Healthy Aging in Place: Technology Utilization Among Older Adults in Khlong Mahasawat, Nakhon Pathom Province, Thailand

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Abstract

This research sought to explore the social support needs of older adults who age in place and their health-related technology utilization. A qualitative exploratory phenomenological approach framed the research. Twenty-one participants were recruited through purposive and snowball sampling in collaboration with health and community leaders from a sub-district hospital in Khlong Mahasawat, Nakhon Pathom, Thailand. Data were collected using one-on-one interviews. All interviews were audio recorded, translated, and transcribed. Data were analyzed via content analysis matrices and interpreted using the phenomenological principles of intersubjectivity, internalization, and externalization. Sources of social support for using health-related technology by older adults who age in place included family members, community members, and health professionals. Data indicated the necessity for the social support of affordable digital devices, educational health-related social support, and customized social support for and by older adults. The heterogeneity of the older adult population who age in place, its increasing health concerns, and literacy levels require personalizing social support measures to promote further use of health-related technology. The limited use of health-related technology may be ameliorated by including stakeholders in creating customized social support programs, including older adults in policymaking regarding health-related technology creation and use, and including older adults in online scam education and prevention.

Keywords

Health; older adults; phenomenology; social support needs; technology

Introduction

The global aging population phenomenon has exacerbated the need to prepare for the impending deluge of health needs required by older adults (Rahman, 2019). Two pressing needs are the social support needs of older adults who age in place and the use of technology effectively to assist in maintaining their health (Beard & Bloom, 2015; Rahman, 2019; Zinszer et al., 2013). For aging in place to be effective for older adults, the social support needs of older adults for using technology must be studied in more detail (Beard & Bloom, 2015; Rahman, 2019; Zinszer et al., 2013).

In line with the Third Sustainable Development Goal (SDG) of the United Nations Development Programme (UNDP), which is to create good health and well-being in society, older adults must be provided with the necessary social support to engage effectively with technology. This SDG is broad and allows for the various aspects of health and well-being to be addressed (Alaimo & Maggino, 2020; Hák et al., 2016; Lim et al., 2016; Lozano et al., 2018; Thore, 2022). In the context of Thailand, a nation that is facing a growing aging population (Aulino, 2017; Ethisan et al., 2017; Phulkerd et al., 2021; Srithumsuk & Wangnum, 2021; Urairak, 2022), health and well-being include the use of technology to maintain the health of older adults (Gunawan et al., 2020). Therefore, this research seeks to explore, identify, and analyze the social support needs of older adults who utilize technology for health-related purposes. Additionally, as Thailand transitions to becoming an aged population, it becomes imperative to explore, analyze, and produce relevant resources for the good health and well-being of older adults (Gunawan et al., 2020; Ketphan et al., 2020; Srithumsuk & Wangnum, 2021; Urairak, 2022; Yorsaeng et al., 2021).

Background: Aging in place

By definition, aging in place means living independently in one's home or inclusive community (Ahn et al., 2020; Kim et al., 2017; Lewis & Buffel, 2020), mobility with safety (Dawidowicz et al., 2020) as well as being present, comfortable, attached and connected in their surroundings (Park & Ko, 2020; Wiles et al., 2012). Intangible needs of older adults who age in place include agency, autonomy, and control (Narushima & Kawabata, 2020), the reliance and need for having a social support system that provides them with connection and feelings of safety (Narushima & Kawabata, 2020; Rosenwohl-Mack et al., 2020). Intangible needs also include belonging (Schorr & Khalaila, 2018) and connectedness to the community (Zhang et al., 2021).

Aging in place includes the tangible as well. The health needs of older adults changed as their physical and mental faculties declined (Cotten, 2017; Lindquist et al., 2021), and their surroundings needed to be organized and managed to handle these changes (Popejoy et al., 2022). Aging in place is affected by chronic health conditions, disabilities, and accessibility to services to address health issues and ameliorate loneliness/isolation (Lindquist et al., 2021; Schorr & Khalaila, 2018; Versey, 2021). Rurality, urbanity, community affluence, and geographic location also influence aging in place (Epps et al., 2018; Lee, 2022; Lewis & Buffel, 2020; Versey, 2021).

Aging in place and technology

Questions were raised regarding the use of technology by older adults who age in place (Connelly et al., 2014) despite their familiarity with smartphones, tablets, and other forms of digital technology (Betts et al., 2019; Iancu & Iancu, 2020). Prior research indicated that older adults' use of technology in aging in place included sensors, relays, computers, software, and telemedicine. These devices measured blood glucose, offered immediate interventions during falls, and offered health information to the mildly demented (Fritz & Dermody, 2019; Iancu & Iancu, 2020; Kim et al., 2017). Factors influencing the choice of these forms of technology included challenges to living independently, behavioral options, personal thoughts regarding technology, social network influence, organizational influence, and the role played by the physical environment surrounding older adults (Peek et al., 2015). Additionally, the frequency of such technology was influenced by emotional attachment, need, compatibility, cues to use, proficiency, resource input, and support; the frequency of use could be disrupted by changes in the personal needs of older adults (Peek et al., 2019). Overall, using technology for health reasons gives older adults more independence and control over their lives (Damant et al., 2017). Past studies showed older adults were keenly interested in using technology to improve their aging in place and health experience (Jacobson et al., 2017). More importantly, all older adults cannot be grouped as identical in terms of their use of, familiarity with, ability, and capabilities to use and be comfortable using technology for aging in place (Tsatsou, 2021).

Concerns surrounding the use of technology for aging in place and health included the selectiveness of older adults to engage with the use of technology (Nimrod, 2020), lack of relevant experience to effectively use digital technology to address their health needs (Schreurs et al., 2017) as well as the compromising of autonomy and the promotion of a false sense of security (Schulz et al., 2015). Cost, complexity, privacy/legal issues of home-based digital technology implementation (such as CCTV), and cost-effectiveness were further barriers to older adults' frequent use of technology (Kim et al., 2017). Additional challenges included privacy, safety, and cost (Fritz & Dermody, 2019; Taipale & Hänninen, 2018; Tsatsou, 2021; Wang et al., 2019); possible lack of training (Arthanat, 2021) and lack of trust in technology (McMurray et al., 2017). Older adults possibly perceived the use of technology as laziness and overdependence (Iancu & Iancu, 2020) and expressed concern about the constant advancements in technology (Taipale & Hänninen, 2018). Wang et al. (2019), in particular, noted that technology usability, technology literacy, data management/privacy, and technology co-design were significant barriers to the use of technology. Combined, these concerns and barriers indicated the need to comprehend the social support aspect of advancing technology to advance efforts to include technology in caring for the health of older adults.

Social support needs, older adults, and aging in place

A search through the relevant academic literature on the social support needs of older adults and aging in place suggested that social support goes well beyond encouragement and motivation. Instead, the literature indicated the following points: first, social support needs should cover practicalities such as enabling older adults to use technology (Elers et al., 2018); second, including older adults in the co-design of technology for health and aging in place, is crucial (Sumner et al., 2021); and third, the integration of the human connection with technology to decrease isolation and loneliness where older adults' desire for a more symmetrical relationship and negotiation of operations that are considered acceptable (or

'sacred') in their homes are met (Lazar et al., 2018). Additionally, the nuances of cultural sensitivities (Lin & Huang, 2016), cognizance of continued declining health conditions (Vanleerberghe et al., 2017, 2019), and emotional nuances, skepticism, and conflict associated with technology use (Soubutts et al., 2021; Tural et al., 2021) influenced their use of technology and social support needs (Tsertsidis et al., 2019).

The focus of the research

The utilization of technology for health-related purposes could be deemed effective when the needs and wishes of older persons were prioritized in the implementation process and the technology was acceptable and beneficial (Peek et al., 2016). Additionally, the individuality and cultural sensitivities adhered to by older adults were considered. As Rodakowski et al. (2021) mentioned, research needed for aging should include factors supporting aging in place. These premises were also compatible with efforts in Thailand to manage the health of the growing numbers of the aging segment of Thai society. The authors had initially planned to generate generalizations through research; however, the diversity of the older adult population based on socioeconomics, health status, and geographic location would render generalization almost impossible. Therefore, the possibility of exploring the social support needs of the older adult population in terms of their use of health-related technology as they age in place from a micro perspective was more feasible. The micro perspective could also be an impetus for future macro-level research. Finally, the research question put forward by this research was: "What are the social support needs of older adults who age in place to use health-related technology for their health and wellbeing"?

Research site

The research was conducted in Khlong Mahasawat in Nakhon Pathom province. Khlong Mahasawat was the natural choice as the research site for the following reasons: first, the cultural characteristics of Khlong Mahasawat reflected the cultural context of Thailand. Second, the Khlong Mahasawat community's residents comprised many older adults. Third, due to its proximity to Mahidol University, the residents of Khlong Mahasawat would be familiar with the university's work and thus be less skeptical or suspicious of the researchers' intentions, leading to more openness with the data collection. Fourth, Khlong Mahasawat could arguably represent a microcosm of the demographic context of Thailand, allowing for this research to representative, if not generalizable, of the social support needs of older adults and their use of health-related technology in Thailand (Gunawan et al., 2020; Ketphan et a., 2020; Srithumsuk & Wangnum, 2021; Urairak, 2022; Yorsaeng et al., 2021).

Theoretical framework and concepts

The researchers utilized interpretive phenomenology as the theoretical underpinning for this study, as interpretive phenomenology provided a sound foundation for the comprehension and analysis of the construction of social realities. This is especially so when social realities are constructed by social interaction and lived individual experiences (McConnell-Henry et al., 2009; Peters, 2009; Wojnar & Swanson, 2007). Within the context of this research, three specific tools of interpretive phenomenology were used: intersubjectivity, internalization, and externalization. Intersubjectivity is the negotiation of meaning between social actors until a shared meaning is assigned to a phenomenon, social interaction, social belief, or social

attitude. A lived experience only becomes 'reality' from a phenomenological standpoint when 'reality' is socially determined by social actors. Internalization refers to internalizing the meaning of a phenomenon, social interaction, social belief, or social attitude within the identification of an individual. This occurs when individual social actors incorporate social realities as part of their identity or absorb the results of social interaction to be meaningful parts of their reality. Externalization refers to the practice or behavior of the aforementioned internalized meaning attributed to a phenomenon, social interaction, social belief, or attitude. Externalization occurs when a person behaves, acts, and speaks in a way that reflects or shows their internal identity, social reality, and the level to which they intersubjectively engage with other social actors (Dreher, 2016; Segre, 2016).

Internalization, externalization, and intersubjectivity deal directly with the lived experiences of respondents in qualitative research. The focus of this research delves into the lived experiences of digital technology use for health-related purposes of older adults. Therefore, using these phenomenological tools would allow the authors to describe and analyze the respondents' everyday social realities regarding their use of digital technology for health-related purposes. These phenomenological tools also act as an interpretive lens for analyzing and interpreting the data collected for this research. In terms of application, the authors used intersubjectivity, internalization, and externalization to analyze and interpret the data.

These tools gave the researchers a legitimate social scientific theoretical foundation for this research. This research used the concepts of older adults, aging in place, health, technology, and social support needs. The theoretical framework and concepts combined provided a solid academic foundation for the research without falling into pure hermeneutics (interpretation of language without utilizing a theoretical underpinning consisting of theoretical principles and/or concepts) (Shpet, 2019).

Research methodology

This research took a qualitative exploratory, inductive approach, which focused on an interpretivist phenomenological view of the social support needs of older adults and their use of health-related technology. The phenomenological tools of intersubjectivity, internalization, and externalization were explicitly used due to the qualitative nature of the research. Purposive sampling and the snowball technique were used. Purposive sampling was necessary as respondents who met a specific set of criteria could provide the required data; the snowball technique allowed the researchers to generate the number of respondents needed to reach the point of data saturation.

The inclusion criteria for the respondents of this research were: older adults aged 60 and above, were citizens of Thailand, were aging in place in Nakhon Pathom province, had been exposed to the use of technology to enhance their health (e.g., smartphones, tablets, computers), were open to sharing their experiences with the researchers, and were not physically or mentally incapacitated. Exclusion criteria for this research included adults below the age of 60, not being citizens of Thailand (i.e., expatriates or migrant workers), not aging in place in Nakhon Pathom province, had not used technology to enhance their health in AIP, were unwilling to share their experiences with researchers, and were mentally or physically incapacitated.

When a respondent was identified and completed the one-on-one interview with the researchers, the respondent was asked to refer the researchers to a family member, friend, neighbor, or acquaintance interested in participating in this research. The number of respondents needed for the study was 20 respondents or until the point of data saturation was achieved (Braun & Clarke, 2021).

Data were collected after initial contact with the village headman and doctors on duty at the Mahasawat Sub-District Health Promoting Hospital in Nakhon Pathom was established. These contact persons allowed the researchers access to older adults seeking medical/health treatments at the Mahasawat Sub-District Health Promoting Hospital**.** The researchers then followed up with older adults individually at three visits to the Mahasawat Sub-District Health Promoting Hospital on Thursdays when clinics were explicitly run for older adults.

Each respondent underwent a one-on-one interview. This data collection channel allowed each respondent to be given complete focus by the researchers. This data collection route was also feasible for this research as it met the need for privacy and protection of information that may be deemed sensitive to the respondents. At the start of each interview, the respondent was given an alphanumeric pseudonym that corresponded with their chronological involvement with the interview process, e.g., R1, R2, R3, etc. ("R" for "Respondent" followed by the numeral denoting their chronological order in the data collection process).

A semi-structured interview guide was the research tool. This format of research tool was selected based on the following characteristics: first, open-ended questions allowed the respondents to answer freely and openly while sharing their experience; second, the interview guide could be slightly modified in terms of the chronology of questions to suit the needs of the respondents or the situation; and third, the interview guide allowed for probing and clarifying questions. Each interview was given an allotment of approximately 30 minutes and conducted in Thai. All interviews were audio recorded. Each interview was translated and transcribed by the second author, a native Thai speaker, within one week of the interviews. All interview transcriptions were analyzed using content analysis matrices. From these content analysis matrices, thematic analysis was conducted in line with the interpretivist stance of this research (Braun & Clarke, 2021; Nowell et al., 2017; Vaismoradi et al., 2013), and emerging themes allowed the authors to analyze the experiences of social support needs of the respondents. Data were collected between March 2023 and August 2023.

Ethical considerations

Ethical approval was received from the Internal Review Board of the Faculty of Social Sciences and Humanities of Mahidol University (Certificate No. 2022/189.2612). This research abided by the principle of respect for persons, the principle of beneficence, and the principle of justice. All respondents were invited and not coerced to participate in the research. They were duly informed of the purpose of the study and were given a copy of the consent form to peruse and sign if they agreed to participate in the research. As the COVID-19 pandemic had yet to be declared endemic within the Kingdom of Thailand at the start of the data collection, the researchers were concerned with the issue of the health and safety of the respondents. To that end, the researchers followed the universal protocols of pandemic protection, including regular ATK tests, wearing face masks, social distancing, deferring data collection if they felt unwell, and hand sanitizing. All participants were given a pseudonym for privacy protection.

The researchers did not pursue any refusal to answer a question. The researchers kept all audio recordings and transcriptions in a secure location.

Results

The analysis of the data collected from the respondents vividly described their lived experiences of their health, use of health-related technology, and social support needs. The overarching theme of diversity emerged from the data. This overarching theme of diversity suffused the characteristics of the respondents and their health issues, the use of technology by the respondents, their sources of social support for the use of health-related technology, and the diversity of social support needed to use health-related technology.

Characteristics of the respondents

Initially, 16 respondents were recruited, but to ensure data saturation was achieved, the researchers recruited seven more. In total, 23 respondents were interviewed for the study. All respondents were above 60 years old at the time of the data collection, with the oldest being 84. All respondents were residents of Khlong Mahasawat, the majority being born in the area. Other respondents had moved to Khlong Mahasawat several years before the interviews. Fourteen respondents described themselves as fully retired, with past employment as civil servants, teachers, salon owners, chefs, and sub-district administrative organization officers. Three respondents were presently self-employed as hairdressers, farmers, and dressmakers. Two respondents described themselves as housewives. One respondent was employed at a fabric factory. All except one of the respondents lived with at least one family member (e.g., spouse, children, children-in-law, grandchildren). Several of the respondents volunteered their marital status, and four reported being widowed. The researchers noted that only one respondent was male, while all others were female. Table 1 below provides a summary of the characteristics of the respondents.

Table 1: Summary of Respondents

No.	Alphanumeric pseudonym	Gender	Age	Years lived in Mahasawat	Living situation	Employment (past and present)	Retirement status	Health issues	VHV	Remark
1	R1	F	60	60 years	Husband	N/A	✓	High blood pressure	No	
2	R2	F	73	36 years	Daughter/ granddaughter	N/A	✓	Kidney disease	No	
3	R3	F	73	1 year	Son	N/A	✓	Glaucoma and age-related macular degeneration.	No	The respondent lives with her son, as she is clinically blind.
4	R4	M	84	40 years	Wife/children/ grandchildren	N/A	✓	High blood pressure	No	
5	R5	F	74	74 years	Daughter and son	N/A	✓	High blood pressure/ heart disease	Yes	Head of the VHV team and oversees 15 households
6	R6	F	69	9 years	Sister	State officer (public servant)	✓	Hypertension/ Diabetes	No	
7	R7	F	72	12 years	Son/ daughter/ son-in-law/ grandchildren/ cousins	N/A	✓	Chose not to disclose health issues	No	
8	R8	F	70	26 years	Husband	Housewife	✓	Thyroid issues	No	Her husband is a medical doctor
9	R9	F	69	17 years	Husband	A teacher at St John's College	✓	High blood pressure/ knee joint issues	Yes	
10	R10	F	68	16 years	Sister/ children/ grandchildren	N/A	✓	High cholesterol	Yes	VHV for 13 years

No.	Alphanumeric pseudonym	Gender	Age	Years lived in Mahasawat	Living situation	Employment (past and present)	Retirement status	Health issues	VHV	Remark
11	R11	F	70	15 years	Husband/ daughters/ son	A salon owner and a chef in a Thai restaurant in Russia	✓	Chose not to disclose health issues	Yes	
12	R12	F	65	4 years	Daughter/ grandchildren	N/A	✓	Diabetes	No	
13	R13	F	61	8 years	Daughter/ sister/ grandchildren	N/A	✓	Visual problems and high blood pressure	No	
14	R14	F	61	61 years	Sons	Factory worker	✓	High blood pressure	No	
15	R15	F	68	20 years	Husband	N/A	✓	Chose not to disclose health issues	No	
16	R16	F	77	77 years	Husband	Dressmaker	✓	Diabetes, high blood pressure and gout	No	
17	R17	F	66	30 years	Husband/childr en	Housewife	✓	N/A	Yes	
18	R18	F	71	20 years	Husband	Civil servant	✓	N/A	Yes	
19	R19	F	71	71 years	Alone	N/A	✓	High blood pressure	No	
20	R20	F	70	21 years	Grandchildren	Farmer	No	N/A	No	
21	R21	F	60	60 years		Sub-district administrative organization officer	✓	High blood pressure	Not yet. Plans to join	

No.	Alphanumeric pseudonym	Gender	Age	Years lived in Mahasawat	Living situation	Employment (past and present)	Retirement status	Health issues	VHV	Remark
									in the future	
22	R22	F	70	20 years	Daughter/ grandchildren		✓	High blood pressure	No	
23	R23	M	66	20 years	Chose not to disclose living arrangement information		✓	N/A	No	

Aging in place and health issues

Respondents 4 (R4), 6 (R6), and 12 (R12) gave clear definitions of themselves as older adults who were aging in place based on the following interview excerpts:

> *"Yes, like all the older people who live here, I am one of these* [an older adult who is aging in place]. *I was born in Mahasawat and will continue to live here."*
>
> (R4)

> *"From my understanding, it* [aging in place] *referred to a group of older persons who lived in the same community and engaged in the same community activities because this is where we live."*
>
> (R12)

> *"Yes, it means old people who lived and got old in their hometown."*
>
> (R6)

All respondents either were born in the community or moved here many years before the data collection period. They moved to the study site with their spouse or children. The following interview excerpts attest to this:

> *"I have lived here for 21 years. Before moving here, I lived in Taling Chan. I do not plan to move anywhere else."*
>
> (R20)

> *"I have lived here since I was born. I recently retired in August. I used to work in the Sub-District Administrative Organization."*
>
> (R21)

> *"I moved here 26 years ago with my husband, who bought land and a house in Khlong Mahasawat."*
>
> (R8)

> *"I moved here from Khlong Taweewathana in 2015 because my home there was not easily accessible. It was difficult for me as I could not access transportation easily."*
>
> (R6)

The respondents reported various health issues that necessitated their health-seeking behavior at the Khlong Mahasawat Sub-District Hospital. These health issues included high blood pressure, glaucoma, age-related macular degeneration, enlarged heart, diabetes, thyroid issues, knee-related mobility issues, high cholesterol, sensitivity to sunlight (photophobia), and gout. The interview excerpts below provide further details:

> *"Yes, I am worried about my diabetes. My doctor had warned me to be aware of my blood sugar levels. When I contracted COVID-19, the attending doctor told me to stop my medication for diabetes. Now that I am healed, I have not gone back to taking my diabetes medication, and I am worried that my doctor will not be pleased with me."*
>
> (R12)

> *"I developed serious problems with my eyesight. This problem started 15 years ago, and it has gotten progressively worse. I am now almost blind because of glaucoma and age-related macular degeneration."*
>
> (R3)

> *"I was diagnosed with high blood pressure, and my knees hurt. In the past, my knees were in so much pain that I could not walk. It is only recently that I feel better; my knees are better, and I can walk."*
>
> (R9)

Use of technology

The results indicated the respondents' lack of widespread use of technology despite their health challenges. The results also showed a lack of diversity in the types of technology used by the respondents. Regarding technology use, the respondents relied mainly on smartphones and simpler mobile phone devices. However, the respondents have definite concerns regarding their security when using these digital devices. The following interview excerpts are the evidence:

> *"I do not want to be tricked by the scammers. I am not confident of using a smartphone."*
>
> (R1)

> *"I was made aware of it [scams]. Scammers have called me before on my smartphone. A strange number called me and asked me to dial another number. I hung up and blocked that number."*
>
> (R12)

> *"I did not want one [smartphone] because I am scared of scammers. I think this is one of the main concerns of people my age and technology. Also, technology is too complicated."*
>
> (R14)

> *"I have found out about scammers. My daughter warned me about it. I have a mobile banking application on my phone, but I do not want to touch it. I want to prevent myself from being a victim of scammers."*
>
> (R18)

Based on the above, the diversity of the use of technology for health-related purposes may be summarized as follows: there is an awareness of health-related technology, but a lack of familiarity and suspicions of the pitfalls of health-related technology stymy the use of such technology. Additionally, the respondents preferred to use routes of familiar health-related information and had the backing of trustworthy persons.

Diversity of social support sources

The study's findings suggested that diverse social support sources are necessary for the respondents to be more open to using health-related technology to maintain their continued good health and well-being. This is despite limited encouragement given to the respondents to use health-related technology. This section of the findings will be divided into three

subsections: social support from family, social support from neighbors and community members, and social support from other stakeholders.

The social support needs of the respondents from family members to incorporate health-related technology into efforts to address their health needs were diverse and could be considered definitive. Social support from family members ranged from the actual purchase of digital devices, provision of technical knowledge and education to the commitment of younger family members to continuously educate themselves and the respondents on the "know-how" of using technology. Although younger family members immersed themselves in the latest technology to be technologically savvy, there was also a need to widen their scope of abilities, including educating the respondents on the various uses, advantages, and disadvantages of technology. The following verbatim excerpts were indicative of the importance of family as a source of social support for the use of health-related technology:

> *"My grandson taught me how to use the [health] app on my phone, and now I keep learning on my own."*
>
> (R10)

> *"If I saw health products advertised on television, I asked my daughter to order them for me. She ordered it online. But I needed the social support from my daughter to learn how to use my smartphone properly."*
>
> (R2)

> *"My daughter and granddaughter have smartphones, but they never really taught me how to use it. I learned by myself. I liked technology, so it is easy for me to learn."*
>
> (R12)

The community surrounding the respondents was also a source of social support. The camaraderie with neighbors and other people of the same age bracket helped the respondents become more familiar with technology and encouraged them to use technology to address their health needs. The most outstanding forms of social support the respondents received within the community were health services (educational programs, clinic hours set aside expressly for older adults, monthly gatherings for health information dissemination, and village health volunteer visits offered by the sub-district hospital). The evidence can be found in the following verbatim interview excerpts:

> *"I agree it* [learning how to use health-related technology] *would benefit older persons if we can access technology for medical use. But I am worried about myself. I finished only Grade 4 primary school, and I am afraid I would not understand. Learning with my friends in a group learning situation would be preferred."*
>
> (R20)

> *"I would like to learn more but in a group. I am not sure because I am not educated myself, so I am afraid I will be a slow learner. If I have friends in the same learning group, I can ask them."*
>
> (R21)

> *"The health activities that this hospital has organized. There are health talks, exercise, and dancing. People in the community come to join. We*

> *have active leaders and members in the older persons club attached to this hospital. We have collected 100 baht monthly from the members for the activity and funeral expenses if one of us passes away."*
>
> (R2)

> *"Yes, many times, the hospital organized technology training many times to know how to make use of a smartphone."*
>
> (R8)

> *"I received all sources of information* [and social support] *from this hospital and Mor* [Thai for doctor] *Yong. Also, the activities they organized for us to join."*
>
> (R10)

The social support of stakeholders was vital for the respondents; it opened the respondents to the use of health-related technology. The respondents named specific stakeholders (i.e., village leaders, medical professionals, village health volunteers, academics, and technology developers) instrumental to their use of health-related technology. The results from the following verbatim excerpts are a testament to this finding:

> *"The head of the village supported me to use* [health-related] *technology."*
>
> (R4)

> *"Mor* [Thai for doctor] *Yong encouraged me to seek more health information from reliable sources on YouTube to manage my health issues. If I am uncertain of the information, I may check with her."*
>
> (R11)

> *"As a village health volunteer, I have used technology like communication apps on the phone to communicate with other older people in the community and check if they need any help with their health. I have reported any severe illness using the same app to the medical doctors in the sub-district hospital in Mahasawat."*
>
> (R9)

> *"I think a workshop for health technology from the university is good, but please make it simple for people 60–70. If any older, it may be difficult for them to understand. Make the training in a small group or one-on-one so that we are not so shy to participate."*
>
> (R8)

> *We all have different styles of learning. If they are interested like me, I'm ready to learn* [from the academics], *but some older people might get scared and refuse to learn new things. Maybe we can have group learning so we can encourage each other to learn."*
>
> (R10)

> *"Please ask the company* [technology manufacturers] *to make it simple and not complicated. One "click" is enough to make it easy for old people like me to use."*
>
> (R7)

Diversity of social support needs

The social support needs expressed by the respondents indicated that the use of health-related technology was predicated on the needs of the respondents for in-person communication with trustworthy individuals. Their social support needs included customized education, connectivity with health professionals, simplified devices, and verifiable health information. The following interview transcripts act as evidence for these social support needs:

> *"Simplify it, make the learning easy to follow. Make it like edutainment so it is fun and we do not feel scared or intimidated to learn. Maybe one-touch technology for apps or other health devices like a heart-monitoring watch that is easy to use."*
>
> (R10)

> *"The health professionals here are very useful and can respond to whatever health information I am concerned with. The staff here know me well and know everyone in the community. They remember the personal health information of each patient. So, I can verify all the health information I receive from the internet with the doctor here."*
>
> (R7)

> *"If academics want to organize workshops for us, please make it group-based learning of about five to ten people; this will encourage us and will not make us lose face if we are slow in picking up information."*
>
> (R20)

> *"One of the village health volunteers is my close friend and neighbor. So, she often shares health information with me, and I believe her. She sometimes makes special appointments for me at the hospital or an early reservation for health screenings. I also trust the doctor in the hospital, and I will double-check all information I receive with her."*
>
> (R15)

On a practical level, the respondents separated themselves from diversity to speak in unison about lowering the costs of technology and digital devices and simplifying technological innovation, implementation, and application.

> *"Maybe the companies that make smartphones and other technologies could consider the limitations of the older adults, technology that is too advanced is probably not appropriate for older adults, the technology for older adults should be simplified."*
>
> (R4)

> *"Maybe stakeholders should do some survey on the needs of older adults since older adults have particular requests for using technology. Very simple ones, calling the family friends, making it easier. When in a critical*

> *situation, we can call for help with one touch"… "I mean the stakeholders like doctors and other people like you* [meaning the authors" from the university]*."*
>
> (R1)

> *"Too many applications, too complicated. I need a simple program* [application] *if possible. I do not mind going to see the doctor physically, even though that would be time-consuming; it is easier than dealing with complicated programs* [applications]*."*
>
> (R19)

> *"Please understand we have a fixed income. We cannot pay high prices for technology and smartphones. Maybe factories* [smartphone manufacturers and digital technology companies] *can give a special discount for older adults."*
>
> (R7)

> *"If a smartphone is beyond a certain price, I cannot afford it. It will also be a problem for most people if the price is too high."*
>
> (R11)

In summary of the results, the authors noted the following. There was a wide heterogeneity of the older respondents as well as their health issues as per the assertions of Tsatsou (2021) and past findings of Lindquist et al. (2021), Schorr and Khalaila (2018) and Versey (2021). All respondents were able to identify themselves as an older adult who was aging in place as per the past scholarly findings and assertions of Ahn et al. (2020), Kim et al. (2017), and Lewis and Buffel (2020) with an attachment to the immediate surroundings of their domicile (Park & Ko, 2020; Wiles et al., 2012). There was minimal reliance on technology such as CCTV as per the work of Fritz and Dermody (2019), but there was heavier reliance on television, personal smartphone app chat groups, and government health apps to receive health-related information (Fritz & Dermody, 2019; Iancu & Iancu, 2020; Kim et al., 2017). Most respondents relied on immediate contact via telephone with medical professionals based in the study site. The respondents were mainly familiar with the use of smartphones but had definite concerns regarding their security (Taipale & Hänninen, 2018; Tsatsou, 2021; Wang et al., 2019).

The sources of social support mentioned in the findings were in line with the works of past scholars (Elers et al., 2018; Lin & Huang, 2016; Sumner et al., 2021; Tsertsidis et al., 2019), but these social support needs often faced challenges in the form of selectivity of technology use (Nimrod, 2020), lack of experience (Schreurs et al., 2017) and lack of training (Arthanat, 2021). Additionally, there was no mention of the association of the use of health-related technology with cognizance of declining health and social support needs (Vanleerberghe et al., 2017, 2019). The respondents were concerned with their privacy, safety, and the cost of health-related technology, and this confirmed the findings of Wang et al. (2019), Taipale and Hanninen (2018), and Tsatsou (2021). Still, they were hesitant to use more technology for their health due to issues of trust McMurray et al. (2017) and levels of literacy (Wang et al., 2019).

Discussion

The results strongly indicate that trust is a key factor in older adults' use of health-related technology. The respondents have internalized this trust by being immersed in their immediate social surroundings, continuously interacting with their community, and receiving quality care from medical professionals. Therefore, when interpreted through the lens of phenomenology, the social support needs of the respondents are a continuous process of absorption of daily experiences and attributing meaning to these experiences that create trust. As part of this absorption process, the respondents also internalize the value of technology for health-related purposes. However, due to their interactions, they have perceived technology's potential threats and pitfalls. This has caused them to internalize caution, awareness of the limitations of technology, and the importance of seeking confirmation of information from trustworthy sources. Trust is, therefore, externalized to the social surroundings based on constant interaction. If trust is absent, there is a lack of engagement with health-related technology and a preference for in-person health attention. This externalization may be the main learning point for all stakeholders. If any further headway is to be made to encourage older adults to engage with health-related technology, stakeholders need to build trust with older persons, be cognizant of their heterogeneity, and meet their needs based on trust and respect. There would be very little engagement, even with the best of technological advancements and intentions, if this trust is not built and older persons do not internalize this trust and externalize it to their community of older persons (Dreher, 2016; McConnell-Henry et al., 2019; Peters, 2009).

Within this interaction, the respondents engage in intersubjectivity both at the interpersonal and intrapersonal levels to decide the role of health-related technology in their pursuit of maintaining their health and dealing with health concerns. The results of the study indicate an awareness accompanied by wariness of technology. Although the social support to engage with health-related technology is present from various sources, the respondents are negotiating the utility of technology against their concerns for privacy/security. Additionally, the respondents are engaging in intersubjectivity to balance the worth of engaging in health-related technology with the costs associated with utilizing technology. The received social support plays a part in ameliorating the perceived negativities related to the cost of technology. Still, within the confines of this research, a decision has yet to be made intersubjectively regarding cost versus benefit by the older adult respondents. Based on the data, the social support needs indicated by the respondents may be deciding factors in this intersubjective process. Therefore, it may be assumed that if these social support needs (i.e., lowered cost, user-friendly technology, customized education/edutainment) are met, the intersubjective process may end with a definitive decision (Wojnar & Swanson, 2007).

Finally, due to individual constraints (i.e., finances, literacy levels, health issues), the respondents of this study are engaged in changes due to their aging process, health challenges, and the incorporation of health-related technology into their lives that are individualistic and cannot be generalized to be a one-size-fits-all app or type of digital technology. This indicates that intersubjectivity, internalization, and externalization of phenomenology have to operate from the basis of individuality. This raises the question: How will phenomenology be able to continue to capture the experiences of older persons who engage with health-related technology as this segment of the global population continues to grow exponentially? This question could be the basis for future research (McConnell-Henry et al., 2009; Peters, 2009; Segre, 2016).

Recommendations

The results of this study suggest the possibility of several recommendations for other peri-urban locations in Thailand and other parts of the world in terms of integrating health-related technology into the lives of older persons. First, intervention programs must co-opt younger family members into educational programs targeted at the older population. The levels of trust, familiarity, and connection within families, coupled with their social support, may act as conduits for the faster and more proactive acceptance of health-related technologies.

Second, educational and training opportunities targeted at older adults can be developed to meet small group and individual training customized to meet literacy levels and health conditions. Despite the individuality and heterogeneity of older adults, common ground may be found by including older adults in the brainstorming, development, and execution of educational and training programs. The suggestion, therefore, is to stimulate discussion and brainstorming sessions between the older adult population and relevant stakeholders such as academics, medical professionals, and digital technology companies to generate educational and community-driven initiatives to develop educational and training programs. When developed between older adults and the stakeholders, as mentioned earlier, these programs would strongly feature the social support aspect of peer-to-peer teaching and group learning, allowing for greater acceptability among the older population. This includes education regarding online scam prevention. Additionally, older adults can be included in the policymaking regarding online scam prevention as they are more acutely aware of the vulnerable points in digital technology use that make older adults susceptible to online scams.

Third, social support from government bodies in price reductions, subsidies, and tax reductions for health-related technology purchased and used by older persons would lessen the financial burdens older persons face on fixed incomes. Fourth and finally, including older people in the development of health-related technology would affirm the practicality and utility of the technology, and this social support of inclusion (of older adults by government bodies) would benefit both parties in the final utilization of this technology that is simple, user-friendly and feasible.

Broader technological impacts

Based on the findings, older adults are suspicious of the potential harm that technological advancements may cause. The broader view of this finding is the mistrust in technology that may help manage health, enhance well-being, and reduce overall stressors caused by health issues. This could stifle or negate efforts by public health professionals and medical professionals to institute the incorporation of health-related technologies in managing the health of older adults.

The lack of interest of older adults in using health-related technology and their lack of education in using such technologies may reduce the overall effectiveness if more cutting-edge measures are taken to implement the use of health-related technologies for older adults. Apathy, fear of harm, and lack of interest would also reduce the necessary feedback for further technological developments. Health-related technology can impact older adults positively; for example, the institution of two-way closed-circuit television (CCTV) would increase caregiver awareness, or the increased implementation of smart homes would assist older adults in managing their health issues and alert medical professionals automatically when help is

necessary. However, the disinterest of older adults may greatly hinder such progress and lower the quality of medical care achieved for older adults.

Policy implications

The customization of the social support needs of older adults and their use of health-related technology should be a priority in policymaking. This customization is a complicated and intricate process due to the heterogeneity of older adults based on the area of aging in place, age, gender, occupation, former occupation, health issues, and ease of access to medical services. Such a policy, however, cannot be sustainable without related policies to manage the individualized approach to providing health-related technology to each older adult. Therefore, an umbrella policy of continuous learning and development of the health-related technology needs of older adults must be in place and focused on continuously learning, assessing, reassessing, implementing, and re-implementing the health-related technology needs of older adults. Similar policies have been conducted in North America and Europe (Liu et al., 2016), and a framework for the implementation of a similar policy in Thailand is available to national policymakers (Gauthier-Beaupré et al., 2024), making customization of policies a possibility in the future.

A second policy implication is the necessity to integrate the efforts of community members, educators, medical professionals, and technology companies into several synergistic efforts to educate whole communities at various levels on the uses, dangers, and benefits of health-related technology. This policy would integrate the competencies of these different stakeholders into a cohesive whole that would address the various needs of older adults at different levels (Trinh-Shevrin et al., 2015) and should be placed under a government body that is charged with overseeing the present and future health needs of a diverse population.

A third policy implication is the need for governments to intervene in pricing health-related technology to control access to, affordability, and acceptability of said health-related technology. Although technology companies are profit-centered, social responsibility must be prioritized for older adults. Therefore, governments should provide incentives for technology companies to reduce prices for older adults, or governments may choose to offer tax relief to persons who purchase health-related technologies to be used by older adults. Additionally, governments and technology companies may decide to implement a policy to work in tandem to research, develop, and distribute (at a low nominal price) health-related technologies that are necessary for older adults to enhance their health (Wilson-Menzfeld et al., 2023).

Overall, the results of this study suggest the need for cohesive policy development and implementation that is updated and prepared for the projected increase in the number of older adults and their health issues in society. As the demographics of this segment of society change in Thailand, policies pertaining to older adults' efficient use of technology would make a difference in sustaining the national health system. These policies, however, require the detailed input of older adults to ensure that the output of these policies is user-friendly and acceptable to older adults. This implies engaging older adults in policymaking regarding health-related technologies continuously and consistently.

Limitations

This research was a qualitative pilot study, so generalizations of the findings are not entirely possible. Additionally, the small sample size of 23 respondents hampers the generalizability of the results to other sections of the older adult population (i.e., older adults living in urban parts of the country or older adults in different countries living with the same socioeconomic circumstances). To address this limitation, future research may take a quantitative approach conducted nationwide to add to the present knowledge on this subject. Studies similar to this one conducted by the authors may undertake to compare and contrast findings between countries. Additionally, future studies may address the weakness of the generalizability of the results of this study through a study focused on comparing and contrasting the findings between older adults living in rural and urban areas of a country.

Another limitation is the time and energy of the respondents available for data collection. Due to limited time and energy, future research should be planned in more detail to allow for greater flexibility of the interview schedules and allow potential respondents to express themselves in more detail.

Other research limitations include the lack of exploration into the community cultural practices that provide social support for the use of digital technology for health-related purposes and the lack of exploration into the impact of community/neighborhood networking on the use of digital technology by older adults. Future research works in this area of academia may address these questions. Future research may also address the interaction within families (nuclear and extended) and how these interactions provide social support to older adults to use digital technology for health-related purposes. Finally, the research did not address living arrangements and the implications of living arrangements on the social support needs of older adults. Future research on living arrangements, social support, and health-related digital technology use would address this limitation.

Conclusion

The main messages that may be gleaned from this study are, first, older adults share the same concerns regarding their health and use of technology no matter the geographic location; second, the older people as a demographic are heterogeneous, and it is necessary to customize health-related technology, health information and application of health initiatives to meet their diverse needs and demands; and third, as the population of the world continues to move towards being an aged population relevant stakeholders in the social work, health, medical, academic and technology industries should take preparatory measures to ensure preparedness to deal with the diversity of health needs as well as growing technological advancements. In all of these, the positive impact of social support cannot be underestimated. Society has to be ready to address the health needs of a growing aging population with empathy and compassion. Social support from family, community, and relevant stakeholders may be an appropriate and effective avenue to meet this goal.

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