Adapting Communication Technologies to Enhance Social Support and Lifelong Learning for Older Adults

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Abstract

This qualitative study, employing thematic analysis, aimed to examine the role of communication technologies in delivering social support and promoting lifelong learning among older adults in Malaysia. Social support is crucial for older adults, particularly those dealing with loneliness, depression, or physical and mental health challenges. With the advancement and widespread use of communication technologies, these supports can be enhanced. However, while older adults require such technological support, they must acquire the necessary skills to use these technologies independently. Lifelong learning becomes essential for older adults to stay updated with evolving technological developments. This article explores the social support needs of older adults in relation to communication technologies. Data were collected through focus group discussions (FGD) and semi-structured interviews with fifteen experts in relevant fields. Thematic Content Analysis (TCA), informed by social capital theory, was used to analyze the data. The study identifies eight forms of social support provided by communication technologies: four from social media and four from digital tools. The findings offer insights into the factors that shape the use and effectiveness of communication technologies in delivering social support and further lifelong learning among older adults. The results have both theoretical and practical implications for designing interventions aimed at improving social support and lifelong learning for older adults through communication technologies in Malaysia.

Keywords

Older Adults, Social Supports, Social Media, Communication Technologies, Lifelong Learning, Digital Technologies

1. Introduction

Older adults frequently face psychological challenges, such as feelings of isolation due to the empty nest syndrome, financial difficulties, and familial issues, alongside physical problems related to pain and reduced mobility (Xu & Yang, 2023). Social support from family, the community, organizations, and the government can alleviate these challenges (Suriawati. et al., 2020; Teng & Joo, 2017). This support is not limited to material assistance; research indicates that emotional support can significantly improve health outcomes (Mahyuddin et al., 2018). The increasing use of communication technologies, including social media, has further enhanced the potential of social support. Studies suggest that older adults who use social media experience lower levels of loneliness and better psychological well-being (Castillo et al., 2022; Macdonald & Hülür, 2020). Consequently, leveraging these technologies to deliver social support can help reduce the risk of mental health issues such as depression, anxiety, and stress (Cotten et al., 2022; Fuss et al., 2019). Adapting social support through communication technologies can enhance lifelong learning for older adults (Jung et al., 2017). Lifelong

learning, the continuous acquisition of knowledge and skills throughout one's life, is crucial for older adults to remain engaged with the world and maintain their independence (Nygren et al., 2019) Communication technologies, such as social media, messaging platforms, and video conferencing, offer a range of opportunities for older adults to connect with others and access new learning experiences (Newman et al., 2021). These tools provide access to online courses, virtual events, and other resources, enabling older adults to learn new skills and stay active within their communities. Utilizing these technologies also helps mitigate the feelings of isolation and loneliness that can negatively affect their physical and mental health (Narushima et al., 2018). Research indicates that communication technologies can support older adults in leading independent and meaningful lives in their later years (König et al., 2018; Suriawati. et al., 2020; Wiwatkunupakarn et al., 2022). However, despite the advancements in digital tools, many older individuals—both native-born and immigrants—are slow to adopt these technologies, which limits their use in home-based healthcare and daily activities. The adoption of technology to meet the needs of ageing populations is a growing challenge. Communication technologies have great potential in improving the delivery of home care services (Ashaari et al., 2021; Castillo et al., 2022; Fu & Xie, 2021). Recent developments suggest that older adults can be an integral part of future research and development agendas, particularly in the field of home care services (Castillo et al., 2022; Merriam & Kee, 2014).

While some studies have explored the social support needs of older adults (Macdonald & Hülür, 2020), there is limited research on the role of new media in providing these supports. Though older adults require these forms of support, they cannot rely solely on others; mastering these technologies requires their own initiative and skills. To keep pace with technological advancements and maintain their ability to use digital tools effectively, lifelong learning is essential. However, the success of lifelong learning depends on older adults' perceptions of the benefits of technology (Narushima et al., 2018). Social capital theory suggests that when people recognize the advantages of technology, their interest in it increases.

The study aims to address the following research objectives:

1. Identify the types of social support related to communication technologies that are essential for older adults.
2. Examine how these supports can be adapted to promote lifelong learning.

2. Literature review

2.1. Social Support

Social support can be understood in two ways: as support that is actually received and as support perceived to be available when needed. Research consistently shows that loneliness is more significantly impacted by perceived social support than by the actual support received (Wu & Chiou, 2020; Zhang et al., 2021). This study focuses on perceived social support, especially in the context of older adults. Social media use has been positively associated with perceived social support, as it helps older adults maintain strong social connections despite time and distance (Fuss et al., 2019). This relationship can be better understood through Social Capital theory, which is often used to examine the development and maintenance of social ties (Chang et al., 2022). Bonding and bridging social capital are two key concepts here. Bonding social capital refers to strong ties with close family and friends, providing emotional support, while bridging social capital involves weaker ties that offer access to diverse resources and information (Mohd et al., 2020).

Social media enables communication about life events and updates on the activities of friends and family, promote intimacy and connection. This helps develop both bonding and bridging social capital, which, in turn, reduce feelings of loneliness (Zhang et al., 2021). The process of building and maintaining social support does not cease with age, but aging does influence the nature and dynamics of these support systems. Life events like retirement, relocation to assisted living, loss of a partner, and

health issues can limit older adults' social interactions and the exchange of social support. Cohort studies have shown a noticeable reduction in the size of social networks in old age, with networks shrinking by about one person every two years (Wu & Chiou, 2020). Although networks tend to shrink, the level of support provided often remains stable (Mohd et al., 2020; Wu & Chiou, 2020; Zhang et al., 2021). Social support, which encompasses emotional, practical, and other forms of help from network members, plays a vital role in academic success and overall well-being. High levels of social support from one's network can offset deficits in information-related social capital, particularly for minority students (Chang et al., 2022).

2.2. Types of Social Support

2.2.1. Informational support

Informational support refers to the provision of health-related knowledge, such as disease information, treatment plans, and healthcare advice (Tyler et al., 2020). Social media serves as a rich source of health-related information shared by both professionals and the general public. Studies indicate that social media has become a popular avenue for patients to access health information exchanges (Jung et al., 2017). Physicians often use social media to engage with patients, offering healthcare information and answering their health-related questions (Lin & Kishore, 2021). This physician-generated content is generally considered valuable, especially for individuals managing chronic conditions, as it helps patients learn about their health and make informed decisions (König et al., 2018).

2.2.2. Social interaction support

Social interaction involves the exchange of ideas, information, and emotions between individuals or groups in various settings, such as family gatherings or community events (Chang et al., 2022). Social interaction shapes social norms and cultural identities and plays a vital role in communication skills development and the formation of social networks (Langer, 2018). Social media's impact on social interaction spans intimate relationships to broader societal dynamics, influencing how people engage with one another and form support systems (Redcay & Schilbach, 2019).

2.2.3. Emotional support

Emotional support helps individuals and families navigate challenging situations, often by providing a sense of comfort and understanding. This type of support strengthens relationships, fosters trust, and creates a safe space for open communication (Brown & Shenker, 2021). A holistic healthcare approach that addresses emotional and psychological needs alongside physical care can improve both patient outcomes and the well-being of their families (Pedrosa et al., 2020).

2.2.4. Guidance support

School counselors play a key role in ensuring students' mental well-being by providing guidance and support. The digitization of education has led to the use of digital media in counseling services, enabling better communication and engagement (Hasani & Hendrayana, 2018; Ostroha et al., 2021). However, the effective use of social media in guidance counseling is often limited by school counselors' preparedness and comfort with technology (Walsh et al., 2022).

2.2.5.Financial support

Research consistently demonstrates that poverty negatively impacts health, with these effects intensifying as income decreases. Beyond income, various aspects of financial standing, such as credit, debt, and savings, also influence health outcomes. Financial institutions often focus on these components, as they can offer more flexibility than income. Accumulated financial resources,

including wealth and savings, help individuals cushion financial shocks and reduce financial stress amid income fluctuations. Net worth, defined as total family assets minus liabilities, is significantly correlated wi;th self-reported health and tends to be more unevenly distributed than income. Individuals with limited or no savings are more likely to engage in unhealthy behaviors, such as smoking or being obese, and are at higher risk of conditions like diabetes, hypertension, psychological distress, clinical depression, and shorter life expectancy. Declines in wealth are associated with higher mortality rates and poorer physical health, even when income levels are accounted for.

2.3. Social Capital Theory

Social capital theory views the connections between individuals as "productive resources." These connections reflect the relationships within a specific society. Social capital encompasses the totality of real and potential resources embedded in, accessible through, and derived from an individual's or social unit's network of relationships (Claridge, 2018). Moreover, social capital enables resource exchange and introduces innovation within organizations (Swanson et al., 2020). Social capital can be divided into three dimensions: structural, relational, and cognitive (Gannon & Roberts, 2020). Structural social capital refers to the overall pattern of associations between actors and includes communication used to gather information or gain access to particular resources (Swanson et al., 2020). Relational social capital focuses on the emotional aspects of relationships, emphasizing trust and the support actors provide one another in pursuing goals (Claridge, 2018). A lack of trust can significantly hinder collaboration. Cognitive social capital involves the collective understanding, representation, and shared meanings between actors (Gannon & Roberts, 2020). Social capital has been instrumental in facilitating the relationship between digital technologies and social media (Gannon & Roberts, 2020).

2.4. Thematic Explanation

The following figure illustrates the main theme, sub-themes, and key elements of social support for older adults:
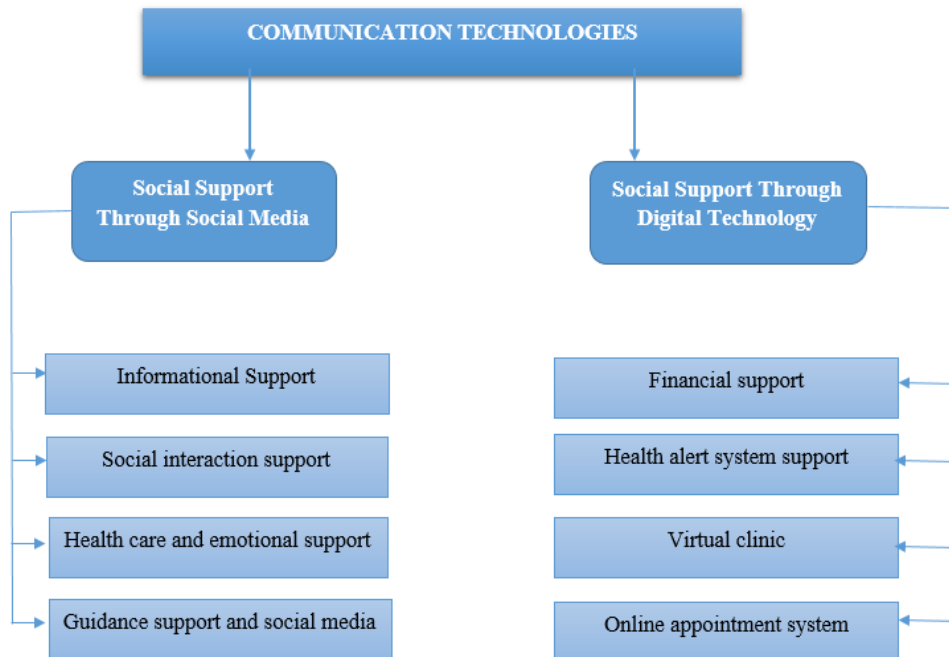

Figure 1: Main theme and Sub-theme

2.4.1. Communication technologies

Communication technologies encompass various tools such as social media, text messaging, phone calls, and video chat, which facilitate emotional, informational, or tangible support (Chen et al., 2021). These technologies have gained popularity for social support as they enable people to connect regardless of geographical location or time constraints. Social support can take several forms, including emotional support, which provides empathy, encouragement, and listening to concerns (Dauenhauer et al., 2018; Fu & Xie, 2021). Informational support offers advice or guidance to help solve problems, while tangible support involves providing material or financial assistance. Communication technologies have simplified the process of delivering social support (Hutto & Bell, 2014). Social media platforms, for example, allow individuals to share thoughts, feelings, and experiences, and receive feedback from their network. Similarly, text messaging and phone calls offer convenient ways to stay in touch with family and friends, while video chat enables face-to-face conversations, enhancing emotional support (Jayakody et al., 2022). Social support is particularly important for older adults, many of whom face various health challenges and declining independence, necessitating both social and physical assistance (Lai, 2020). Separation from children due to career or personal obligations can further exacerbate emotional strain, contributing to empty nest syndrome. This highlights the need for social support, which can now be provided through both in-person interactions and digital platforms as technology evolves. In the past, older adults were less inclined to adopt modern communication technologies, as they were perceived to be challenging in terms of learning the technical aspects of devices like smartphones (Li & Luximon, 2020). Additionally, some believed that social media was irrelevant for older adults (Schoultz et al., 2020).

However, the trend of older adults using communication technologies, particularly new media like social media, is on the rise (Nowland et al., 2018; Szabo et al., 2019). Those who have adopted these tools continue to use them as they age, finding satisfaction in the variety of social media applications available (Zhang et al., 2021). While traditional electronic media remains more popular among older adults (Taipale et al., 2021), the increasing acceptance of social media demonstrates its ability to facilitate communication for this demographic (Chang et al., 2022; Yu et al., 2018). Social support through communication technologies now includes both social media and digital platforms.

2.4.2. Social support through social media

Social media allows older adults to communicate with family members without the limitations of time, helping them save on transportation costs for meeting distant relatives. This can play a crucial role in preventing 'empty nest' syndrome, which affects both physical and mental health. Studies have shown that using social media enhances social support for older adults (Wu & Chiou, 2020) and helps mitigate 'empty nest' syndrome (Fu & Xie, 2021; Yu et al., 2021). Social media platforms, like Facebook, not only facilitate contact with distant relatives but also help reconnect with long-lost contacts. By strengthening existing relationships and forming new ones, loneliness can be reduced (Szabo et al., 2019). (Yu et al., 2021) also highlighted that social media use can lessen loneliness in older adults, while those who feel isolated may prefer engaging through social media rather than face-to-face activities (Jayakody et al., 2022). Older adults can use platforms like WhatsApp or Facebook to alleviate boredom and loneliness, which in turn can reduce the risk of anxiety and extreme stress (Narushima et al., 2018).

In China, the widespread use of social media has made it an important platform for social support, particularly for older individuals who are more isolated or have less access to face-to-face interactions (Soh et al., 2020). While it is a valuable tool, it's also important to acknowledge its potential risks. For example, internet use has been associated with reduced loneliness among older adults in both the United States (Yu et al., 2021) and China (Tyler et al., 2020). In Malaysia, a study found that around three-quarters of respondents who participated in social media research used platforms like WhatsApp and Facebook (Suriawati. et al., 2020). Similarly, (Szabo et al., 2019) reported that social media use increased social activities among older adults and reduced feelings of loneliness. The ability to navigate digital tools can also help older adults access essential services such as online shopping (Soh

et al., 2020) and information retrieval (Mahyuddin et al., 2018).

Older adults who avoid social media may be at higher risk of depression due to the lack of communication, especially with family members living far away for work, marriage, or studies (Wu & Chiou, 2020). This suggests that social media can have a positive influence on older adults by providing support and connection (Yu et al., 2021). However, misuse of these platforms can lead to negative outcomes such as privacy breaches, the spread of false information, and online threats. Therefore, family support plays a vital role in helping older adults use social media safely. Platforms like Facebook and Instagram offer various forms of social support, including informational, social interaction, healthcare, emotional guidance, and intrapersonal communication (Zhang et al., 2021).

2.4.3. Social support through digital technologies

Digital technologies have revolutionized communication, making interactions and transactions instantaneous (Suriawati. et al., 2020). Earlier technologies like telephones and transportation introduced changes, but recent advancements in electronic systems, devices, and data processing have accelerated this shift (Taipale et al., 2021). Unlike older systems, which relied on physical materials, modern digital technologies utilize information systems that streamline manual processes. The concept of the Internet of Things (IoT), which connects everyday objects such as appliances to the internet via embedded devices, enables seamless communication between people, processes, and things. The integration of the physical and digital worlds has led to significant changes in human life (Tyler et al., 2020). These technologies should be made accessible to all age groups, including older adults, who can benefit from digital tools for socialization, safety, entertainment, and convenience (Wiwatkunupakarn et al., 2022). Several aspects of digital technology can serve as social support for older adults to mitigate 'empty nest' syndrome and improve their quality of life.

Digital technologies such as computers, smartphones, and tablets have become more common among older adults, offering new avenues for social support (Wu & Chiou, 2020). These technologies enable older adults to stay connected with friends and family through video calls or messaging apps. Additionally, they can access online support groups and forums where they can share experiences with peers facing similar challenges (Yu et al., 2018; Zhang et al., 2021). However, not all older adults have access to or feel comfortable using digital technologies. Some may require additional support or training to use these tools effectively (Szabo et al., 2019).

3. Methodology

This study employed Thematic Content Analysis (TCA) within a qualitative research approach to assess the significance of social support for older adults, particularly those experiencing loneliness, depression, or physical or mental health challenges. Themes were developed based on respondents' answers after the data were gathered.

3.1. Data Collection

Data collection and interpretation were conducted through focus group discussions and semi-structured interviews to gather detailed insights. The data collection period spanned two months, from February 2022 to March 2022. Focus groups and semi-structured interviews were utilized for collecting data. The sample included experts in social support forms through new media, such as social media and digital technologies. The selection of respondents was based on their experience, academic qualifications, and roles in society, including community leaders, activists, and government officials. Given the undefined population size, non-probability sampling was used, with convenience sampling being employed for data collection.

Table 1: List of field experts

Informant Code	Age	Position	Sex
1#.	71 Years Old	Professor	Female
2#.	60 Years Old	Academic Director	Female
3#.	68 Years Old	The Advisor of Health Care & CEO	Male
4#.	52 Years Old	Public Health Medical Expert	Female
5#.	58 Years Old	The Chairman for Private School	Male
6#.	61 Years Old	Nazir of Mosque	Male
7#.	45 Years Old	The Officer at JKM	Female
8#.	35 Years Old	MCCA President	Male
9#.	67 Years Old	Nazir of Mosque	Male
10#.	60 Years Old	Assistant Officer Development	Male
11#.	60 Years Old	Activist	Male
12#.	61 Years Old	Chairman of The Shrine	Male
13#.	62 Years Old	Pensioner	Male
14#.	63 Years Old	Kindergarten Group Manager	Male
15#.	62 Years Old	Manage of Company	Male

3.2. Sample Size and Population

The study sample consisted of 15 respondents, including 11 males and 4 females aged between 35 and 71 years. All respondents participated in focus group discussions, while individual interviews were conducted by the Malaysian chief researcher and a research assistant. The sessions were recorded and transcribed verbatim for further analysis.

3.3. Responses from Data Collection

Before collecting data, participant consent was obtained, with assurances that all information would remain confidential and be used solely for research purposes. Participants' names and personal details were kept private. The study's objectives were explained to the respondents, ensuring they understood the forms of social support being discussed. Participants were encouraged to assess the relevance of each form of support and offer additional suggestions. The same set of questions was used for both focus group discussions and individual interviews to maintain consistency.

3.4. Data Analysis of Thematic Content

A systematic and thematic content analysis was conducted as data were concurrently collected and analyzed using Thematic Content Analysis (TCA). The recorded interviews were listened to multiple times to identify patterns, and verbatim transcriptions were made. Field notes and literature searches were included to enrich the data. Content areas were determined based on the study's objectives, and the data from focus groups, interviews, notes, and literature were organized and coded. Similar data were merged into codes, and themes were identified, including sub-themes. The findings were later reviewed by experts in relevant fields to ensure accuracy and relevance.

3.5. Data Trustworthiness

Trustworthiness was established by adhering to the four main criteria: credibility, dependability, confirmability, and transferability, as outlined of same citation (Lincoln & Guba, 1986). Multiple strategies were applied to enhance trustworthiness, including individual interviews, focus groups, and literature searches. A diverse group of participants, varying in age, education, and professional expertise, contributed to data transferability and credibility. The researcher's professional involvement

and familiarity with ethical issues in similar settings deepened their understanding of the subject. Primary interpretations were derived from participants' perspectives on supporting older adults through social media, and interview excerpts were selected to ensure dependability. Two experts in Islamic Studies, one expert on older adults, and one expert in information technology reviewed the data, which led to refinements and ensuring conformability.

4. Results

The focus group discussions revealed two primary sub-themes: social support through social media and social support through digital technology. These sub-themes fall under the broader category of communication technologies. Both were further divided into four categories each. The results indicate that social media provides informational support, social interaction support, health care, and emotional support. Similarly, digital technology provides financial support, health alert systems, virtual clinics, and online appointment systems. These forms of support help mitigate the effects of the empty nest syndrome and improve the overall quality of life for older adults. This study enhances

4.1. Social Support through Social Media

The research identified four key forms of support available through social media: informational support, social interaction support, health care and emotional support, and guidance for social media use. Each of these types of support is explored below:

4.1.1. Informational support

The online environment offers information that is easy to store, share, and access, which can be highly beneficial for older adults as they develop media literacy skills to find, use, and share information. Informant 4# noted that older adults often encounter disinformation and misinformation, given their limited experience with modern digital media compared to traditional outlets like television and newspapers (Yu et al., 2021). Informant 9# added that this vulnerability could lead to emotional manipulation through tactics like agenda setting and priming, affecting older adults' understanding of important issues. Without proper informational support, they might form incorrect perceptions or miss critical details. Informant 9# emphasized the need for accurate information, especially regarding health care, due to their increased exposure to various diseases and mental health challenges. This support can include helping older adults create and share content, such as writing or making videos (Newman et al., 2021), or providing them with reliable information for better decision-making. Informational support ensures that older adults have the knowledge necessary to navigate health care, technology, and daily decisions (Mohd et al., 2020).

4.1.2. Social interaction support

Social interaction plays a vital role in supporting older adults, helping to prevent isolation, which can lead to negative physical and mental health outcomes. A lack of social interaction may result in unhealthy behaviors like excessive eating or drinking, contributing to poor physical health (Schoultz et al., 2020). Similarly, mental health can deteriorate if social support encourages avoidance or denial of problems. This form of support is often delivered through communication, such as exchanging greetings, sharing experiences, and maintaining contact with family, friends, and neighbors (Teng & Joo, 2017). Social interaction support is particularly important for those facing social isolation or challenges in social situations, such as individuals with mental health conditions or those experiencing significant life transitions, like retirement. Informant 6# explained that older adults can maintain social ties and express themselves without the limitations of distance or time. Social media platforms like WhatsApp and Facebook facilitate these interactions, enabling older adults to stay connected with distant family members and friends (Taipale et al., 2021).

4.1.3. Health care and emotional support

Healthcare refers to the care provided by medical professionals to prevent, diagnose, and treat various illnesses and injuries (Rusli et al., 2022). Emotional support, on the other hand, helps individuals manage emotional distress, such as anxiety, depression, or grief, and may come from friends, family members, or mental health professionals. With the help of modern technologies, older adults can now access and share health-related information more efficiently, which is essential since they are more vulnerable to diseases and mental health challenges, and often require assistance in managing their health. Informants emphasized that, in many cases, older adults benefit from the involvement of their children in monitoring their health, which can enhance their quality of life. This support can also include reminders about medical appointments or medication schedules, which can be sent through digital platforms (Szabo et al., 2019). However, it is important that older adults rely on trustworthy sources of health information, such as official government websites or health organizations, to avoid misinformation that is commonly found on social media.

4.1.4. Guidance support for social media use

Older adults, particularly those from the baby boomer generation, often have less familiarity with modern communication technologies. To ensure they use social media responsibly, their children should guide them on how to access reliable information and avoid sharing false or misleading content (Abidin & Firdaus, 2016; Ashaari et al., 2021; Mohd et al., 2020). Establishing boundaries for social media use, such as limiting screen time or choosing specific times of day for social media activities, can also be helpful, especially when balancing social interaction with family time. Informant 3# noted that older adults express greater satisfaction when their grandchildren assist them with devices and social media. However, Informant 1# observed that older adults are less familiar with new social media advancements, making them more susceptible to manipulation or exploitation by unethical individuals. Informant 8# confirmed that older adults are often the primary targets for scams or other forms of exploitation. Providing user-friendly applications and guidance on safe social media practices is crucial in improving their ability to navigate digital platforms effectively (Fu & Xie, 2021).

4.2. Social Support through Digital Technology

The study identifies four types of social support available through digital technologies: financial transaction support, healthcare system support, virtual clinics, and appointment systems. Each type of social support is explained below.

4.2.1. Financial transaction support

Financial transaction support involves assistance in managing financial operations, including budgeting, record-keeping, financial analysis, and payment processing (Chang et al., 2022). Budgeting is a key aspect of this support, helping individuals track income and expenses, plan for future needs, and avoid overspending. Many countries are shifting from traditional cash transactions to cashless systems, such as in the UK and China. It is anticipated that digital finance will soon dominate all monetary transactions, leading to a cashless society (Jayakody et al., 2022). For example, Malaysia has become a leader in cashless transactions, driven by platforms like Alibaba's Alipay and Tencent's WeChat Pay. In Malaysia, cashless payment systems are now prevalent, with smartphone applications linked to bank accounts or social media credit accounts being used in place of physical cards. Informant 8# noted, "As the licence for digital finance or digital banking has been issued, we are witnessing a shift in the banking sector. Within the next year, there will be a major change as fewer people visit physical banks, with more transitioning to online banking."

Older adults must not be excluded from this transition as the financial landscape shifts towards a digital economy. Beyond card systems, Malaysia offers cashless solutions such as Touch'n'Go, eWallet, and QR Pay, allowing for seamless payments without the need for a physical bank visit, which can be time-consuming.

4.2.2. Healthcare system support

Healthcare system support includes various forms of assistance provided to healthcare systems and professionals to deliver efficient and high-quality healthcare services. This support may include technological innovations, educational initiatives, policy development, and resource allocation. Technological support is particularly important, as healthcare technologies—ranging from electronic health records (EHRs) to telemedicine—can significantly improve the efficiency of healthcare services (Li & Luximon, 2020). Older adults, who are more vulnerable to various ailments, require additional support in healthcare and emotional well-being. Digital devices such as smartwatches, which monitor vital health signs, are increasingly used to support the health of older adults. Informant #3 stated, "Using a digital watch allows older adults to monitor their own health, particularly their heart rate." This recommendation aligns with the growing use of IoT-enabled health monitoring tools, especially for monitoring the heart rate of seniors.

Additionally, applications like MySejahtera, developed by the Malaysian government, are crucial for monitoring public health, particularly during the Covid-19 pandemic. MySejahtera provides up-to-date health information and can be especially helpful for older adults in managing their health. Informants recommend that older adults continue using such tools to track their well-being effectively.

4.2.3. Virtual clinic

A virtual clinic enables older adults to receive medical consultations remotely by transmitting health data through specialised devices or applications (Macdonald & Hülür, 2020). This approach is particularly useful for older adults who live far from their children or lack the physical strength to visit a doctor. Virtual clinics help reduce congestion in hospitals and clinics while providing increased access to healthcare services. These clinics, also referred to as telemedicine or telehealth clinics, use telecommunication technologies such as video conferencing, instant messaging, and phone calls to connect patients and healthcare providers. Virtual clinics are beneficial for patients who cannot travel to a physical clinic due to distance, disability, or other challenges. They offer quicker access to healthcare services by reducing wait times for appointments, and they can also reduce the need for physical visits to clinics and hospitals. For example, during the COVID-19 pandemic in Malaysia, older adults with chronic conditions such as diabetes and high blood pressure could opt for virtual consultations instead of attending in person (Ma et al., 2015).

Informant 4# explained, "We have an online clinic. For those with non-communicable diseases like diabetes, there is follow-up at the health clinic. If it's inconvenient for them to come in every month, they can apply for a virtual clinic. They will consult with the doctor virtually, and if treatment changes are required, they can visit the clinic." Virtual clinics offer several benefits, such as saving time, reducing transportation costs, and eliminating long wait times at healthcare facilities. These services also ease the burden on clinics and hospitals, improving overall efficiency.

4.2.4. Online appointment system

The online appointment system helps older adults schedule health check-ups and consultations at hospitals. Since the COVID-19 pandemic, the MySejahtera application has been used for a variety of purposes, including allowing COVID-19 patients to report their health status and book appointments with healthcare centres. Informant 4# stated, "We have MySejahtera, and it will be upgraded beyond

just COVID-19 management. It will also include health screenings, and users will be able to input their health data. We recommend not deleting MySejahtera, as it contains valuable information beyond COVID-19." The online appointment system helps users keep track of their health records and manage their healthcare appointments virtually. If there is a change in the appointment date, the system notifies the user with updates (Nowland et al., 2018). It is essential that older adults become familiar with using such technologies to enhance their quality of life.

In summary, the study outlines various types of social support provided by communication technologies for older adults, including financial transaction support, healthcare system support, virtual clinics, and online appointment systems. These tools collectively contribute to improving the accessibility and quality of life for older adults. The findings of this research are summarized in Table 2 below.

Table 2: Summary of social support from communication technologies

No.	Forms of support	Item Details
1	Informational Support	This support is given by talking to older adults or sharing relevant information with them on social media. This support helps older adults create and disseminate informational content (for example, by writing and making videos). This support is provided by assisting older adults in displaying content relevant to their needs.
2	**Social Support Through New Media** / Social interaction support	This support is provided through interaction between older adults, such as saying hello, sharing information, talking about life experiences, and so on.
3	Health care and emotional support	Providing health-related information to older adults Older adults use social media to learn about personal health care.
4	Guidance support and social media us	This support is given by showing older people how to use social media in the right way, such as how to find information from trustworthy sources and not spread false information. Support this by making senior-friendly media applications available for their use. This support is given by showing older people how to use technology in a safe way so that they don't become victims of cyberattacks or cybercrimes.
1	**Social Support Through Digital Technology** / Financial transaction support	This support is provided through the cashless payment system on a smartphone or app. This support is provided through platforms or machines in public locations for easy payment using a smartphone or e-banking.
2	Health care and emotional support	This support is provided by source notifying you to attend a doctor's appointment at a clinic or hospital, as well as reminding you when to take medicine at a specific time.
3	Health alert system support	This support is given to older people through tools made just for them, like

		smart watches that tell the system about their health.
4	Virtual clinic	This support can be provided through applications such as MySejahtera that notifies relevant parties about the health of older adults. This support is given through virtual visits with doctors after their health information has been gathered by a certain device or app.
5	Online appointment system	This system is used to schedule a health check-up appointment with a hospital.

5. Discussion

To benefit from social support via communication technologies, older adults must improve their media literacy, which can be achieved through lifelong learning, especially in informal settings. The rapid advancement of communication technologies offers older adults new ways to access support and stay connected with loved ones. However, they must continuously update their skills to keep up with these developments. Lifelong learning helps them not only access social support but also actively participate in social activities, share experiences, and engage with their communities. For example, they can join social media groups, participate in online forums, or use video conferencing to connect with family and friends who live far away. Social media support can be obtained independently or with the help of family members and friends. While formal education is not required, older adults must stay informed and adaptable to technological changes. The ability to learn new skills is crucial, as older adults tend to avoid complex technologies. Studies have indicated that older adults who are socially active, moderately wealthy, and well-educated tend to use social media effectively (Pappas et al., 2019; Rusli et al., 2022; Schoultz et al., 2020; Wiwatkunupakarn et al., 2022). These individuals find it easier to access informational, social, healthcare, and emotional support through social media. Conversely, older adults with lower incomes or educational levels may still actively use social media but may require assistance from family, neighbors, or community organizations to fully benefit from it.

Those with special needs—such as illness, mental health issues, or those in advanced age—may struggle more to use social media as a source of support. This is especially true for older women with limited social interactions. In these cases, family members play a significant role in providing support, helping older adults navigate social media, and advance informal learning. The family's role is crucial in motivating and encouraging older adults to use digital technologies effectively. The increasing use of social media among older adults highlights the shift in how social support is provided. While traditional sources of support such as family and community remain important, social media offers new avenues for connection and assistance (Taipale et al., 2021; Yu et al., 2018). The primary challenge is not in using social media but in adapting to the digital technologies involved. Some applications are too technical, and certain procedures in information systems can be complicated for older adults, even for those with some level of media literacy. Many still require guidance to use these technologies effectively. E-hailing services, such as Uber and Grab, offer a valuable example of how older adults can benefit from digital technology. These services provide convenient, safe transportation options for elderly individuals, particularly those with limited mobility or who are unable to drive. E-hailing services help older adults maintain independence, allowing them to visit family, attend appointments, and participate in social activities. In a globalised world, where many elderly individuals live far from their children, such services enable older adults to travel independently and safely (Li & Luximon, 2020; Merriam & Kee, 2014).

The growing accessibility of technology and social media allows older adults to perform various tasks, such as online shopping, bill payments, and communication, without the need for in-person

interactions. This reduces the time and cost of daily activities, while also providing convenience and independence. For example, older adults can order essential items or medical supplies through online platforms or e-hailing services, enhancing their ability to live independently. To take full advantage of these technologies, older adults need soft skills that enable them to use digital tools without external help (Ma et al., 2015). Technology has become an integral part of daily life, providing users with satisfaction by simplifying tasks such as paying bills and managing personal affairs. For instance, older adults can make payments for utilities or fines online without visiting physical locations. This convenience enhances their quality of life. Additionally, engaging in activities such as gardening or video editing through technology promotes lifelong learning and self-satisfaction (Dauenhauer et al., 2018; Fuzi & Bakar, 2017). The ability to manage costs and time through technology motivates older adults to adapt to digital tools, especially in services like virtual clinics, online appointment systems, and cashless transactions. Lifelong learning is essential for them to use these services effectively.

However, not all older adults are able to update their skills or feel confident in using new technologies. Some face anxiety and lack the confidence to learn digital tools (Lee & Kim, 2019). Encouraging older adults to use mobile phones for learning can be effective, especially through informal training sessions held in places like libraries, fitness centres, or cafes (Dauenhauer et al., 2018). Flexible learning environments, with personalised curricula, help older adults gain digital skills. In addition, experience-based learning, where older adults share their life experiences and opinions with different generations, has been shown to enhance their learning experience (Chen et al., 2021; Pappas et al., 2019). Providing these opportunities helps older adults continue their lifelong learning journey, promoting a deeper engagement with digital technologies (Nygren et al., 2019). In conclusion, lifelong learning through communication technologies is critical for older adults to adapt to the digital world and access the social support they need. Effective learning environments, support from family, and accessible technologies all contribute to older adults' ability to thrive in an increasingly digital society.

5.1. *Implications of Study*

This study, which explores social support through communication technologies as a lifelong learning mechanism for older adults in Malaysia using thematic analysis, has significant theoretical and practical implications. It enhances understanding of how technology can provide social support and facilitate lifelong learning. This understanding can inform interventions aimed at improving communication technologies, enhancing intergenerational communication, and supporting caregivers. The insights gained from this study contribute to a better understanding of how technology can be used to offer social support to older adults, which in turn can help refine lifelong learning theory by identifying the forms of support most beneficial for learning among this demographic.

The findings can be valuable for policymakers and healthcare providers when designing interventions to improve social support and lifelong learning among older adults. By identifying the communication technologies most effective in supporting older adults and the factors that influence their adoption, the study offers guidance for tailoring interventions to the specific needs of older adults in Malaysia. Additionally, the study can inform the improvement of communication technologies by identifying the features and functions older adults value most, which can be incorporated into future technology designs. Moreover, it highlights the potential for communication technologies to enhance intergenerational communication, as it explores how these tools can help bridge the gap between older adults and younger generations, thus encourage improved interaction and understanding across age groups.

5.2. *Limitations and Future Research*

Thematic content analysis (TCA) is commonly used in qualitative research to analyse textual data by identifying recurring themes and patterns. While TCA effectively measures social support for older adults, there are some limitations. One issue was the reluctance of some participants to engage openly

in focus group discussions, leading researchers to rely on individual interviews and structured questionnaires. This limited the breadth of perspectives that might have emerged from group interactions. Future research should focus on enhancing the validity and reliability of TCA by employing multiple coders or triangulating findings with other data sources. Further studies could explore ways to capture the experiences and perspectives of marginalised or underrepresented groups, as their views on social support may differ from more mainstream populations. Additionally, future research could compare TCA with other qualitative and quantitative methods to better understand their respective strengths and weaknesses in measuring social support. As digital communication becomes increasingly prevalent, further exploration into the application of TCA for analysing digital text-based data, such as social media posts or online forums, could offer valuable insights.

5.3. Conclusion

In conclusion, adapting social supports through communication technologies as a form of lifelong learning for older adults is essential in today's digital age. Older adults are vulnerable to physical and mental health challenges that can diminish their quality of life. They require social support to foster emotional stability and improve overall well-being. Research demonstrates that social support, alongside medical care, plays a critical role in managing health problems. This study identified four types of social media support for older adults: informational support, social interaction, healthcare and emotional support, and guidance on using social media. Similarly, four types of digital technology support were identified: financial transaction support, health alert systems, virtual clinics, and online appointment systems. The challenge lies in adapting these forms of support for older adults as part of lifelong learning, as not all are ready to embrace new learning, particularly those with health or mental issues.

Social capital theory suggests that older adults are more likely to pursue lifelong learning and adopt communication technologies when they are motivated and perceive value in doing so. However, they need guidance, encouragement, and support to navigate new technologies. Many older adults face challenges in learning how to use modern technology due to limited skills, having grown up in a pre-digital era. By adopting informal lifelong learning strategies, older adults can enhance their media literacy and keep pace with evolving communication technologies. This leads to stronger social connections, greater access to information and resources, and improved independence and well-being. Although communication technologies carry potential risks, such as online scams and cyberbullying, these can be managed through awareness and responsible use. With the right education and support, older adults can adapt to the ever-changing landscape of communication and social support, ultimately enhancing their quality of life and contributing positively to their communities

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