 70-74 years: 67.1%, and 75-80 years: 48.0%). Further

chi-square test statistics ($p < 0.001$) confirm age is a significant predictor of mobile phone usage frequency.

Notably, older male adults' frequency of daily usage of mobile phones is quite higher (86%) than the older female adults. On the other hand, never using mobile phones is higher among females (9.3%) than males. This can be justified by the chi-square test statistics ($p < 0.000$), which confirm gender is a significant factor that influences mobile phone usage frequency.

Table 14: Frequency of using mobile phone by, gender and age

Variable	Categories	How often do you use a mobile phone?				Total (%)
		Daily (%)	Never (%)	Once a week (%)	Several times a week (%)	
Gender	Male	86.0	7.1	3.4	3.5	100.0
	Female	80.2	9.3	3.3	7.2	100.0
Age Groups	60 - 64 Years	91.4	2.6	2.1	3.9	100.0
	65 - 69 Years	87.5	6.8	2.3	3.5	100.0
	70 - 74 Years	67.1	12.0	4.8	16.0	100.0
	75-80 Years	48.0	32.8	8.2	11.1	100.0

Source: Compiled by authors, 2025

Further, this study tries to understand how older people are handling their mobile phones on their own. According to the results, younger elderly groups (60–64 years) exhibit greater independence (42.7%), while older groups (75–80 years) show significant dependency, with only 17.1% handling a mobile phone completely on their own (Table 15).

Table 15: Capability of handling mobile phone

Variable	Categories	Capability of handling mobile phones					Total (%)
		Can handle completely on my own (%)	Can handle only with assistance (%)	Can handle with some help (%)	Can mostly handle on my own (%)	Cannot handle at all (%)	
Age Groups	60 - 64 Years	47.5	2.7	10.0	35.4	4.4	100.0
	65 - 69 Years	42.0	2.3	11.1	38.0	6.6	100.0
	70 - 74 Years	31.5	5.3	16.1	33.8	13.3	100.0
	75-80 Years	17.5	8.2	19.9	26.3	28.1	100.0
Gender	Male	43.4	3.4	10.5	35.1	7.6	100.0
	Female	34.9	3.9	14.9	35.1	11.1	100.0
Living Arrangement	Alone	44.8	2.9	9.5	28.6	14.3	100.0
	Both spouse and children	39.8	3.2	11.9%	38.2	6.8	100.0
	Other	50.0	0.0	0.0	37.5	12.5	100.0

	With children	29.2	4.5	19.0	32.0	15.4	100.0
	With relatives	41.2	5.9	8.8	36.8	7.4	100.0
	With spouse	48.1	3.6	8.5	33.2	6.6	100.0

Source: Compiled by authors, 2025

A gradual decline in digital competence with age highlights the cognitive and physical challenges (vision, dexterity, memory loss) faced by older adults. Furthermore, this can be confirmed by the chi-square test statistics ($p < 0.000$) confirm age is a significant predictor of mobile phone handles by their own.

In addition to that, the table shows that older male adults (43.4%) demonstrate higher independence in mobile phone use by themselves than older female adults (34.8%), possibly due to greater lifetime exposure to technology. By justifying the point, females exhibit higher dependence on assistance, indicating lower digital confidence and literacy levels.

A further table shows that those living with a spouse (48.1%) or with both spouse and children (50.9%) are more independent, possibly due to support from family members in learning digital skills. However, older adults living alone (44.8%) or with relatives (41.2%) exhibit lower confidence, suggesting that isolation may hinder digital skill acquisition. Notably, those living with children (21.2%) have the lowest mobile phone independence, possibly due to a reliance on younger family members for digital tasks.

According to the results, it emphasises that overall usage is low, with over 86% of seniors never using computers or laptops. Only 5.5% of older adult males and 3.6% of older adult females are using computers daily. Further chi-square test statistics ($p < 0.001$) indicate strong age-related digital exclusion when frequency of

using laptops while there is not any statistical relationship that can be seen between gender and laptop/computer usage frequency ($p < 0.131$).

Table 16: Frequency of using computers/laptops by, gender and age

Variable	Categories	How often do you use computers/laptops?				Total (%)
		Daily (%)	Never (%)	Once a week (%)	Several times a week (%)	
Gender	Male	5.5	86.3	4.0	4.2	100.0
	Female	3.6	88.5	3.2	4.8	100.0
Age Groups	60 - 64 Years	6.0	83.5	4.4	6.1	100.0
	65 - 69 Years	5.3	83.9	5.1	5.7	100.0
	70 - 74 Years	3.0	93.8	1.4	1.8	100.0
	75-80 Years	0.6	98.3	0.6	0.6	100.0

Source: Compiled by authors, 2025

Currently Automated Teller Machines (ATMs) are used frequently for cash deposits and withdrawals among Sri Lankan citizens. However, 52.7% of older adult males and 60.8% of older adult females never use ATMs for cash deposits and withdrawals. Further, the 70-74 years and 75-80 age groups show an above 72% non-usage rate of ATMs.

Table 17: Frequency of using ATMs by, gender and age

Variable	Categories	How often do you use ATMs?				Total (%)
		Daily (%)	Never (%)	Once a week (%)	Several times a week (%)	
Gender	Male	2.2	52.7	23.9	21.2	100.0
	Female	1.7	60.8	19.7	17.8	100.0
Age Groups	60 - 64 Years	2.1	45.7	27.5	24.7	100.0
	65 - 69 Years	2.7	47.5	26.8	21.1	100.0
	70 - 74 Years	1.1	72.2	12.4	14.3	100.0
	75-80 Years	0.6	86.0	5.8	7.6	100.0

Source: Compiled by authors, 2025

Further, this can be justified by the chi-square test statistics that indicate strong gender ($p < 0.010$) and age ($p < 0.001$)-related digital exclusion when frequency of using ATMs is considered. It clearly shows the policymakers that conducting financial digital training is necessary to improve ATM and online banking adoption for older adults in Sri Lanka.

Additionally, the study tries to understand how older adults operate ATM machines on their own. According to the results, financial technology (FinTech) usage decreases sharply with age, with only 36.2% of 60–64-year-old adults managing ATMs independently, dropping to 5.8% among 75–80-year-old adults. Significantly, 47.4% of the oldest group cannot handle ATMs at all, indicating a major barrier to financial independence (Table 18).

Table 18: Capability of handling ATMs

Variable	Categories	Capability of handling ATMs					Total (%)
		Can handle completely on my own (%)	Can handle only with assistance (%)	Can handle with some help (%)	Can mostly handle on my own (%)	Cannot handle at all (%)	
Age Groups	60 - 64 Years	36.2	5.2	7.3	14.4	37.0	100.0
	65 - 69 Years	27.4	4.5	9.3	16.4	42.4	100.0
	70 - 74 Years	12.6	5.3	6.7	8.5	66.9	100.0
	75-80 Years	5.8	4.1	7.6	4.7	77.8	100.0
Gender	Male	28.5	5.2	6.9	13.7	45.8	100.0
	Female	21.4	4.6	8.9	12.1	53.1	100.0
Living Arrangement	Alone	24.8	4.8	13.3	9.5	47.6	100.0
	Both spouse and children	26.7	5.5	7.5	16.1	44.2	100.0
	Other	12.5	12.5	0.0	12.5	62.5	100.0
	With children	15.4	3.2	9.0	6.8	65.7	100.0
	With relatives	25.0	5.9	8.8	2.9	57.4	100.0
	With spouse	33.2	5.2	5.8	15.7	40.1	100.0

Source: Compiled by authors, 2025

Moreover, older adult males (31.4%) exhibit higher independence in ATM use compared to older adult females (21.4%), reflecting historical gender gaps in banking access and financial decision-making. More female older adults rely on full assistance (13.9%) or partial help (8.6%), reinforcing the need for targeted financial literacy programs for female older adults.

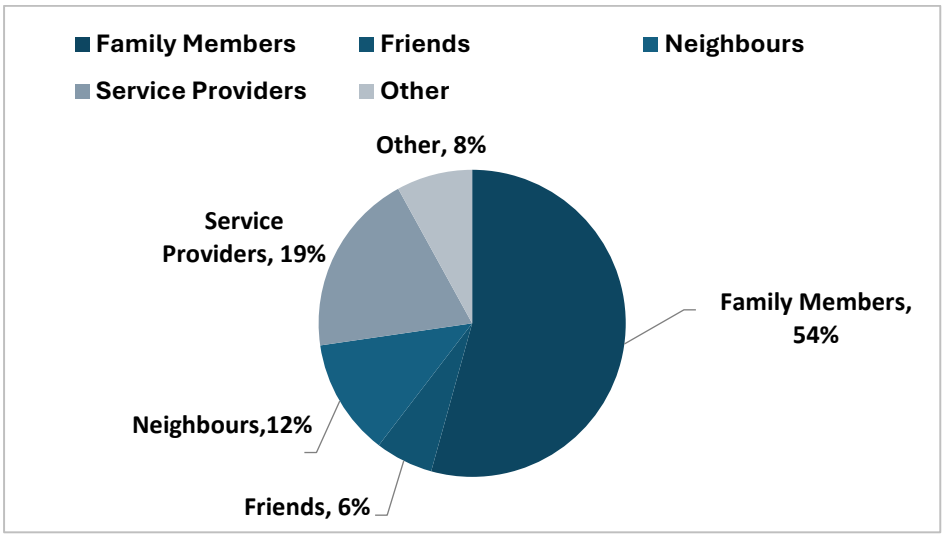
When considering this by living arrangements of older adults, those living with a spouse (32.3%) show higher ATM usage independence compared to those living alone (26.4%) or with relatives (15.4%). Further, older adults living with children (12.4%) are the least independent in ATM usage, potentially relying on their younger family members for financial transactions.

In addition to that, most of the older adults who use digital platforms have full or partial support from a person or from a service provider to handle the digital device or services. According to the data, family members (54.3%) are the primary source of digital assistance, indicating strong intergenerational dependency. Mostly older adults rely on their children or grandchildren for help with digital tools.

As further shown in qualitative data, older adults rely on someone for bank transactions, including cash depositing and withdrawal using ATMs. Only a very few participants found in the study could make bank transactions through ATMs. At the same time, others mostly gave their ATM cards and PINs to their children and grandchildren or asked bank security staff to withdraw cash for them. It has increased digital dependency and vulnerability in financial transactions. One bank officer interviewed said, “Elderly people stay in the long queues for manual transactions though they have been provided ATM cards. They are afraid of using them.”

Many participants said that they were afraid of using ATM cards, as they had negative experiences withdrawing money using cards. “One day, my ATM card was locked at the bank, and my work was interrupted on that day. After this incident, now I give my ATM card to the security personnel and withdraw money,” said one participant. Also, though banks, especially private sector banks, provided manual services previously, parallel to digitalising services, now they mostly prefer to rely on digital services due to the staff shortage, pushing elderly people to adopt digital services. A participant mentioned, “Now the security officers at banks don't fill out the slips anymore, so I send my children to handle the transactions.” (Focus Group Discussion: Vavuniya, 2024). This shows their challenges in using digitalised ATMs on their own.

Figure 4: Persons who support older adults to use digital platforms and devices



Source: Compiled by authors, 2025

Further, older adults rarely turn (6.1%) to friends for digital assistance, possibly due to limited peer knowledge, social stigma or embarrassment in seeking help from peers, and geographical distance from close friends, reducing accessibility to support.

However, a moderate percentage of older adults receiving help from their neighbours (12.3%) indicates that some level of community-based digital support exists, especially in rural areas, where community engagement is stronger, leading to neighbourly assistance.

As an important point, nearly one-fifth (19.3%) of older adults receive support from service providers, which service providers play an essential role in digital inclusion but are not the primary source of support.

Discussion

The findings from the study extend a growing body of global research on digital inclusion and exclusion in later life. As with many international contexts, the Sri Lankan data confirm that a complex interplay of demographic, socio-economic, and environmental factors shapes digital adoption among older adults.

Similar to studies conducted in high- and middle-income countries, age is still strongly predicted by digital engagement, and online usage dropped drastically in the oldest age group (Friemel, 2016; van Deursen & Helsper, 2015). For instance, while 85.1% of Sri Lankans aged 60–64 use digital devices, this drops to 58.5% in the 75–80 age group, consistent with trends documented in Europe and East Asia, whereby digital use declines as age increases as a result of cognitive, physical, and attitudinal barriers (Hunsaker & Hargittai, 2018; Choi & DiNitto, 2013).

The study from Sri Lanka reported a notable gender gap in total device use and aligns with recent data from the United Kingdom and Australia that shows that gender differences in headline digital access are narrowing among older adults (Ofcom, 2023; ABS, 2021). Meanwhile, the qualitative difference remained, as

women in Sri Lanka stated that they had more concern about scams and their digital confidence. This finding validates the evidence from the US and South Korea, where women felt more anxiety around online security and a lesser sense of self-efficacy (Hargittai & Dobransky, 2017; Lee et al., 2021).

Socioeconomic status, particularly education and income, remains a powerful determinant of digital inclusion. The Sri Lankan results, where higher education and income are strongly correlated with digital adoption, are in line with studies from India, China, and the EU, which consistently show that formal education enhances digital literacy and that affordability is a significant barrier for low-income adults. (Alam & Imran, 2015; Eurostat, 2020; Zhou et al., 2021). Employment history is also a predictor of digital use, where exposure to workplace technology provides critical skills and confidence, a relationship found in both the Sri Lankan context and the cross-national study (Seifert et al., 2020).

Geographical disparities in digital access, highlighted by the Sri Lankan data, are a recurring theme in the literature. Urban-rural divides are well documented in both developing and developed countries, with urban older adults having better access to high-speed internet and diverse devices, while rural and estate sector residents face infrastructural and affordability barriers (Salemink et al., 2017; ITU, 2022). The Sri Lankan finding that 88% of urban respondents use fibre connections, compared to minimal access in rural and estate sectors, echoes similar patterns in India and sub-Saharan Africa (GSMA, 2023; Alam & Imran, 2015).

The primary barriers identified in Sri Lanka—limited exposure and training, physical limitations, technological anxiety, and costs—are in line with international evidence (Hunsaker & Hargittai, 2018; Seifert et al., 2020). Hunsaker and Hargittai (2018), for example, found that older Americans highlight a lack of skills and anxiety as

key barriers. Zhou et al. (2021) similarly reported that Chinese seniors experience issues with usability and affordability.

The Sri Lanka data's emphasis on cognitive decline and technological anxiety among the oldest people is also consistent with research from Japan and Europe, which identifies cognition and dexterity as important barriers to digital engagement (Tsai et al., 2015; Friemel, 2016). The discovery that women are more likely to exhibit fear of scams and distrust of digital services aligns with findings in the US and Europe showing that gendered understandings of online risk remain prevalent even with reducing access gaps (Hargittai & Dobransky, 2017).

The tendency for older adults from Sri Lanka to prefer basic mobile phones and minimal use of laptops or tablets is similar to older adults in other developing nations, where device choice is driven by becoming familiar with the device and cost (Alam & Imran, 2015). The significant decrease in ownership of devices and a decline in independent use among older adults with increasing age is, however, also found in studies from the US, UK, and East Asia (Choi & DiNitto, 2013; Ofcom, 2023; Lee et al., 2021).

The dependence on family for digital assistance in Sri Lanka matches studies from India, China, and Latin America, which consistently found that intergenerational digital support is crucial for older adults' digital engagement (Alam & Imran, 2015; Zhou, 2021). In contrast, in many Western countries, older adults are more inclined to look for help from peers or community sources of support, in part due to differences in social arrangement and support frameworks (Seifert et al., 2020).

The recommendations from the Sri Lankan study regarding age-specific training, rural infrastructure, gender-sensitive interventions, and engagement with families find resonance internationally (ITU, 2022; GSMA, 2023). The successful examples of Singapore's widely used community-based digital literacy

initiatives and subsidised broadband across the European Union shape the formulation of interventions to engage with the complex and multi-layered barriers encountered by older adults in Sri Lanka (Seifert et al., 2020; Eurostat, 2020).

Conclusion and recommendations

On a general level, the findings from this study are consistent with the international literature on digital inclusion and exclusion among older adults. Although many local cultural and infrastructural contexts contribute to the specifics, the same fundamental patterns regarding age, gender, education, income, and geography as predictors; deep-rooted usability and trust barriers; and the need to develop community-rooted solutions for older adults exist. Effectively addressing these challenges will require technological innovations as well as social, educational, and policy innovations that are intentionally developed with the complexity and diversity of older adults' digital lives in mind. Therefore, this study can further recommend the following recommendations to enhance the digital platform usage among older adults in Sri Lanka.

Strengthening Digital Literacy Programs Establish specialized training initiatives at the divisional secretariat level, concentrating on the elderly demographic. Engage personnel proficient in eldercare and social empathy with the backing of academic institutions and specialists in digital literacy.

Further ensuring Inclusive Service Provision Conduct comprehensive needs assessments before the transition to fully electronic services, ensuring that older adults are sufficiently equipped. Implement incremental digital transformation strategies accompanied by awareness campaigns to facilitate adaptation.

Enhancing Accessibility in Banking, Telecommunications, and Healthcare Develop Automated Teller Machines (ATMs) and Cash Deposit Machines (CDMs) equipped with voice command functionalities, enlarged fonts, and privacy-sensitive guidance tailored for older adults. Designate trained personnel at service points (e.g., banks, hospitals, mobile service centers) to assist and educate older adults in utilizing digital services autonomously.

Promoting Language Inclusivity Enforce a trilingual policy (Sinhala, Tamil, and English) for e-billing and service notifications to eliminate language barriers. Implement 'read-out text' functionalities for visually impaired users to enhance accessibility. Further governmental agencies and private stakeholders should devise structured digital literacy programs to bolster self-reliance and diminish dependency on others for online transactions.

Improving the Accessibility of User-Friendly Digital Services for Older Adults: Developers should prioritise age-friendly design principles, integrating features such as larger text, voice assistance, and simplified interfaces. Notably sustaining and Expanding Good Practices Institutionalize effective industry methodologies that demonstrably enhance digital inclusivity for older adults. It Creates a comprehensive framework that guarantees continual oversight and assessment of initiatives aimed at digital accessibility.

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