

The Role of Digital Media and Technologies and eHealth Literacy in Elderly Holistic Healthcare Practices: A Literature Review

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Received: August 25, 2023

Revised: December 21, 2023

Accepted: January 15, 2024

Abstract

The purpose of this study aimed to conduct a literature review on the role of digital media and technologies, as well as eHealth literacy in the elderly's holistic healthcare practices, following that the researcher offered recommendations that might be implemented for Thai elderly people in form of academic article. In terms of article selection methods, researcher employed purposive sampling technique from research and academic articles published in widely recognized national and international databases in online format and available through Google scholar search between 2019 and 2023, finally, the 16 articles met the inclusion requirements was chosen. A review of research and academic papers revealed that media and digital technologies, including eHealth literacy skills, had an impact on the elderly's holistic healthcare practices. However, the digital divide between seniors with and without gadgets that could connect to media and digital technologies remained a concern. In addition, there was the issue of inadvertent dissemination of fake news through chat applications,

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both in terms of who obtained and who sent such news. Furthermore, several studies have conclusively demonstrated factors other than digital media and technologies influenced senior citizens' holistic healthcare practices. Self-efficacy perception and social support were discovered to be common factors. Traditional medicine and religious beliefs were applied in the Thai geriatric environment to promote holistic healthcare practices among them. Social support from family members, involvement in community activities, living simply, self-sufficiency and those of working and earning a high wage were all taken into account.

Keywords: Digital Media and Technologies, eHealth Literacy, The Elderly, Holistic Healthcare Practices

บทบาทของสื่อและเทคโนโลยีดิจิทัล และการรู้เท่าทันสื่อ สุขภาพแบบออนไลน์ต่อพฤติกรรมการดูแลสุขภาพ แบบองค์รวมของผู้สูงอายุ : การทบทวนวรรณกรรม

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อวิเคราะห์บทบาทของสื่อและเทคโนโลยีของดิจิทัล ตลอดจนการรู้เท่าทันสื่อสุขภาพแบบออนไลน์ที่ส่งผลต่อการดูแลสุขภาพแบบองค์รวมของผู้สูงอายุ และข้อเสนอแนะที่สามารถนำไปประยุกต์ใช้ได้กับผู้สูงอายุไทยในรูปแบบของบทความวิชาการ ในส่วนของวิธีการคัดเลือกบทความ ผู้วิจัยใช้การสุ่มตัวอย่างแบบเฉพาะเจาะจงจากบทความวิจัยและบทความวิชาการที่ตีพิมพ์ในฐานข้อมูลในระดับชาติ และนานาชาติระหว่างปี 2566-2566 ในรูปแบบออนไลน์ และสามารถสืบค้นผ่านโปรแกรมกูเกิลสคูลาร์ ซึ่งได้บทความที่ตรงเกณฑ์การคัดเลือกที่กำหนดไว้ทั้งสิ้น 16 บทความ ผลการวิเคราะห์ พบว่าสื่อและเทคโนโลยีดิจิทัล ประกอบกับทักษะการรู้เท่าทันสื่อสุขภาพแบบออนไลน์ ส่งผลต่อการดูแลสุขภาพแบบองค์รวมของผู้สูงอายุ แต่อย่างไรก็ตาม ยังคงพบปัญหาเกี่ยวกับช่องว่างทางดิจิทัลระหว่างผู้สูงอายุที่มีและไม่มีอุปกรณ์ที่สามารถเชื่อมต่อกับสื่อและเทคโนโลยีดิจิทัล นอกจากนี้ มีงานวิจัยหลายชิ้นที่ค้นพบว่า มีปัจจัยอื่น ๆ นอกเหนือจากสื่อและเทคโนโลยีดิจิทัลและการรู้เท่าทันสื่อสุขภาพแบบออนไลน์ที่ส่งผลต่อการดูแลสุขภาพแบบองค์รวมของผู้สูงอายุ ได้แก่ การรับรู้ความสามารถของตนเอง และการได้รับการสนับสนุน

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จากสังคมและบุคคลรอบข้าง คือปัจจัยที่พบร่วมกัน ในบริบทสังคมไทย พบว่า การแพทย์แผนไทยและการปฏิบัติตามหลักธรรมของพุทธศาสนา เช่น หลักภวนาสี ส่งผลต่อการดูแลสุขภาพแบบองค์รวมของผู้สูงอายุที่เป็นพุทธศาสนิกชน รวมทั้งการได้รับการสนับสนุนจากสมาชิกในครอบครัว การเข้าร่วมกิจกรรมในชุมชน การใช้ชีวิตอย่างเรียบง่าย การพึ่งพาตนเอง ตลอดจนกลุ่มผู้สูงอายุที่ยังทำงานและมีรายได้สูง

คำสำคัญ: สื่อและเทคโนโลยีดิจิทัล การรู้เท่าทันสื่อสุขภาพแบบออนไลน์ ผู้สูงอายุ การดูแลสุขภาพแบบองค์รวม

Introduction

Rapidly aging societies have emerged as one of the most worrying challenges for many countries, including Thailand. Global data reveal that the aging demographic is growing as a substantial part of the total population (World Health Organization, 2023a). This is largely due to various nations' development and advancements in science, modern technologies and innovative medical procedures assisting in treatment, disease control and distribution of medical services in the public health sectors at the community and national levels (Arayasajamong et al., 2021).

Thailand's demographic situation has rapidly altered during the previous two decades, with population growth slowing. While the mortality rate in Thailand has also decreased. As a result, Thai society has entered an aging phase. This equated to an aging society that accounts for more than 10% of Thailand's total population. Since 2005, the elderly population has outnumbered the general population by more than 10%. Thailand had around 12 million senior individuals in 2019, accounting for 20% of the total population. Furthermore, the number of Thai elders would be anticipated to increase to 1.4 billion by 2030 and 2.1 billion by 2050 (World Health Organization, 2023b). Many scholars have concurrently proposed that the notion of holistic healthcare practices, which refers to the interconnectedness of a person's physical, mental, social and spiritual components, is regarded to be critical in assisting the elderly to live their everyday lives pleasantly (e.g., Issaradath, 2022; Kachentawa, 2019; Peng et al., 2021; Ruchiwi et al., 2021, Ruchiwi & Phanphairoj, 2022).

The World Health Organization (WHO) provided the definition of the holistic healthcare, describing it as "a state of physical and psychological well-being, including participation in society." A comprehensive view of health that emphasizes "continuing well-being," which is a condition of equilibrium, harmony and dependability in physical, mental and inner spiritual dimensions (World Health Organization, 2022). In accordance with the WHO definition of holistic healthcare corresponded to Dr. Prawet Wasi's "The concept of a health pagoda" stated that the different layers of the pagoda must be harmonized. He has placed the topic of "mind" at the top of the pagoda. If any layers collapse, the entire pagoda will collapse. In agreement with the Buddhist principle of

“the mind is the master, the body is the slave,” mental stress, for example, can cause a number of physical ailments, such as heart disease, headache, high blood pressure or cancer (Kaewthep et al., 2013; Patcharanurak, 2003).

In addition, the usage of digital media to promote holistic health practices among the elderly was also clarified in the 13th National Economic and Social Development Plan, 2022-2026, denoted on policies connected to drive an aging society with digital technologies through the development of new health promotion services that lead to a healthy aging society by means of encouraging the development of a digital community space to promote well-being, such as telemedicine therapy, changing elderly’s lifestyle through nutrition treatment and psychotherapy through meditation (Office of the National Economic and Social Development Council, 2022). This national elderly policy was aligned with the World Health Organization’s global digital health strategy, 2020-2025, which aimed to promote health for everyone and everywhere by increasing the use of suitable digital health. It redefined digital health to include all aspects of using digital technologies to enhance healthcare behaviors from concept through implementation (World Health Organization, 2021).

During the COVID-19 pandemic and the lockdown procedures, the elderly musted remain at home. Therefore, the elderly had a chance to learn how to utilize digital technologies in daily life, such as purchasing items and doing financial transactions, as well as in order to decrease their exposure to the disease (Kachentawa, 2023). Conversely, lockdown procedures aggravated the elderly’s physical and psychological well-being (Kumar et al., 2022). The growth of digital media and technologies¹ have increased access to beneficial health information, the growing percentage of holistic healthcare information is accessible through the Internet (Bujnowska-Fedak et al., 2020). The usage of digital technologies in older individuals are associated with improved mental health, fewer chronic illnesses, higher self-rated health and decreased loneliness. (Augner, 2022). Nonetheless,

¹ Digital media and technologies mentioned in this article included Internet communications, such as websites, blogs, e-mail, search engines, i.e., Google and social media platforms, including Facebook, LINE, X, YouTube, Instagram, and TikTok applications. This keywords also included any electronic devices having Internet connectivity and access to social networking, such as smartphones, desktop computers, portable laptops, iPads and tablets.

information on the Internet comes from a variety of providers and sources that are difficult to control, which can lead to quality issues and the risk of circulating biased content based on the interests and purposes involved (Kim et al., 2023).

Even though, the elderly is one of the groups most likely to benefit from access to health information on the Internet, they continue to be one of the populations that struggle the most with digital health, compounding the digital divide and health inequities. The term “digital divide” refers to the gap that might exist between people who have access to and comprehend various technical tools and those who do not. As a result, strengthening abilities in looking for, comprehending and assessing online health information is essential (Augner, 2022; Xie & Mo, 2023; Wilson et al., 2021). Furthermore, during the lockdown period, many Thai elderly became victims of false fraud in order to obtain financial outcomes, such as sending fraudulent emails purporting to be from banks in order to deceive transactions. On the other hand, in certain circumstances, elderly persons have been unwittingly utilized as tools for propagating fake news with best wishes to elderly friends without carefully considering or verifying the sources whether the information are trustable or not (Foundation of the Thai Gerontology Research and Development Institute, 2021b).

As a consequence, eHealth literacy skills that included traditional literacy, computer literacy, information literacy, media literacy, health literacy and scientific literacy are required, particularly among the elderly, in order to seek, find, understand, as well as appraising holistic healthcare information from digital sources and finally applying such information to make appropriate health decisions, solving a health problem and apply it in their daily routine, for example, a regular and balanced diet, appropriate physical activity, abstinence, sufficient sleep, smoking cessation, vaccination, safe sex life, prevention of infectious diseases, cancer screening experience and positive thinking. (Brørs et al., 2020; Chen & Klein, 2023; Choi, 2021; Kim et al., 2023).

The ultimate goal of this academic work was therefore to conduct a literature review on the impact of media and digital technologies, as well as eHealth literacy abilities towards holistic healthcare practices, following that the researcher provided suggestions that could be applied for Thai elderly people, utilizing information from national and well-known global databases. Lastly, the findings of the study would serve to increase the literally use of digital technologies among Thai’s elderly both in terms of both policy and action plans.

Literature Review

Despite the fact that the elderly nowadays have greater access to digital media and technologies for holistic healthcare in physical, mental, social and spiritual dimensions (e.g., Choi, 2020; Han et al., 2021; Kleechaya, 2021; Peng et al., 2021; Sun et al., 2020). Elderly individuals should have eHealth literacy skills in order to determine how trustworthy the content they obtained from digital media is and considering how much it can be implemented in holistic healthcare practices (e.g., Jung et al., 2022; Kim et al., 2023; Xie et al., 2022; Wang et al., 2022). The researcher therefore revisited the concept of the holistic healthcare practices and the elderly, the concept of digital media and technologies and the holistic healthcare practices of the elderly, and the concept of eHealth literacy and holistic healthcare practices of the elderly. The specifics were as follows.

The Holistic Healthcare Practices and the Elderly

The holistic healthcare approach also discovered that one's psychological state might have an impact on one's physical health. Furthermore, a positive psychological state is necessary for psychological development. It benefits both cognitive performance and physical wellness. On the other hand, people who suffer from negative mental circumstances, such as depression, anxiety, boredom or discouragement found that their bodies would degenerate and cause major health issues (Kaewthep et al., 2013).

Holistic healthcare is a cognitive process that equips people to adapt and cope with changes that occur as they age in order to conduct themselves correctly in society. It may be stated that healthy aging of the elderly must include the ability to undertake everyday activities, such as changing his/her posture by standing up, sitting and standing motionless to maintain oneself healthy, socializing, communicating with neighbors and exchanging knowledge to improve their memory. Maintaining positive connections with family members and participating in community activities might also help seniors attain greater life satisfaction. In addition, other factors that contribute to healthy aging include self-care, living a simple, self-sufficient life and accepting that aging is a natural process that maintains good health. Coping with cognitive processes, stress relief, optimism and adherence to religious guidelines are also factors (Arayasajapong et al., 2021; Ruchiwi et al., 2021, Ruchiwi & Phanphairoj, 2022).

Holistic healthcare practice referred to patient-centered treatments and therapies that aim to meet the physical, mental, emotional and spiritual requirements of patients. Patient engagement is the fundamental objective of global healthcare intervention. It has three dimensions: 1) A behavioral dimension is what the patient behaves; 2) A cognitive dimension is what the patient thinks and understands; and 3) An emotional component is what the patient feels (Peng et al., 2021). In addition, holistic healthcare practice focused on a wellness method that addresses the physical, mental, social and spiritual aspects of health at the same time. Holistic healthcare practices rely on various disciplines, faiths, and civilizations to treat individuals, communities and even the environment (World Health Organization, 2022).

All components of holistic healthcare practices, including physical health, psychological health, social health, and spiritual health, are viewed as complete and interrelated (Issaradath, 2022; World Health Organization, 2022). The specifics are as follows.

1) Physical health denoted on the elderly's ability to preserve their physical health in the absence of illness; 2) Mental health entailed the ability of older people to manage their emotions and express themselves freely. It also includes capability of skillfully adjusting to the surrounding society and environment while being open to new experiences; 3) Social health focused on pleasant relationships with people; and 4) Spiritual health was characterized as the elderly's understanding and awareness of the meaning of life through religious beliefs and altering attitudes about sickness and life.

Nowadays, recent scholars concurrently shed light that digital media and technologies have enhanced access to online health information and an increasing amount of holistic healthcare practices (e.g., Choi, 2020; Han et al., 2021; Kleechaya, 2021; Peng et al., 2021; Peng et al., 2021; Sun et al., 2020). Furthermore, among the elderly, a higher perception of eHealth literacy abilities was connected with a higher level of concern for holistic healthcare (e.g., Jung et al., 2022; Kim et al., 2023; Xie et al., 2022; Wang et al., 2022). Likewise, in accordance with the findings of Arayasajapong's (2021), socioeconomic status is one of the most important indicators of the elderly's holistic healthcare practice, especially, those who are working and high-income groups also have a better sense of improve their holistic healthcare behavior.

As a result, in the next part, the researcher would discuss the concepts of media and digital technologies and the concept of eHealth literacy in order to explain whether or not the two factors were related to holistic healthcare practices in the elderly.

The Concept of Digital Media and Technologies and the Holistic Healthcare Practices of the Elderly

In the face of the COVID-19 pandemic, Asian elders are more ready and willing to accept digital technology than their Western counterparts. The report based on a poll indicated that roughly half of all respondents aged 60 and up in the Asia-Pacific area used X platform numerous times per day. 10% of senior persons surveyed in the region stated they possessed virtual reality headsets, which they used to explore the “metaverse,” an expanding galaxy of online activities heralded as the internet's next stage. As a result of the pandemic's lockdowns and other restrictions, many elderly people in Asia have had more opportunities to learn how to use various applications, technologies and social media platforms from their grandchildren, who have grown up in an environment where being online was their norm (NIKKEI Asia, 2022).

According to a survey of an Internet User Behavior conducted in Thailand in 2022 by Electronic Transactions Development Agency revealed that average total internet usage of Baby Boomers generation and above spend an average of 3 hours and 21 minutes every day. When compared to other generations, their average daily internet usage was the lowest. The elderly utilized the internet to communicate and converse (61.59%), followed by obtaining general news (50.68%), recreational activities (44.95%), government online services (21.74%), online financial transactions (16.19%), receiving online healthcare services (10.92%), assisting with work (10.53%), purchasing and selling products and services (9.27%), receiving online education services (5.04%), and making travel purchases (1.89%). The top five issues with using the internet were delays in connecting to use the internet (62.31%), followed by the number of annoying online advertisements (33.19%), insufficient internet services (31.95%), they were not convinced that the information on the internet would be authentic (fake news) (15.06%), and connecting to the internet was difficult or frequently disconnects (14.87%) (Electronic Transactions Development Agency, 2022).

Since COVID-19 pandemic, the seniors had to learnt how to use digital media tools in everyday lives in order to chat, make phone calls, order products and meals, and do financial transactions. This included communicating, gathering information and sharing through digital media applications, notably the LINE application. Many older individuals, however, continued to be restricted in their usage and access to technologies. Some elderly groups, for example, did not possess smartphones or some of them had smartphones but could not be used by themselves because no family member was available to teach them how to use it (Electronic Transactions Development Agency, 2021, 2022; Foundation of the Thai Gerontology Research and Development Institute, 2021a; Kokkinakis, 2022).

Nevertheless, many elderly persons have limited access to digital technologies and lack the skills required to properly utilize them. Even in developed countries, elderly persons living in nursing home may struggle to get the help they need to interact with their loved ones. Furthermore, the older population is extremely diverse in many ways, ranging from ability and age to income and culture and older people face numerous barriers, many of which are related to language and have been exacerbated by the pandemic. Therefore, employing a number of additional mass communication channels, such as radio broadcasts, television and text messaging, may ensure that vital information regarding protective measures is disseminated (Kokkinakis, 2022).

Meanwhile, Tyler et al. (2018) discussed that the following factors impact older people's usage of digital media and technologies:

- 1) Elderly people with strong perceived self-efficacy included those who are very knowledgeable about digital technologies. This may happen while they had been working and gaining confidence in using digital technologies by learning from professionals and receiving satisfied social feedback.

- 2) Digital ability which included knowledge and skills. A positive attitude toward the usage of digital technologies is also required. Furthermore, the capacity of the older individual to solve fundamental technologies challenges contributes to create a sense of pride.

- 3) Individual learning environment, such as a community of older persons interested in digital technologies, peers at the same age and descendants who help with understanding and utilizing digital technologies, in addition to digital gadgets, mobile computers and smart devices.

The systematic review on barriers and facilitators to the use of Internet by elderly noted by Sen et al. (2015) discovered that social support factors included promoting sharing joyous and anxious moments with family. Likewise, children, particularly reliable friends, play a crucial role in linking older people's Internet use and improving mental health. Furthermore, it was discovered social support has a substantial influence on the mental health and life happiness of senior Internet users. According to Wilson et al. (2021) study, as older persons spend more time online, their relationship with family and friends grows. Opportunities for senior individuals to communicate ideas are expanded through email contact or other forms, such as applications with conversation functions. It provides a chance for them to exchange thoughts, sentiments and concerns with family and friends. As a consequence, the elderly are happier in their life and have better mental health. This improves both life pleasure and mental well-being. The study also sheds light on older persons with health concerns or mobility limits might utilize the Internet network to reconnect with the society.

Although the use of digital media in health promotion has yielded some success in terms of generating support structures and networks for effective health behavior change, there are challenges and complications associated with digital media use that must also be addressed, especially managing misinformation and ensuring user privacy protections. While it is relatively straightforward to view digital media use as a universal communication channel. The risk of utilizing digital media is that it reduces access to health information among people who are not electronically connected, particularly the elderly group; the physically and mentally disabled and those with inadequate text, technical and eHealth literacy capabilities (Stellefnson et al., 2019).

Even while digital media and technology can help the elderly practice holistic health, the findings above were consistent with those of Kleechaya (2021); Wilson et al. (2021); Augner (2022), who proposed that whether exercising according to video clips in various applications, researching healthy eating and preparing for themselves, watching video clips or reading amusing content forwarded by friends or family members, listening to music and Dharma, purchasing and being a seller through online sites, communicate with friends and family members via LINE call and video call functions. In addition, aiding society by donating money to various charities or individuals in need via the agency's online portals, such as the Facebook fanpage. The challenges associated with the operation of digital health

platforms and user interface issues, such as tiny displays, text and graphics, represent a failure to recognize physical challenges associated with aging, such as decreased eyesight, hearing and memory, which may impede older people's participation.

The aforementioned findings were aligned with the studies of Smailhodzic et al. (2021) and Wilson et al. (2021) also demonstrated that older people may become overwhelmed by new information and alerts, as well as challenges related to adjusting or adapting the user interface to meet individual needs, posing barriers to adoption. Engagement, on the other hand, increases when e-health services are developed to address the needs of older people. E-health services with larger screens, such as a tablet or desktop/laptop, larger text size, audio features, notifications and curated content are very well received. Furthermore, by allowing users to connect, interact with, and contribute health information, digital media develops an environment that supports the aged. However, sharing health information on digital platforms can thrill and encourage others, but it can also facilitate the spread of harmful information.

Last but not least, another significant concern is elderly folks are frequently gullible victims of those who utilize incentives as enticement to use digital media. For example, pretending to have won the government lottery by clicking on a bogus link delivered by text message. Furthermore, it has been discovered that elderly people have spent more time on digital media since the COVID-19 outbreak, particularly during the lockdown period. As a result, they become victims of false fraud in order to get financial outcomes, such as sending fraudulent emails purporting to be from banks to deceive transactions, request private information, such as ID card number, password, credit card number, cheat to open the file and clicking the link to infiltrate the system. Besides, criminals can get access to user accounts and steal personal data. This can harm the system and information while also stealing personal data, such as account names, passwords, credit card numbers, and financial information. (Foundation of the Thai Gerontology Research and Development Institute, 2021b)

In summarize, even though digital technologies have inadvertently or intentionally become a part of health education and overall holistic healthcare practices. Social support, social pressure, and knowledge sharing in online groups all have the potential to influence health habits. If the impacts are beneficial and long-lasting, then social network technologies have the potential to improve the efficacy and efficiency of many public health efforts. However,

digital media alone may not be enough to promote holistic health practice. Conversely, inaccurate or misleading online health information may have unintended and potentially harmful consequences (Balatsoukas et al., 2015). Therefore, in the next part, researcher then revisited the concept of eHealth Literacy and holistic healthcare practices of the elderly.

The Concept of eHealth Literacy and Holistic Healthcare Practices of the Elderly

The concept of eHealth literacy was initially defined by Norman and Skinner (2006) as a person's ability to identify, seek, analyze and decide whether online health information sources are reliable or not. the following are the six fundamental components of the eHealth literacy model: 1) Traditional literacy component focused on the capacity of the audiences to decipher the meaning from symbols that appear in still photos, video clips, animation, sound effects, and numerous infographics utilized in communication, including interpretations of message which may not decipher literally; 2) Information literacy component was concerned with understanding how knowledge is arranged and how to locate and utilize information so that others may learn from them; a literate person is aware of the potential resources to consult or find information on a specific topic; 3) Media literacy component denoted on the capacity to evaluate how media formats influence the content that is communicated. This ability combines cognitive and critical thinking skills applied to media and its messages; 4) Health literacy component related to health system and self-care skills. Health-literate patients read, understand and act on health care information; 5) Computer literacy component pertained to the ability to use computers or other electronic devices to solve health problems. Computer literacy includes access to eHealth resources and the ability to adapt to new digital technologies and software; and 6) Scientific literacy component entailed understanding science-based online health information without being a science learner.

Afterwards, Brørs et al. (2020) expanded on this model during the COVID-19 epidemic in 2020 by specifying more details, such as users' ability to use various digital technologies fluently and apply them to themselves to manage, solve disease-related health concerns, or lead to appropriate health decisions. Especially the elderly and people with congenital diseases are at high risk if they are infected with COVID-19. eHealth media literacy skills are needed. It can be used as a guideline to help these vulnerable groups care for themselves and use health information gained through digital media to make proper health decisions and use it in their daily lives (Kokkinakis, 2022).

According to Levin-Zamir and Bertschi (2018), who stated that eHealth literacy skills involved more than just how people obtain health-related information on digital media. Rather, they were considered that individuals: 1) Have the ability to identify trustworthy health information from commercials; 2) Use analytical thinking to determine whether the message should be followed or not; and 3) Interact with the information obtained, such as by commenting on their own agreement or disagreement, believe or do not believe in receiving or displaying trustworthy health information.

Furthermore, Delello and McWhorter (2017) proposed that increasing older adults are able to enhance the access to health information and health self-management. However, in order to comprehend and verify information obtained through the Internet and other digital media, older persons must also possess eHealth literacy skills. The following criteria are associated with higher levels of eHealth literacy: 1) Computer features, including number of smart devices (such as smart phone, tablet, iPad and notebook) frequency of Internet use and more of those experiencing felt no stress when using a computer; 2) Social support, including married couple, family member, friends at the same, age and grandchildren may assist them in learning how to use digital technologies; 3) Health knowledge and attitudes, including general health literacy, decision-making involvement, and number of health information sources; and 4) Increase technological understanding and trust (Acury et al., 2020; Gordon & Hornbrook, 2018).

Methodology

In terms of article selection methods, researcher employed purposive sampling technique from research and academic articles published in widely recognized national and international databases in online format and available through Google scholar between 2019 and 2023 by using the following keywords: 1) Holistic healthcare, holistic health practices, holistic self-participatory care, holistic health behaviors, health-related behaviors, health promotion behaviors, health-promoting behaviors, healthy ageing, and self-care practices were all synonyms for “Holistic healthcare practices”; 2) Social media, digital media, digital technologies, Internet, electronic health, and digital divide were all synonyms for “Digital media and technologies”; 3) eHealth literacy and online health media literacy were all synonyms for “eHealth literacy”; and 4) The elderly, elder, older person, senior, and older adult were all synonyms for “The elderly”.

As illustrated in Figure 1, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was also applied as a guideline to assist the researcher in identifying literature for reviewing stages, such as identification, screening, eligibility and inclusion.

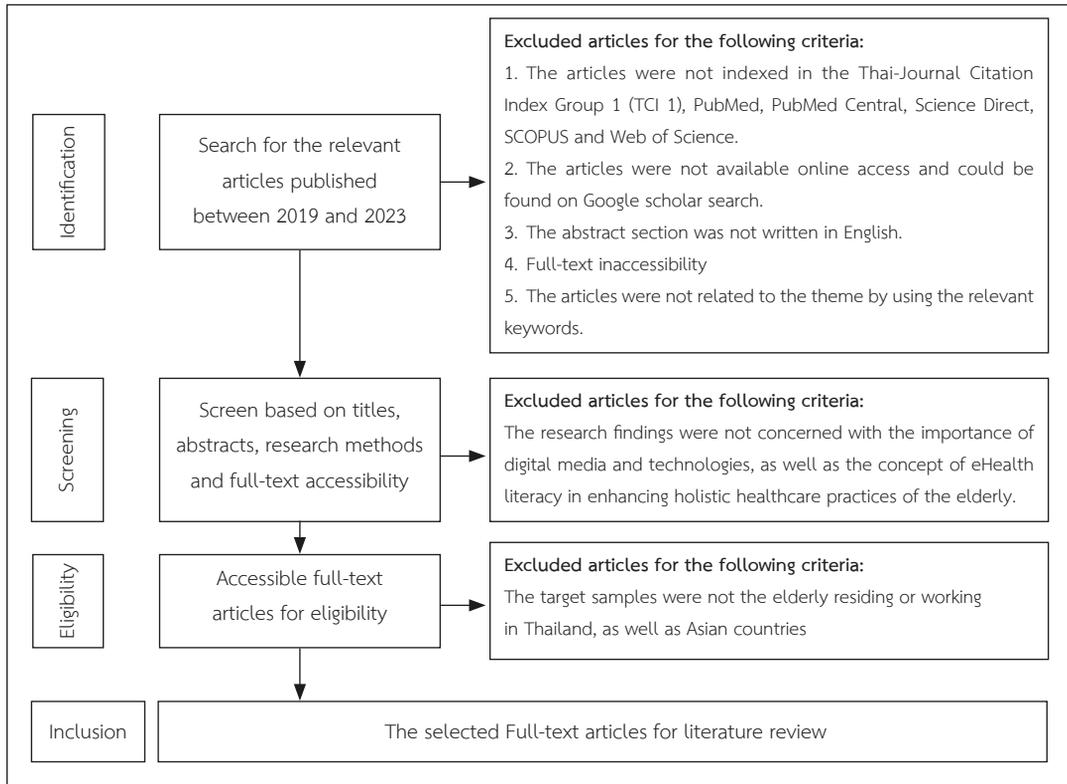


Figure 1: Flow Chart Diagram for Literature Review

Lastly, a total of selected 16 research and academic publications were chosen because they met the inclusion requirements (i.e., Arayasajapong et al., 2021; Choi, 2020; Detthippornpong et al., 2022; Fu & Xie, 2021; Issaradath, 2022; Jung et al., 2022; Kachentawa, 2019; Kim et al., 2023; Kleechaya, 2021; Peng et al., 2021; Ruchiwi et al., 2021, Ruchiwi & Phanphairoj, 2022; Sun et al., 2020; Wang et al., 2022; Xie et al., 2022; Xie & Mo, 2023).

Result

The researcher divided the analyzed results into two sections which were supported by the selected 16 research and academic publications met the inclusion criteria: 1) Digital Media and Technologies and the Holistic Healthcare Practices of the Elderly; and 2) eHealth Literacy and Holistic Healthcare Practices of the Elderly, which were discussed further below.

Digital Media and Technologies and the Holistic Healthcare Practices of the Elderly

The relevant research and academic articles proved that the role of media and digital technologies had an effect on elderly's holistic healthcare practices. The following findings support the explanations. According to Peng et al. (2021), who conducted research on older persons undergoing cardiac catheterization in Taiwan, the more senior people knew how to get and use health information online to care for themselves, the better their physical, spiritual and emotional well-being. Furthermore, Fu and Xie. (2021), who collected data from Chinese older persons, discovered a linkage between the elderly's usage of digital media platforms, namely the Internet and social media, such as smartphones and computers, and holistic healthcare behavior. According to the study's findings, older people who used social media frequently had better physical and mental health than those who did not use it or used it occasionally. If social media met their emotional needs. Older adults would have a great desire to communicate with their family members and friends.

Meanwhile, Choi (2020), who conducted a study on the senior people living in Chuncheon province, the Republic of Korea, revealed a relationship between 1) eHealth use- posting on online bulletin boards, joining health information groups and looking for health information; and 2) Social support- knowledge that can be used to solve personal problems. Personal responsibility, physical exercise, nutrition, spiritual growth, interpersonal relationships and stress management were all connected to health-promoting activities. As a result, Sun et al. (2020), who gathered data from the elderly citizen living in Heilongjiang province, China, revealed that health self-efficacy exhibited the greatest difference in older individual's health-promoting actions. The activities of the elderly on the Internet and digital health technologies, including smart bracelets- a mobile health-monitoring gadget that can automatically gather data on the user's activities and health, such as sleep quality and heart rate might provide a varied range of activities and allow them to retain physical health, social relationships and lessen feelings of social isolation.

Nonetheless, researchers conducting research in Thailand and mainland China have concurrently discovered that, despite being one of the demographics most likely to benefit from Internet access to obtain health information, the elderly remained one of the demographics that struggle the most with digital health, exacerbating the digital divide

and health disparities between those who had access to, and the ability to understand diverse technological resources, and those who do not had access to and comprehended different technological tools (Kleechaya, 2021; Xie & Mo, 2023).

For the context of Thai elderly, Detthippornpong et al. (2022), who conducted research on the homebound older adults living in a rural area in Southern Thailand, implied that the elderly utilized smartphone and surfed the Internet for fresh information about herbs, workouts and other health-related topics. They also incorporated new habits they learnt from digital media into their daily routine to maintain the wellness of their body, mind and spirit. Furthermore, in accordance with Thai traditional medicine, the elderly relied on themselves, family and community assistance to preserve both physical and mental health. Similarly, the importance of religious ideals also influenced holistic healing methods.

This was consistent with Kachentawa (2019), who collected data from the elderly who lived or working in Bangkok and its vicinity reported that the elderly preferred to utilize digital media, especially LINE application since the elderly commonly used to send messages, images, or video clips to take care of the elderly's health. Similarly, they were able to search Google for information on herbs that were favorable to health and may treat early symptoms, such as herbs that helped reduce sugar and low-density lipoprotein (LDL) or bad cholesterol in the bloodstream. Furthermore, some older individuals were capable of using their smartphones to shoot video clips while dancing, which they could subsequently upload to YouTube and share with others via LINE application. However, if fake news were spread through the LINE group, both public health specialists and the elderly leaders in the community would work together to verify the message in LINE group. If they felt the message was untrue, they were required to notify by public health specialists first, they would be admonished not to send it again or used unsend option in the private chat room.

According to Kleechaya's (2021) findings who conducted a study on the individuals approaching retirement age was 50-59 years old and the senior group was 60-70 years old in six areas across the nation, namely the North, Central, Northeast, East, South, Bangkok and its vicinity, the elderly used digital technologies and platforms in various ways, including pursuing hobbies, participating in community activities, such as exercising with music or dancing, conducting financial transactions, purchasing on the Internet, going live to contact friends

on meeting occasion, chatting, posting, and sharing still and motion pictures through chat applications. It was also revealed that the elderly used health-related technologies, such as Google or YouTube searches or getting health information on a topic of personal interest through the LINE application. They also used them for entertainment, such as watching movies or listening to music and Dharma, as well as keeping up with current events. In addition, they were utilized to generate and upload material on Facebook and YouTube based on their own knowledge. Some seniors believed in their efficacy to use social media until they could utilize Facebook live function to sell items and generate income for themselves. Meanwhile, Issaradath (2022), who examine the studies and the role of Thai government institutions in encouraging holistic health practices among the elderly found that, as a result of the COVID-19 pandemic, the elderly had to learn how to utilize digital technologies in daily life, such as purchasing items and doing financial transactions, as well as in order to decrease their exposure to the disease. Further, Buddhist precepts known as the “Four Bhavana” were used to enhance holistic healthcare practices. the Four Bhavana accentuated on a relationship in all four dimensions: 1) Body dimension, such as eating, sleeping, relaxing, exercising and working; 2) Social dimension, such as having smooth interactions with people, family, relatives or communities; 3) Spiritual dimension, such as prayer and mental relaxation. It brings forth serenity, joy, light, compassion and encouragement; and 4) Cognitive dimension is altering people’s views toward sickness, death, and life in order to let go of attachment and be free of life’s unpredictability.

Aside from digital media and technologies, seniors might benefit by maintaining holistic healthcare practices with family members and participating in community activities. According to the Thai scholars (Arayasajapong et al., 2021; Ruchiwi et al., 2021, Ruchiwi & Phanphairoj, 2022), who conducted a study on older adults living in the central region of Thailand and Khon Kaen Province, discovered that other factors contributed to holistic healthcare practices included perceived self-efficacy, self-care, living a simple, self-sufficient life and accepting that aging was a natural process that maintained good health. Coping with cognitive processes, stress alleviation, optimism and adherence to religious guidelines, as well as socioeconomic positions of those working and high-income groups were also factors that contributed to holistic healthcare practices.

eHealth Literacy and Holistic Healthcare Practices of the Elderly

eHealth literacy skills affected the elderly's holistic healthcare practices. The following findings support the explanations. Kim et al. (2023), who investigated on publications published up to March 19, 2021, appeared in the databases of the MEDLINE, Embase, Cochrane, KoreaMed and Research Information Sharing Service. The majority of them were published in South Korea, followed by Taiwan and China, respectively. They were discovered that eHealth literacy had moderately significant positive associations with health-related behaviors, including a regular and balanced diet, appropriate physical activity, adequate sleep, abstinence, smoking cessation, vaccination, safe sex life, infectious disease prevention, cancer screening experience, and positive thinking characteristics. Nonetheless, information on the Internet came from a wide range of providers and sources that were impossible to manage, which could lead to quality difficulties and the possibility of disseminating biased content based on the interests and intentions of those involved. Meanwhile, Xie et al. (2022), who performed a study among Chinese older persons, verified that eHealth literacy was associated with improved holistic healthcare outcomes for the elderly: 1) Behavioral outcome, which included health-promoting activities, self-care and medication adherence; 2) Cognitive outcome, which included health knowledge and health decision making; 3) Physical outcome, which included health-related quality of life; and 4) Psychological outcome, which included anxiety and self-efficacy.

Meanwhile, Jung et al. (2022), who studied on the article using concept of eHealth literacy appeared in Korean and English studies. For English literature, PubMed, the Cumulative Index to Nursing and Allied Health Literature, Excerpta Medica database and Cochrane search engine advocated that eHealth literacy in older people could increase their capacities to apply newly obtained knowledge to address and solve health-related problems, chronic disease management, lifestyle adjustments and developing self-management abilities were examples of these activities. Lastly, Wang et al. (2022), who performed a study on older adults living in Northeastern China, confirmed that eHealth literacy positively influenced the elderly's health-promoting behaviors, such as health responsibility, stress management, dietary, physical exercise, interpersonal interactions and spiritual growth. Furthermore, eHealth literacy, along with self-efficacy and self-care competence, has played an important impact in increasing health promotion behaviors.

In conclusion, researchers could infer from their studies of the literature that although there was no research study on eHealth literacy and its influence on holistic health care practices have been undertaken in Thailand. The researcher noted that traditional medicine and religious beliefs, such as the “Four Bhavana” Buddhist precept, influenced holistic healthcare practices in Thailand that differed from other Asian countries, and were used to promote holistic healthcare practices among older Thai Buddhists. Besides, social support from family members, participation in community activities, living simply, self-sufficiency and the socioeconomic statuses of those in the working and high-income categories were all factors addressed.

Discussion

The elderly’s holistic healthcare practices, whether physical, mental, social, and spiritual health dimensions were influenced by media and digital technologies, such as Facebook, WhatsApp, YouTube, X and Instagram. Furthermore, the elderly utilized media and digital technologies more frequently, they would have greater eHealth literacy abilities, which would eventually lead to holistic healthcare practices. The findings were consistent with the findings of Tylor et al. (2018), who addressed how older persons with high perceived self-efficacy are quite informed about digital technologies may have happened while they had memorable experiences while they had been working.

Apart from digital media and technologies, seniors might benefit from practicing holistic healthcare with family members and participating in community activities. According to Sen et al. (2015), who noted that social support aspects, including encouraging and sharing enjoy moments, delight, and anxiety with family. Likewise, youngsters, particularly trusted friends, play a significant role in connecting older people’s Internet use and mental health. Furthermore, according to Fu and Xie (2021), who found social support is revealed to have a significant effect on the mental physical health of elderly Internet users. As a result, the elderly are happier in life and have better mental health. These increase both life enjoyment and mental well-being.

Nonetheless, there were still issues with the digital divide between the elderly who had access to and those who did not have access to digital media and technologies. Besides, forwarding and sharing fake news through chat applications. Older people with eHealth literacy abilities would be able to better examine and choose forward online health information from reputable sources. This finding was in agreement with Augner (2022), who stated that initiatives for increasing the capacities of elderly persons to use computers and the internet may help bridge the gap of digital divide. Meanwhile, Wilson et al. (2021) contributed to utilize larger screens, larger font size, audio features, notifications and curated content. Furthermore, Kokkinakis (2022) advocated for the use of a variety of mass media channels, including as radio broadcasts, television and text messaging to guarantee that critical information about healthcare is distributed to the elderly.

In terms of eHealth literacy and holistic healthcare practices of the elderly discovered that six eHealth literacy skills, comprising traditional, computer, information, media, health and scientific literacy abilities were shown to be connected with the elderly's holistic healthcare practices. Furthermore, eHealth literacy in older people might improve their abilities to use newly acquired information to address and solve health-related problems, such as chronic illness management, smoking cessation, vaccination, safe sex life, infectious disease prevention and cancer screening experience as well. These findings were aligned with Norman and Skinner (2006) and Brørs et al. (2020), who concurrently proposed that eHealth literacy skills are able to be used as a guideline to assist the elderly group in taking care of themselves and using health information obtained from digital media to make appropriate health decisions, solve disease-related health concerns, and finally apply it in their everyday lives. Furthermore, Delello and McWhorter (2017); Gordon & Hornbrook, (2018); Acury et al. (2020) denoted on improving older persons' access to digital media and technologies, supporting them in learning how to use digital technologies from a married couple, family members or peers at the same age, as well as increasing technological comprehension and confidence would improve their eHealth literacy abilities and also reduced digital inequality.

Although the use of digital media in health promotion for the elderly has had some success in terms of generating support structures and networks for effective health behavior change. Nevertheless, information on the Internet comes from an unmanageable variety of suppliers and sources, which might lead to quality issues and the risk of propagating biased content based on the interests and purposes of individuals engaged. This finding was in line with Balatsoukas et al. (2015) and Stellefnson et al. (2019), who both agreed that there are some challenges and complications associated with digital media use that must be addressed, specifically managing misinformation and ensuring user privacy protections among those who are not technologically connected, particularly the elderly. As a result, eHealth literacy skills are essential in identifying reputable internet sources to employ for maintaining proper healthcare habits.

Conclusion and Recommendations

The role of digital media and technologies, including eHealth literacy aspects has influenced on elderly's holistic healthcare practices, notably during the recent COVID-19 epidemic when they were compelled to learn and use digital media more extensively. Nevertheless, the digital divide between seniors with and without gadgets that can connect to media and digital technologies remained an issue. Furthermore, there was the issue of unintentional propagation of fake news via chat applications, both in terms of who received and sent such content. Several studies have noticeably confirmed that factors other than digital media and technologies influenced senior people's holistic healthcare practices. The perception of self-efficacy and social support were revealed to be common features among Thai seniors and other Asian countries. Nonetheless, in the Thai geriatric environment, the elements influencing holistic healthcare practices in Thailand that differed from other Asian countries were adherence to religious guidelines, such as Traditional medication and Buddhist principles which were used to promote holistic healthcare practices among them. Factors considered were social support from family members, participating in community activities, optimism, living simply, self-sufficiency and socioeconomic statuses of those working and high-income groups.

Lastly, after synthesizing 16 publications, the researcher created the following model that might be applied with senior citizens in Thailand as illustrated in Figure 2.

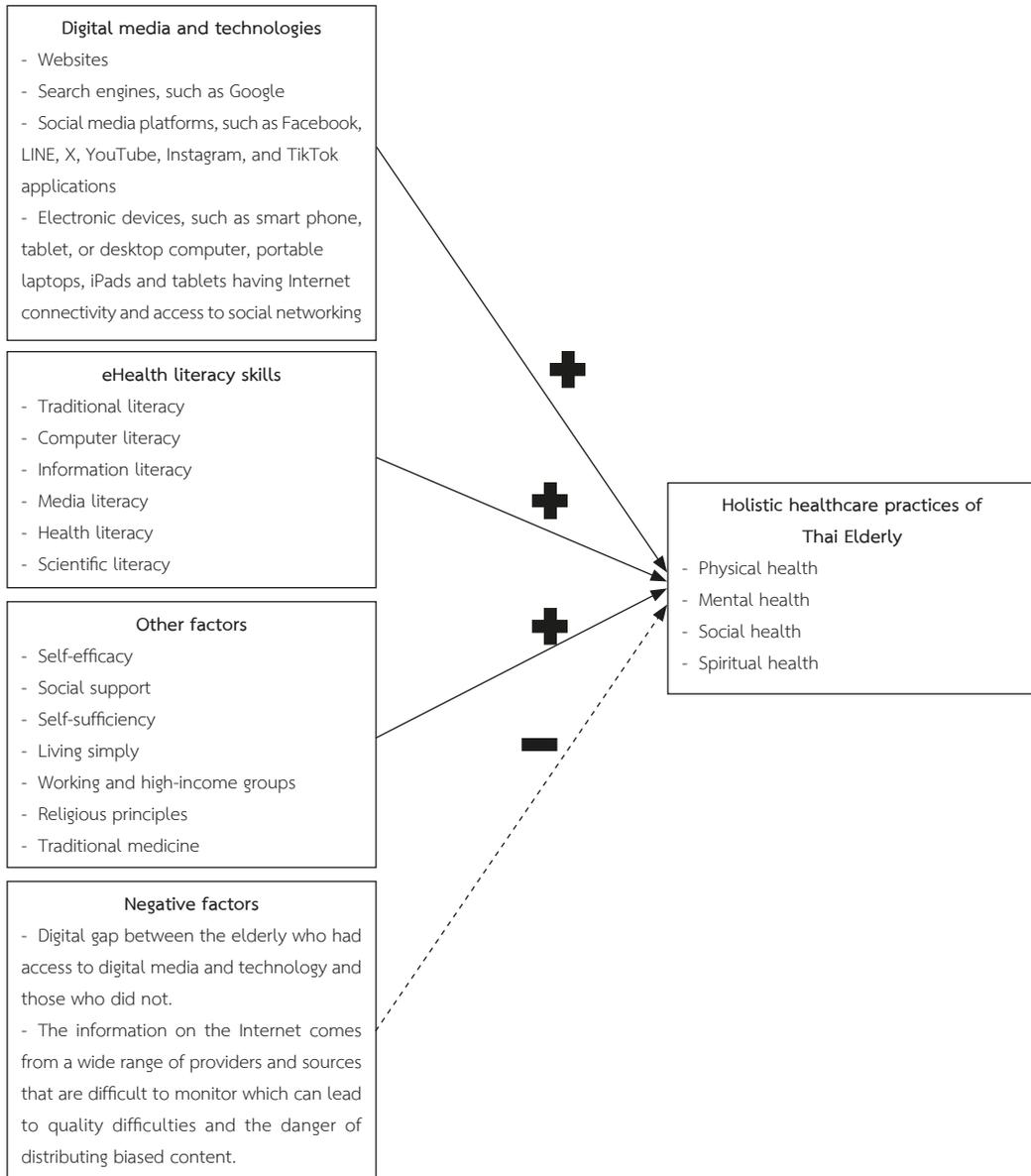


Figure 2: The Synthesized Model That Might Be Applied with Senior Citizens in Thailand

Note. —————▶ stands for Positive factors▶ stands for Negative factors

This study shed light on the critical components that health care practitioners should focus on when developing programs to promote holistic healthcare practice, as well as eHealth literacy skills for Thai senior citizens, which should be included in the National Senior Development Plan in order for relevant authorities, such as media and digital technology design agencies and academic institutions to take further action, specifically designing usage functions of applications that are more friendly and accommodating to the elderly, such as larger screens, larger font size, audio features, notifications and curated content, providing the elderly with access to smart devices and how to be on alert for various online scams, both in terms of receiver and sender such content. Not only the use of digital media in geriatric health promotion has had some success in terms of developing support structures and networks for effective health behavior change but also the digital divide between the elderly between who had access to digital media and technology and those who did not, as well as the fact that information on the Internet comes from a diverse range of providers and sources that are difficult to monitor can lead to quality issues and the risk of distributing biased content remain issues.

This synthesized model, however, differs from the model developed in prior research due to the fact that it is a combination of the role of social media and digital technologies, eHealth literacy abilities, including caution factors in using digital media and technology for health promotion among the elderly that would assist develop holistic healthcare behavior among the elderly. Nevertheless, this synthesized model would serve as a guideline for the general public or those approaching the senior to prepare themselves, as well as a driving force for policies that promote holistic healthcare behaviors in an aging society.

Limitation

In this academic paper, the author focused on delivering findings from a synthesis of Thai and worldwide research from Asian countries. It was both a documentary study and a secondary data source. In addition, little study has been conducted on the association between eHealth literacy and the promotion of holistic healthcare practices among the elderly. Not to mention that there was currently no research article on the subject in Thailand. As a result, the research findings could be used to develop a theoretical framework for holistic healthcare communication with the elderly. Likewise, it was also a preliminary conceptual framework that would be used in the future to investigate and analyze the role of digital media and technologies, as well as eHealth literacy abilities in the elderly's holistic healthcare practices in order to obtain comprehensive knowledge.

References

- Arcury, T. A., Sandberg, J. C., Melius, K. P., Quandt, S. A., Leng, X., Latulipe, C., Miller, D. P., Jr, Smith, D. A., & Bertoni, A. G. (2020). Older adult internet use and eHealth literacy. *Journal of Applied Gerontology: The Official Journal of the Southern Gerontological Society*, 39(2), 141-150. doi: 10.1177/0733464818807468
- Arayasajapong, W., Pinagalung, S., Srisuruk, P., Paholpak, S., & Mongput, K. (2021). Factors related to healthy aging among older persons. *The Journal of Behavioral Science*, 16(3), 59-71.
- Augner, C. (2022). Digital divide in elderly: Self-rated computer skills are associated with higher education, better cognitive abilities and increased mental health. *The European Journal of Psychiatry*, 36(3), 76-181. doi.org/10.1016/j.ejpsy.2022.03.003
- Balatsoukas, P., Kennedy, C. M., Buchan, I., Powell, J., & Ainsworth, J. (2015). The Role of Social network technologies in online health promotion: A narrative review of theoretical and empirical factors influencing intervention effectiveness. *Journal of Medical Internet Research*, 17(6), e141. doi: 10.2196/jmir.3662
- Bujnowska-Fedak, M. M., & Węgierek, P. (2020). The impact of online health information on patient health behaviours and making decisions concerning health. *International Journal of Environmental Research and Public Health*, 17(3), 880. doi: 10.3390/ijerph17030880
- Brørs, G., Norman, C. D., & Norekvål, T. M. (2020). Accelerated importance of eHealth literacy in the COVID-19 outbreak and beyond. *European Journal of Cardiovascular Nursing*, 19(6), 458-461. doi.org/10.1177/1474515120941307
- Choi, M. (2020). Association of eHealth use, literacy, informational social support, and health-promoting behaviors: Mediation of health self-efficacy. *International Journal of Environmental Research and Public Health*, 17(21), 7890. doi: 10.3390/ijerph17217890
- Detthippornpong, S., Songwathana, P., & Bourbonnais, A. (2022). Holistic health practices of rural Thai homebound older adults: A focused ethnographic study. *Journal of Transcultural Nursing: Official Journal of the Transcultural Nursing Society*, 33(4), 521-528. doi: 10.1177/10436596221090270

- Electronic Transactions Development Agency. (2022). *Thailand internet user behavior 2022*.
Electronic Transactions Development Agency. (in Thai)
- Foundation of the Thai Gerontology Research and Development Institute. (2021a). *Only 12.9 percent of low-income older adults have access to digital technology to keep up with news*. Retrieved May 5, 2023, from <https://thaitgri.org/?p=39879>. (in Thai)
- Foundation of the Thai Gerontology Research and Development Institute. (2021b). *Discussion forum: Fake news with the older adults who know how to keep up with media safely. Coherently agree that the older adults did not check the information before sharing*. Retrieved May 5, 2023, from <https://thaitgri.org/?p=39755>. (in Thai)
- Delello, J. A., & McWhorter, R. R. (2017). Reducing the digital divide: Connecting older adults to iPad technology. *Journal of Applied Gerontology: The Official Journal of the Southern Gerontological Society*, 36(1), 3-28. doi: 10.1177/0733464815589985
- Fu, L., & Xie, Y. (2021). The effects of social media use on the health of older adults: An empirical analysis based on Chinese general social survey. *Healthcare (Basel)*, 9(9), 1143. doi: 10.3390/healthcare9091143
- Gordon, N. P., & Hornbrook, M. C. (2018). Older adults' readiness to engage with eHealth patient education and self-care resources: A cross-sectional survey. *BMC Health Services Research*, 18(1), 220. doi: 10.1186/s12913-018-2986-0
- Han, M., Tan, X. Y., Lee, R., Lee, J. K., & Mahendran, R. (2021). Impact of social media on health-related outcomes among older adults in Singapore: Qualitative study. *Journal of Medical Internet Research Aging*, 4(1), e23826. doi: 10.2196/23826
- Issaradath, W. (2022). Elderly and holistic health care. *Journal of Social Science and Buddhist Anthropology*, 7(12), 147-161. (in Thai)
- Jung, S.O., Son, Y.H., & Choi, E. (2022). E-health literacy in older adults: An evolutionary concept analysis. *BMC Medical Informatics and Decision*, 22(28), 1-13. doi.org/10.1186/s12911-022-01761-5
- Kachentawa, K. (2019). Causal model analysis of communication factors affecting holistic healthcare behavior of the elders. *Academic Journal of Humanities and Social Sciences Burapha University* 27(54), 22-47. (in Thai)

- Kachentawa, K. (2023). The development of E-health literacy indicators for older Thai adults in adjusting to live with the new normal lifestyle. *The Journal of Behavioral Science*, *18*(1), 49-64.
- Kaewthep, K., Nilphueng, R., & Jenjad, R. (2013). *Communication, food, health*. The Thailand Research Fund. (in Thai)
- Kim, K., Shin, S., Kim, S., & Lee, E. (2023). The relation between eHealth literacy and health-related behaviors: Systematic review and meta-analysis. *Journal of Medical Internet Research*, *25*, e40778. doi: 10.2196/40778
- Kleechaya, P. (2021). Digital technology utilization of elderly and framework for promoting Thai active and productive aging. *Journal of Communication Arts*, *39*(2), 56-78. (in Thai)
- Kokkinakis, D. (2022). eHealth literacy and capability in the context of the pandemic crisis. In H. F. Erhag, U. L. Nilsson, T. R. Sterner, & I. Skoog (Eds), *A Multidisciplinary Approach to Capability in Age and Ageing* (pp. 109-129). Springer.
- Kumar, R., Singh, A., Mishra, R., Saraswati, U., Bhalla, J., & Pagali, S. (2022). A review study on the trends of psychological challenges, coping ways, and public support during the COVID-19 pandemic in the vulnerable populations in the United States. *Frontiers in Psychiatry*, *13*, 920581. doi: 10.3389/fpsyt.2022.920581
- Levin-Zamir, D., & Bertschi, I. (2018). Media health literacy, eHealth literacy, and the role of the social environment in context. *International Journal of Environmental Research and Public Health*, *15*(8), 1643. doi: 10.3390/ijerph15081643
- NIKKEI Asia. (2023). *'Digital seniors' emerge in Asia amid pandemic, Euromonitor says*. Retrieved May 10, 2023, from <https://asia.nikkei.com/Economy/Digital-seniors-emerge-in-Asia-amid-pandemic-Euromonitor-says>
- Norman, C. D., & Skinner, H. A. (2006). eHealth literacy: Essential skills for consumer health in a networked world. *Journal of Medical Internet Research*, *8*(2), e9. doi: 10.2196/jmir.8.2.e9.
- Office of the National Economic and Social Development Council. (2022). *The 13th National Economic and Social Development Plan (2022-2026)*. Office of the National Economic and Social Development Council. (in Thai)

- Patcharanuruk, T. (2005). *Medical sociology*. OS Design & Printing. (in Thai)
- Peng, J. R., Su, H. C., Lin, C. P., Chen, C. C., Chang, C. J., Gong, S. L., & Chu, P. H. (2021). Role of an e-Health intervention in holistic healthcare: A quasiexperiment in patients undergoing cardi catheterization in Taiwan. *Journal of Healthcare Engineering*, 2021, 6692952. doi.org/10.1155/2021/6692952
- Ruchiwit, M., Phanphairoj, K., Sumneangsantor, T., & Mamom, J. (2021). The factors of the holistic health status of Thai elders in the 21st century. *Current Aging Science*, 14(1), 19-25. doi: 10.2174/1874609813666200131123537
- Ruchiwit, M., & Phanphairoj, K. (2022). The holistic health status of older adults in Thailand. *Ageing International*, 47(2), 1-12. doi.org/10.1007/s12126-021-09421-1
- Sen, K., Prybutok, G., & Prybutok, V. (2021). The use of digital technology for social wellbeing reduces social isolation in older adults: A systematic review. *SSM-Population Health*, 17, 101020. https://doi.org/10.1016/j.ssmph.2021.101020
- Smailhodzic, E., Boonstra, A., & Langley, D. J. (2021). Social media enabled interactions in healthcare: Towards a taxonomy. *Social Science & Medicine (1982)*, 291, 114469. doi: 10.1016/j.socscimed.2021.114469
- Stellefson, M., Paige, S. R., Alber, J. M., Chaney, B. H., Chaney, D., Apperson, A., & Mohan, A. (2019). Association between health literacy, electronic health literacy, disease-specific knowledge, and health-related quality of life among adults with chronic obstructive pulmonary disease: Cross-sectional study. *Journal of Medical Internet Research*, 21(6), e12165. doi: 10.2196/12165
- Sun, X., Yan, W., Zhou, H., Wang, Z., Zhang, X., Huang S., & Li, L. (2020). Internet use and need for digital health technology among the elderly: A cross-sectional survey in China. *BMC Public Health*, 20(1), 1386. doi.org/10.1186/s12889-020-09448-0
- Tyler, M., Simic, V., & De George-Walker, L. (2018). Older adult Internet super-users: Counsel from experience. *Activities, Adaptation & Aging*, 42(4), 328-339. doi.org/10.1080/01924788.2018.1428472
- Wang, Y., Song, Y., Zhu, Y., Ji, H., & Wang, A. (2022). Association of eHealth literacy with health promotion behaviors of community-dwelling older people: The chain mediating role of self-efficacy and self-care ability. *International Journal of Environmental Research and Public Health*, 19(10), 6092. doi:10.3390/ijerph17072263

- Wilson, J., Heinsch, M., Betts, D., Booth, D., & Kay-Lambkin, F. (2021). Barriers and facilitators to the use of e-health by older adults: A scoping review. *BMC Public Health* 21, 1556. doi.org/10.1186/s12889-021-11623-w
- World Health Organization. (2021). *Global strategy on digital health 2020-2025*. World Health Organization.
- World Health Organization. (2022). *Health and well-being*. Retrieved May 10, 2023, from <https://www.who.int/data/gho/data/major-themes/health-and-well-being>
- World Health Organization. (2023a). *Ageing and health*. Retrieved May 10, 2023, from <https://www.who.int/southeastasia/news/feature-stories/detail/thailands-leadership-and-innovation-towards-healthy-ageing>
- World Health Organization. (2023b). *Thailand's leadership and innovations towards healthy ageing*. Retrieved May 10, 2023, from <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>
- Xie, L., & Mo, P. K. H. (2023). Comparison of eHealth literacy scale (eHEALS) and digital health literacy instrument (DHLI) in assessing electronic health literacy in Chinese older adults: A mixed-methods approach. *International Journal of Environmental Research and Public Health*, 20(4), 3293. doi: 10.3390/ijerph20043293
- Xie, L., Zhang S., Xin, M., Zhu, M., Lu, W., & Mo, P. K. (2022). Electronic health literacy and health-related outcomes among older adults: A systematic review. *Preventive Medicine*, 157(1), 106997. doi: 10.1016/j.ypmed.2022.106997.